## Fairbanks Campus Academic Calendar

### Fall Semester

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<tr>
<th>Event</th>
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<td>Labor Day</td>
<td>Mon., Sept. 3</td>
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<tr>
<td>Early Orientation for New Students</td>
<td>Tues.-Wed., Sept. 4-5</td>
<td>Tues.-Wed., Sept. 3-4</td>
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<tr>
<td>Registration materials and advisers available</td>
<td>Tues.-Wed., Sept. 4-5</td>
<td>Tues.-Wed., Sept. 3-4</td>
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<tr>
<td>Registration: course selection</td>
<td>Thurs.-Fri., Sept. 6-7</td>
<td>Thurs.-Fri., Sept. 5-6</td>
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<td>Registration: fee payment</td>
<td>Mon.-Fri., Sept. 10-14</td>
<td>Mon.-Fri., Sept. 9-13</td>
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<td>First day of instruction</td>
<td>Mon., Sept. 10</td>
<td>Mon., Sept. 9</td>
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<tr>
<td>Last day of late registration</td>
<td>Fri., Sept. 14</td>
<td>Fri., Sept. 13</td>
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<tr>
<td>Last day to apply for fall graduation</td>
<td>Mon., Oct. 15</td>
<td>Tues., Oct. 15</td>
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<tr>
<td>Mid-term grades for freshmen due</td>
<td>Oct. 17-31</td>
<td>Oct. 16-30</td>
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<tr>
<td>Last day for student-initiated withdrawals</td>
<td>Tues., Nov. 6</td>
<td>Tues., Nov. 5</td>
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<tr>
<td>Thanksgiving holidays</td>
<td>Thurs.-Sun., Nov. 22-25</td>
<td>Thurs.-Sun., Nov. 28-Dec. 1</td>
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<tr>
<td>Last day of instruction</td>
<td>Tues., Dec. 11</td>
<td>Tues., Dec. 10</td>
</tr>
<tr>
<td>Study day</td>
<td>None</td>
<td>Wed., Dec. 11</td>
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<tr>
<td>Grades due to Admissions and Records</td>
<td>3 p.m., Wed., Dec. 19</td>
<td>3 p.m., Wed., Dec. 20</td>
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### Spring Semester

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<td>Registration materials and advisers available</td>
<td>Mon., Jan. 14</td>
<td>Mon., Jan. 13</td>
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<tr>
<td>First day of instruction</td>
<td>Thurs., Jan. 17</td>
<td>Thurs., Jan. 16</td>
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<tr>
<td>Last day of late registration</td>
<td>Wed., Jan. 23</td>
<td>Wed., Jan. 22</td>
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<tr>
<td>Last day to apply for spring graduation</td>
<td>Fri., Feb. 15</td>
<td>Fri., Feb. 14</td>
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<tr>
<td>Mid-term grades for freshmen due</td>
<td>Feb. 25-Mar. 9</td>
<td>Feb. 24-Mar. 6</td>
</tr>
<tr>
<td>Spring recess</td>
<td>Mon.-Sun., Mar. 11-17</td>
<td>Mon.-Sun., Mar. 9-15</td>
</tr>
<tr>
<td>Last day for student-initiated withdrawal</td>
<td>Fri., Mar. 22</td>
<td>Fri., Mar. 20</td>
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<tr>
<td>All Campus Day (no classes)</td>
<td>Fri., Apr. 19</td>
<td>Fri., Apr. 17</td>
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<tr>
<td>Last day of instruction</td>
<td>Fri., Apr. 26</td>
<td>Fri., Apr. 24</td>
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<tr>
<td>Final examinations</td>
<td>Mon.-Thurs., Apr. 29-May 2</td>
<td>Mon.-Thurs., Apr. 27-30</td>
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<td>Commencement</td>
<td>Sun., May 5</td>
<td>Sun., May 3</td>
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<tr>
<td>Grades due to Admissions and Records</td>
<td>3 p.m., Wed., May 8</td>
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*Academic calendars for UAF's branch campuses can be found on Page 8.*
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

How to Use 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, 310 Signers' ... 474-7404
Admissions and Records, 1st floor Signers' Hall ... 474-7521
From within Alaska ...................................... (800)478-1UAF
Advising Center, 5th floor Gruening ...................... 474-6936
Agricultural and Forestry Experiment Station, ... 309 O'Neill 474-7188
Agriculture and Land Resources Management, ... School of, 309 O'Neill 474-7188
Alaska Native Human Resource Development Program, 707 A Street, Room 205, Anchorage, AK 99501. 272-6251
Alaska Teacher Placement, M-B-S Complex ............ 474-6844
Alumni Relations, 201 Constitution Hall .............. 474-7081
Arctic Biology, Institute of, 311 Irving ................. 474-7468
Associated Students of the University of Alaska ... Fairbanks, Wood Center 474-7355
Athletics and Recreation, Patty Center ................ 474-7205
Bookstore, 2nd floor Constitution Hall ................ 474-7348
Bristol Bay Campus, Box 1070, Dillingham, AK 99576 852-5483
Business Office, 1st floor Signers' Hall ............... 474-7551
Career and Continuing Education, School of, ... Downtown Center 451-7223
Career Planning and Placement, 5th floor Gruening 474-7596
Chancellor's Office, 3rd floor Signers' Hall ............ 474-7112
Chukchi Campus, Box 207, Kotzebue, AK 99752 442-3400
Clubs and Organizations, Wood Center ............... 474-6027
Conferences and Institutes, 117 Eielson ............... 474-7400
Operative Extension Service, Arctic Health 474-7246
Research Building .................................... Delta Greely Center, Box 412, Delta Junction, AK 99737 895-4292
Development, Office of, 210 Signers' Hall ............ 474-7581
Developmental Studies, Downtown Center ............. 451-7223
Distance Education, Center for, 129 Red Building ... 474-5353
Downtown Center, 510 Second Ave., Fairbanks, AK 99701 451-7223
Eielson Center, Building 2266, Eielson Air Force Base, AK 99702 377-1396
Elderhostel, 118 Red Building 474-5359
Employee Relations, 101 Eielson 474-7349
Engineering, School of, 539 Duckering .......... 474-7350
Environmental Health and Safety, 101 Eielson .... 474-6206
Equal Employment Opportunity, 101 Eielson ........ 474-7919
Faculty Senate, 312 Signers' Hall 474-7056
Financial Aid, 5th floor Gruening 474-7256
Fisher's and Ocean Sciences, School of, ... 217 O'Neill 474-7531
Fishery Industrial Technology Center, 202 Center St, Room 201, Kodiak, AK 99615 486-6034
Fort Wainwright Center, Building 1065, Fort Wainwright, AK 99703 353-6809
Fort Yukon Center, Box 194, Ft. Yukon, AK 99740 662-2521
Galena Center, Box 181, Galena, AK 99741 956-1280
Geophysical Institute, Elvey Building ............... 474-7558
GNOSIS (Library Computing system), 409 Library 474-6310
Graduate School, 305 Signers' Hall .................... 474-7464
Health and Counseling, Center for, 2nd floor HS&S Building 474-7043
Honors Program, 515 Copper Lane ................. 474-6666
Housing Office, M-B-S Complex 474-7244
Hutchinson Career Center, 3750 Geist Road, Fairbanks, AK 99701 479-2226
Interior Campus, Red Building ......................... 474-5434
International Student Adviser, 5th floor Gruening 474-7311
Juneau Center for Fisheries and Ocean Sciences, 11120 Glacier Hwy, Juneau, AK 99801 789-4414
KSU-FM, 303 Constitution Hall 474-7058
KUAC-FM and -TV, 208 Fine Arts/Theater .......... 474-7448
Kusukokwim Campus, Box 368, Bethel, AK 99559 543-4500
Learning Resource Center, Downtown Center .... 451-7223
Liberal Arts, College of, 405 Gruening 474-7243
Library, Rasmussen ...................................... 474-7400
Management, School of, 107 Bunnell .................... 474-7426
Marine Advisory Program, 2221 E. Northern Lights Blvd, Suite 220, Anchorage, AK 99508 274-9696
Marine Science, Institute of, 217 O'Neill 474-7535
McGrath Center, Box 269, McGrath, AK 99627 524-3071
Mineral Engineering, School of, 208 Brooks ........ 474-7399
Mineral Industry Research Laboratory, 210 O'Neill 474-7066
Moose Creek Center, 3481 Old Richardson Hwy, North Pole, AK 99702 488-442
Museum, UA .............................................. 474-7500
NANA House ............................................. 474-7528
Native Studies, 5th floor Gruening 474-7528
Natural Sciences, College of, 465 Duckering 474-7599
Nenana Valley Center, Box 480, Nenana, AK 99760 832-5871
Newspaper, Sun Star, Wood Center 474-7541
North Slope Higher Education Center, Box 69, Barrow, AK 99723 852-7334
Northern Engineering, Institute of, 539A 474-7777
Duckering 474-7528
Northwest Campus, Box 400, Nome, AK 99762 443-2200
Patty Center .................................................. 474-5055
Petroleum Development Laboratory, 425 Duckering 474-7742
Polar Ice Coring Office, 205 O'Neill 474-5588
Pub, Wood Center ....................................... 474-7768
Research, Vice Chancellor for, 306 Signers' Hall 474-7315
Residence Life, 5th floor Gruening 474-7316
Rural Alaska Honors Institute, 508 Gruening 474-7181
Rural College, 708 Gruening 474-7108
Rural Student Services, 5th floor Gruening 474-7871
Sea Grant, 138 Irving II 474-7086
Security, HS&S Building 474-7723
Small Business Development Center, Downtown Center 456-1700
Student Affairs, 5th floor Gruening 474-7317
Student Development and Learning Center, Downtown Center 451-7225
Summer Sessions, 2nd floor Signers' Hall .... 474-7021
Sun Star, Wood Center ................................ 474-7541
Testing Services, 514 Gruening 474-5277
Tok Center, Box 464, Tok, AK 99780 883-5613
University Relations, 210 Signers' Hall 474-7581
Veterans' Information, 1st floor Signers' Hall 474-7523
Wood Center .................................................. 474-7211

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

The area code for all UAF offices is (907).
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Each winter, engineering students take advantage of the cool temperatures and their classroom lessons to build an ice arch on the main UAF campus.
The University of Alaska Fairbanks Experience

In 1917, just 15 years after Felix Pedro found gold in the heart of the Alaskan wilderness, the University of Alaska Fairbanks was born. It wasn’t called UAF back then; it was the Alaska Agricultural College and School of Mines, created by an 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.

In 1931, the federal agricultural experiment stations in Fairbanks and the Matanuska Valley were transferred to the Alaska Agricultural College and School of Mines by an act of the U.S. Congress.

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 Signers’ 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. And military education is offered at Eielson and Galena Air Force bases, and Fort Wainwright and Fort Greely Army posts.

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 -TV were 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 and sea-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 expands the frontiers of knowledge, UAF will continue 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 1989 was 7,592 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:

- 56 percent are female, 44 percent are male
- 74 percent are white, 12 percent are Alaska Native, 14 percent are other minorities
- 30 is the average age
- 89 percent are Alaska residents, 9 percent are from other states, 2 percent are from foreign countries
- 93 percent are undergraduate students, 7 percent are graduate students

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 rifle.

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 rifle, 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.

Fairbanks Area

Fairbanks, Alaska's second largest city, is located in the heart of Alaska. Situated on the banks of the Chena River, 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 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.

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 centers 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

**1990 Fall Semester**
- Registration: Mon.-Fri., Aug. 27-Sep. 7
- First day of classes: Mon., Sept. 10
- Last day to apply for fall graduation: Mon., Oct. 15
- Thanksgiving holidays: Thurs.-Fri., Nov. 22-23
- Last day of instruction: Fri., Dec. 21

**1991 Spring Semester**
- Registration: Thurs.-Fri., Jan. 3-18
- First day of classes: Mon., Jan. 21
- Last day to apply for spring graduation: Fri., Feb. 15
- Last day of instruction: Fri., May 3

#### Chukchi and Northwest Campuses

**1990 Fall Semester**
- Early Registration: Mon.-Fri., Aug. 27-31
- Registration: Tue.-Fri., Sept. 4-7
- First day of classes: Mon., Sept. 10
- Last day of instruction: Fri., Dec. 21

**1991 Spring Semester**
- Early Registration: Mon.-Fri., Jan. 7-11
- Registration: Mon.-Fri., Jan. 14-18
- First day of classes: Mon., Jan. 21
- Spring recess: Fri., Mar. 15
- Last day of instruction: Fri., May 3

#### Kuskokwim Campus

**1990 Fall Semester**
- Residence halls open: Sat., Sept. 1
- New student orientation: Sun.-Mon., Sept. 2-3
- Three-week session begins: Tues., Sept. 4
- Last day of three-week session: Fri., Sept. 21
- Registration for 12-week session: Thurs.-Sat., Sept. 20-22
- First day of instruction for 12-week session: Mon., Sept. 24
- Last day to add or drop classes: Fri., Sept. 28
- Last day for student-initiated withdrawals: Fri., Nov. 9
- Thanksgiving holidays: Thurs.-Fri., Nov. 22-23
- Last day of instruction: Fri., Dec. 14
- Final examinations: Mon.-Fri., Dec. 10-14
- Grades due from faculty: Tue., Dec. 18

**1991 Spring Semester**
- Residence halls open: Thurs., Jan. 10
- Registration for 15-week session: Thurs.-Sat., Jan. 10-12
- First day of instruction: Mon., Jan. 14
- Last day to add or drop classes: Fri., Jan. 18
- Last day to apply for spring graduation: Fri., Feb. 15
- Last day for student-initiated withdrawals: Wed., Mar. 20
- Spring recess: Thurs.-Fri., Mar. 15-16
- Last day of instruction: Wed., Apr. 24
- Final examinations: Mon.-Wed., Apr. 22-24
- Commencement: Fri., Apr. 26
- Grades due from faculty: Mon., Apr. 29

(Note: Dates are subject to change.)
UAF Campus Locations

- **Main Campus**
- **Branch Campuses**

In addition, UAF has rural education centers, research centers, Cooperative Extension Service offices, Marine Advisory Program offices and Cross-Cultural Education Development Program offices located throughout the state.
The fall semester starts with plenty of sunshine and smiles as students make their way to class.

Journalism and broadcasting major Kristin Kramer gets hands-on experience operating a camera for "Top Story", a program aired live from the KUAC-TV studios on campus.
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 plan to enroll at the university during the next fall semester. 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 if possible.

How to Apply

You can get application forms from the Office of Admissions and Records. The following must be received by the Office of Admissions and Records before your application will be considered:

1. Application for Admission — A $20 processing fee for a bachelor's degree or $10 for an associate degree or certificate must accompany your application.

2. Transcripts — If you haven't enrolled in a college or university before, you must have an official high school transcript sent to the Office of Admissions and Records from the high school you graduated from, or from which you expect to graduate.

3. Test Results — If you're entering freshman in a bachelor's degree program, you must submit the results of either the ACT or SAT examinations. Being accepted at UAF doesn't depend on minimum test scores, however, these test scores are used to determine your placement in English, mathematics and other freshman level courses. It's your responsibility to have the test results sent to the Office of Admissions and Records.

If you're applying for admission to an associate degree or certificate program, you must submit the results of the SAT, ACT or ASSET test.

If you qualify for an associate or certificate program, and have transferred in 30 semester hours of credit which include appropriate courses in English and mathematics, you don't need to submit test results.

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 or, if you're a high school senior, that you have graduated.

You 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 of immunity to:
   a. Rubella (measles)
   b. Rubella
   c. Diphtheria and Tetanus
   d. Polio

Your registration may be withheld for your second semester until these items are submitted.

Admission Requirements

Freshman

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

A. For admission to associate degree programs, you must have earned a high school diploma or the equivalent (GED) or be at least 18 years old.

If you're an associate degree or certificate student, and later wish to enter a baccalaureate degree program, your application may be accepted after earning 14 credits at the 100 level or above, of which nine credits must satisfy general baccalaureate degree requirements.

B. For admission to baccalaureate degree programs, you must have graduated from high school with an overall grade point average (GPA) of 2.0 (C) or higher. Your admission to specific baccalaureate degree programs 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 2.0, a high school core curriculum of at least 11 credits, including at least three credits in English, two in mathematics, two in social sciences, and two in natural or physical sciences (including at least one laboratory course if offered by your high school). Effective in fall 1991, the high school core curriculum requirement will be 18 credits. See the section on the next page for those requirements.

Your test results from the ACT or SAT must be submitted before you can be admitted.
C. If you've graduated from high school, but don't meet minimum high school entrance requirements for the baccalaureate degree, you may be provisionally accepted for up to one calendar year. You may be admitted later as an unrestricted baccalaureate degree candidate 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.

D. If you haven't graduated from high school and are at least 21 years old, but do not meet minimum entrance requirements, 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.

Effective September 1991—High School Entrance Requirements

If you're planning to apply to UAF for the fall of 1991 as a freshman in a bachelor's degree program, you must have a cumulative high school GPA of 2.0 and a 2.5 average in a core curriculum consisting 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.

Transfer Students
If you're a transfer 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're 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.

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 programs.

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 including transportation. It does not include summer living or winter 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 visa 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:

As of fall 1991, entrance requirements will change. See the section titled "Effective 1991 — High School Entrance Requirements.

(Total of 11 academic credits required including those listed below.)

<table>
<thead>
<tr>
<th>H.S. Core Courses</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 (2.00 GPA in core-11 credit total)</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(Incl. 1 cr. lab. sci.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College of Liberal Arts:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Statistics, majors</td>
<td>3</td>
<td>Algebra-2</td>
<td>2</td>
<td>Nat. Science-1</td>
</tr>
<tr>
<td>Computer Science or Mathematics</td>
<td></td>
<td>Geometry-1</td>
<td></td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td>majors</td>
<td>Trig.-½</td>
<td>Adv Math-¼</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Educ. majors</td>
<td>3</td>
<td>Algebra-2</td>
<td>2</td>
<td>Biology-1</td>
</tr>
<tr>
<td>majors</td>
<td></td>
<td></td>
<td></td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td>All Other Liberal Arts majors</td>
<td>Same as 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>3</td>
<td>Algebra-2</td>
<td>2</td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td>majors</td>
<td>Geometry-1</td>
<td></td>
<td>Biology or Elective-1</td>
<td></td>
</tr>
<tr>
<td>Rural College:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All majors</td>
<td>Same as Core</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 majors</td>
<td>2</td>
<td>Algebra-2</td>
<td>2</td>
<td>Physics or Chemistry-1</td>
</tr>
<tr>
<td>Mgt. majors</td>
<td>Geometry-1</td>
<td></td>
<td>Biology or Elective-1</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>3</td>
<td>Algebra-2</td>
<td>2</td>
<td>Chemistry-1</td>
</tr>
<tr>
<td>majors</td>
<td>Geometry-1</td>
<td></td>
<td>Physics-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trig.-½</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
School of Fisheries and Ocean Sciences:
All majors  3  Algebra-2  2  Physics or Chemistry-1
Geometry-1  2  Chemistry or Biology or Elective-1
Trig-½

School of Management:
All majors*  3  Algebra-2  2  Physics or Chemistry-1
Geometry-1  2  Chemistry or Biology or Elective-1
Trig-½  Nat. Sci.-1

*Two years Foreign Language highly recommended.

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

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. In addition, as a non-degree student you aren’t eligible for financial aid.

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 degrees 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. Completing work for a teaching certificate.
3. Strengthening your preparation in order to be admitted to graduate study.
4. A transient student expecting to be at UAF only briefly.
5. Awaiting action on applications for graduate status.

Second 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 that 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 your regular 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 ACT English and composite scores are 16 or above, or with a 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>ACT Math Score</th>
<th>Number of Semesters of High School</th>
<th>UAF Math Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 or higher</td>
<td>540 or higher</td>
<td>1-8</td>
</tr>
<tr>
<td>21 to 25 (460-530)</td>
<td>1800-2100</td>
<td>6-8</td>
</tr>
<tr>
<td>19 to 20 (440-450)</td>
<td>1800-2100</td>
<td>less than 6</td>
</tr>
<tr>
<td>17 to 18 (400-420)</td>
<td>1800-2100</td>
<td>less than 7</td>
</tr>
<tr>
<td>18 to 19 (430-440)</td>
<td>1800-2100</td>
<td>less than 6</td>
</tr>
<tr>
<td>19 to 20 (440-450)</td>
<td>1800-2100</td>
<td>less than 6</td>
</tr>
<tr>
<td>17 to 18 (400-420)</td>
<td>1800-2100</td>
<td>less than 4</td>
</tr>
<tr>
<td>13 to 16 (360-390)</td>
<td>1500-1799</td>
<td>1-8</td>
</tr>
<tr>
<td>12 or below (330 or below)</td>
<td>1200-1499</td>
<td>1-8</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, although not a prerequisite to further study, 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 (through Spring 1991)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BACCALAUREATE</strong></td>
<td></td>
</tr>
<tr>
<td>Freshman*</td>
<td>High school graduation and GPA of 2.0 (C)</td>
</tr>
<tr>
<td></td>
<td>Completion of 11 credit core with 2.0 (C) GPA</td>
</tr>
<tr>
<td>Transfer Student — Less than 30 semester hours of credit*</td>
<td>Same requirements as for freshman (above)</td>
</tr>
<tr>
<td></td>
<td>2.0 (C) GPA in previous college work</td>
</tr>
<tr>
<td>Transfer Student — More than 30 semester hours of credit</td>
<td>2.0 (C) GPA in previous college work</td>
</tr>
<tr>
<td><strong>ASSOCIATE</strong></td>
<td></td>
</tr>
<tr>
<td>Freshman and Transfer*</td>
<td>High school graduation</td>
</tr>
<tr>
<td></td>
<td>or at least 18 years old</td>
</tr>
<tr>
<td>Non-High School Graduate*</td>
<td>GED or at least 18 years old</td>
</tr>
<tr>
<td>Non-Degree Student</td>
<td>High school graduation, GED</td>
</tr>
<tr>
<td></td>
<td>or at least 18 years old</td>
</tr>
<tr>
<td>Auditor</td>
<td>Same requirements as for appropriate category above (freshman, transfer, non-degree, etc.)</td>
</tr>
<tr>
<td>International Student</td>
<td>Same requirements as for appropriate category above (freshman, transfer, etc.)</td>
</tr>
<tr>
<td></td>
<td>Acceptable TOEFL examination scores</td>
</tr>
<tr>
<td></td>
<td>Acceptable financial statement</td>
</tr>
</tbody>
</table>

*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, or a verbal SAT score of 600 or higher, you may receive credit for ENGL 111 by enrolling in a 200 or 300 level literature course and completing it with a grade of “C” or better. Or, you may receive credit for ENGL 111 by 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 111 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 topics 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 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.

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 $35 each, and are administered once a month. 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.

**CLEP Subject Exams Currently Accepted**

<table>
<thead>
<tr>
<th>Test Name</th>
<th>UAF Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>BIOL 105</td>
<td>4</td>
</tr>
<tr>
<td>Principles of</td>
<td>ECON 201</td>
<td>3</td>
</tr>
<tr>
<td>Economics</td>
<td>ECON 202</td>
<td>3</td>
</tr>
<tr>
<td>Principles of</td>
<td>ED 330</td>
<td>3</td>
</tr>
<tr>
<td>Economics</td>
<td>HIST 101</td>
<td>3</td>
</tr>
<tr>
<td>Educational Psycho</td>
<td>HIST 102</td>
<td>3</td>
</tr>
<tr>
<td>Psychology</td>
<td>HIST 131</td>
<td>3</td>
</tr>
<tr>
<td>History of the U.S.</td>
<td>HIST 132</td>
<td>3</td>
</tr>
<tr>
<td>History of the U.S.</td>
<td>HIST 133</td>
<td>3</td>
</tr>
<tr>
<td>General Psychology</td>
<td>PSY 101</td>
<td>3</td>
</tr>
<tr>
<td>Human Growth &amp;</td>
<td>PSY 240</td>
<td>3</td>
</tr>
<tr>
<td>Development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 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 (196, 297, 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

Correspondence study courses, offered by the Independent Learning Program, 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, these correspondence study courses count as residence credit. When you enroll in a semester-based 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.

A catalog detailing policies regarding correspondence study course 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.

Artists get plenty of experience at UAF. Senior Stephen Whipple and art professor Terry Choy discuss Whipple’s oil painting, The Shape of Pain.
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 on 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 students, the ASSET test, are required if you’re a first-time degree or certificate students, 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 adviser (all degree and certificate students are required to have an adviser). Your adviser’s signature is needed to enter the registration process.

Non-degree students may also see an adviser, 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 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 111, 211, 213, 313, or 414), or the first two meetings of a basic speech course (SPC 121, 131, or 141), 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 un 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/partial-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 or non-degree, 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. Advisers'
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.

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.

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>
<tr>
<td>Credit-No-Credit Option</td>
<td>First day of instruction for the semester</td>
<td>10th day of instruction for the semester</td>
<td>Only free electives may be taken under this option</td>
</tr>
</tbody>
</table>

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.

Add, drop, withdrawal and credit-no-credit option deadlines will be adjusted proportionally for courses that are less than a semester in length.
Head resident Jennie Anderson and resident assistant Larry Kairaivak look over their Bartlett Hall newsletter.
UAF has one of only a handful of student-staffed university fire departments in the United States. Students Jaimee Binder and Tim Dungan train at West Valley High School during one of their many exercises.
Academic Regulations

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 Progress
Instructors are responsible for making sure that you’re aware of the grading policy for their course and that homework, exams, etc., are returned in a timely manner so that you know how you’re doing in class. Midterm grade reports are optional for each campus of UAF. When used, as they are on the Fairbanks campus, they are required for all freshmen with a grade of less than “C.”

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 notifying 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 satisfy general degree requirements (e.g., Social Science Elective, Written Communication, etc.) are identified in the course description section of the catalog by the following designators:

- h: Humanities
- m: Mathematics
- n: Natural Science
- o: Oral Communication
- p: Social Science
- w: Written Communication

For example, you may use HIST 341, History of Alaska, (3+0) s, to satisfy the "social science elective" requirement. You can use ENGL 111, Methods of Written Communication, (3+0) w, to meet the written communication general degree requirement.

Note: Special topics courses are not given course classifications.

Full-, Part-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
Grade Point Average (GPA)  

Grade Point Average (GPA) 

To compute your GPA, the number of UAF credits you've attempted is divided into the number of grade points 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 grade 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 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 earned for a course is computed in your GPA unless the course was awarded. An exception to this is made if you've 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 class schedule. The method of grading (letter or pass/fail) is an integral part of the course structure and is included in the course description. 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 +/-)  
The lowest passing grade, indicates work of below average quality and performance (one grade point per credit).

F (including +/-)  
Indicates failure (no grade points). All "F" grades, including those earned in pass/fail courses, are included in the GPA calculations.

P Pass — The grade "P" indicates satisfactory completion of course requirements at either the undergraduate or graduate level. A "P" grade does not affect your grade point average but credits earned with "P" 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 theses, 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.

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 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 counseling 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></td>
<td>42 credits total (some degrees require more); of the 42 credits, 24 must be earned at UAF</td>
</tr>
<tr>
<td>Additional Credit that Must be Earned at UAF by Transfer Students</td>
<td></td>
<td>12 credits in the major; 3 credits in the minor</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 catalog in effect when admitted to the major or when graduating - 5 year limit on catalog year</td>
<td>May use catalog in effect when admitted to the major or when graduating - 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 42 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 these credits for the degree in 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 211 and 213 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 211 or 213 without first fulfilling the ENGL 111 requirement in one of these ways: complete the course with a passing grade; successfully challenge the course; earn an English ACT score of 26 or higher; or present a CEEB APT score in English of 3 or higher.

What catalog are you under?

You may graduate under the requirements of the UAF catalog in effect the year you graduate, or the catalog in effect the year you originally enrolled in the major, as long as not more than seven years have passed for a baccalaureate degree and five years for an associate degree. Only one catalog can be used for each degree.

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 credits 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 40 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

You will be awarded an associate degree after successfully completing a two-year program.

### 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.

#### Distribution of Credits

All credits 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:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication (9 credits)</td>
<td></td>
</tr>
<tr>
<td>ENGL 111 and ENGL 211 or 213</td>
<td>6</td>
</tr>
<tr>
<td>SPC 111 or 121 or 131 or 141</td>
<td></td>
</tr>
<tr>
<td>Mathematics and Logic (9 credits)</td>
<td></td>
</tr>
<tr>
<td>Mathematics and Logic electives</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science electives</td>
<td></td>
</tr>
<tr>
<td>An additional 3 credits in either Mathematics or Logic or Natural Science</td>
<td>3</td>
</tr>
<tr>
<td>Humanities (9 credits)</td>
<td></td>
</tr>
<tr>
<td>Any combination of courses classified as Humanities</td>
<td>9</td>
</tr>
<tr>
<td>Social Sciences (9 credits)</td>
<td></td>
</tr>
<tr>
<td>Any combination of courses classified as Social Science</td>
<td>9</td>
</tr>
<tr>
<td>General Electives (24 credits)</td>
<td></td>
</tr>
<tr>
<td>Any combination of courses, including courses classified as Applied Studies</td>
<td>24</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

### Course Classifications — Associate Degree Program

#### Humanities:

- American Sign Language
- Art
- English
- Humanities
- Languages
- Literature
- Philosophy
- Religion (selected courses)
- Theater

#### Social Sciences:

- Anthropology
- Business Law
- Geography
- Paraprofessional Counseling
- Psychology

#### Natural Sciences:

- Biology, Biological Science
- Geology
- Physical Geography
- Physics

#### Applied Studies

- Accounting
- Airframe and Powerplant
- Aviation Technology
- Computer Applications
- Diesel/Heavy Equipment
- Early Childhood Development

#### Additional Courses

- Electronics
- Fire Science
- Home Economics
- Library Science
- Mechanics
- Military Science
- Nursing/Health Science
- Office Professions
- Petroleum
- Public Safety**
- Waste Water Technology
- Emergency Medical
- Training
- Fisheries/Wildlife Mgmt
- Justice
- Management
- Meteorology
- Mining
- Nutrition
- Paraprofessional Counseling
- Personal Development
- Phys. Educ./Recreation
- Trade and Technology
- Welding

**Includes Corrections, Fire Science, Justice, Law and Police Administration.

### 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.

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 111 plus any 200-level written communications course</td>
<td>6</td>
</tr>
</tbody>
</table>

| Oral Communication                    | 3       |
| Select a total of 6 credits from humanities, social science, mathematics or natural science | 6       |
| (At least 3 credits must be math or natural science at the 100 level or above.) |         |
| Major Specialty                       | 30      |
| Electives to total                    | 60      |


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

### Baccalaureate Degrees

#### BACHELOR OF ARTS REQUIREMENTS

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>ENGL 111 or equivalent, and ENGL 211 or 213</td>
<td>6</td>
</tr>
<tr>
<td>Speech Communication</td>
<td>3</td>
</tr>
<tr>
<td>Humanities:</td>
<td>18</td>
</tr>
<tr>
<td>Any combination of courses at the 100 level or above, selected from at least 3 disciplines exclusive of major/minor, with a maximum of 9 credits from any one discipline</td>
<td>18</td>
</tr>
<tr>
<td>Social Sciences:</td>
<td></td>
</tr>
<tr>
<td>Any combination of courses at the 100 level or above, selected from at least 3 disciplines exclusive of major/minor, with a maximum of 9 credits from any one discipline</td>
<td>18</td>
</tr>
<tr>
<td>Mathematics and Logic:</td>
<td></td>
</tr>
<tr>
<td>Any combination of courses at the 100 level or above from the Department of Mathematical Sciences (Mathematics, Computer Science and Statistics), or Philosophy</td>
<td>6</td>
</tr>
<tr>
<td>Natural Sciences:</td>
<td>7</td>
</tr>
<tr>
<td>Any combination of courses at the 100 level or above which includes at least one laboratory course</td>
<td></td>
</tr>
<tr>
<td>Major Complex*</td>
<td>At least 30**</td>
</tr>
<tr>
<td>Minor Complex*</td>
<td>At least 12**</td>
</tr>
<tr>
<td>Minimum credits required for degree</td>
<td>120***</td>
</tr>
</tbody>
</table>

*Neither ENGL 313 nor 314 will fulfill the second half of the written communication requirement.

---

[1] Neither ENGL 313 nor 314 will fulfill the second half of the written communication requirement.
Of the above, at least 48 credits must be earned in upper division (300 level or higher) courses.

*Courses specified by a major or minor complex which are not in the primary discipline of that complex may be used to fulfill the Humanities, Social Sciences, Mathematics and Logic, or Natural Sciences distribution 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.

***Most degree programs require 130 credits. See specific requirements listed in Degree 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 Business, Aviation Technology, Culinary Arts, Early Childhood Development, Fire Science, Office Professions and Paraprofessional Counseling.

Double Major — If you're a Bachelor of Arts degree candidate, you may complete two majors rather than a major and a minor. You can 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 are admitted and/or through the change of major procedure. You'll need to follow the degree requirements in the catalog in effect when you officially declared the first major, or from the catalog in effect the year you graduate.

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 SCIENCE REQUIREMENTS**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
</tr>
<tr>
<td>ENGL 111 or equivalent and ENGL 211 or 213.</td>
</tr>
<tr>
<td>Speech Communication</td>
</tr>
<tr>
<td>Mathematics</td>
</tr>
<tr>
<td>One semester of college-level Calculus, MATH 203, or STAT 301</td>
</tr>
</tbody>
</table>

**BACHELOR OF TECHNOLOGY REQUIREMENTS**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Science</td>
</tr>
<tr>
<td>Chemistry, Biology, Geoscience (Solid Earth Sciences), or Physics (minimum of 6 credits each in two disciplines), including 2 credits of laboratory</td>
</tr>
<tr>
<td>Social Science/Humanities</td>
</tr>
<tr>
<td>Social Science (minimum of 3 credits) and Humanities (minimum of 3 credits), exclusive of 9-credit communications requirement</td>
</tr>
<tr>
<td>Major Complex (see departmental curricula for specific requirements and for Minor Complex, if required)</td>
</tr>
<tr>
<td>Minimum credits required for degrees</td>
</tr>
</tbody>
</table>

(Requirements of majors listed in the Degrees and Programs section of this 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 the catalog in effect when you officially declared the first major, or from the catalog in effect the year you graduate.

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.

*You must have completed an associate degree in a technical specialty (Associate of Technology, Associate of Applied Science, Associate of Science.) If you hold an associate degree of less technical depth (Associate of Arts), you must make up the equivalent technical deficiencies before you will be admitted to the Bachelor of Technology degree program. | 60 or more
Communication (may have been taken as part of the associate degree):
ENGL 111 and ENGL 211 or 213† ............................................... 6
Oral Communication ................................................................... 3

General Education (courses taken as part of the associate program are acceptable):
12 credits in one area, 6 credits in a second area and 3 credits in each of the two other areas: Social Sciences, Humanities, Natural Science, Mathematical Science [Mathematics, Computer Science, Statistics]† ............................................. 24

Major Complex (must be beyond associate degree major, 30 credits):
Upper-division credits in technical specialty ................................ 0-12
Complementary area ................................................................... 24-30

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

You must earn at least 65 credits beyond those applied to the associate degree. At least 24 must be upper division UAF credits. All credits must be 100-level or above.

Major Complex Available for the B.T. Degree: Education.
The following technical specialties have been approved as associate degree programs for admission to the Bachelor of Technology degree program in Education:
Aviation Technology  Culinary Arts
Electronics Technology

BACHELOR OF BUSINESS ADMINISTRATION REQUIREMENTS

Communications
ENGL 111 ...................................................................................... 3
ENGL 211 or 213† ........................................................................ 3
SPC Elective ............................................................................... 3

Social Science
PSY 101 or SOC 101 ................................................... 3

PS 101 or 102 .................................................................................. 3
ECON 201 and 202 ..................................................................... 6
History elective ............................................................................... 3
Social Science elective ................................................................. 3

Natural Science & Mathematics
Natural Science elective (including 1 cr. of lab) ......................... 4
MATH 161 and 162 ...................................................................... 7

Humanities
Humanities elective† ................................................................... 6
(In addition to 3 credits of speech elective taken under “Communications” above)

Major Complex and Common Body of Knowledge
See the Degrees and Programs section for specific requirements.

Minimum Credits Required for Degree .................................. 120**

**Most degree programs require 130 credits. See specific requirements 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.

Sprint dogs can run 20 miles over snow in an hour, leaving mushers holding tight during the Open North American Sled Dog Championships, held each year in Fairbanks.
## BACCALAUREATE DEGREE REQUIREMENTS IN BRIEF

<table>
<thead>
<tr>
<th>ACADEMIC DISCIPLINE</th>
<th>Bachelor of Arts</th>
<th>Bachelor of Science</th>
<th>Bachelor of Bus. Admin.</th>
<th>Bachelor of Education</th>
<th>Bachelor of Music</th>
<th>Bachelor of Technology</th>
<th>ACADEMIC DISCIPLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication</td>
<td>Engl 111 - 3 cr</td>
<td>Engl 111 - 3 cr</td>
<td>Engl 111 - 3 cr</td>
<td>Engl 111 - 3 cr</td>
<td>Engl 111 - 3 cr</td>
<td>Engl 111 - 3 cr</td>
<td>Written Communication</td>
</tr>
<tr>
<td></td>
<td>or 213 - 3 cr</td>
<td>Engl 211</td>
<td>Engl 211</td>
<td>Engl 211</td>
<td>Engl 211</td>
<td>or 213 - 3 cr</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 3 cr</td>
<td>- 3 cr</td>
<td>- 3 cr</td>
<td>- 3 cr</td>
<td>- 3 cr</td>
<td>- 3 cr</td>
<td></td>
</tr>
<tr>
<td>Humanities</td>
<td>18 credits in any combination of courses at the 100 level or above selected from at least 3 disciplines with a maximum of 9 credits from any one discipline in both humanities and social science areas - 36 cr</td>
<td>15 credits including at least 3 credits from each area</td>
<td>Electives - 6 cr</td>
<td>Electives - 9 cr</td>
<td>Ling. 101 or ANL 215 or 216 - 3 cr</td>
<td>Non-Music elect - 15 cr</td>
<td></td>
</tr>
<tr>
<td>Social Science</td>
<td>Any combination of courses at the 100 level or above which includes one lab course - 7 cr</td>
<td>Chem, Biol, Geol, or Physics - 16 cr (6 cr in each of 2 disciplines incl. 2 cr of lab)</td>
<td>History - 3 cr</td>
<td>Anth. 242 - 3 cr</td>
<td>History. 131 or 132 - 3 cr</td>
<td>(Psy 101 - 3 cr required for Mus. Educ.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mathematics and</td>
<td>Math 161-162 - 7 cr</td>
<td>Nat. Sci - 4 cr (including 1 cr of lab)</td>
<td>Science Elect. - 7 cr</td>
<td>Electives - 15 cr</td>
<td>Electives - 15 cr</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>Logic: any combin. of courses at the 100 level or above from the Dept. of Mathematical Sciences (Math, Computer Sci, or Phil. 204) - 6 cr</td>
<td>One semester college level calculus, Math 203 or AS301 - 3 or more cr</td>
<td>(incl. 1 cr of lab)</td>
<td>(incl. lab science)</td>
<td>(incl. lab science)</td>
<td>(Psy 101 - 3 cr required for Mus. Educ.)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>42 cr must be upper-division (300-400 level) courses</td>
<td>42 cr must be upper-division (300-400 level) courses</td>
<td>Education and other - 42-51 cr</td>
<td>Education and other - 42-51 cr</td>
<td>Education and other - 42-51 cr</td>
<td>Other</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td></td>
</tr>
<tr>
<td>Major Complex or Specialty</td>
<td>At least 30 credits</td>
<td>At least 12 credits</td>
<td>Elementary concentration - 24 cr or more</td>
<td>Elementary concentration - 24 cr or more</td>
<td>Secondary integrated major/minor - 45 - 48 cr</td>
<td>Secondary integrated major/minor - 45 - 48 cr</td>
<td></td>
</tr>
<tr>
<td>Minor Complex</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Variable</td>
<td>Minor Complex</td>
</tr>
</tbody>
</table>
Financial aid administrative clerk Carrie Green gives student Paul Riley an application for the upcoming school year.
Fees and Financial Aid

Fees are for the Fairbanks campus only

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>$46</td>
<td>$46</td>
</tr>
<tr>
<td>2</td>
<td>92</td>
<td>280</td>
</tr>
<tr>
<td>3</td>
<td>138</td>
<td>420</td>
</tr>
<tr>
<td>4</td>
<td>184</td>
<td>560</td>
</tr>
<tr>
<td>5</td>
<td>230</td>
<td>700</td>
</tr>
<tr>
<td>6</td>
<td>276</td>
<td>840</td>
</tr>
<tr>
<td>7</td>
<td>322</td>
<td>980</td>
</tr>
<tr>
<td>8</td>
<td>368</td>
<td>1120</td>
</tr>
<tr>
<td>9</td>
<td>414</td>
<td>1260</td>
</tr>
<tr>
<td>10</td>
<td>460</td>
<td>1400</td>
</tr>
<tr>
<td>11</td>
<td>506</td>
<td>1540</td>
</tr>
<tr>
<td>12</td>
<td>552</td>
<td>1680</td>
</tr>
<tr>
<td>13 or more</td>
<td>598</td>
<td>1820</td>
</tr>
</tbody>
</table>

Students enrolled in post-baccalaureate or graduate credit courses (those numbered 500-699) are charged $90 per credit for residents to a maximum of $810, and $180 per credit for non-residents to a maximum of $1620. The maximum charge for any combination of undergraduate and graduate credits doesn't exceed $810 for residents and $1620 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 emancipated 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 emancipated 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)

Course Fees (See course descriptions) ........................................ $3-125
Deferred Fee Charge ................................................................. 10
Graduate Extended Registration Fee ............................................. 150 or 225
Health Center Fee (12 credits or more) ......................................... 45
Health Insurance, student (12 credits or more) ................................ approx 150
Housing Fees:
- Housing Reservation/Deposit Fee ........................................... 25-75
- Residence Hall, Double Room/Double Occupancy ......................... 570
- Residence Hall, Double Room/Single Occupancy ......................... 800
- Residence Hall, Single Room .................................................. 690
- Student Apartment Complex (each student) .................................. 760
- Married Student Apartments ...................................................... 280-490/month
- Board Plan (three plans) ........................................................... 725-775
Late Registration Fee ................................................................. 15-65
Music Course Fees (music majors maximum: 105) .............................. 35-145
Parking Fee ................................................................................. 40/semester
Preregistration Deposit (applies toward registration fees) .................. 50
Student Activity Fee (8 credits or more) .......................................... 32

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 $125. See the course description section of the catalog to check on fees for individual courses.

Deferred Fee Charge — A processing fee of $10 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 $150 to $225.

Health Center Fee — The $45 Health Center fee provides basic medical and counseling services at the Student Health and Counseling Center. All students enrolled in 12 or more credits (including any combination of on- and off-campus courses), or living in university housing, must pay the Health Center fee. Students purchasing the Student Health Insurance Plan must pay the Health Center fee when enrolling for the insurance. Active duty military students have the option of paying the Health Center fee.
If you are a full-time student not taking any courses which meet on the main campus, you are not enrolled in the student health insurance program and are not living in university housing, you may obtain a Health Center fee waiver. You need to present the approved waiver when you pay your fees.

The Center for Health and Counseling provides primary care medical and personal counseling services.

**Health Insurance Fee** — If you're registered for 12 or more credits (including both on- and off-campus courses), or living in any university housing, you must be covered by health insurance. You may purchase the student health insurance if you also pay the Health Center fee if you're enrolled in six through 11 credits. You may buy the Student Health Insurance offered by the university or show evidence of other insurance coverage. If you're covered by other insurance, you can waive university coverage by submitting a university health insurance waiver form at the regular scheduled fee payment time. You can get waiver forms at the Center for Health and Counseling. The insurance fee will be approximately $150; the fee covers participation in a medical plan that covers accidents and sickness.

The Student Health Program is administered by the Director of the Center for Health and Counseling. Hospital and medical treatment for extensive illness and injuries are available in Fairbanks. Each student is given a brochure outlining the insurance coverage. Questions about insurance coverage and claim filing should be directed to the Center for Health and Counseling insurance coordinator.

If you're married, you may purchase additional insurance coverage for your spouse and children. Rates for this coverage will be quoted at registration. This additional coverage is for the insurance plan only and doesn't include services at the Center for Health and Counseling.

**Housing Fees** — When applying for housing, you need to send a $50 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 become effective at the evening meal of the first day of registration each semester. For more information, see Housing.

**Late Registration Fee** — If you register later than the day designated for that purpose, you'll have to pay a late registration fee of $15 for the first working day, plus $5 for each succeeding working day to a maximum of $65. This fee is refunded only if all classes for which you're registered are canceled.

**Music Course Fees** — Fees are charged for the following services from the Center for Health and Counseling, $180 (fee for music major is $95); class instruction (private lesson course), $70 (fee for music major is $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 $105 for any combination of the above fees. Practice room use by student not enrolled in one of the above music courses, on a space available basis, is $70.

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

**Preregistration Deposit** — If you preregister, you must pay a $50 deposit. This deposit is credited toward your fees for the semester for which you are preregistering.

**Student Activity Fee** — If you're carrying eight or more credits (including both on- and off-campus courses), you will be charged a $32 per semester student activity fee. If you live in university housing, you will be charged the $32 fee regardless of the number of credit hours you take. You have the option of paying the $32 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-Stor, the student newspaper.

Paying the campus activity fee entitled you to use the Patty Center recreational facilities, and be admitted at 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>Service Description</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission Processing Fee</td>
<td>$10</td>
</tr>
<tr>
<td>Certificate or Associate Degree Application</td>
<td>$20</td>
</tr>
<tr>
<td>Baccalaureate or Graduate Degree Application</td>
<td>$35</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>$5</td>
</tr>
<tr>
<td>Records Duplication Charge</td>
<td>$5</td>
</tr>
<tr>
<td>Textbooks (approximate)</td>
<td>$250</td>
</tr>
<tr>
<td>Transcript Fee</td>
<td>$10/transaction</td>
</tr>
<tr>
<td>Regular Service</td>
<td>$10/transaction</td>
</tr>
<tr>
<td>Immediate Service</td>
<td>$10/transaction</td>
</tr>
</tbody>
</table>

All fees are subject to change.

**Definitions: Other General Fees**

**Admission Processing Fee** — You must submit a $20 processing fee with your application for admission to a baccalaureate, master's or doctoral degree. A $10 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) if time permits, by making a written request, for a cost of $2 per page to a maximum charge of $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.

**Textbooks** — You can expect to pay up to $250 per semester for textbooks.

**Transcript Fee** — Official and unofficial transcripts of UAF academic records are prepared for a fee of $3 for each copy. Normal processing time is two weeks; however, at the end of a semester or at other times during the year, you should allow four weeks for processing.

You may occasionally need transcripts sooner than one can be produced through regular processing. For a $10 fee, paid when the request is made, a transcript will be prepared as soon as possible, but not later than 24 hours after the request is made and the fee paid. For each additional copy of the transcript made from the same request, a $5 fee is charged. Therefore, when you need immediate service for two transcripts, the fee is $15. All requests for transcripts must be submitted in writing. Information to be included in the request include dates and places of attendance, social security number and date of birth.
Paying Fees

At registration, you are expected to pay all charges due for the entire semester. This includes tuition and fees, room rent, meal ticket costs, student activity fees, health fee and deposits. In addition, any charges unpaid at the end of the previous semester are due before you can re-enroll at the university.

Registration is not complete until you have paid your fees. If you’re unable to pay all charges at the beginning of the semester, you may apply for deferred fee payment. The Office of Student Affairs and the Financial Aid Office provide applications and approval for deferred fee payment. Approval is based on your expected loss of more than one week but semester prior to and during the first five days of instruction for the semester.

Consequences of not Paying

UAF may withhold transcripts, diplomas or final grade reports from you if you haven’t paid all financial obligations to the institution. If you’re delinquent in paying any amount due the university, registration for succeeding semesters may be withheld.

Your registration may be canceled at any time if you fail to meet installment contract payments or financial obligations. The registration process is not complete until you have paid all fees and charges due the university.

Refunds - General University Tuition and Fees

<table>
<thead>
<tr>
<th>Course Length</th>
<th>100% Refund</th>
<th>50% Refund</th>
<th>No Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester length courses</td>
<td>Prior to and during the first 5 days of instruction for the semester</td>
<td>6th through 10th days of instruction for the semester</td>
<td>On or after the 11th day of instruction for the semester</td>
</tr>
<tr>
<td>Courses meeting more than one week but less than a semester</td>
<td>Prior to and during the first 7 calendar days of the course</td>
<td>8th through 14th calendar day of the course</td>
<td>On or after the 15th calendar day of the course</td>
</tr>
</tbody>
</table>

* Drop/Add and Total Withdrawal forms must be submitted to the Office of Admissions and Records by the deadlines to qualify for refunds.

** The first day of instruction for semester-length courses is the first day of instruction listed in the official academic calendar.

*** Student-initiated withdrawals are permitted only during the first 60 percent of a course. Therefore, no refunds will be issued after the withdrawal deadline for any course.

If you are withdrawing from courses or canceling enrollment, you must complete an official withdrawal form and turn it in at the Office of Admissions and Records. Full or partial refund of undergraduate and graduate credit hour fees, and the non-resident tuition and fees will be made under the following circumstances:

1. If the courses you registered for are canceled by UAF, your tuition and fees will be refunded in full.

2. If you formally withdraw from a course, a refund will be made according to the following schedule as determined by the date of the formal withdrawal action.

   A. For semester-length courses:
      1. 100 percent refund of tuition and fees — withdrawal prior to and during the first five days of instruction for the semester.
      2. 50 percent refund of tuition only — withdrawal on or after the sixth day through the tenth day of instruction for the semester.
      3. No refund — withdrawal on or after the eleventh day of instruction for the semester.

   B. For courses meeting more than one week but less than a semester:
      1. 100 percent refund of tuition and fees — withdrawal prior to and during the first seven calendar days of the course.
      2. 50 percent refund of tuition only — withdrawal on or after the eighth calendar day through the fourteenth calendar day of the course.
      3. No refund — withdrawal on or after the fifteenth calendar day of the course or after 60 percent of the course has passed.

   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.

   D. For the purpose of the refund policy in B., the first day of instruction is the course start date as indicated in the semester class schedule. Student-initiated withdrawals are permitted only during the first 60 percent of the course. Therefore, no refunds will be issued after the withdrawal deadline for any course.

   E. For the purpose of the refund policy in C., the first day of the course is the course start date as indicated in the semester class schedule.

   F. 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.

   G. 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.

   H. Vocational/technical course fees are subject to this refund schedule.

   I. 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.

7. Housing refunds: see the housing section of this catalog.

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. You shouldn't assume that you won't be eligible for financial aid. 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 the financial aid form to apply for all financial aid programs except the Alaska Student Loan Program.
2. Mail it, with the correct fee, to College Scholarship Service, P.O. Box 6351, Princeton, NJ 08541. The University of Alaska Fairbanks CSS code number is 4866.
3. Complete a UAF Financial Aid Application and return it to the UAF Financial Aid Office.

Completing these steps constitutes application for any financial aid offered at UAF, except student loans and state of Alaska programs. 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?

Residence 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 99811.

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>$1,616</td>
<td>$1,616</td>
<td>$1,616</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>3,246</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>TOTAL</td>
<td>$10,666</td>
<td>$9,091</td>
<td>$6,874</td>
</tr>
</tbody>
</table>

*Tuition for non-Alaska residents, add $2,028.

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. Send the SAR to the Financial Aid Office. Pell Grants range up to $2,300 for the 1990-91 school year. Eligible students enrolled in four-year degree programs can receive a Pell Grant for no 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 FAF and a separate SEIG application 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, 1675 "C" Street, Anchorage, Alaska, 99501-5198, 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 Alaska Student Loan Program 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 Butterovich Building, Fairbanks, Alaska 99775, telephone (907) 474-7687.
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 as early as possible to head 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 may 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 $6,500 each school year. The Alaska Student Loan, combined with estimated income for the school year, cannot exceed estimated cost of education as determined by the Alaska Student Loan Office. 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 FP, Juneau, Alaska 99811, telephone (907) 465-2962 or (907) 465-2990. 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 Rasmuson 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 outlines 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>Monthly Payment</th>
<th>Total</th>
<th>Interest</th>
<th>Principal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>$3,000.00</td>
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<td>$20,000.00</td>
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<td>$10,719.20</td>
<td>$20,000.00</td>
<td>$20,719.20</td>
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</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 an aggregate loan maximum of $17,500. Graduate students may borrow up to $7,500 each year to a total, including all prior Stafford Loans, of $20,000. Since this loan is based on financial need, a FAF must be filed before the 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 $10,000 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 anticipated/emergency education-related expenses. Students are restricted to a maximum of $1,000 each 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 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 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 aid as possible, you should apply for the Pell Grant Program. More information about the federal programs is found in the publication "The Student Guide." 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 error, student changes in credit load, change in residence, or other reasons consistent with university policies and procedures.
What are the Application Deadlines?

<table>
<thead>
<tr>
<th>Applications</th>
<th>Priority deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska Student Loan</td>
<td>May 15</td>
</tr>
<tr>
<td>Financial Aid Form</td>
<td>May 1</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 reason 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 amount due UAF at the time of disbursement should be paid before the proceeds of your financial aid is 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.

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

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 what terms and conditions are 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 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, Gruening 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>Supplemental Educational Opportunity Grants (SEOG)</th>
<th>College Work Study (CWS)</th>
<th>UAF Scholarships</th>
<th>Guaranteed Student Loans (Renamed Stafford Loans)</th>
<th>Alaska Student Loans</th>
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<tbody>
<tr>
<td><strong>Undergraduate</strong></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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<td>Yes</td>
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<td>Must have financial need</td>
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<td>Must be making satisfactory academic progress</td>
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<td>Must apply by May 15</td>
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<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>Yes</td>
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<td>Yes</td>
</tr>
<tr>
<td>Must be repaid</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

Professor Lawrence Bennett, head of the engineering and science management department, puts his ideas to work as he instructs a night class via a closed circuit television system.
The leaves are turning, and so are the hamburgers, as the residents of the co-ed Skarland Residence Hall enjoy a warm fall day.

For women who prefer single-sex residence halls, Wickersham Hall is located conveniently near the center of campus.
## Housing

### 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 maximum terms of occupancy. Since housing applications are mailed to students with acceptance letters from the Office of Admissions and Records, you should plan to complete your enrollment application well in advance.

### How do Students Apply?

After receiving acceptance letters, students should complete the enclosed housing application for room and board. It should be mailed immediately to the Housing Office, University of Alaska Fairbanks, Fairbanks, Alaska 99775-0880 with a $50 reservation and damage deposit. Confirmation for residence hall housing is assured when you receive written notification from the Housing Office.

### What Does it Cost?

**Room Rent** — Along with all other fees, room rent is due in full at registration. Current semester room charges are $570 per person in double rooms; $690 for single rooms; $760 per person in apartments; and $800 for double/single rooms (when available). 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 are 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 $775**. You may purchase the **14 meals per week program at $750**. The third option costs **$725 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 $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.

### What Facilities are Available?

- **Bartlett 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 in 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 99775-0000.

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.

Academic adviser Sophie Shields helps Simeon Lincoln sort through his spring semester opportunities.
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 classes and planning an academic schedule. The Advising Center has general advisors and faculty members from various disciplines throughout campus. You have access to all members of the advising team and department advisors.

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 degree programs 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 Planning and Placement

Whether you're a freshman or a senior, an important part of your university experience is developing life and career goals. The Career Planning and Placement Center can help you work out an academic program to enhance your career potential. The 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 Planning and Placement 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 discussion 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.

RSS 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 developmental studies. SDLC services are available by appointment 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 Moose Creek Center. LRC staff help students improve and expand skills needed to be successful in university classes. The center provides individualized instruction and tutoring in mathematics, writing, reading, grammar, spelling and study skills.

LRC staff help students identify problem areas in courses and assist in developing personal study plans/skills. Students may work with course materials or LRC resources. A variety of learning options are available, including tutoring, lab courses, workshops, independent and small group study and computer assisted learning programs. Students may use the audiovisual aids, typewriters, computers, quiet study carrels and other resource materials. For more information, call the Learning Resource Center at (907) 451-7223.

The Math Laboratory provides flexible hour assistance to students enrolled in mathematics courses. The lab is coordinated by faculty and services are provided by graduate students. Regular workshops for students with math anxiety are offered. For more information contact the math department, (907) 474-7332.

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) 474-7193.

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 it also maintains wide selections of general reading books, college supplies, soft goods, calculators, personal care items, greeting cards and other merchandise which contribute to the overall educational experience offered by the university.

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 two other residence halls 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 Adviser at the Center for Health and Counseling, (907) 474-7043, or the Section 504 coordinator at Employee Relations, 101 Eielson Building (907) 474-7918, as early as possible to get assistance. If students are not satisfied with actions taken by the University of Alaska Fairbanks in response to requests for assistance or accommodation, they may obtain a copy of the university's grievance procedures from either the Disabled Student Services Adviser or the Section 504 coordinator.

Health Center

The Center for Health and Counseling provides preventive, educational, diagnostic, and remedial medical and psychological services, as well as student health insurance claim processing services.

The medical staff includes a medical technologist, two advanced nurse practitioners and a physician. The primary care benefits that you receive by paying the health fee include all routine office care or outpatient services including family planning and immunizations. Medications, laboratory services and medical supplies are available to students at reduced costs.

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 (ADARE) 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.

Military Education Programs

UAF's School of Career and Continuing Education is a Servicemen's Opportunity College Associate Degree (SOCAD) member school. SOCAD allows Army personnel and dependents to finish associate degree programs without losing credits as they transfer to different locations during their military careers. In support of the Community College of the Air Force (CCAF), SCCE also offers a full spectrum of courses at Eielson Air Force Base. Courses are also offered at Fort Wainwright and Fort Greely Army posts and Galena Air Force Base.
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 Planning and Placement Office, (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.

The architecturally-striking Wood Center is the home of the student activities office, the Sun Star student newspaper, and the student government—as well as a cafeteria, pizza restaurant, game rooms and a bowling alley.
Hockey captain Matt Koleski keeps a close eye on the action from the penalty box during a game in the UAF Ice Arena.

Lady Nanooks basketball coach Todd Mezzulo gives his players a halftime chalktalk during a game against Eastern Montana.
Campus Resources: What’s Available

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 over 500 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 8800. This system is currently configured with 32 megabytes of main memory, 3.2 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 DECNET data communication facilities. The VAX 8800 is also connected to both BITNET and NorthNet, 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, (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 and 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) 474-7205.

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 toward your degree at UAF. In a study abroad experience you can master a foreign language, explore your roots, learn about other cultures and explore new lands. Study abroad has an important role to play in the larger process of educating citizens with global awareness. 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. UAF offers study abroad opportuni-
ties in the Pacific Rim nations as well as Europe and Canada.

In formal student exchange programs, students enroll full
time at UAF but attend school abroad; therefore, you may use
your Alaska Student Loan while studying abroad. All credits
are UAF credits; no transfer of credits is required. Students are
responsible for transportation, housing, food and incidentals at
the host institution.

Specific programs are listed below. The International Pro-
grams Office can help you choose the best study abroad pro-
gram for your interests, make the appropriate language and
and cultural preparations, and complete the necessary applica-
tions. For information, contact the International Programs
Office, 206 Eielson Building, (907) 474-5327.

Gifu University, Gifu, Japan — Gifu is an excellent national
university. Students with a year of Japanese language prepara-
tion may continue language study at Gifu through a program
that requires students to take responsibility for the pace of
study. Students with less than a year of language study may
enroll in regular courses; science and engineering are especial-
ly strong at Gifu and internships can be arranged in appropriate
laboratories. Mombusho Fellowships are available for gradu-
ate study in a variety of fields. The international student hous-
ing on Gifu campus is outstanding.

Nagoya Gakuin University, Nagoya, Japan — NGU is a
small, private university that offers an outstanding well-structure-
d course of study in Japanese language and culture. One
year of Japanese is a prerequisite. NGU has emphasized busi-
ness education, and recently expanded to include a foreign
language program of study. Exchange students reside in a new
international students’ dormitory. NGU is located near Seto,
the center for ceramic art production in Japan.

Hokkaido University, Sapporo, Japan — Hokkaido is an
Imperial University on the northern island of Hokkaido. Gradu-
ate students with advanced Japanese language ability will
find especially good opportunities in fisheries, anthropology
and linguistics. Mombusho Fellowships are available. Both
undergraduate and graduate students may participate in a
small but growing Japanese language program. There is a sum-
mer exchange for studies of Japanese language and culture.
Home stays are arranged for Japanese language programs.

Seoul, Korea — The campus of Soong Sil University is
conveniently located in Seoul, the capital city of South Korea.
It is a comprehensive private university with 35 departments
comprising six colleges and four graduate schools. At least one
semester of Korean language (available at UAF) is required for
the Soong Sil University exchange program. Today, Soong Sil
University has 35 departments comprising six colleges and four
graduate schools.

University of Copenhagen, Copenhagen, Denmark — UC is
a state-supported, comprehensive university. UC offers courses
at the undergraduate and graduate level at all of its five
faculties: theology, medicine, science, social sciences and hu-
maities. The language of instruction is Danish. A year of
Danish studies at UAF is a prerequisite to entering the program.
UC also offers student intermediate and advanced Danish lan-
guage training. Special intensive courses are arranged before
the start of both fall and spring semester. UAF offers excellent
Danish language preparation.

McGill University, Montreal, Quebec, Canada — McGill is
an outstanding comprehensive university in French-speaking
Montréal which offers course work in English. Students devel-
OP a plan of study to submit to the McGill host department and
work closely with a McGill faculty advisor. Excellent programs
are available in many undergraduate and graduate fields of
study and McGill has a vibrant undergraduate Northern Studies
program.

Study in the U.S.S.R. — UAF is currently negotiating with
the Ministry of Education in the U.S.S.R. to provide study
abroad opportunities to students with, preferable, two or three
years of language preparation. UAF offers Russian language
instruction.

Study in the People’s Republic of China — UAF is currently
negotiating with institutions in China to provide opportunities
for foreign language study. Some language preparation will be
required of students.

In all of the programs listed above, students enroll full time
at UAF but attend school abroad. All credits are UAF credits
and no transfer is involved. Students are responsible for trans-
portation, housing, food and incidentals at the host institution.
Academic schedules at some locations may be different from
those at UAF. Costs at most locations are comparable to those at
UAF.

Study in Europe — UAF belongs to NICS (Northwest Inter-
institutional Council on Study Abroad), a consortium of uni-
versities in the Pacific Northwest which pools its resources to
provide modest-cost study abroad programs in London, En-
gland; A Vinylon, France; Cologne, Germany; and Siena, Italy.
Students who participate in NICS will find costs lower than
for nearly all other study abroad programs, approximately
$3,500 per term for tuition, books, room and board, public
transportation and excursions which are integrated with the
courses. Courses are mainly in the humanities and social sci-
ciences, although some science courses are occasionally taught
at some sites. A Vinylon and cologne require some language
preparation; London and Siena courses are taught in English.
You can enroll through UAF for NICS classes; therefore, you may
use your Alaska Student Loan while studying abroad through
the NICS program. NICS courses are offered on semester and
quarter schedules. Housing is often with families.

Western Undergraduate Exchange

UAF participates in the Western Undergraduate Exchange
(WUE) administered by the Western Interstate Commission
for Higher Education (WICHE). Residents of Colorado, Hawaii,
Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon,
South Dakota, Utah and Wyoming may enroll in designated
degree programs at a reduced tuition rate (the in-state tuition
plus 50 percent of that amount). For a complete list of applica-
ble degree programs or more information, contact the UAF
Graduate School Office, 305 Signers’ Hall, (907) 474-7464, or
WICHE Student Exchange Program, Drawer P, Boulder, CO
80301-9752.

Westfield State College, Massachusetts

UAF maintains a student exchange program with Westfield
State College in Massachusetts. The deadline for applying for
this program is November 1. Contact the Student Affairs Office,
5th floor of the Gruening Building, (907) 474-7317.

Honor Societies

The following honor societies are active at UAF.

Alpha Phi Sigma (for criminal justice students)
Psi Chi (for psychology students)
Phi Kappa Phi (national honor society for students in all
fields of study)
Sigma Xi (for science students)
Tau Beta Pi (for engineering students)

Honor Program

The Honors Program at UAF provides superior undergradu-
ate students with intellectual opportunities beyond the scope
generally found in the lecture halls of a university. These
opportunities include smaller classes, direct contact with top
faculty members and greater curriculum flexibility which al-
lovs 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, with 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 reading 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 Rasmuson Library is the largest in the state, with more than a million volumes. The library's collection of Alaska and Polar Regions materials is one of the largest of its kind, and attracts scholars from all over the world.

The Rasmuson Library provides students with books, magazines, audiovisual materials, recordings, government documents, maps, archival collections, software and other materials and services to support class work, papers and general information needs.

In addition to the traditional ways to access library materials, the library provides CD-ROM computer databases in education and management.

The library's card catalog is on a computer database, which provides greatly improved author, title, and subject access. Databases are also available which provide access to periodical articles in a variety of fields. Library faculty routinely perform database searches for students and faculty, to provide bibliographies and to identify the most current information in all fields. There is a charge for some database searches.

The Western Library Network database, called LaserCat, provides access to more than 2.6 million titles held by nearly 400 libraries located from Alaska to Arizona. Interlibrary loan services enable students to borrow, at no charge, materials held by other libraries. GNOSIS, the library's on-line computer system, provides access to the holdings of Rasmuson and other libraries in the UA system. Public GNOSIS terminals are available in the library and on a dial-up basis to those with personal computers and modems.

GNOSIS is also the library's circulation system, and you'll need a GNOSIS card to check out materials; you can get a GNOSIS card at the Distribution Counter.

Collections contained in the library include the world-class Alaska and Polar Regions collection, the archives and manuscripts collection, the federal government documents collection, the juvenile collection, the main book collection, the map collection and the periodical collection.

A variety of computers and software is available in the library. The Fairbanks Node of the University of Alaska Computer Network (UACN) is also located here. Typewriters and calculators are provided, and a study area is open 24 hours a day during semesters.

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

For information, contact the Rasmuson Library, (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 Tephra Chronology 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.
UAF scientists discovered the first mammals able to hibernate with below freezing core body temperatures. Graduate student Mark Reed holds one of the "supercooling" arctic ground squirrels.
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, biology, oceanography, 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 assistants 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 ($520 to $720 per semester) and family housing apartments ($280 to $490 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. About 40 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 $20 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 purposes of earning scholastic 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 as a center for cold region 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: Arctic, circumpolar, and cold region studies, 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 99775-0620

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, Gueneuing Bldg
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.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.** Biology

### Business Administration
- **M.B.A.**

### Chemistry
- **M.A.** Chemistry*  
- **M.S.** Chemistry*  
- **M.A.T.** Chemistry

### 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

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

### Interdisciplinary Studies
- **M.A.**  
- **M.S.**  
- **Ph.D.**

### 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  
- **M.S.** 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
Research

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.
Professor Cecelia Martz pays close attention to her students in a class at Kuskokwim Campus in Bethel.
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**

Anne D. Shinkwin, Dean

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, justice, speech communication and theater.

**Natural Sciences, College of**

Koff Jayaweera, Dean

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.

**Rural College**

Gerald V. Mohatt, Dean

The Rural College 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 degrees 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**

James V. Drew, Dean

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 Soils 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**

Patricia A. Book, Dean

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 extends educational programs to military bases in the area and 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**

Vincent S. Haneman, Jr., P.E., Dean

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 develop 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.

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It’s time for Kayia Smith to put on her “stage face” in preparation for her performance in Little Shop of Horrors.
<table>
<thead>
<tr>
<th>Degrees and Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cert.—Certificate</td>
</tr>
<tr>
<td>A.A.—Associate of</td>
</tr>
<tr>
<td>Arts</td>
</tr>
<tr>
<td>A.A.S.—Associate of</td>
</tr>
<tr>
<td>Applied Science</td>
</tr>
<tr>
<td>B.A.—Bachelor of</td>
</tr>
<tr>
<td>Arts</td>
</tr>
<tr>
<td>B.B.A.—Bachelor of</td>
</tr>
<tr>
<td>Business Administration</td>
</tr>
<tr>
<td>B.Ed.—Bachelor of Education</td>
</tr>
<tr>
<td>B.F.A.—Bachelor of Fine Arts</td>
</tr>
<tr>
<td>B.M.—Bachelor of Music</td>
</tr>
<tr>
<td>B.S.—Bachelor of Science</td>
</tr>
<tr>
<td>B.T.—Bachelor of Technology</td>
</tr>
<tr>
<td>E.M.—Engineer of Mines</td>
</tr>
<tr>
<td>M.A.—Master of Arts</td>
</tr>
<tr>
<td>M.F.A.—Master of Fine Arts</td>
</tr>
<tr>
<td>M.S.—Master of Science</td>
</tr>
<tr>
<td>M.A.T.—Master of Arts in Teaching</td>
</tr>
<tr>
<td>M.B.A.—Master of Business Administration</td>
</tr>
<tr>
<td>M.C.E.—Master of Civil Engineering</td>
</tr>
<tr>
<td>M.Ed.—Master of Education</td>
</tr>
<tr>
<td>M.E.E.—Master of Electrical Engineering</td>
</tr>
<tr>
<td>Ph.D.—Doctor of Philosophy</td>
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<tr>
<td>Accounting, B.B.A.</td>
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<tr>
<td>(see also Applied Accounting)</td>
</tr>
<tr>
<td>Airframe and Powerplant, Cert., A.A.S.</td>
</tr>
<tr>
<td>Alaska Native Languages (minor only)</td>
</tr>
<tr>
<td>Alaska Native Studies, B.A.</td>
</tr>
<tr>
<td>Anthropology, B.A., B.S., M.A., Ph.D.</td>
</tr>
<tr>
<td>Applied Accounting, A.A.S.</td>
</tr>
<tr>
<td>Applied Business, A.A.S.</td>
</tr>
<tr>
<td>General Business, A.A.S.</td>
</tr>
<tr>
<td>Applied Mining Technology, Cert.</td>
</tr>
<tr>
<td>Applied Physics, B.S.</td>
</tr>
<tr>
<td>Arctic Engineering, M.S.</td>
</tr>
<tr>
<td>Art, B.A., B.F.A.</td>
</tr>
<tr>
<td>Asian Studies (minor only)</td>
</tr>
<tr>
<td>Athletic Coaching (minor only)</td>
</tr>
<tr>
<td>Atmospheric Sciences, M.S., Ph.D.</td>
</tr>
<tr>
<td>Aviation Technology, A.A.S.</td>
</tr>
<tr>
<td>Biological Sciences, B.A., B.S.</td>
</tr>
<tr>
<td>Biology, M.S., M.A.T., Ph.D.</td>
</tr>
<tr>
<td>Botany, M.S.</td>
</tr>
<tr>
<td>Business Administration, B.B.A. Finance</td>
</tr>
<tr>
<td>International Business Management</td>
</tr>
<tr>
<td>Marketing</td>
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<tr>
<td>Travel Industry Management Business Administration, M.B.A. (see also Applied Business)</td>
</tr>
<tr>
<td>Chemistry, B.A., B.S., M.A., M.S., M.A.T.</td>
</tr>
<tr>
<td>Citizens' Law (minor only)</td>
</tr>
<tr>
<td>Civil Engineering, B.S., M.C.E., M.S. Community Health Aid, Cert., A.A.S. Community Psychology, M.A.</td>
</tr>
<tr>
<td>Computer Information Systems (minor only)</td>
</tr>
<tr>
<td>Computer Science, B.S., M.S. Culinary Arts, Cert., A.A.S.</td>
</tr>
<tr>
<td>Diesel/Heavy Equipment Mechanics, Cert. Drafting Technology, Cert.</td>
</tr>
</tbody>
</table>
Accounting

School of Management
Department of Accounting

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.
2. Complete the following statistics requirements:
   ECON 226 - Intro to Statistics for Economics and Business .......... 3
   ECON 227 - Intermediate Statistics for Economics and Business .... 3
3. Complete the following program (major) requirements:

   Common Body of Knowledge Requirements Credits
   ACCT 101, 102 - Elementary Accounting .................................. 6
   ACCT 310 - Acct. Information Systems ...................................... 3
   BA 101 - Intro. to Management Information Systems ................... 3
   BA 325 - Financial Management ........................................... 3
   BA 331 - Business and Law .................................................. 3
   BA 452 - Principles of Marketing .......................................... 3
   ECON 324 or 350 - Intermediate Macroeconomics ....................... 3
   Money & Banking .................................................................. 3
   BA 390 - Operations Management ........................................... 3
   BA 462 - Administrative Policy ............................................. 3
   Accounting — General Requirements
   BA 332 - Advanced Topics in Business and Law ......................... 3
   Accounting — Major Requirements
   ACCT 303 - Governmental Accounting ..................................... 3
   ACCT 452 - Auditing ............................................................. 3
   Two of the following:
   ACCT 403 - Advanced Taxes .................................................. 3
   ACCT 404 - Advanced Cost Accounting and Controllability ........... 3
   ACCT 405 - Contemp. Issues in Accounting ............................ 3
   ACCT 472 - Computer Control and Adv. Auditing ....................... 3
   ACCT 473 - Applied Systems Design ........................................ 3
   Free Electives ...................................................................... 14
   (of which at maximum of 3 credits may be taken in accounting and 9
   credits in business administration or economics)
   4. Minimum credits required ............................................... 130

MINOR in Accounting:

ACCT 101 — Elementary Accounting .......................................
ACCT 102 — Elementary Accounting .......................................
ACCT 310 — Income Tax ......................................................
ACCT 361 — Intermediate Accounting ....................................
ACCT 362 — Managerial Cost Accounting ................................
ACCT 342 — Cost Accounting ..............................................
Another 300- or 400-level accounting course .........................

Airframe and Powerplant

School of Career and Continuing Education
Trade and Industry Department

Certificate in Airframe and Powerplant; Degree: A.A.S.
Minimum Requirements for Degree — 60 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. After receiving an airframe and powerplant certificate, students may elect to complete the associate of applied science degree 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 degree requirements:
   Written Communication ....................................................... 6
   (ENGL 111 plus any 400-level written communications course or applied written communications course as approved by the head of the department in which the degree is earned.)
   Oral Communication ......................................................... 3
   Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .......... 6
   (At least 3 credits shall be either math or natural science at the 100 level or above.)
   Subtotal ........................................................................ 18
2. Complete the following major degree requirements:
   Same as Airframe and Powerplant Certificate Program .............. 49
   Degree Total .................................................................. 64

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

Airframe and Powerplant Certificate Program and Suggested Course Sequence

Summer Semester

<table>
<thead>
<tr>
<th>Course</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 - Physic Mechanic</td>
<td>4.0</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 Processors</td>
<td>0.5</td>
</tr>
<tr>
<td>AFPM 151 - Clean &amp; 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>0.5</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>

Fall Semester

<table>
<thead>
<tr>
<th>Course</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 Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 240 - Turbo 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 259 - Hydrualic and Pneumatic Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 261 - Wood Structures</td>
<td>0.5</td>
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<tr>
<td>AFPM 264 - Sheet Metal Structures</td>
<td>1.5</td>
</tr>
<tr>
<td>AFPM 284 - Aircraft Welding</td>
<td>1.5</td>
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<tr>
<td>Total</td>
<td>17.5</td>
</tr>
</tbody>
</table>
### 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>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>AFPM 145 - Basic Mathematics</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 146 - Basic Electricity</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 147 - Physics for Mechanics</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 148 - Aircraft Drawing</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 149 - Fluid Lines and Fitting</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 150 - Materials and Processes</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 151 - Cleaning</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 152 - Federal Aviation Regulations</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 153 - Weight and Balance</td>
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</tr>
<tr>
<td></td>
<td>AFPM 154 - Aircraft Ground Operations and Servicing</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 251 - Fuel Systems</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 255 - Fire Protection Systems</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 257 - Instrument Systems</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13.0</td>
</tr>
</tbody>
</table>

#### 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>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>AFPM 252 - Propellers</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 253 - Position and Warning Systems</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 256 - Aircraft Landing Gear Systems</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 262 - Aircraft Landing Gear Systems</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 263 - Aircraft Finishes</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 266 - Assembly and Rigging</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 267 - Airframe Inspection</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 270 - Powerplant Testing</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 271 - Powerplant Inspections</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 272 - Powerplant Testing</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>18.5</td>
</tr>
</tbody>
</table>

### 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 mechanics oral, practical and written 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 appropriate to either the 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.

### Evening Program

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>AFPM 240 - Turbine Engines</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 250 - Powerplant Exhaust Systems</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 244 - Lubrication Systems</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 245 - Ignition Systems</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 246 - Fuel Metering Systems</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 247 - Induction Systems</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 249 - Powerplant Cooling Systems</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 252 - Propellers</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>AFPM 271 - Powerplant Inspections</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>AFPM 272 - Powerplant Testing</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>9.5</td>
</tr>
</tbody>
</table>

### Alaska Native Languages

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

**Minor only**

(907) 474-7874

There are 20 different Alaska Native languages: Aleut, Atliniq (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 speak and teach these languages 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, educational, and political development.

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 Koyukon Athabaskan. For work in all other languages, individual or small-group instruction is offered under special topics. Thus there have been instruction, seminars, and workshops also in Tlingit, Haida, St. Lawrence Island Eskimo, Aleut and Kutchin, comparative Eskimo and comparative Athabaskan.

UAF 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 languages 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 Alaskan 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 seeks students from many fields of specialization who anticipate either direct or indirect professional involvement in Alaskan 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: 12 Credits
ANS 101 - Introduction to Alaska Native Studies
(Select 3 courses from the following group)
ANTH 115 - Eskimo-Alutik Languages
ANL 216 - Indian Languages of Alaska
HIST 110 - History of Alaska Natives
FS 263 - Alaska Native Politics

Core Courses: 24 Credits
A. 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
or ANS/ENGL 349 - Narrative Art of Alaska Native Peoples
or ANS/PS 450 - Comparative Aboriginal Rights and Policies

B. Complete 9 credits of the following:
ANS 120 - Cultural Differences in Institutional Settings
ANS 160 - Alaska Native Dance
ANS/THR 161 - Introduction to Tuma Theater
MUS 223 - Native Alaskan Music
ANS 250 - Current Alaska Native Leadership Perspectives
ANS 251 - Practicum in Native Cultural Expression
ANS 300 - Rhetorical Expression of the Alaska Native Experience
ANS 315 - Tribal Peoples and Development
ANS/PS 325 - Alaska Native Self-Government
ANS 351 - Practicum in Native Cultural Expression
ANS 360 - Advanced Alaska Native Dance
ANS 361 - Advanced Tuma Theater
ANS/AAT 365 - Native Arts of Alaska
ANS 375 - Native American Religion and Philosophy
SOC 408 - American Minority Groups
SOC/ED 420 - Alaska Native Education
ANS 475 - Alaska Native Social Change

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.

Cross-Cultural Communications Program - 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 (CCJ= and (CCC) sections "numbers.

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: Credits
ANTH 103 - Human Evolution and World Prehistory
ANTH 104 - Social/Cultural Anthropology

Historical Science:
(Select 6 credits from the following group)
ANTH 211 - Fundamentals of Archeology
ANTH 215 - Human Biology
ANTH 414 - Environmental Archeology
ANTH 423 - History of Social/Cultural Anthropology

Social Science:
(Select 6 credits from the following group)
ANTH 300 - Religion
ANTH 306 - Economics
ANTH 307 - Kinship and Social Organization
ANTH 320 - Language and Culture
ANTH 410 - History of Social/Cultural Anthropology

Area Courses:
(Select one 3 credit ethno- or area course and one 3 credit prehistory area course)
A. ANTH 301 - World Ethnography: region
B. ANTH 210 - New World Prehistory
ANTH 212 - Old World Prehistory

Open program electives at 200 level or above

*Different geographic regions will be covered each year; e.g. North America, Latin America, 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 at various levels of government in which some anthropological background and/or expertise is
beneficial. While the basic program is oriented toward general competence, subfield 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 necessary to enhance success in business. Many classes are scheduled in the evening in order 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 degree requirements:
   Written Communication ........................................... 6
   (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.)
   Oral Communication ........................................... 3
   Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .......................... 6
   (At least 3 credits shall be math or natural science at the 100 level or above.)
   Subtotal ......................................................... 15

2. Complete the following major degree requirements:
   ACCT 101 — Elementary Accounting .......................... 3
   ACCT 102 — Elementary Accounting .......................... 3
   BA 151 — Introduction to Business .......................... 3
   ABUS 154 — Human Relations ................................... 3
   ABUS 241 — Business Law ..................................... 3
   CAPS 150 — Computer Business Applications ................. 3
   Economics Elective ................................................ 3
   Subtotal ......................................................... 15

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

Applied General Business

Rural College
Northwest Campus

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

Requirements

Applied General Business — A.A.S. Degree

1. Complete the following general degree requirements:
   Written Communication ........................................... 6
   (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.)
   Oral Communication ........................................... 3
   Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .......................... 6
   (At least 3 credits shall be math or natural science at the 100 level or above.)
   Subtotal ......................................................... 15

2. Complete the following Applied Studies courses:
   ACCT 101 and 102 — Elementary Accounting .................. 3
   BA 151 — Introduction to Business .......................... 3
   BA 100 — Introduction to Data Processing and BASIC ......... 3
   ABUS 250 — Introduction to Managerial Accounting .......... 3
   ECON 201 — Principles of Economics-Macro .................. 3
   Subtotal ......................................................... 15

3. Electives ......................................................... 60
   Degree Total ...................................................... 60

Applied Business

School of Career and Continuing Education
Business Systems and Technology Department

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.
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 opal mining, underground metals mining, sand and gravel, and placer mining.

Requirements

Applied Mining Technology — Certificate

1. Complete the following major specialty courses:
   - MTH 101 — Minerals, Man and the Environment
   - AMT 101 — General Mining Technology
   - GEOS 101 — The Dynamic Earth
   - AMT 109 — Underground Mine Safety
   - AMT 110 — New Underground Miner Training
   - AMT 120 — Explosives I
   - AMT 125 — Mineral Exploration Techniques
   - AMT 129 — Surface Mining Safety
   - AMT 130 — Surface Mining Operations
   - AMT 140 — Environmental Permitting
   - AMT 170 — Fundamentals of Coal Mining

   Subtotal: 24 credits

2. Select 4 credits from the following major specialty electives
   - AMT 151 — Settling Pond Technology
   - AMT 152 — Techniques of Fire Assay
   - AMT 153 — Laboratory Analysis
   - AMT 154 — Water Quality and Flocculents
   - AMT 155 — Drilling Technology
   - AMT 156 — Applied Cartography
   - AMT 159 — Alaskan Ore Deposits
   - AMT 162 — Geochronological Dating
   - AMT 165 — Determined Stone Evaluation I
   - AMT 166 — Special Topics
   - AMT 205 — Geomagnetic Surveying
   - AMT 210 — Advanced Underground Mining
   - AMT 220 — Explosives II
   - AMT 230 — Field Methods
   - AMT 231 — Heap Leaching
   - AMT 280 — Colored Stone Evaluation II
   - AMT 282 — Cooperative Work Experience
   - AVTV 231 — Arctic Survival
   - HTH 120 — Industrial First Aid and CPR

   Subtotal: 13 credits

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 6 approved elective credits can be taken which must be approved in advance in writing by the adviser of the Mining Technology Program. Certificate total: 30 credits

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 challenge 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 necessitated 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. This degree is also the usual prerequisite for graduate study 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)
     - ART 105 — Beginning Drawing
   - ART 205 — Intermediate Drawing
   - ART 161, 162 or 163 — Design and Color Theory
   - (2 out of 3 courses)
   - ART 261 — History of World Art
   - ART 211 — Beginning Sculpture
   - ART 213 — Beginning Oil Painting
   - One elective chosen from:
     - ART 201 — Beginning Ceramics
     - ART 207 — Beginning Printmaking
ART 209 — Beginning Metalsmithing

B. Upper Division (27 credits)
Nine (9) credits in upper-division courses in one subject area, selected from one of the following concentrations:
- Drawing
- Sculpture
- Ceramics
- Printmaking
- Metalsmithing
- Upper-division Art History
- or Humanities 332 or Art 365
- Minimum Required Credits for major

3. Minimum Credits Required

Thirty credits from at least two specialization areas in Art: sculpture, ceramics, and metalsmithing.

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 203 — Intermediate Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 141, 142 — 2-D Design, Color and Design</td>
<td>3</td>
</tr>
<tr>
<td>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>
</tbody>
</table>

One of the following major concentrations:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 201 — Beginning Ceramics</td>
<td>6</td>
</tr>
<tr>
<td>or ART 207 — Beginning Printmaking</td>
<td>6</td>
</tr>
<tr>
<td>or ART 209 — Beginning Metalsmithing</td>
<td>6</td>
</tr>
<tr>
<td>or ART 268 — Beginning Native Art Studio</td>
<td>6</td>
</tr>
</tbody>
</table>

B. Upper Division (45 Credits)

*Upper Division Art History

Two areas of specialization in Art:
- Major specialization
- Minor specialization

Minor specialization

Art Electives

Thesis Project

3. Minimum Credits Required

130

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

Minors available for the B.F.A 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 12 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 consider 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

Rural College

Chukchi Campus

(907) 442-3400

Kuskokwim Campus

(907) 443-2201

Northwest Campus

School of Career and Continuing Education

(907) 451-7223

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

Associate of Arts Degree

1. Complete a minimum of 60 semester credits at the 100 level or above including at least 20 at the 200 level or above.

2. Complete a minimum of 45 semester credits in the 5 areas below with no less than 9 credits in each:

   - Written Communication
   - Oral Communication
   - Math/Natural Science
   - Humanities
   - Social Science

   Subtotal: 63

3. Electives:

   24

   Total: 60

Course Classifications

Subjects and courses that may be used to satisfy general requirements are classified as follows:

Humaities:

- Alaska Native Language
- American Sign Language
- Art
- Foreign Language
- History
- Humanities
- Journalism
- Languages
- Linguistics
- Literature
- Philosophy
- Music
- Religion

Sciences:

- Biological Sciences
- Biology
- Chemistry
- Geology
- Physical Anthropology
- Physical Geology
- Physical Sciences
- Physics

Applied Studies:

- Agriculture
- Airframe and Powerplant
- Alaska Studies
- Applied Accounting
- Applied Business
- Aviation Technology
- Computer Applications
- Construction Technology
- Culinary Arts
- Diesel/Heavy Equipment
- Drafting Technology
- Early Childhood Development
- Education
- Electronics
- Emergency Medical Training
- Fire Science
- Fisheries/Wildlife Management
- Home Economics
- Justice
- Library Science
- Management
- Mechanics
- Military Science
- Mining Technology
- Nursing/Health Science
- Nutrition
- Office Professions
- Paraprofessional Counseling
- Personal Development
- Petroleum
- Physical Education/Recreation
- Public Safety
- Public Administration
- Trade and Technology
- Water/Waste Technology
- Welding

Social Sciences:

- Anthropology
- Behavioral Science
- Business Law
- Counseling
- Economics
- Geography
- History
- Political Science
- Psychology
- Sociology

*History applies to the social science classification only for bachelor's degree.

Athletic Coaching

College of Liberal Arts

Department of Physical Education

(907) 474-7382

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
Prevent ion
Private Pilot
Commercial
Private Pilot
Multi-Engine Flight

Aviation Technology — A.A.S. Degree

School of Career and Continuing Education
Trade and Industry Department

Degrees: 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 offered for currently rated flight crew members who desire to refresh or upgrade their aeronautical knowledge in order to maintain and enhance their own qualifications. Ground schools and related courses are taken in residence, while 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 degree requirements:

Written Communication ........................................... 6
(ENGL 111 plus any 200-level written communications or applied written communications course as approved by the head of the department in which the degree is earned.)

Oral Communication ........................................... 3

Select a total of 3 credits from the following:

Science, mathematics or natural science .......................... 6
(At least 3 credits shall be math or natural science at the 100 level or above.)

Subtotal .................................................... 15

2. Complete the following major degree requirements:

AVTY 100 — Private Pilot Ground School ..................... 4
AVTY 101 — Private Pilot Flight Training ...................... 2
AVTY 102 — Commercial Ground Instruction .................. 4
AVTY 103 — Commercial Flying .................................. 2
AVTY 155 — Preventive Maintenance for Pilots .......................... 3
AVTY 200 — Instrument Ground School .......................... 4
AVTY 201 — Instrument Flight Training .......................... 3
AVTY 231 — Arctic Survival ........................................... 3
AVTY 235 — Elements of Weather .................................... 3

Subtotal .................................................... 25

3. Complete the following major specialty electives:

Select 15 credits from the following:

AVTY 105 — Seaplane Flight Training ........................... 1
AVTY 201 — Multi-Engine Flight Training ........................ 1
AVTY 106 — Introduction to Skin....................................... 1

AVTY 109 — Glider Flight Training ................................ 3
AVTY 110 — Biennial Flight Review ............................... 1
AVTY 116 — Aviation History ........................................ 3
AVTY 117 — Aviation Weather ........................................ 3
AVTY 202 — Flight Instructor Ground School .................... 3
AVTY 203 — Flight Instructor Flight Training ..................... 3
AVTY 205 — Instrument Flight Instructor ......................... 3
AVTY 206 — Flight Simulator Operations .......................... 2
AVTY 207 — Transport Pilot Ground School ...................... 4
AVTY 209 — Transport Pilot Flight Instruction ..................... 2
AVTY 226 — Flight Engineer Ground School ....................... 4
AVTY 227 — Flight Engineer Flight Training ....................... 2
FSCI 177 — Rescue Practices ........................................... 3

Subtotal .................................................... 15

4. General Electives ................................................... 4

Degree Total ..................................................... 80

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, 382, and at least 15 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.

2. Complete the following program (major) requirements:

Core Requirements: BIOL 105—106, 210, 271, 342, 362, MATH 200 or 272, STAT 301, 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.

Foreign Language is encouraged.

a. For Biology Option complete the following in addition to the core requirements: At least one course in physiology (BIOL 210 or 334) and 17 additional credits, including one course in zoology (BIOL 292, 395, 317, or 406). *

b. For Botany Option complete the following in addition to the core requirements: At least one course in plant structure/function (BIOL 334), zoology (BIOL 292, 395, 317, or 406); plant systematics and diversity (BIOL 331, 333, or 476); and plant ecology (BIOL 474). Two additional upper division (300-400) level courses in biology (including but not restricted to BIOL 306, BIOL 331, 333, 475, 476, ALR 313, 380, 411, or 451).*

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

*Students may petition to substitute with chemistry courses up to 7 credits in the B.A. program, 16 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 or 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.

Biology

College of Natural Sciences
Department of Biology and Wildlife

Degrees: M.S., M.A.T., Ph.D.

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

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

Botany

College of Natural Sciences
Department of Biology and Wildlife

Degree: 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 training in the field of management, finance, marketing and travel industry management to those individuals interested in entering industry or government upon graduation. The objective 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 major or minor who are either undecided or perhaps unclear about the nature of the various functions performed in the administration of organizations.

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 including 6 credits humanities electives (in addition to 9 credit written and oral communication requirement).
2. Complete the following statistics requirements:
   - ECON 225 — Intro to Statistics for Economics and Business ........................................................................ 3
   - ECON 227 — Intermediate Statistics for Economics and Business ......................................................... 3
3. Complete the following Common Body of Knowledge requirements:
   -Credits
   - ACCT 101 and 102 — Elementary Accounting ..................................................................................... 6
   - BA 101 — Intro to Management Information Systems ............................................................................. 3
   - BA 310 — Management Information Systems ....................................................................................... 3
   - BA 325 — Financial Management ...................................................................................................... 3
   - BA 331 — The Legal Environment of Business .................................................................................... 3
   - BA 343 — Principles of Marketing ......................................................................................................... 3
   - ECON 324 or 350 — Inter. Macroeconomics/Money & Banking ............................................................. 3
   - BA 360 — Operations Management ....................................................................................................... 3
   - BA 380 — Organizational Theory and Behavior .................................................................................... 3
   - BA 462 — Administrative Policy ........................................................................................................ 3
4. Complete the following Business Administration general requirements:
   - Credits
   - BA 301 — Processes of Management .................................................................................................... 3
   - BA 332 — Business Law ....................................................................................................................... 3
   - ACCT 352 — Management Accounting .............................................................................................. 3
   - ECON 321 or 322 — Intermediate Microeconomics/Managerial Economics .......................................... 3
   - BA 460 — International Business ......................................................................................................... 3
5. Free Electives (Upper Division) ........................................................................................................... 11
   (Maximum of 5 credits may be taken in School of Management, or transferred courses in Accounting, Business Administration, or Economics.)
6. Complete one of the following areas:

Finance
The field of finance is concerned with the raising of funds and their subsequent effective use by the organizations which require them. The student is thus concerned with understanding the complex workings of the financial system, financial policies of industrial firms and non-profit organizations, the vitality of the securities markets, and the valuation of individual securities and portfolios.

Finance Requirements:
   - Credits
   - BA 423 — Investment Management ..................................................................................................... 3
   - BA 430 — Current Topics in Finance .................................................................................................. 3
   - BA 461 — International Finance ........................................................................................................ 3
   - Upper-division electives approved in writing by major advisor .......................................................... 9

Human Resource Management
Human Resource Management is that field of management which is responsible for insuring that the organization's goals are met through proper management of employees needs as humans in a changing environment. The major functions of a personnel manager and those covered in this major are job analysis, job design, recruitment, selection, appraisal, training, development, compensation, safety and labor relations. Students completing this emphasis are well prepared to become accredited Human Resource Managers.

Human Resource Management Requirements:
   - Credits
   - BA 307 — Personnel Management ....................................................................................................... 3
   - BA 317 — Employment Law .................................................................................................................. 3
   - BA 327 — Collective Bargaining and Labor Relations ........................................................................... 3
   - BA 447 — Compensation Management ................................................................................................. 3
   - BA 457 — Training and Management Development .............................................................................. 3
   - Upper division electives approved in writing by major advisor .......................................................... 6

International Business
The interdisciplinary program in international business is designed to prepare students for careers with multinational firms, internationally oriented financial institutions, and state, national and international agencies dealing with foreign business.

International Business Requirements:
   - Credits
   - BA 443 — International Marketing ..................................................................................................... 3
   - BA 461 — International Finance ......................................................................................................... 3
   - ECON 463 — International Economics ................................................................................................. 3
   - Two academic years of one foreign language (German, Japanese, Russian, Spanish, French) ............. 12-18
   - PS 321 or 322 — International Politics ................................................................................................. 3
   - PS 437 — U.S. Foreign Policy ................................................................................................................ 3
   - PS 481 — The UN; Model UN, and International Admin. (optional) .................................................... 6-1

Complete one of the following courses (appropriate to language concentration):
   - GEOG 305 — Geography of Europe (Except USSR) or GEOG 306 — Geography of the Soviet Union or GEOG 311 — Geography of Asia or GEOG 405 — Political Geography

Complete one additional history course appropriate to language concentration

(Note: Foreign language credit may also meet humanities general degree requirements. Political science credits will meet social science elective in general degree requirements. Free elective will be adjusted accordingly.)
Management

Management is that administrative force responsible for bringing together the diverse components of an organization in order to achieve effective performance. Management includes the identification of objectives, the determination of policy, and implementation through strategic decision-making. Results are primarily achieved through the effective use of human resources and in a manner sensitive to the political, social, technological, and economic forces which constitute the environment.

Management Requirements: Credits
BA 307 — Personnel Management .................. 3
BA 327 — Collective Bargaining and Labor Relations .................. 3
BA 456 — Small Business Management .................. 3
Upper-division electives approved in writing by major advisor ............................................. 12

Marketing

Marketing encompasses all those business activities necessary for the operation of a business including the logistics of physical distribution. The marketing student thus needs to study the technical activities of product and market research, advertising and promotion, transportation, the structure of markets and the cultural dimensions of consumer behavior.

Marketing Requirements: Credits
BA 320 — Principles of Advertising .................. 3
BA 340 — Consumer Behavior .................. 3
BA 441 — Promotion Management .................. 3
BA 443 — International Marketing .................. 3
BA 445 — Marketing Research .................. 3
BA 471 — Marketing Management .................. 3
Upper-division electives approved in writing by major advisor ............................................. 3

Management Information Systems (MIS):

MIS is the study of information flows within organizations and of tools and techniques for rationalizing, improving, and automating those information flows. MIS students study how individuals and organizations use information, the analysis and design techniques used to determine and integrate information needs, and the computer-based technology required to automate information processing.

Management Information Systems Requirements: Credits
BA 201 — COBOL (optional but recommended) .................. 3
BA 220 — Basic Programming Languages (optional) .................. 3
ACCT 316 — Accounting Information Systems .................. 3
BA 410 — Systems Analysis and Program Design .................. 3
BA 412 — MIS Project .................. 3
BA 414 — Database Design for Management Information .................. 3
Upper-division electives approved in writing by major advisor ............................................. 3

Travel Industry Management:

The many diverse elements of the travel/tourism industry constitute an industry encompassing the housing, feeding, entertainment, and transportation of a growing number of visitors each year. The Travel Industry Management Program combines under one management education system the several historically separate disciplines of hotel/motel management, destination research and development, transportation, tourism management, and hospitality marketing.

Travel Industry Management Requirements: Credits
BA 160 — Tourism Principles & Practices .................. 3
BA 253 — Internship in Business .................. 3
BA 372 — Hotel Administration .................. 3
BA 375 — Marketing of Hospitality Service .................. 3
BA 377 — Food and Beverage Mgt .................. 3
BA 378 — Passenger Transportation Mgt .................. 3
BA 465 — Tourism Destination Plan and Development .................. 3
BA 471 — Tourism Seminar .................. 3

6. Minimum credits required.. 130

MINOR in Business Administration:

ACCT 101 — Elementary Accounting .................. 3
BA 101 — Introduction to Management Information Systems .................. 3
BA 243 — Financial Management .................. 3
BA 307 — Personnel Management or
BA 327 — Collective Bargaining and Labor Relations .................. 3
BA 471 — Hotel Management or
Prerequisites: BA 101; ACCT 101, 102; ECON 201, 202, 226, 227; MATH 161, 162.

MINOR in Travel Industry Management:

BA 131 — Introduction to Business .................. 3
BA 160 — Tourism Principles & Practices .................. 3

BA 372 — Hotel Administration or BA 377 — Food and Beverage Management .................. 3
BA 378 — Passenger Transportation Management .................. 3
BA 471 — Tourism Seminar .................. 3
Prerequisites: BA 101; ACCT 101, 102; ECON 201, 202, 226, 227; MATH 161, 162.

*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

Degrees: B.A., B.S., M.A., M.T., M.S.

Minimum Requirements for Degrees: B.A., B.S. — 130 credits; M.A., M.S. — 30 additional credits; M.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 medicine, or as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce has increased the demand for trained personnel 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 who are interested in careers in the growing area of biotechnology. This program may especially be attractive to students interested in premedicine.

The department offers the student well-equipped laboratories for research in nuclear magnetic resonance spectrometry, infrared, ultraviolet/visible, laser Raman, and atomic absorption spectrophotometry, mass spectrometry, gas chromatography, and a mass spectrometer, x-ray diffractometer, electron microscope, and liquid scintillation 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 Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 105-106</td>
<td>General Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>Basic Inorganic</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>Chemical Equilibrium &amp; Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>Quantitative Analysis Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 311-322</td>
<td>Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 324</td>
<td>Organic Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 331-332</td>
<td>Physical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 433</td>
<td>Analytical Instrumental Lab.</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 434</td>
<td>Analytical Instrumental Lab.</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 492</td>
<td>Seminar (senior)</td>
<td>2</td>
</tr>
<tr>
<td>CS 201</td>
<td>Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>or ES 201</td>
<td>Computer Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200-201-202</td>
<td>Calculus</td>
<td>12</td>
</tr>
</tbody>
</table>

Total 18
### Chemistry — B.S. Degree
1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:
   - Complete the courses required for a B.A. degree with a major in Chemistry as listed above. Complete the following additional Chemistry courses:
     - CHEM 402 — Inorganic Chemistry
     - CHEM 412 — Instrumental Analytical Methods
     - CHEM 498 — Research
   - Complete additional 400 or 600 level chemistry course
3. Total Credits Required: 130

### Suggested Curriculum for a B.S. Degree in Chemistry:
#### First Year
**Fall Semester**
- CHEM 105 — General Chemistry I 3 credits
- MATH 200 — Calculus 4 credits
- ENGL 111 — Methods of Written Communication 4 credits
- Elective (3 credits)
- 15 credits total

**Spring Semester**
- CHEM 106 — General Chemistry II 4 credits
- ES or CS 201 — Comp. Tech./Comp. Programming 3 credits
- MATH 201 — Calculus II 4 credits
- Elective (3 credits)
- 17 credits total

#### Second Year
**Fall Semester**
- CHEM 212 — Chemical Equilibrium and Analysis 3 credits
- CHEM 213 — Quantitative Analysis Laboratory 1 credit
- MATH 202 — Calculus III 3 credits
- PHYS 103 or 211 — General Physics 4 credits
- ENGL 213 — Intermediate Exposition 3 credits
- 15 credits total

**Spring Semester**
- CHEM 202 — Basic Inorganic Chemistry 3 credits
- CHEM 321 — Organic Chemistry 3 credits
- PHYS 104 or 212 — General Physics 4 credits
- Social Science/Humanities Elective 3 credits
- 17 credits total

#### Third Year
**Fall Semester**
- CHEM 322 — Organic Chemistry 3 credits
- CHEM 324 — Organic Laboratory 3 credits
- CHEM 331 — Physical Chemistry 3 credits
- Humanities/Social Science Elective 3 credits
- Electives (4 credits)
- 16 credits total

**Spring Semester**
- CHEM 332 — Physical Chemistry 3 credits
- *CHEM 411 — Instrumental Analysis Methods 3 credits
- CHEM 433 — Analytical Instrumental Laboratory 3 credits
- Humanities/Social Science Elective 3 credits
- Electives (4 credits)
- 17 credits total

#### Fourth Year
**Fall Semester**
- CHEM 402 — Inorganic Chemistry 3 credits
- CHEM 434 — Physical Instrumental Laboratory 3 credits
- CHEM 492 — Seminar 1 credit
- *CHEM 498 — Research 2 credits
- Social Science/Humanities Elective 2 credits
- Electives (10 credits)
- 17 credits total

**Spring Semester**
- *Other Advanced Chemistry 3 credits
- CHEM 492 — Seminar 1 credit
- *CHEM 498 — Research 2 credits
- Electives (16 credits)

### 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>4</td>
</tr>
<tr>
<td>BIOL 361 — Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 362 — Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 212 — Chemical Equilibrium &amp; Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213 — Quantitative Analysis Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 321—322 — Organic Chemistry</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 324 — Organic Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 331—332 — Physical Chemistry</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 433 — Analytical Instrumental Laboratory*</td>
<td>3</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 492 — Seminar</td>
<td>1</td>
</tr>
<tr>
<td>MATH 200-201-202 — Calculus</td>
<td>12</td>
</tr>
<tr>
<td>PHYS 103-104 or 211-212 — General Physics</td>
<td>8</td>
</tr>
</tbody>
</table>

*Major elective (approved by department head).
3. Total Credits Required: 130

### Suggested Curriculum for a B.S. Degree in Chemistry with Biochemistry/Molecular Biology Option
#### First Year
**Fall Semester**
- CHEM 105 — General Chemistry I 4 credits
- ENGL 111 — Methods of Written Communication 3 credits
- 15 credits total

**Spring Semester**
- CHEM 106 — General Chemistry II 4 credits
- MATH 201 — Calculus II 4 credits
- Speech Communications Elective 3 credits
- Elective 3 credits
- 17 credits total

#### Second Year
**Fall Semester**
- CHEM 212 — Chemical Equilibrium and Analysis 3 credits
- MATH 202 — Calculus III 3 credits
- PHYS 103 or 211 — General Physics 4 credits
- ENGL 213 — Intermediate Exposition 3 credits
- 15 credits total

**Spring Semester**
- CHEM 202 — Basic Inorganic Chemistry 3 credits
- CHEM 321 — Organic Chemistry 3 credits
- PHYS 104 or 212 — General Physics 4 credits
- Social Science/Humanities Elective 3 credits
- Elective (4 credits)
- 17 credits total

#### Third Year
**Fall Semester**
- CHEM 322 — Organic Chemistry 3 credits
- CHEM 324 — Organic Laboratory 3 credits
- CHEM 331 — Physical Chemistry 3 credits
- Humanities/Social Science Elective 3 credits
- Electives (4 credits)
- 16 credits total

**Spring Semester**
- CHEM 332 — Physical Chemistry 3 credits
- *CHEM 411 — Instrumental Analysis Methods 3 credits
- CHEM 433 — Analytical Instrumental Laboratory 3 credits
- Humanities/Social Science Elective 3 credits
- Electives (4 credits)
- 17 credits total

#### Fourth Year
**Fall Semester**
- CHEM 402 — Inorganic Chemistry 3 credits
- CHEM 434 — Physical Instrumental Laboratory 3 credits
- CHEM 492 — Seminar 1 credit
- *CHEM 498 — Research 2 credits
- Social Science/Humanities Elective 2 credits
- Electives (10 credits)
- 17 credits total

**Spring Semester**
- *Other Advanced Chemistry 3 credits
- CHEM 492 — Seminar 1 credit
- *CHEM 498 — Research 2 credits
- Electives (16 credits)

*This course requires CHEM 412 as a prerequisite.
**Of these credits must be 300 level or above.

### General University Requirements
- 36 credits
- Upper division credits required: 8

### Major electives:
- 6 credits

### Degree in Chemistry:
- Bachelor of Science in Chemistry
- Bachelor of Science in Chemistry with Biochemistry/Molecular Biology Option

### Upper Division Credits
- 8

### Degree in Chemistry:
- Bachelor of Science in Chemistry
- Bachelor of Science in Chemistry with Biochemistry/Molecular Biology Option

### Upper Division Credits
- 8
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.

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

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:
JUST 110 — Introduction to Justice ........................................ 3
PS 101 — Introduction to American Government and Politics ............ 3

Core Courses:
JUST/PS 250 — History of the Law ............................................. 3
JUST/PS 303 — Introduction to Legal Processes .............................. 3
JUST/PS 330 — Law and Society ...................................................... 3
JUST/PS 404 — Legal Research and Writing .................................... 3

Elective Courses: (6 credits)
Choose 6 credits from the following courses. Must include two different programs or disciplines.

ANS 425 — Federal Indian Law and Alaskan Natives ....................... 3
BA 331 — The Legal Environment of Business ................................ 3
BA 332 — Business Law ................................................................. 3
IB 452 — Law and Regulation ......................................................... 3
JUST 352 — Criminal Law ............................................................... 3
JUST 354 — Procedural Law ............................................................. 3
PS 302 — Congress and Public Policy .............................................. 3
PS 315 — Introduction to International Law and Organization ............ 3
PS 435 — Supreme Court and American Legal System .................... 3
PS 436 — Courts and Civil Liberties ................................................ 3

Civil Engineering

School of Engineering
Department of Civil Engineering

Degrees: B.S., M.C.E., M.S.

Minimum Requirements for Degrees: B.S. — 133 credits; M.C.E. or M.S. — 20 additional credits

Civil engineers plan, design and supervise the construction of facilities essential to modern life in all the public and private sectors —facilities that vary widely in nature, size and scope: space launching facilities, offshore structures, bridges, buildings, tunnels, highways, transit systems, dams, airports, irrigation projects, treatment and distribution facilities for water and collection and treatment facilities for wastewater.

Civil engineers are leading users 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 covered by civil engineering.

The civil engineering program at UAF began in 1922, had its first graduate in 1940 and during that time 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 60 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:

First Year
Fall Semester 16 credits
ENGL 111 — Methods of Comm. .................................................. 3
MATH 200 — Calculus ................................................................. 4
ES 101 — Descriptive Geometry for Engineers ................................. 2
CHEM 105 — General Chemistry ................................................... 4
Social Science/Humanities Elective ............................................... 3

Spring Semester 17 credits
Speech Communication Elective .................................................... 3
MATH 201 — Calculus ................................................................. 4
CE 112 — Elementary Surveying .................................................... 3
CHEM 106 — General Chemistry .................................................... 3
ES 201 — Computer Techniques ..................................................... 3

Second Year
Fall Semester 17 credits
MATH 202 — Calculus ................................................................. 4
PHYS 211 — General Physics .......................................................... 4
ENGL 211, 213, 324 — Oral Communication ................................. 4
ES 209 — Statics ........................................................................... 3
Social Science/Humanities Elective ............................................... 3

Spring Semester 16 credits
MATH 302 — Differential Equations ................................................ 4
PHYS 212 — General Physics .......................................................... 4
ES 210 — Dynamics ...................................................................... 3
GEOS 261 — General Geology for Engineers .................................... 3
Social Science/Humanities Elective ............................................... 3

Third Year
Fall Semester 16 credits
CE 334 — Properties of Materials ................................................... 3
ES 301 — Engineering Analysis ....................................................... 3
ES 331 — Mechanical Metallurgy .................................................... 3
ES 341 — Fluid Mechanics ............................................................. 4
CE 402 — Intro. to Transportation Engineering ............................... 3

Spring Semester 17 credits
ES 346 — Basic Thermodynamics ................................................... 3
CE 326 — Intro. to Geotech. Engineering ......................................... 4
CE 441 — Environ. Engineering ....................................................... 3
CE 431 — Structural Engineering .................................................... 3
Social Sciences/Humanities Elective ............................................... 3

Fourth Year
Fall Semester 18 credits
CE 344 — Water Res. Engr .......................................................... 3
CE 432 — Structural Engineering II ................................................ 3
ES 307 — Elem. of Electrical Engineering ........................................ 3
Technical Elective* ...................................................................... 3
Technical Elective* ...................................................................... 3
Social Sciences/Humanities Elective ............................................... 3
CE 400 — EIT Exam (Fall or Spring) ................................................ 0

Spring Semester 16 credits
ESM 450 — Economic Analysis and Operations ............................. 3
CE 438 — Design of Engr. Systems ................................................ 3
Social Sciences/Humanities Elective ............................................... 4
Technical Elective* ...................................................................... 3
Technical Elective* ...................................................................... 3
Technical Elective* ...................................................................... 3

*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
requirements

community health practitioner — certificate I
Prior to admission to the certificate level curriculum, Community Health Practitioner I Session 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 are 20-22 credits for 29-31 hours of UAF credit. Community Health Aide (CHA) training consists of the following courses:

Course: Credits
CHP 002 — CHA Precession I (optional) ......................... 1-3
EMT/E 103 — Emergency Trauma Training First Responder ........................................ 3
CHA 110 — CHA Session I ........................................ 3
CHA 111 — CHA Session II ...................................... 3
CHA 112 — CHA Session III ..................................... 3
CHA 113 — CHA Field Work Experience ........................................ 14
CHA 114 — CHA Preceptorship ................................... 2

Total: 29-31

Currently the requirements for the CHP Certificate, meaning completion of the curriculum, are provided as follows:

CHAP training center
1. Sessions 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 — Certification
Requirements for CHP “certification”, meaning competency to practice, are:
1. Completion of 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/I/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 20-30 months. All of these credits may be applied to the CHP Associate of Applied Science Degree.

Currently, the Training Centers in Anchorage, Bethel and Nome 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 Rural College to service their needs. UAF employs a CHP 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 university, including distance education.

The requirements for the CHP A.A.S. Degree are:

1. Major Specialty Requirements:

   Course ........................................... Credits
   CHP 202 — Emergency Care for Comm. Health Practitioners ........................................ 1-3
   CHP 203 — Clinical Update for Community Health Practitioners ................................ 1-3
   CHP 206 — Mental Health/Substance Abuse ........................................ 1-3
   CHP 207 — Maternal and Infant Health ........................................ 1-3
   CHP 211 — Health Education ........................................ 1-3
   CHP 213 — Family Medicine Practice ........................................ 3

Select six credits from the CHP Advanced courses listed below:

   Course ........................................... Credits
   CHP 202 — Emergency Care for Comm. Health Practitioners ........................................ 1-3
   CHP 203 — Clinical Update for Community Health Practitioners ................................ 1-3
   CHP 206 — Mental Health/Substance Abuse ........................................ 1-3
   CHP 207 — Maternal and Infant Health ........................................ 1-3
   CHP 211 — Health Education ........................................ 1-3
   CHP 213 — Family Medicine Practice ........................................ 3

2. General Degree Requirements:

   Course ........................................... Credits
   Written Communication ........................................ 6
(ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.)

Oral Communication .................................................. 3
Humanities, Social Science, Mathematics or Natural Science .................. 6
(Select a total of six credits from the above areas. At least three credits shall be math or natural science at the 100 level or above.)
3.Electives ................................................................. 10
Total Credits ............................................................ 60

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

Rural College
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) 474-7223

Special training programs

A wide array of computer courses are offered by SCC. Computer application courses, programming courses and special seminar courses are offered regularly. Special emphasis is placed on popular business application programs for both the Apple and IBM compatible computers. There are computer labs equipped with Compac, Apple Ile 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 a 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

(907) 474-7253

MINOR only

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>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101 — Elementary Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102 — Elementary Accounting II</td>
<td>3</td>
</tr>
</tbody>
</table>

BA 101 — Introduction to Management Information Systems ..... 3
BA 201 — COBOL or
CS 201 Computer Programming .................................. 3
BA 220 — Basic Programming Languages or
CS 202 Computer Programming .................................. 3
BA 310 — Management Information Systems .................... 3
ACCT 316 — Accounting Information Systems .................. 3

Total 21

Computer Science

College of Liberal Arts
Department of Mathematical Sciences

(907) 474-7322

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.

Requirements

Computer Science — B.S. Degree
1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following mathematics requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 200 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 201 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 210 — Calculus and the Computer</td>
<td>1</td>
</tr>
<tr>
<td>MATH 211 — Linear Algebra and the Computer</td>
<td>1</td>
</tr>
<tr>
<td>MATH 307 — Discrete Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>One of the following:</td>
<td></td>
</tr>
<tr>
<td>MATH 302 — Differential Equations</td>
<td>3 credits</td>
</tr>
<tr>
<td>MATH 308 — Abstract Algebra</td>
<td>3 credits</td>
</tr>
<tr>
<td>MATH 310 — Numerical Analysis</td>
<td>3 credits</td>
</tr>
<tr>
<td>MATH 314 — Linear Algebra</td>
<td>3 credits</td>
</tr>
<tr>
<td>MATH 371 — Probability</td>
<td>3 credits</td>
</tr>
<tr>
<td>MATH 408 — Mathematical Statistics</td>
<td>3 credits</td>
</tr>
<tr>
<td>MATH 460 — Mathematical Modeling</td>
<td>3 credits</td>
</tr>
<tr>
<td>STAT 301 — Elementary Probability and Statistics</td>
<td>3 credits</td>
</tr>
<tr>
<td>STAT 400 — Statistics</td>
<td>3 credits</td>
</tr>
</tbody>
</table>

3. Complete the following major requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 201 — Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 202 — Computer Programming II</td>
<td>3</td>
</tr>
<tr>
<td>CS 301 — Assembly Language Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 311 — Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 321 — Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 331 — Programming Language</td>
<td>3</td>
</tr>
<tr>
<td>CS 402 — Senior Project and Professional Practice</td>
<td>3</td>
</tr>
<tr>
<td>CS 411 — Analysis of Algorithms or CS 451 — Automata and Formal Languages</td>
<td>3</td>
</tr>
<tr>
<td>EE 341 — Computer Organization I</td>
<td>4</td>
</tr>
<tr>
<td>EE 342 — Computer Organization II</td>
<td>4</td>
</tr>
<tr>
<td>Upper Division electives: either CS courses or approved electives such as BA 310, EE 443, EE 454</td>
<td>9</td>
</tr>
</tbody>
</table>

4. Total Credits Required ........................................ 120

MINOR in Computer Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 201 — Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 202 — Computer Programming II</td>
<td>3</td>
</tr>
<tr>
<td>CS 301 — Assembly Language Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 311 — Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 321 — Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
Elective selected from the following:
Any CS course (except CS 101) or
MATH 210 and MATH 211 — Calculus/Linear Algebra & Computer or
EE 341 — Computer Organization I or
BA 201 — COBOL
or BA 310 — Management Information Systems
or ACCT 316 — Accounting Information Systems
or Other elective approved by advisor

Computer Science — M.S. Degree

The intent of the M.S. degree in computer science is to provide breadth and depth in coursework and to culminate with a major property. The program is accessible to students who have completed a B.S. in Computer Science at most institutions. Students from other fields who have completed a substantive portion of a Bachelor level computer science program may be admitted to the M.S. program. In such cases, undergraduate courses may be required to remedy deficiencies.

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

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, camps 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 courses.

Requirements
1. Complete the following general degree requirements: Credits
   Written Communication ................................................................. 6
   (ENGL 111 plus any 200-level written communications course or
   applied written communications course as approved by the head of
   the program in which the degree is earned.)
   Oral Communication .......................................................................... 3
   Select a total of 6 credits from the following areas: humanities, social
   science, mathematics or natural science ........................................... 6
   (At least 3 credits shall be math or natural science at the 100 level or
   above.)
   Subtotal ......................................................................................... 15

2. Complete the following major degree requirements: Credits
   CAH 103 — Principles of Food Service ............................................ 3
   CAH 150 — Food Service Sanitation ............................................... 2
   CAH 145 — Principles of Baking .................................................... 6
   Subtotal ......................................................................................... 11

3. Major speciality electives:
   Select at least 4 credits from the following:
   CAH 170 — Gourmet Cooking ..................................................... 2
   CAH 171 — Gourmet Baking .......................................................... 2
   CAH 199 — Externship .................................................................. 1-12
   CAH 253 — Storeroom: Purchasing and Receiving ...................... 2
   CAH 255 — Food Service Management ........................................ 2
   CAH 256 — Food Service Production .......................................... 2
   CAH 257 — Oenology and the Hospitality Industry .................... 1
   Subtotal ......................................................................................... 12

Degree Total .................................................................................. 63

Culinary Arts Certificate Program and Suggested Course Sequence:

First Year/Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>CAH 103</td>
<td>Principles of Food Service</td>
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<tr>
<td>CAH 140</td>
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First Year/Spring Semester

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<td>CAH 141</td>
<td>Food Production I</td>
<td>6</td>
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<tr>
<td>CAH 146</td>
<td>Bakery Production I</td>
<td>6</td>
</tr>
<tr>
<td>CAH 152</td>
<td>Supervisory Skills</td>
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<tr>
<td>CAH 154</td>
<td>Dining Room Service</td>
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<td>Certificate Total</td>
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Diesel/Heavy Equipment Mechanics

School of Career and Continuing Education
Trade and Industry Department

Certificate Minimum Requirements for Certificate: 34 credits

The diesel and heavy equipment mechanics program offers the student training in the maintenance and repair of trucks, buses and heavy equipment. This one-year certificate program emphasizes "hands-on" training and in-class experience as students perform preventive maintenance inspections, determine causes of equipment problems and make necessary repairs and adjustment from tune-ups to complete engine and equipment overhauls. Students work on large truck fuel, electrical and air systems, diesel engines, transmissions, differentials, and other equipment. Class size is limited to 16 students to encourage student interaction and allow for individualized assistance. An applied math proficiency exam must be passed to complete certificate requirements. A student may request credit by examination for any DSLT or MECN class. See the department for details.

Requirements

Diesel/Heavy Equipment Mechanics — Certificate

Suggested Course Sequence

Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DSLT 130</td>
<td>Diesel Mechanics I</td>
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<td>DSLT 152</td>
<td>Diesel Mechanics II</td>
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<td>WMT 103</td>
<td>Welding I</td>
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Spring Semester

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<tr>
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<tr>
<td>MECN 102</td>
<td>Heavy Equipment/Mechnics II</td>
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<td>WMT 105</td>
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Drafting Technology

School of Career and Continuing Education
Trade and Industry Department

Certificate Minimum Requirements for Certificate: 30 credits

Two options in the drafting technology certificate program are offered: architectural drafting and civil drafting. Both are one-year programs (30 credits) which combine the technical know-how and "hands-on" experience necessary for work in a variety of drafting fields. Students work side by side with professionals from the architecture and engineering community, gaining valuable on-the-job experience. In the classroom, students develop skills in mathematics, drawing and lettering, architectural concepts and design and construction techniques. A student may request credit by examination for any DRT class. See the department for details.
Requirements

Drafting Technology — Certificate

Requirements and Suggested Course Sequence

Architectural Drafting

Fall Semester  Credits
DRT 100 — Introduction to Drafting .................................................. 1
DRT 101 — Beginning Drafting ................................ ................... 4
DRT 121 — Building Trades Blueprint Reading .................................. 3
MATH 107 — Elementary Functions .............................................. 3
Approved electives* ..................................................................... 4
Subtotal ........................................................................................ 15

Spring Semester

DRT 102 — Beginning Drafting ................................ ................... 2
DRT 140 — Architectural Drafting ................................ ............ 2
DRT 151 — Civil Concepts ............................................................. 2
MATH 108 — Trigonometry ......................................................... 2
Approved electives* ..................................................................... 5
Subtotal ........................................................................................ 15

Certification Total ......................................................................... 30

Civil Drafting

Fall Semester  Credits
DRT 100 — Introduction to Drafting .................................................. 1
DRT 101 — Beginning Drafting ................................ ................... 4
DRT 121 — Building Trades Blueprint Reading .................................. 3
MATH 107 — Elementary Functions .............................................. 3
Approved electives* ..................................................................... 4
Subtotal ........................................................................................ 15

Spring Semester

DRT 102 — Beginning Drafting ................................ ................... 2
DRT 140 — Architectural Drafting ................................ ............ 2
DRT 141 — Principles of Architectural Drafting ............................ 2
MATH 108 — Trigonometry ......................................................... 2
Approved electives* ..................................................................... 5
Subtotal ........................................................................................ 15

Certification 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 services, agencies, and other early childhood programs are available. A.A.S. degree in early childhood development also leads to state certification as an Early Childhood Education Associate II. 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 degree requirements: Credits

   Written Communication .................................................. 6
   (ENGL 111 plus any 200-level written communications course as approved by the head of the program in which the degree is earned.)
   Oral Communication .................................................. 3
   Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .... 6
   (At least 3 credits shall be math or natural science at the 100 level or above.)
   Subtotal ............................................................................. 15

2. Complete the following major degree requirements: Credits

   ECHD 100 — Introduction to Early Childhood ...................... 3
   ECHD 105 — Survey of Programs for Young Children ............ 3
   ECHD 120 — Child Nutrition, Health and Safety ................. 3
   ECHD 131 — Group Management ...................................... 1
   ECHD 133 — Developing Programs for Infants/Toddler Care .... 2
   ECHD 250 — Practicum I .................................................. 3
   ECHD 251 — Practicum II .................................................. 3
   ECHD 252 — Activities for Young Children ....................... 3
   ECHD 260 — Introduction to the Exceptional Child .............. 3
   ECHD 265 — Culture Learning and the Young Child .......... 2
   ECHD 272 — The Environment .......................................... 2
   SOC 242 — The Family .................................................... 3
   Subtotal ............................................................................. 15

3. Complete 15 credits of general electives ......................... 15

Degree Total ............................................................................ 60

Recommended Electives: Any ECHD catalog or special topics courses (ECHD 193 or 293) courses, courses from Applied Business or Counseling programs which have been approved by the ECHD adviser.

Early Childhood Development Certificate

1. Complete the following required courses: Credits

   ENGL 111 — Methods of Written Communication ......... 3
   PSY 101 — Introduction to Psychology ......................... 3
   ECHD 110 — Practical Paths to Discipline and Guidance .... 1
   ECHD 120 — Group Management .................................. 3
   ECHD 133 — Developing Programs for Infants/Toddler Care .... 2
   ECHD 250 — Practicum I .................................................. 3
   ECHD 255 — Activities for Young Children ................. 3
   Total .................................................................................. 28

2. Complete 2 credits of general electives .......................... 2

Certification Total ................................................................... 30

*Can be used to meet general degree requirements.

Early Childhood Education

Rural College

Kuskokwim Campus

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

The associate of applied science degree in early childhood education is the second step on the early childhood career ladder, which begins with the nationally recognized Child Development Associate (CDA) credential. The CDA credential is valid proof of the holder's ability to work effectively with a group of children from three to five years old and serves as a seal of approval from the early childhood profession. The CDA student can receive competency based-on-the-job training with the preschool classroom serving as a lab which comprises the six competencies of the CDA credential.

Students who desire a broader based education with future possibilities of working in a paraprofessional position or of continuing on to a baccalaureate degree will want to pursue the associate of applied science degree in early childhood education.

Requirements

Early Childhood Education — A.A.S. Degree

1. Complete the following general degree requirements: Credits

   Written Communication .................................................. 6
   (ENGL 111 plus any 200-level written communications course as approved by the head of the program in which the degree is earned.)
   Oral Communication .................................................. 3
   Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .... 6
   (At least 3 credits shall be math or natural science at the 100 level or above.)
   Subtotal ............................................................................. 15

2. Complete the following major specialty requirements: Credits

   ECHD 111 — A Safe Environment .................................... 1
   ECHD 112 — A Heathy Learning Environment ................. 1
   ECHD 113 — Learning Environment ................................ 1
   ECHD 121 — Physical Activities for Young Children ......... 1
   ECHD 122 — Cognitive Activities for Young Children ....... 1
   ECHD 123 — Communication Activities ......................... 1
   ECHD 124 — Creative Activities for Young Children .......... 1
   ECHD 131 — Guidance and Discipline .............................. 1
   ECHD 132 — Social Development for the Young Child ....... 1
   ECHD 221 — Developing Positive Self-Concepts in Children 1

Total ................................................................................... 15
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.
2. Complete the following program (major) requirements:
   - Foundation courses (may be used to meet B.A. general degree requirements where applicable):
     - ACCT 101 — Elementary Accounting
     - ECON 201-202 — Principles of Economics I & II
     - MATH 161 — Algebra for Business and Economics
     - MATH 162 — Calculus for Business and Economics
     - PSY 101 — Introduction to Psychology
     - PSY 245 — Child Development

3. Complete 9 credits from the following courses of early childhood electives:
   - ECDD 209 — Introduction to Child Development Associate Credential
   - ECDD 231 — Screening
   - ECDD 233 — Mainstreaming Preschool Children with Special Needs
   - ECDD 299 — Practicum in Early Childhood

4. ED 304 — Literature for Children

5. ED 220 — Culture and Learning

Degree Total

60 credits

Note: Students in ECDD courses must spend 32 hours per credit in an approved early childhood center.

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 one course in college chemistry (CHEM 103 recommended) or one semester of college physics (PHYS 103 recommended)
   C. Complete one semester of computer science approved by major subject emphasis program head.
   (NOTE: A and B may be used to meet general degree requirements, but C is in addition to the 6 credit mathematics/logic degree requirements.)
3. Complete an additional 12 credits in the following courses (if not a requirement):
   - GEOG 205, 210, 240, or 241, 402; GEOS 101 or 201, 113, 114; MIN 101 or 102; MNT 101 or 102
4. Complete an additional 12 credits of the following courses (can also be used to meet basic degree requirements):
   - ALR 101, 310, 380, 401, 430; BIOL 102, 197, 213, 214, 304, 401, 401, 482; MIN 202, PETE 105; GE 471
5. Complete approved electives including minor requirements to bring total credits to 130.

Economics

School of Management
Department of Economics

Degrees: B.A., B.B.A.

Minimum Requirements for Degrees: B.A. — 120 Credits; B.B.A. — 150 Credits

(907) 474-7119

Economics Major Requirements

A. General Requirements
   - PS 102 (or if not taken, PS 201, 211, 263, or 302)

B. Economics Requirements
   - ECON 312 — Intermediate Microeconomics
   - ECON 324 — Intermediate Macroeconomics
   - ECON 463 — International Economics

Optional: (if not taken in CBK)

- ECON 321 — Intermediate Microeconomics
- ECON 324 — Intermediate Macroeconomics
- ECON 463 — International Economics

Common Body of Knowledge (CBK) Requirements

ACCT 101 and 102 — Elementary Accounting
BA 310 — Introduction to Accounting Information Systems
ACCT 316 — Accounting Information Systems
BA 325 — Financial Management
BA 331 — Business Law
BA 343 — Principles of Marketing
ECON 324 or 350 — Intermediate Macroeconomics
ECON 325 — Intermediate Microeconomics
ECON 463 — International Economics

33 credits

Approved electives (may be used to meet general degree requirements): 12 credits

Total credits required: 120 credits

University of California

(907) 474-7119

DEGREES AND PROGRAMS — ECONOMICS / 71
Nine hours from the following courses (At least three hours must be at the 400 level): ECON 335, 350, 351, 409, 420, 436, 437, 438, 451, and ANS 415. Electives approved by major advisor: 6-9.*

C. Free Electives
These credits may be used for an optional minor or second BBA Major. At least three credits must be in courses offered outside of School of Management.

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.

**Coursework in this category must be at the upper division level and may be accounting, business, or economics courses, where three (3) credits must be taken in either 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: Credits
ECON 201 — Principles of Economics I — 3
ECON 202 — Principles of Economics II — 3
9 credits approved economics courses at the 300-level or above — 9

Total: 15

Education

Rural College
Department of Education


Minimum Requirements for Degrees: B.Ed., B.T. — 130 credits; M.Ed. — minimum of 36 additional credits

Certification — Students may qualify for teaching certificates in various states only by planning their programs to meet specific requirements. Certificates are issued by the appropriate state department of education and are based on the Alaska certification courses reviewed by the Alaska Department of Education in Juneau. Students who obtain the B.Ed. degree will meet the current academic requirements for Alaska certification. Students seeking a minor in education should consult with the faculty of the Department of Education during their freshman year to obtain specific requirements. Individuals who hold bachelor’s degrees and wish to obtain certification should also consult with the faculty of the Department of Education.

Cross-Cultural Education Development Program — 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 located in Barrow (North Slope), Bethel (Kuskokwim), Dillingham (Bristol Bay), Fairbanks (Kotzebue), and Nome (Northwest). The X-CED program offers full-time undergraduate coursework in education for students seeking a B.Ed. degree. 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 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 Chairman, Department of Education, Fairbanks campus.

Teachers for Alaska Program
This program is designed to provide teaching certification to students with a baccalaureate degree who wish to teach at the secondary school level in small rural schools in Alaska’s urban multi-cultural secondary schools. The program offers two options: 1) secondary certification in a subject area, or 2) K-12 small schools certification. Students participate in a full-time program that features small seminars, an apprenticeship, a cohort student group, and a graduate level approach to preparation for teaching. Students enroll in a fall and spring/late spring block of integrated, tightly sequenced courses. The fall program consists of ED 582 — Teaching as Reflective Inquiry, ED 583 — Teaching as Decision-Making and Invention, and ED 584 — Practicum. The spring/late spring block consists of ED 453 or ED 455 — Student Teaching, ED 619 — Reflective Inquiry into Multi-Cultural Classrooms and Communities, and ED 692 — Designing Learning Environments. The K-12 certification option requires additional course work.

Inquiries should be addressed to the Teachers for Alaska program office on the Fairbanks campus.

Acceptance to Teacher Education
Any student wishing to become certified for teaching through the University of Alaska Fairbanks must formally apply for admission and be accepted to the teacher education program. The application process must be completed during enrollment in ED 201 or, for transfer students and in other special cases, at least during the semester prior to enrolling in any methods courses. Acceptance to teacher education must occur before enrolling in education methods courses (ED 381, 419, 421 and 452 for elementary education and ED 402, 407, 424, 425, 430 and 433 for secondary certification). Continuation in teacher education is based upon the maintenance of satisfactory performance in all areas of the program.

Criteria for Admission to Teacher Education
The Admissions Committee will consider a variety of information, including the following:
A. Academic competency
B. Successful experiences in one or more of the following contexts:
   1. public school classrooms
   2. other settings with children
   3. rural Alaska
C. Interpersonal, intercultural, and communication skills
D. Any and all additional standards set by the State

These factors will be assessed by various means, including, but not limited to, faculty rating forms, letters of reference, university grade point average, and evaluations from University-sponsored practicum placements.

Requirements
Education — B.Ed. Degree
1. Complete general university requirements.
2. Complete the following degree and program (major) requirements:

   A. Communication

   ENGL 111 — Methods of Written Communication — 3
   ENGL 211 — Intermediate Exposition with Modes of Literature or
   ENGL 213 — Intermediate Exposition — 3
   Speech Communication Elective

   B. Humanities

   ANTH 242 — Native Cultures of Alaska — 3

   C. Social Sciences

   MATH 205 — Math. for Elementary School Teachers — 3
   Science Electives (Including laboratory science) — 7
   Math Electives

   D. Mathematics and Natural Science

   For Elementary Education:
   MATH 205 — Math. for Elementary School Teachers — 3
   Math Electives

   For Secondary Education:
   MATH 310 — Math. for Secondary School Teachers — 3
   Math Electives

   Science Electives (Including laboratory science) — 7
   Science Electives

   E. Education

   ED 201 — Introduction to Education — 3
   ED 330 — Diagnosis and Evaluation of Learning — 3
   ED 350 — Communications in Cross-Cultural Classrooms — 3
   ED 375 — The Exceptional Learner — 3
   Education Foundation Elective

   F. Eductaion Foundation Elective

   Approved Health/Nutrition Elective — 3

   G. Education Foundation Elective

   ED 304 — Literature for Children — 3
   ED 310 — Modes of Creative Expression in Education
   or MUS 309 — Elementary School Music Methods
   ED 381 — Foundations of Literacy Development — 3
   ED 419 — Integ. Math. and Curriculum Development — 3
   ED 421 — Strategies for Reading and Writing Instruction
   in Multicultural Classrooms — 3
   PE 327 — Movement Activity for Children
For Secondary Education:
ED 407 — Reading Strat. for Secondary Teachers ... 3
ED 424 — Small High School Programs or
ED 425 — Community as an Educational Resource ... 3
ED 402 — Methods of Teaching in Secondary School or Approved Substitutes ... 3
ED 490 — Curriculum Development ... 3
ED 453 — Secondary Student Teaching ... 12
(Candidates who have taught successfully two years in the public school/Science may request a reduced teaching experience. Candidates wishing to petition should see the coordinator of the Office of Practice Experience.)
Complete one of the interdisciplinary majors listed below:
1. Language Arts/Humanities (must include a minimum of 12 upper division credits) ... 48
   ENG 111 — Methods of Communication ... 3
   ENG 211 — Intermediate Exposition with Modes of Literature or
   ENG 213 — Intermediate Exposition ... 3
   English Electives ... 9
   Journalism, Speech Communication and Theater ... 6
   Alaska Native Languages, Foreign Languages and Literature ... 6
   Alaska Native Studies (courses classified as humanities only), Art, Humanities, Music, Philosophy ... 9
   Electives from above areas ... 12
2. Math/Science (Must include a minimum of 12 upper division credits)
   HUM 202 — Unity in the Sciences ... 3
   Math Electives (minimum 6 credits upper division) ... 15
   Science electives (minimum 6 credits upper division) ... 27
   A minimum of 6 credits from the following fields: Biology, Chemistry, Physics, Geoscience ... 48
3. Social Sciences ... 48
   History Electives ... 12
   (Recommended: HIST 101-102 — Western Civilization, HIST 131-132 — History of the U.S.)
   Anthropology Electives ... 6
   (Recommended: ANTH 200 — Cultural Anthropology, ANTH 242 — Native Cultures of Alaska)
   Political Science Electives ... 6
   (Recommended: PS 101 — Introduction to Amer. Govt. and Politics, PS 263 — Alaska Native Politics)
   Geography Electives ... 6
   (Recommended: GEOG 101 — Introductory Geography or GEOG 103 — World Economic Geography

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<tr>
<th>Course Title</th>
<th>Credits</th>
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<td>PSY 240 — Developmental Psychology in Cross-Cultural Perspective</td>
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<tr>
<td>ED 201 — Introduction to Education</td>
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<tr>
<td>ED 304 — Literature for Children</td>
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<tr>
<td>ED 330 — Diagnosis and Evaluation of Learning</td>
<td>3</td>
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<tr>
<td>ED 390 — The Exceptional Learner</td>
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<tr>
<td>ED 381 — Foundations of Literacy Development</td>
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</tr>
<tr>
<td>ED 419 — Integrated Methods and Curriculum Development</td>
<td>6</td>
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<tr>
<td>ED 421 — Strategies for Reading and Writing Instruction in Multicultural Classrooms</td>
<td>3</td>
</tr>
<tr>
<td>ED 452 — Elementary Student Teaching*</td>
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* A minimum of 6 credits of math is required for admission to methods. (MATH 205 is required; MATH 306 is recommended.)

One course from the following:
ANS 430 — Alaska Native Education | 3 |
ED 345 — Sociology of Education | 3 |
ED 346 — Structure of American Education | 3 |
ED 350 — Communication in Cross-Cultural Classrooms | 3 |
ED 380 — Cultural Influences in Education | 3 |
ED 450 — Education and Cultural Transmission | 3 |

MINOR in Elementary Education (WITHOUT credential endorsement): Complete the Elementary Education minor requirements excluding ED 452 — Elementary Student Teaching.


MINOR in Education — With or Without Teacher Credential Endorsement:
Bachelor of arts and bachelor of science degree candidates may use the credits for the endorsement requirement as a minor in Education. STUDENTS MAY HAVE A MINOR IN EDUCATION WITHOUT STUDENT TEACHING BUT THEY MUST HAVE STUDENT TEACHING IF THEY WISH TO MEET CERTIFICATION REQUIREMENTS FOR TEACHING.

All majors in other departments who wish to obtain an Alaska teaching certificate should confer with Department of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. It is essential that the student have the necessary prerequisites and be admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching in the public schools. Students may be endorsed for secondary certification only in majors which have been approved by the Alaska Department of Education.

Economics Electives
(Recommended: ECON 202 — Principles of Economics I, ECON 201 or the Principles of Economics II and ECON 235 — Intro. to Natural Resource Economics)

Upper Division Social Science Electives
Selected from the following areas (minimum of 9 credits in one area): History, Anthropology, Sociology, Geography, Political Science, Economics.

Minimum Credits Required 130

Admission to Student Teaching
Retention in the teacher education program is contingent upon a second formal review prior to student teaching. This review will involve assessment of all criteria used for admission with the expectation that
continued acceptable performance and/or appropriate growth will be noted in all areas. Applications for student teaching are due by October 1 or February 15 during the semester previous to the planned semester of student teaching. Placement for student teaching will be determined by the Director of Clinical Practice by October 1 for student teaching in the following spring semester and by February 15 for student teaching in the following fall semester.

c. Complete Physical Examination.

d. Completion of 100 credits leading to a bachelor's degree with a minimum g.p.a. of 2.00.

e. Completion of six credits in mathematics, including MATH 205; PSY 240; ED 350, 361, 419; and 421.

f. A minimum grade of "C" in required math courses and in each required education course.

g. Approval of Committee on Admission to Teacher Education to enter student teaching.

h. A maximum of 15 credits is permitted while enrolled in student teaching. These 15 credits include the 12 credits granted for student teaching.

i. Those students who meet all of the above requirements at another university must take at least 9 credits of education courses at UAF.

j. Students who feel they have experience comparable to Student Teaching must demonstrate their competence. See the coordinator of the Office of Practica Experience regarding this procedure.

2. Secondary Schools — seventh through twelfth grades:

a. Acceptance to the teacher education program.

b. A formal application on file with the Director of the Office of Clinical Practice by October 1 for student teaching in the following spring semester and by February 15 for student teaching in the following fall semester.

c. A completed physical examination.

d. Completion of 100 credits leading to a bachelor's degree with a minimum g.p.a. of 2.00.

e. Completion of a minimum of 24 approved credits in an approved teaching major with a g.p.a. of 2.00 or more.

f. Completion of PSY 240, ED 350, 361, 419, and 421.

g. A maximum of 15 credits is permitted while enrolled in student teaching. These 15 credits include the 12 credits granted for student teaching.

h. A minimum grade of "C" in each education course.

d. Approval of Committee on Admission to the Teacher Education Program to enter student teaching.

ej. Those students who meet all of the above requirements at another university must take at least 9 credits of education courses at UAF.

k. Students who feel they have experience comparable to Student Teaching must demonstrate their competence. See the coordinator of the Office of Practica Experience regarding this procedure.

3. Students who fail Student Teaching will be exited from the Teacher Education Program. Further involvement with the Teacher Education Program is dependent upon a reapplication process. See the coordinator of the Office of Practica Experience regarding this procedure.

Education — B.T. Degree

A certifiable secondary education program in the technical areas of:

Food Services Technology, Aviation Technology and Electronics Technology.

1. Complete general university requirements and B.T. degree requirements.

2. Complete the following major complex requirement beyond the associate degree major:

<table>
<thead>
<tr>
<th>Area</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-division credit in technical specialty</td>
<td>6-6</td>
<td></td>
</tr>
</tbody>
</table>

B. Complementary area: Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 240 — Developmental Psychology in Cross-Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>ED 201 — Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>ED 330 — Diagnosis and Evaluation of Learning</td>
<td>3</td>
</tr>
<tr>
<td>ED 375 — The Exceptional Learner</td>
<td>3</td>
</tr>
<tr>
<td>ED 402 — Methods of Teaching in the Secondary School or Subject Area Methods course</td>
<td>3</td>
</tr>
<tr>
<td>ED 407 — Reading Strategies for Secondary Teachers</td>
<td>3</td>
</tr>
<tr>
<td>ED 424 — Small High School Programs</td>
<td>3</td>
</tr>
<tr>
<td>ED 425 — Community as an Educational Resource</td>
<td>3</td>
</tr>
<tr>
<td>ED 430 — Multicultural Teaching Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ED 453 — Secondary Student Teaching</td>
<td>12</td>
</tr>
<tr>
<td>Education Foundation Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Minimum credits required for degree: 130

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.

Electrical Engineering

School of Engineering
Department of Electrical Engineering

Degrees: B.S., M.E.E., M.S.

Minimum Requirements for Degrees:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S.</td>
<td>133</td>
</tr>
<tr>
<td>M.E.E.</td>
<td>32</td>
</tr>
</tbody>
</table>

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 — in medicine, in physics, in geology and in 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 automatic control theory, environmental monitoring, communications theory, new geophysical instrumentation, extra-high voltage power transmission, medical electronics, electronics, plasma, magnetohydrodynamics, integrated circuits, satellites, and mini and microcomputers. The process controls in the extraction, transmission 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 resourcefulness. 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 electives 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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>ENGL 111 — Methods of Written Comm</td>
<td>3</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>MATH 200 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 301 — Calculus</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chem 301 — General Chemistry</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EE 302 — Intro, to Electrical Engineering</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 105 — General Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 106 — General Chemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science or Humanities Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science or Humanities Elective</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>ENGL 201 — Methods of Written Comm</td>
<td>3</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>MATH 202 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 201 — General Physics</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
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 hold 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. 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) requirements: 36 credits in English besides English 111 and English 211 or 213, including:

a. ENGL 301 — Continental Literature in Translation:
   From the Ancient World through the Renaissance

b. Complete the following surveys of British and American literature:

American Literature:
ENGL 306 — Survey of American Literature

British Literature:
ENGL 308 — Survey of British Literature: Beowulf to the
Romantic Period
ENGL 309 — Survey of British Literature: Romantic Period
to the Present
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 assessment, protection, and improvement of the environment. It is designed for graduate engineers and science majors who will pursue careers in the assessment, protection, and improvement of the environment. 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 444</td>
<td>Fiction in Translation</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 445</td>
<td>20th Century Drama: From Chekhov to Ionesco</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 447</td>
<td>20th Century British Prose</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 448</td>
<td>20th Century American Prose</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 452</td>
<td>The British Novel to 1900</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 313</td>
<td>Writing Non-Fiction Prose</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>Intermediate Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 318</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 472</td>
<td>History of the English Language</td>
<td>3</td>
</tr>
<tr>
<td>ANL 475</td>
<td>Inupiaq Eskimo</td>
<td>10</td>
</tr>
<tr>
<td>LING 101</td>
<td>The Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td>ANL 475</td>
<td>Inupiaq Eskimo</td>
<td>10</td>
</tr>
<tr>
<td>LING 101</td>
<td>The Nature of Language</td>
<td>3</td>
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<tr>
<td>ENGL 452</td>
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</tr>
<tr>
<td>ANL 475</td>
<td>Inupiaq Eskimo</td>
<td>10</td>
</tr>
<tr>
<td>LING 101</td>
<td>The Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td>MINOR in English</td>
<td>a, b, c, and d as listed in the requirements for a major with emphasis on literature</td>
<td>21</td>
</tr>
</tbody>
</table>

English — M.A. Degree; Professional Writing — M.A. Degree; Creative Writing — M.F.A. Degree

The master of arts degree focuses on scholarly research in British and American literature. The master of arts in professional writing prepares students to work as professional writers and editors in such settings as private and public corporations, government agencies and research institutions. The master of fine arts degree centers on the writing of original, imaginative work in poetry, fiction, drama, and/or non-fiction. Both degree programs require students to take a large proportion of graduate literature courses and to engage in research and writing. Master of arts candidates write theses in literary scholarship. After being admitted to one of these degree programs, a graduate student may apply for one of the department's teaching assistantships.

For complete information on the graduate programs in English, see the UAF Graduate Catalog.
Financial Institutions Management

School of Career and Continuing Education Service Industry 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 Alaska Institute of Banking. Therefore, this 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 degree requirements:
   - Written Communication ..................................................... 6
     (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.)
   - Oral Communication ......................................................... 3
   - Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .................. 6
     (At least 3 credits shall be math or natural science at the 100 level or above.)
   - Subtotal .............................................................................. 15

2. Complete the following major degree requirements:
   - ABUS 261 - Analyzing Financial Statements ......................... 3
   - Subtotal .............................................................................. 12

3. General Elective Credit .......................................................... 1

   Degree Total ........................................................................ 60

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 wildland 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 wildland fire control are offered.

Requirements

Municipal Fire Control — A.A.S. Degree
1. Complete the following general degree requirements: Credits:
   - Written Communication ..................................................... 6
     (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.)
   - Oral Communication .......................................................... 3
   - Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science .................. 6
     (At least 3 credits shall be math or natural science at the 100 level or above.)
   - Subtotal .............................................................................. 15

2. Complete the following major degree requirements:
   - FSCI 101 - Introduction to Fire Science ............................. 3
   - FSCI 105 - Fundamentals of Fire Protection ............................. 3
   - FSCI 107 - Fire Tactics and Strategy ................................. 3
   - FSCI 111 - Fire Company Organization and Management ................................. 3
   - FSCI 117 - Rescue Practices ................................................. 3
   - FSCI 202 - Fire Hydraulics .................................................. 3
   - FSCI 204 - Hazardous Materials .......................................... 3
   - EMTT 103 - Emergency Trauma Training (ETT)..................... 3
   - First Responder ................................................................. 3
   - EMTT 119 - Emergency Medical Technician I .................... 4
   - Subtotal .............................................................................. 24-25

3. Complete 6 credits from the following major specialty electives:
   - EMTT 102 - Emergency Medical Technician Refresher ............ 1
   - EMTT 121 - Emergency Medical Technician II ...................... 2
   - FSCI 115 - Fire Apparatus and Equipment ............................. 3
   - FSCI 121 - Introduction to Fire Chemistry and Physics ............. 3
   - FSCI 123 - Fire Investigation ................................................ 3
   - FSCI 205 - Hazardous Materials II ....................................... 3
   - FSCI 206 - Building Construction for Fire Protection ................. 3
   - FSCI 208 - Fire Service Records and Reports .......................... 3
   - FSCI 212 - Related Codes and Ordinances .............................. 3
   - FSCI 214 - Fire Protection Equipment and Systems ..................... 3
   - Subtotal .............................................................................. 6

4. Complete 15 general electives credits ........................................... 15

Note: Major electives and general electives must be approved by the student's advisor.

Municipal Fire Control — Certificate

Suggested Course Sequence

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSCI 101 - Introduction to Fire Science</td>
<td>3</td>
</tr>
<tr>
<td>FSCI 105 - Fundamentals of Fire Protection</td>
<td>3</td>
</tr>
<tr>
<td>FSCI 107 - Fire Tactics and Strategy</td>
<td>3</td>
</tr>
<tr>
<td>EMTT 103 - Emergency Trauma Training (ETT) First Responder</td>
<td>3</td>
</tr>
<tr>
<td>EMTT 119 - Emergency Medical Technician I</td>
<td>4</td>
</tr>
</tbody>
</table>

Degree Total: 60-61 credits

Major specialty electives: 3

Subtotal: 15-16
Wildlands Fire Control — A.A.S. Degree

1. Complete the following general degree requirements: Credits

- Written Communication (ENG 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.) — 6
- Oral Communication — 3
- Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science — 6
  (At least 3 credits shall be math or natural science at the 100 level or above.)
- Subtotal — 15

2. Complete the following major degree requirements:

- EMTT 103 — Emergency Trauma Training (ETT) First Responder — 3
- or
- EMTT 119 — Emergency Medical Technician I — 4
- FSCI 151 — Wildland Fire Control I — 3
- FSCI 153 — Fire Organization and Management — 3
- FSCI 155 — Fire Behavior I — 3
- FSCI 157 — Air Operations Management — 3
- FSCI 252 — Enforcement and Investigation — 3
- FSCI 254 — Wildland Fire Business Management — 3
- FSCI 262 — Wildland Fire Control II — 3
- Subtotal — 24-25

3. Complete 6 credits from the following major elective courses:

- EMTT 102 — Emergency Medical Technician Refresher — 1
- EMTT 121 — Emergency Medical Technician II — 2
- FSCI 181 — Fire Logistics Functions — 3
- FSCI 183 — Wildland Air Attack — 3
- FSCI 256 — Fire Planning and Multiple Use Management — 3
- FSCI 258 — Prescribed Burning and Fuels Management — 3
- FSCI 260 — Wildland Fire Environmental Considerations — 3
- Subtotal — 6

4. Complete 15 general electives credits — 15

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

Wildlands Fire Control — Certificate Suggested Course Sequence

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Semester</td>
<td>EMTT 103 — Emergency Trauma Training (ETT)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>First Responder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMTT 119 — Emergency Medical Technician I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FSCI 151 — Wildland Fire Control I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FSCI 153 — Fire Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FSCI 161 — Fire Logistics Functions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Major electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>14-15</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>FSCI 155 — Fire Behavior I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FSCI 157 — Air Operations Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FSCI 252 — Enforcement and Investigation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FSCI 254 — Wildland Fire Business Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Major electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Certificate Total</td>
<td>30</td>
</tr>
</tbody>
</table>

Fisheries

School of Fisheries and Ocean Sciences Program in Fisheries

Degrees: 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. Students contemplating careers in research, administration, advanced management, or teaching will find the bachelor’s curriculum a solid foundation for graduate study. The undergraduate program is offered at Fairbanks only.

The geographic location of UAF is advantageous for the study of interior Alaska aquatic habitats. 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. JCFOS has well-equipped labs and a 42-foot research vessel. It is located near the Auke Bay National Marine Fisheries Laboratory. Faculty with JCFOS 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 an opportunity 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 requirements including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111 and 213</td>
<td>6</td>
</tr>
<tr>
<td>Speech Communication</td>
<td>3</td>
</tr>
<tr>
<td>Social Science and Humanities (excluding social science and humanities courses in program requirements)</td>
<td>15</td>
</tr>
</tbody>
</table>

2. Complete the following degree and program (major) requirements:

A. Core Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALR 101 — Conservation of Natural Resources</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 414 — Research Writing</td>
<td>3</td>
</tr>
<tr>
<td>STAT 301 — Elementary Prob. and Stat.</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 105, 106 — General Chemistry</td>
<td>9</td>
</tr>
<tr>
<td>MATH 272 — 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 Programming</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 205 — Elements of Physical Geography</td>
<td>3</td>
</tr>
<tr>
<td>Biology (24 credits)</td>
<td></td>
</tr>
</tbody>
</table>

BIO 105, 106 — Fundamentals in Biol. I and II | 8       |
BIO 271 — Principles of Ecology               | 3       |
BIO 210 — Animal Physiology                   | 3       |
BIO 262 — Principles of Genetics              | 3       |
BIO 364 — Biol. of Freshwater Fish of Alaska  | 3       |
BIO 423 — Ichthyology                          | 4       |
(12 credits)                                  |         |
BIO 473 — Limnology                           | 3       |
BIO 528 — Biology of Marine Organisms         | 3       |
FISH 455 — Intro. to Fisheries Science        | 3       |
FISH 347 — Fisheries Management               |         |

*or MATH 200, 201, & 202 — Calculus

B. Electives:

Take one course from each of the following groups of courses:

- Group 1 (3-5 credits)
- BIOL 342 — Microbiology                     | 4       |
- BIOL 307 — Parasitology                     | 3       |
- BIOL 442 — Bacteriology & Immunology        | 3       |

- Group 2 (3-5 credits)
- BIOL 222 — Biology of the Vertebrates       | 4       |
- BIOL 203 — Vertebrate Anatomy               | 3       |
- BIOL 317 — Comparative Anatomy of Vertebrates | 3       |

- Group 3 (3 credits)
- BIOL 472 — Communities and Ecosystems      | 3       |
- BIOL 471 — Population Ecology               | 3       |
- BIOL 328 — Biology of Marine Organisms      | 3       |

(If used here, cannot satisfy fisheries core course requirements)

- BIOL 477 — Ecology of Streams and Rivers    | 3       |
- Group 4 (3-4 credits)
- BIOL 305 — Comparative Zoology              | 4       |
- BIOL 406 — Entomology                       | 4       |
- BIOL 407 — Aquatic Entomology               | 3       |

- Group 5 (3 credits)
- BIOL 480 — Water Pollution Biology          | 3       |
- ALR 370 — Introduction Watershed Management | 3       |

Contact: (907) 474-7289
C. Option — Complete the requirements for one of the following options:

Research Option:  

Credits

Choose 0-8 credits from the courses listed below:

STAT 401 — Intro. to Exp. Design (4 credits)
STAT 402 — Scientific Sampling (3 credits)
CHEM 212 — Intro. Quant. Analysis (4 credits)
CHEM 321-322 — Organic Chem. (3/3 credits)
CHEM 324 — Organic Lab. (3 credits)
CS 202 — Computer Programming 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)  
   Credits
   ALR 400 — Natural Resources Policies 3
   ALR 401 — Natural Resources Legislation 3

2. Take four courses from the following (12 credits)  
   GEOG 302 — Geography of Alaska 3
   GEOG 402 — Man and Nature 3
   *IB 211 — Intro. to Mass Communication 3
   *IB 311 — Magazine Article Writing 3
   ANTH 242 — Native Cultures of Alaska 3
   PS 201 — Comp. Pol. Methods of Political Analysis 3
   PS 205 — Alaska Native Politics 3
   PS 301 — State and Local Government 3
   PS 212 — Intro. to Public Administration 3
   PS 302 — Congress and Public Policy 3
   SOC 301 — Urban Sociology 3
   BA 302 — Personnel Management 3
   *ECON 438 — The Economics of Fisheries Management 3

3. Take one of the following (2-3 credits)  
   WLF 417 — Wildlife Management Techniques 3
   WLF 419 — Waterfowl and Wetlands Ecology and Management 3
   WLF 421 — Wildlife Management — Forest and Tundra 3
   WLF 305 — Wildlife Management Techniques 3

In addition, any electives needed to bring total credit hours 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 undergraduates 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.

Foreign Languages

College of Liberal Arts  
Department of Foreign Languages and Literatures

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

In a shrinking world Americans increasingly need to communicate directly with other peoples 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 requirements.
2. Complete the B.A. degree requirements.
3. Complete the following program (major) requirements:

I. Background-related Requirements:  

Option A: Liberal Arts Option
a. LING 101 — Nature of Language

Option B: Career-oriented Option
a. LING 101 The Nature of Language 3
b. 21 credits in major-related courses in other disciplines, such as business, psychology, journalism, political science, etc. (to be specified by the advisor according to the student's career preferences) 21

II. Major Requirements (two languages required) First Language (French, German or Spanish) (above 100 level) 24

Complete the following courses:


Where appropriate, courses listed under I and II may be counted toward fulfillment of B.A. requirements listed under 2.

4. Minimum credits required... 130

MINOR in Foreign Languages

A minor in foreign language requires 12-21 credits. If all are at the 200 level or higher, 12 credits will fulfill this requirement.

General Science

College of Natural Sciences  
Department of Physics

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
Fall Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Spring Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Summer Session  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Second Year
Fall Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Spring Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Summer Session  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Third Year
Fall Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Spring Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Summer Session  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Fourth Year
Fall Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Spring Semester  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

Summer Session  

ENGL 201 — English Composition 3
PHIL 201 — Introduction to Philosophy 3
HIST 101 — History of Western Civilization 3
HIST 102 — History of Western Civilization 3
PHIL 205 — Philosophy of Science 3

See the University Catalog for course descriptions.
Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 200 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 106* — General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 104* — College Physics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 106 — Fundamentals of Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Second Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>17 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 103* — College Physics</td>
<td></td>
</tr>
<tr>
<td>or CHEM 105* — General Chemistry</td>
<td></td>
</tr>
<tr>
<td>ECON 201 — Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 101 — The Diverse Earth</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 211 — Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>16 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104* — College Physics</td>
<td></td>
</tr>
<tr>
<td>or CHEM 106* — General Chemistry</td>
<td></td>
</tr>
<tr>
<td>GEOG 112 — Historical Geography</td>
<td>4</td>
</tr>
<tr>
<td>SOC 101 — Intro. to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Third and Fourth Years**

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. Contact the advisor to complete the remaining general degree requirements in social science. The major must be chosen from the following disciplines and must be classified as social science: Anthropology, Economics, History, Political Science, Sociology.
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.

**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 geographic 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) 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 geographical work in government, business or industry; (f) preparation for 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:
     - GEG 101 — Introductory Geography
     - GGG 103 — World Economic Geography
     - GGG 205 — Elements of Physical Geography
     - GGG 300 — Advanced Physical Geography
     - GGG 401 — Weather and Climate
     - GEG 492 — Seminar
   - Select three of the following regional courses:
     - GGG 202 — Geography of the U.S. and Canada (3)
     - GGG 302 — Geography of Alaska (3)
     - GGG 305 — Geography of Europe (Except U.S.S.R.) (3)
     - GGG 306 — Geography of the Soviet Union (3)
     - GGG 311 — Geography of Asia (3)
     - GGG 327 — Cold Lands (3)
   - Select two of the following cultural courses:
     - GGG 402 — Man and Nature (3)
     - GGG 404 — Urban Geography (3)
     - GGG 405 — Political Geography (3)
   - Select one of the following techniques courses:
     - GGG 309 — Cartography (3)
     - GGG 408 — Quantitative Research Techniques (3)
   - Geography elective (3)
   - B. Approved electives to complete 120 credits.

**Geography — B.S. Degree**

2. Complete the following program (major) requirements:
   - A. Complete 33 credits in geography as follows:
     - GEG 101 — Introductory Geography
     - GGG 103 — World Economic Geography
     - GGG 205 — Elements of Physical Geography
     - GGG 300 — Advanced Physical Geography
     - GGG 401 — Weather and Climate
     - GGG 402 — Man and Nature
     - GGG 404 — Urban Geography
     - GGG 405 — Political Geography
   - Select two of the following regional courses:
     - GGG 202 — Geography of the U.S. and Canada (3)
     - GGG 302 — Geography of Alaska (3)
     - GGG 305 — Geography of Europe (Except U.S.S.R.) (3)
     - GGG 306 — Geography of the Soviet Union (3)
     - GGG 311 — Geography of Asia (3)
     - GGG 327 — Cold Lands (3)
   - Geography elective (3)
   - B. Approved electives to complete 120 credits.

For complete information on the graduate program in general science, see the UAF Graduate Catalog.
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. Geological engineers work with the environment in the true sense of the word. Properties of earth materials exploration activities, geophysical and geochemical prospecting, site investigations and engineering geology are all phases of geological engineering.

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 their 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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>GE 101 — Introduction to Geological Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 111 — Methods of Written Communications</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101 — General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CE 105 — Descriptive Geometry for Engineers</td>
<td>2</td>
</tr>
<tr>
<td>Social Science or Humanities*</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>17</td>
</tr>
<tr>
<td>Speech Elective</td>
<td>3</td>
</tr>
<tr>
<td>MATH 201 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>GE 201 — General Geological Geology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 101 — General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Social Science or Humanities*</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>MATH 202 — Calculus</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 213 — Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211 — General Physics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 214 — Petrology and Petrography</td>
<td>3</td>
</tr>
<tr>
<td>MATH 302 — Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>17</td>
</tr>
<tr>
<td>ES 201 — Computing Techniques</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 212 — General Physics</td>
<td>4</td>
</tr>
<tr>
<td>ES 211 — Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>GEOS 314 — Geologic Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 302 — Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Third Year</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>16</td>
</tr>
<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>GE 305 — Geological Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>GE 372 — Rock Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>16</td>
</tr>
<tr>
<td>GEOS 314 — Structural Geology</td>
<td>4</td>
</tr>
</tbody>
</table>

GE 471 — Remote Sensing for Engineers | 3 |
GE 420 — Subsurface Hydrology | 3 |
MIN 406 — Mineral Valuation and Economics | 2 |
GE 480 — Geological Engineering II | 2 |
Technical Elective* | 3 |

*Either MIN 370 or GE 326 is required. Selection is dependent upon the student’s interest and professional orientation.

**Of the 16 social science/humanities credits, at least 6 must be at or above the 200 level or 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’ department advisor.

***Technical electives are dependent upon professional interest and selected by the student in conference with his or her advisor and approved by the department. Technical electives are selected from a list approved by 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 applies 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 Degree 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 in 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 Marine 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 geology, volcanology, paleomagnetism, isotope 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 111 - Methods of Written Communication ........................................ 3
   - ENGL 211 - Intermediate Exp. with Modes of Literature .......................... 3
   - Speech Communications Elective ................................................................ 3
   - Social Science (minimum of 3 credits) and Humanities (minimum of 3 credits), exclusive of 9 credit
   - Mathematics (Select appropriate series) ...................................................... 11 or 15
   - For Geology options: MATH 200-201-Calculus (8), and STAT 400-Statistics (3)
   - For Geophysics Option: MATH 200, 201, 202-Calculus (11), MATH 302-Differential Equations (3)
   - PHYS 211-212 - General Physics (PHYS 103-104 may be taken for
   - CHEM 105-106 - General Chemistry ............................................................... 8
   - Computer literacy equivalent to BA 100 or CS 201 ................................... 1-3

3. For General Geology, Economic Geology and Petroleum Geology
   options, complete the following requirements:
   - Core Courses:........................................................................................................ Credits
     - GEOS 101 - The Dynamic Earth ................................................................. 4
     - GEOS 120 - Historical Geology ................................................................. 4
     - GEOS 213 - Mineralogy ............................................................................. 4
     - GEOS 214 - Petrology and Petrography .................................................. 4
     - GEOS 304 - Geomorphology .................................................................. 3
     - GEOS 312 - Structural Geology ............................................................... 3
     - GEOS 322 - Stratigraphy and Sedimentation ....................................... 3
     - GEOS 351 - Field Geology ....................................................................... 6
     - GEOS 401 - Invertebrate Paleontology .................................................. 4
     - GEOS 450 - Statistics and Data Analysis ............................................... 3
     - General Geology Option:............................................................................... Credits
       - Complete at least 5 credits from the courses listed below:
         - GEOS 408 - Photogeology (2) ................................................................. 2
         - GEOS 417 - Introduction to Geochemistry (1) ....................................... 1
         - GEOS 418 - Basic Geophysics (3) ................................................................ 5 or 6
         - Electives (professional and general) to bring total to 126
     - Economic Geology Option:............................................................................... Credits
       - GEOS 304 - Geomorphology .................................................................. 3
       - GEOS 342 - Geology of Mineral Resources Lecture or
         - GEOS 342L - Geology of Mineral Resources Laboratory ..................... 2 or 3
       - One of the following: ................................................................................. 2 or 3
         - MIN 202 - Mine Surveying (3 credits) ................................................... 3
         - MPR 304 - Intro. to Metallurgy (3 credits) ............................................. 3
         - MPR 313 - Intro. to Mineral Preparation (3 credits) .............................. 3
         - MIN 407 - Mineral Industry and the Environment (2 credits) ............. 2
         - MIN 418 - Mineral Exploration (3 credits) ............................................. 3
         - GE 365 - Geological Engineering I (3 credits) ...................................... 3
         - One of the following: ................................................................................. 3 or 4
         - GEOS 418 - Basic Geophysics (3 credits) ............................................... 3
         - GEOS 410 - Potential Methods in Geophysics (2 credits) ..................... 2
         - GEOS 412 - Electrical Methods in Geophysics (2 credits) ................... 2
       - Electives (professional and general) to bring total to 136
     - Petroleum Geology Option:............................................................................ Credits
       - PETE 205 - Intro. to Petroleum Drilling and Production ....................... 3
       - PETE 302 - Well Logging ........................................................................... 3
       - PETE 411 - Seismic Exploration ............................................................... 3
       - GEOS 410 - Potential Methods in Geophysics or
         - GEOS 412 - Electrical Methods in Geophysics ..................................... 2
         - GEOS 471 - Petroleum Geology............................................................... 2
       - Electives (professional and general) to bring total to 130

4. For the Geophysics Option, complete the following requirements:................. Credits
   - GEOS 101 - The Dynamic Earth ................................................................. 4
   - GEOS 213 - Mineralogy ............................................................................. 4
   - GEOS 418 - Basic Geophysics ................................................................. 3
   - GEOS 419 - Continuum Mechanics .......................................................... 3
   - MATH 211 - Linear Algebra and the Computer ........................................... 3
   - MATH 421 - Applied Analysis I ................................................................. 4
   - MATH 422 - Applied Analysis II ................................................................. 4
   - MATH 422 - Applied Analysis II ................................................................. 4
   - MATH 423 - Applied Analysis III ............................................................... 4
   - MATH 424 - Applied Analysis IV ............................................................... 4
   - PHYS 231 - Elements of Modern Physics .................................................. 3
   - PHYS 311 - Mechanics I ............................................................ .......................... 4
   - PHYS 331 - Electricity and Magnetism ...................................................... 3
   - PHYS 332 - Electricity and Magnetism ...................................................... 3
   - Choose a minimum of 6 credits from the following courses:
     - GEOS 112 - Historical Geology ............................................................... 4
     - GEOS 214 - Petrology and Petrography .................................................. 3
     - GEOS 304 - Geomorphology ................................................................. 4
     - GEOS 312 - Structural Geology ............................................................... 4
     - GEOS 321 - Sedimentology ................................................................. 3
     - GEOS 322 - Stratigraphic Principles ......................................................... 4
     - Strongly recommended for students interested in exploration

Choose a minimum of 6 credits from the following courses:
   - GEOS 417 - Geochronology ...................................................................... 3
   - GEOS 420 - Elements of Seismology ......................................................... 3
   - GEOS 430 - Statistics and Data Analysis ................................................. 3
   - ES 341 - Fluid Mechanics ................................................................. 4
   - Complete either Plan A or Plan B

Plan A - Exploration Geophysics:
   - Complete the following requirements:
     - GEOS 410 - Potential Methods in Geophysics ........................................ 2
     - GEOS 411 - Seismic Exploration ............................................................... 3
     - GEOS 412 - Electrical Methods in Geophysics ....................................... 2
     - GEOS 415 - Field Geophysics ................................................................. 2
     - Complete at least 12 credits from the following or from courses listed as
       options above that were not used:
     - GEOS 351 - Field Geology ................................................................. 4
     - GEOS 414 - Glaciology ........................................................................... 3
     - GEOS 422 - Remote Sensing ................................................................. 3
     - GEOS 470 - Petroleum Geology ............................................................... 4
     - GE 365 - Geological Engineering ............................................................ 4
     - GE 372 - Rock Engineering .................................................................... 3
     - PETE 302 - Formation Well Logging ..................................................... 2
     - PHYS 312 - Mechanics II ........................................................................ 4
     - EE 341 - Computer Organization ........................................................... 4

Plan B - General Geophysics
   - Complete at least one course from the following
     - GEOS 410 - Potential Methods in Geophysics ........................................ 2
     - GEOS 411 - Seismic Exploration ............................................................... 3
     - GEOS 412 - Electrical Methods in Geophysics ....................................... 2
     - GEOS 415 - Field Geophysics ................................................................. 2
     - Complete at least 12 credits from the following or from courses listed as
       options above that were not used:
     - GEOS 414 - Glaciology ........................................................................... 3
     - GEOS 422 - Remote Sensing ................................................................. 3
     - GE 420 - Subsurface Hydrology ............................................................. 3
     - PHYS 312 - Mechanics II ........................................................................ 3
     - PHYS 313 - Thermodynamics ................................................................. 3
     - EE 341 - Computer Organization ........................................................... 4
     - ME 441 - Heat and Mass Transfer ............................................................ 3
     - MPR 416 - Emission Spectroscopy, X-ray Spectroscopy, Atomic
       Absorption ................................................................................... 3
     - 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

(907) 474-7365

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

Rural College
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.

Health Sciences

Preprofessional Curricula

Professional schools of medicine and dentistry as well as many of the professional schools in paramedical fields (e.g., medical technology, physical therapy) require one to four years of collegiate work before a student will be admitted. In these years of preliminary academic work may be taken at UAF, where the students follow a sequence of courses planned to meet the requirements of the particular professional field in which they are interested. Students interested in health professions should contact the health sciences preprofessional adviser before registering.

Most premedical students plan on four preliminary years. The students are encouraged to develop their major area of interest, be it either in natural or social sciences or in the humanities. In preparation for medical school the student must gain a thorough understanding of the modern concepts in biology, chemistry and physics. Students are encouraged to include chemistry and either physics or biology in their freshman course of study. Usually students at UAF follow a curriculum leading to a bachelor of science degree with a major in biological sciences or chemistry, earning a bachelor's degree at the end of four years. Adjustments may be made to meet varying requirements. Premedical students who are accepted in medical school prior to finishing their degree and who wish to receive a bachelor's degree from UAF may obtain from the health sciences preprofessional adviser, a description of the requirements which must be completed.

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.
2. Complete the following program (major) requirements:
   Complete any four of the following:
   HIST 101-102 — Western Civilization ............................................. 6
   HIST 121-122 — East Asian Civilization ............................................. 6
   HIST 131-132 — History of the U.S. .................................................. 6

   Complete 21 upper-division credits in history, including:

   HIST 475-476 — Historiography and Intro. to Historical Method.................. 6
   3. Minimum credits required ................................................. 130

MINOR in History:
A minor in history requires the completion of 16 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: HIST 101-102 — Western Civilization ................................ 6
   LING 101 — The Nature of Language or LING 216 — Languages of the World .... 3
   PHIL 201 — Introduction to Philosophy or PHIL 202 — Introduction to Eastern Philosophy ............................................. 3
   Complete the following core courses:
   HUM 201 — Unity in the Arts .......................................................... 3
   HUM 202 — Unity in the Sciences ................................................... 3
   HUM 329 — The Modern Media ....................................................... 3
   HUM 332 — Varieties of Visual Expression ....................................... 3
   HUM 342 — Synthesis in Musical Expression .................................. 3
   HUM 411 — Dimensions of Literature .......................................... 3
   PHIL 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: 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

Rural College
Department of Behavioral Sciences and Human Services

Degree: B.A.
Minimum Requirements for Degree: B.A. — 121 credits

(907) 474-7240
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 that influence 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, Anchorage, and Southeast 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
   - HSMV 201 — Introduction to Human Services (3 credits)
   - PSY/SOC 250 — Introductory Statistics for Behavioral Sciences (3 credits)
   - SOC 301 — Rural Sociology (3 credits)
   - PSY/SOC 475 — Social Science Research Methods (3 credits)
   - PSY 210 — Cross-Cultural Psychology (3 credits)
   - PSY 345 — Abnormal Psychology (3 credits)
   - SOC 408 — American Minority Groups (3 credits)
   - PSY 101 — Introduction to Psychology (3 credits)

   Departmental core: 15 credits
   - These courses also may be applied to fill general distribution requirements.
   - SOC 101 — Introduction to Sociology (3 credits)
   - PSY 240 — Developmental Psychology in Cross-Cultural Perspective (3 credits)
   - PSY 304 — Personality (3 credits)
   - PSY 380 — Human Behavior in the Arctic (3 credits)
   - ANTH 242 — Native Cultures of Alaska (3 credits)

   Human Services: 18 credits
   - HSMV 210 — Crisis Intervention (3 credits)
   - HSMV 255 — Foundations of Counseling I (3 credits)
   - HSMV 355 — Counseling in the Schools (3 credits)
   - HSMV 230 — Alcoholism: Theories of Etiology (3 credits)
   - HSMV 330 — Alcoholism: Treatment and Prevention (3 credits)
   - HSMV 360 — The Helping Role in Child Abuse and Neglect (3 credits)
   - HSMV 410 — Management of Human Services Programs (3 credits)
   - HSMV 415 — Group Counseling (3 credits)
   - HSMV 488 — Practicum in Human Services (3 credits)
   - *HSMV/PSY 445 — Community Psychology (3 credits)
   - *PSY/SOC 370 — Drugs and Drug Dependence (3 credits)
   - *SOC 310 — Sociology of Later Life (3 credits)
   - *SOC 242 — The Family: A Cross-Cultural Perspective (3 credits)
   - RD 325 — Community Organization and Development Strategies (3 credits)

   Minimum Credits Required for Degree: 121 credits

   *These courses, when not applied towards the major, may be applied to fill distribution requirements.

MINOR in Human Services:

A minor in human services requires the satisfactory completion of 15 credits of approved human services courses including HSMV 201 and 210.

Interdisciplinary Studies

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

Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 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 bachelor's program of the university should have an opportunity to achieve baccalaureate recognition for carrying out an approved interdisciplinary program which approximates the requirements for a baccalaureate degree in an established discipline. For this purpose the bachelor of arts or bachelor of science degree in interdisciplinary studies is offered.

Upon completion of 15 credits at UAF and at least 60 credits prior to graduation, a student may submit to the vice chancellor for Academic Affairs, an interdisciplinary curriculum leading to a B.A. or B.S. degree in interdisciplinary studies. 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 approximation of a normal baccalaureate degree. All general requirements for the B.A. or B.S. degree must be met.

The vice chancellor will appoint a committee of at least three faculty members familiar with the interdisciplinary subject, and the curriculum is approved by the vice chancellor, he/she will, in consultation with the student, appoint an advisory committee of at least three faculty members to assist the student in planning and carrying out his program. The degree title will be chosen by the advisory committee in concert with the student and with the approval of the vice chancellor. Changes within the approved curriculum would be made only with the approval of this advisory committee.

Graduate —

Interdisciplinary proposals for graduate degrees must be submitted to the Director of Graduate Programs who will coordinate the review process similar to that described above for undergraduate proposals.

For complete information on interdisciplinary graduate programs, see the UAF Graduate Catalog.

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 tailor a variety of skills and theory courses while acquiring a strong liberal arts background. Non-majors, including those minoring 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-stereo 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 photojournalism 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: 16 Credits
      - JB 101 — Introduction to Mass Communications (3 credits)
      - JB 201 — Basic Journalism (3 credits)
      - JB 301 — Basic Newsgathering and Processing (3 credits)
      - JB 320 — Journalism in Perspective (3 credits)
      - JB 400 — Media Practicum (3 credits)
      - JB 413 — Mass Media Law and Regulations (3 credits)

   B. Complete one of the following sequences:
      16 Credits
      - News-Editorial:
         - JB 444 — Advanced Newsgathering and Processing (4 credits)
      - Broadcast:
         - JB 204 — Basic Photojournalism (3 credits)
         - JB 215 — Audio Production (3 credits)
         - JB 316 — Television Production (3 credits)
         - Four of the following:
            - JB 204 — Basic Photojournalism (3 credits)
            - JB 240 — International Communications (3 credits)
            - JB 305 — Intermediate Photography (3 credits)
Justic e

School of Career and Continuing Education
Service Industry Department

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

This program is presently suspended.

Linguistics

College of Liberal Arts
Department of Linguistics

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 seeks 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 101 — Nature of Language</td>
<td>3</td>
</tr>
<tr>
<td>LING 216 — Languages of the World</td>
<td>3</td>
</tr>
<tr>
<td>LING/ED 303 — Language and Literacy Development</td>
<td>3</td>
</tr>
<tr>
<td>LING 450 — Language Policy and Planning</td>
<td>3</td>
</tr>
<tr>
<td>ANL 215 — Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANL 216 — Alaska Native Languages</td>
<td>3</td>
</tr>
<tr>
<td>ANS 320 — Language and Cultures</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 318 — Modern English Grammar</td>
<td>3</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 method it uses to enforce its criminal law. We in the United States 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 professionals which are more or less actively engaged in dealing with criminals within the guidelines of our federal and state constitutions.

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 professionalization so 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.
2. Electives chosen to fulfill the general requirements for the B.A. degree must be approved in advance by the director of the justice program.

**Broadcast**

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 311 — Magazine Article Writing</td>
<td>3</td>
</tr>
<tr>
<td>JB 322 — Publication Editing</td>
<td>3</td>
</tr>
<tr>
<td>JB 324 — Typography and Publication Design</td>
<td>3</td>
</tr>
<tr>
<td>JB 340 — Approaches to the Study of Mass Communication</td>
<td>3</td>
</tr>
<tr>
<td>JB 326 — Principles of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>JB 342 — Advanced Photography</td>
<td>3</td>
</tr>
<tr>
<td>JB 343 — Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>JB 411 — Advanced Writing for Publication</td>
<td>3</td>
</tr>
<tr>
<td>JB 424 — Magazine Production</td>
<td>3</td>
</tr>
<tr>
<td>JB 433 — Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>JB 492 — Seminar</td>
<td>2 or 3</td>
</tr>
</tbody>
</table>

**English**

Complete at least 3 credits in each of the following areas:

- Economics
- Sociology
- Political Science
- History
- Psychology

D. 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.

E. To assure the journalist of a broad liberal arts education, no more than 35 hours in journalism and broadcasting courses may be included in the 130 hours required for the B.A. degree.

3. Minimum credits required: 130

**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 204 — Basic Photojournalism</td>
<td>3</td>
</tr>
<tr>
<td>JB 372 — Instructional Television</td>
<td>3</td>
</tr>
<tr>
<td>JB 407 — Programming and Production</td>
<td>3</td>
</tr>
<tr>
<td>JB 415 — News/Documentary Television Production</td>
<td>3</td>
</tr>
<tr>
<td>JB 416 — Advanced Broadcast Production</td>
<td>3</td>
</tr>
<tr>
<td>JB 433 — Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>JB 492 — Seminar</td>
<td>2 or 3</td>
</tr>
</tbody>
</table>

C. Complete at least 3 credits in each of the following areas:

- Economics
- Sociology
- Political Science
- History
- Psychology

- Economics
- Sociology
- Political Science
- History
- Psychology
ENGL 462 — Applied English Linguistics ........................................ 3
ENGL 472 — History of the English Language ................................ 3
SPC 320 — Communication and Language .................................. 3

Where appropriate, courses listed under A may be counted toward fulfillment of B.A. requirements listed under 2.

4. Minimum credits required .................................................. 130

MINOR in Linguistics:
A minor in linguistics requires 12 credits in linguistics.

Marine Biology

School of Fisheries and Ocean Sciences
Graduate Program in Marine Sciences and Limnology

Degrees: M.S.
Minimum Requirements for Degree: 30 credits (beyond a bachelor's degree)

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 Lisjune 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 on a continuous basis 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

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 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 advisor 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 210 — Calculus and the Computer ................................... 1
   MATH 311 — Linear Algebra and the Computer ........................... 3
   MATH 215 — Intro. to Mathematical Proof ................................. 2
   MATH 314 — Linear Algebra .................................................. 3
   MATH 308 — Abstract Algebra .............................................. 3
   MATH 401 — Advanced Calculus ............................................ 3
   MATH 492 — Senior Seminar ................................................. 1
   TOTAL 26

Complete an elective package in the Mathematical Sciences consisting of at least 18 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 are 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 — Mathematical Structures ....................................... 3
Approved Math elective ....................................................... 6
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 301 ....... 6
TOTAL 20

C. Secondary Education
STAT 301 — Elementary Probability and Statistics or STAT 400 — Statistics .................................................. 3
MATH 305 — Geometry ......................................................... 3
CS 201 — Computer Programming I .......................................... 4
MATH 306 — History and Philosophy of Mathematics ................. 3
Approved Math elective ....................................................... 6
TOTAL 18

D. Statistics Emphasis
MATH 571 — Probability ....................................................... 3
MATH 408 — Mathematical Statistics ......................................... 3
MATH 460 — Mathematical Modeling ......................................... 3
STAT 301 — Elementary Probability and Statistics or STAT 400 — 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, 210, 211 in addition to six departmentally approved credits at the 300 level or above.

Mathematics — M.S., M.A.T. or Ph.D. Degree

For complete information on the graduate programs in mathematics, see the UAF Graduate Catalog.
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 base 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 science — 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 111 — Methods of Written Comm. .................. 3
MATH 200 — Calculus ...................................... 3
ES 101 — Descriptive Geometry for Engineers .......... 2
Chemistry Elective ........................................ 3
Humanities/Social Science Elective .................. 3

Spring Semester
Speech Comm. Elective .................................... 3
MATH 201 — Calculus ...................................... 3
ES 201 — Computer Techniques .......................... 3
Chemistry Elective ........................................ 3
Humanities/Social Science Elective .................. 3

Second Year

Fall Semester
PHYS 211 — General Physics ............................ 4
MATH 202 — Calculus ...................................... 3
ES 209 — Statics ........................................... 3
Chemistry Elective ........................................ 3
Humanities/Social Science Elective .................. 3

Spring Semester
ENGL 213 — Intermediate Exposition .................. 3

ES 346 — Thermodynamics ................................ 3
Humanities/Social Science Elective .................. 3

Third Year

Fall Semester
ES 307 — Engineering Analysis .......................... 3
ES 331 — Mechanics of Materials ....................... 3
ES 341 — Fluid Mechanics ................................ 4
Humanities/Social Science Elective .................. 3

Spring Semester
ME 302 — Mechanical Design I .............................. 3
ME 313 — Mech. Engr. Thermodyn. ................. 3
ME 441 — Heat and Mass Transfer ....................... 3
ES 308 — Instrumentation and Measurement .......... 3
Humanities/Social Science Elective .................. 3

Fourth Year

Fall Semester
ME 403 — Mechanical Design II ......................... 3
ME 415 — Thermal Systems Lab. ....................... 2
ME Elective* ........................................... 3
ES 334 — Elements Material Science Engr .......... 3
Technical Elective* ...................................... 3
Humanities/Social Science Elective .................. 3

Spring Semester
ME 487 — Design Project .................................. 3
ME 405 — Dynamics of Systems ....................... 3
ME Elective* ........................................... 3
ESM 450 — Econ. Analysis and Operations ............. 4
Approved Elective* ....................................... 4

*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

(907) 474-6396

Students may enroll for four semesters at UAF completing requirements noted below, then apply for acceptance into the professional phase of the medical technology program at the University of Washington for an additional seven quarters. 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. The B.S. degree is granted from the University of Washington.

Requirements

60 semester credits with a GPA of 3.00 including the following courses:

Biology

Credits

BIOI 105-106 — Fundamentals of Biology I and II ................................. 8
BIOI 111-112 — Human Anatomy and Physiology or BIOI 210 — Animal Physiology or BIOI 231 — Comp. Anatomy of Vertebrates ................. 8 or 9
BIOL 442 — Bacteriology and Immunology ........................................ 8
CHEM 105-106 — General Chemistry ........................................ 8
CHEM 212 — Quantitative Analysis ........................................ 8
CHEM 321-322-324 — Organic Chemistry and lab ................................ 9
MATH 271-272 or STAT 301 — Calculus, Statistics .............................. 7 or 8
ENGL 111-211 or 213 — Written Communication ................................ 5
SPC 121 — Fundamentals of Oral Comm: Interpersonal ..................... 4
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.
Military Science

College of Liberal Arts
Department of Military Science

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 — Those students who successfully complete 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.

Uniform 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 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

(907) 474-7388

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

(907) 474-7388

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 general field (completion of the State of Alaska Engineer-in-Training examination will satisfy this requirement). The state of Alaska Engineer-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
Fall Semester
ENGL 111 — Methods of Written Communications .......... 3
MATH 200 — Calculus ........................................... 4
CHEM 105 — General Chemistry .................................. 4
MIN 103 — Introduction to Mining Engineering ............... 4
MIN 104 — Mining Safety and Operations Lab ............... 1
Social Sciences or Humanities Elective$ .......... 3
Spring Semester
CHEM 106 — General Chemistry ................................ 4
SPC Elective ..................................................... 3
MATH 201 — Calculus ........................................... 4
ES 101 — Descriptive Geometry for Engineering ......... 2
GE 261 — General Geology for Engineers ................. 3

Second Year
Fall Semester
MATH 202 — Calculus ........................................... 4
PHYS 211 — General Physics ................................... 4
ENGL 211 or 212 — Intermediate Writing .......... 3
MIN 202 — Mine Surveying ...................................... 3
MIN 313 — Introduction to Mineral Preparation .......... 3
Spring Semester
PHYS 212 — General Physics ................................... 4
ES 208 — Mechanics ............................................. 4
ES 201 — Computer Techniques ......................... 3
ENGL 211 or 212 — Intermediate Writing .......... 3
MATH 302 — Differential Equations ................. 3

Third Year
Fall Semester
ES 331 — Mechanics of Materials ......................... 3
ES 341 — Fluid Mechanics ..................................... 4
STAT 400 — Statistics ........................................... 3
ES 307 — Elements of Electrical Engineering .......... 3
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. Pi-a-n-o 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 an acceptable level of proficiency in their applied major in order to continue study. 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) a musical performance of a recital composition, (2) sight reading of Bach chorales, (3) improvisation of a chorale accompaniment to a simple melody, and (4) transposition and harmonization of the same song to another key.

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 — Basic Theory</td>
<td>4</td>
</tr>
<tr>
<td>MUS 133-134 — Basic Ear Training</td>
<td>4</td>
</tr>
<tr>
<td>MUS 222-222 — History of Music</td>
<td>2</td>
</tr>
<tr>
<td>MUS 231-232 — Advanced Theory</td>
<td>4</td>
</tr>
<tr>
<td>MUS 233-234 — Advanced Ear Training</td>
<td>2</td>
</tr>
<tr>
<td>MUS 331 — Form and Analysis</td>
<td>3</td>
</tr>
<tr>
<td><strong>MUS 190 — Recital Attendance</strong></td>
<td></td>
</tr>
<tr>
<td>**MUS 161-462 — Applied Music (major)</td>
<td>8</td>
</tr>
<tr>
<td>Ensembles (may include up to 2 credits of MUS 307 — Chamber Music)</td>
<td>6</td>
</tr>
<tr>
<td>MUS 253 — Piano Proficiency</td>
<td>0</td>
</tr>
</tbody>
</table>

3. Minimum credits required: 130

*The applied music credit minimum defines 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.

Music — B.M. Degree (Performance)
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>MUS 131-132 — Basic Theory</td>
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<tr>
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<td>4</td>
</tr>
<tr>
<td>MUS 233-234 — Advanced Ear Training</td>
<td>2</td>
</tr>
<tr>
<td>MUS 351 — Conducting</td>
<td>3</td>
</tr>
<tr>
<td>Ensembles (1 per semester)</td>
<td></td>
</tr>
</tbody>
</table>
Secondary Area:

- Twenty-seven credits to be selected from the following Credits
  - MUS 124 - Music of World Cultures
  - MUS 133-134 - Basic Theory
  - MUS 135-136 - Basic Ear Training
  - MUS 221-222 - History of Music
  - MUS 233-234 - Advanced Theory
  - MUS 315 - Music Methods and Techniques
  - MUS 331 - Form and Analysis
  - MUS 332 - Conducting
  - MUS 342 - Orchestration
  - MUS 343 - Composition
  - MUS 421-424 - Period History
  - MUS 425 - Community as Education Resource
  - MUS 431 - Counterpoint
  - MUS 432 - Orchestration
  - MUS 433 - Conducting
  - MUS 434 - Composition
  - MUS 435 - Secondary Student Teaching

- 4.5 credits from the following:
  - MUS 415-416 - Advanced Ear Training
  - MUS 425 - Community as Education Resource
  - MUS 432 - Orchestration
  - MUS 433 - Conducting
  - MUS 434 - Composition
  - MUS 450 - Education and Cultural Transmission

- 3. Minimum credits required: 136

Music - B.M. Degree

Music Education - Elementary

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

ENGL 111 or equivalent and Eng 211 or 213 .............................................. 6
Speech Communications ............................................................................ 3
Humanities (non-music) ........................................................................... 15
Mathematics (including Computer Science), Natural Science, Social Science; must include PSY 101 .............................................................. 15

Required Music Courses: Credits

- MUS 133-134 - Basic Theory
- MUS 135-136 - Basic Ear Training
- MUS 221-222 - History of Music
- MUS 233-234 - Advanced Theory
- MUS 253 - Piano Proficiency
- MUS 331 - Form and Analysis
- MUS 332 - Conducting
- MUS 342 - Orchestration
- MUS 343 - Composition
- MUS 421-424 - Period History
- MUS 431 - Counterpoint
- MUS 432 - Orchestration
- MUS 433 - Conducting
- MUS 434 - Composition
- MUS 450 - Education and Cultural Transmission

- 3. Minimum credits required: 142

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.

Music - B.M. Degree

Music Education - K-12

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

ENGL 111 or equivalent and Eng 211 or 213 .............................................. 6
Speech Communications ............................................................................ 3
Humanities (non-music) ........................................................................... 15
Mathematics (including Computer Science), Natural Science; must include PSY 101 .............................................................. 15

Required Music Courses: Credits

- MUS 133-134 - Basic Theory
- MUS 135-136 - Basic Ear Training
- MUS 221-222 - History of Music
- MUS 233-234 - Advanced Theory
- MUS 253 - Piano Proficiency
- MUS 331 - Form and Analysis
- MUS 332 - Conducting
- MUS 333 - Piano
gy
- MUS 342 - Orchestration and Arranging
- MUS 421-424 - Period History
- MUS 425 - Community as Education Resource
- MUS 431 - Counterpoint
- MUS 432 - Orchestration
- MUS 433 - Conducting
- MUS 434 - Composition
- MUS 450 - Education and Cultural Transmission

- 3. Minimum credits required: 136

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.
One course from the following:

ED 345 - Sociology of Education ............................................. 3
ED 346 - Structure of American/Alaskan Education .............. 3
ED 350 - Communication in Cross-Cultural Classrooms .... 3
ED 380 - Cultural Influences in Education ...................... 3
ED 450 - Education and Cultural Transmission ............ 3

3. Minimum credits required ............................................ 131

*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.

MINOR in Music:

A minor in Music requires 18 credits in music to be selected from the following:

Music Theory, History and Appreciation (courses to be selected with approval of department head) ....... 12
MUS 101, 203, 205, 211 .................................................... 2

**All undergraduate students majoring in Music must enroll in Music 190 - Recital Attendance during each semester of their residence.

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.

Students must select from the following areas of specialization for the M.A. degree: performance, music education, music theory/composition, music history, and Alaskan ethnomusicology. The major area of performance is determined primarily as a functional program for the public school music teacher. Areas of specialization include 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

Division of 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. 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 environmental issues. The curricula for the B.S. in natural resources management/forestry and the B.S. in natural resources management/agriculture degrees are designed to provide the same basic science background and much of 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.

Natural Resources Management — B.S. Degree

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

   BIOL 103-106 - Fundamentals of Biology, I and II ................................................. 3
   BIOL 271 - Principles of Ecology .................................................................................. 4
   CHEM 105-106 - General Chemistry .............................................................................. 8
   ECON 235 - Intro. to Nat. Resource Econ ................................................................... 3
   ECON 350 - Intermediate Natural Resource Econ ..................................................... 3
   GEOG 101 - The Dynamic Earth .................................................................................. 4
   ALR 101 - Conservation of Natural Resources .............................................................. 3
   ALR 201 - Processes of Natural Resource Management ........................................... 3
   ALR 310 - Silvics and Forestry ..................................................................................... 3
   ALR 340 - Natural Resources Measurements ............................................................... 3
   ALR 370 - Introduction to Watershed Management .................................................... 3
   ALR 380 - Soils ............................................................................................................. 3
   ALR 400 - Natural Resource Policy ............................................................................ 3
   ALR 401 - Natural Resource Legislation ..................................................................... 3
   ALR 430 - Land Use Planning ..................................................................................... 3
   ALR 480 - Outdoor Recreation ..................................................................................... 3
   WLF 201 - Wildlife Management Principles .................................................................. 3

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
   ALR 102 - Practicum in Natural Resources ................................................................. 1-3
   ALR 210 - Introduction to Agronomy and Horticulture .............................................. 2
   ALR 320 - Introduction to Animal Science ................................................................... 3
   ALR 320 - Forest Management .................................................................................... 3
   ALR 461 - Interpretative Science Services .................................................................. 3
   BIOL 471 - Population Ecology .................................................................................... 3
   BIOL 472 - Communities and Ecosystems ................................................................. 3
   BIOL 480 - Water Pollution Biology .......................................................................... 3
   COS 101 - Solid Waste and Air Pollution ................................................................. 5
   ECON 437 - Regional Economic Development ........................................................... 3
   FISH 430 - Fisheries and their Management ............................................................... 3
   GEOG 327 - Cold Lands .............................................................................................. 3
   GEOG 402 - Man and Nature ...................................................................................... 3
   GEOS 304 - Geomorphology ...................................................................................... 3
   MIN 101 - Minerals and Man ....................................................................................... 3
   MIN 407 - Mineral Industry and Environment ............................................................ 2
   SOC 307 - Demography ................................................................................................ 3
   WLF 417 - Forest and Tundra ...................................................................................... 2
   WLF 419 - Wetlands .................................................................................................... 2

4. Plus a minimum of 12 credits in one of the following fields or subject areas beyond those taken to fulfill numbers 2 and 3 above. These courses are to be selected for their clear pertinence to a cohesive program in resource study and must be approved by the director.

   Agriculture and Land Resources
   Anthropology (cultural)
   Biological Sciences
   Aviation Technology
   Broadcasting, Journalism
   Civil Engineering, Engineering Sciences and/or Environmental Quality Engineering
   Business Administration
   Economics
   Education
   Fisheries
   Geography
   Geosciences
   Justice
   Mineral Engineering
   Political Science
   Psychology
   Sociology
   Wildlife Management

5. 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.

6. Minimum credits required ......................................................................................... 130

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
   BA 101 - Introduction to Management Information Systems or Approved Elective ........ 3
   BIOL 105-106 - Fundamentals of Biology, I and II .................................................... 3

Biol 271 — Principles of Ecology .................................................. 4
Chem 105-106 — General Chemistry ........................................... 8
Econ 235 — Intro. to Nat. Resource Econ. ..................................... 3
Econ 335 — Intermediate Natural Resource Econ. ........................ 3
Geos 101 — The Dynamic Earth .................................................. 4
Alr 101 — Conservation of Natural Resources ............................... 3
Alr 251 — Silvics and Dendrology .............................................. 3
Alr 340 — Natural Resources Measurements .................................. 3
Alr 370 — Introduction to Watershed Management ........................ 3
Alr 401 — Natural Resource Policies or Alr 401 — Natural Resource Legislation ............................................... 3
Alr 430 — Land Use Planning .................................................... 3
Alr 450 — Reclamation ............................................................. 3
Wlf 201 — Wildlife Management Principles .................................. 3

3. Complete the following courses: Credits

CE 112 — Elementary Surveying .................................................. 3
Biol 239 — Introduction to Plant Biology ...................................... 4
Alr 450 — Forest Management ................................................... 3
Alr 451 — Regeneration and Silviculture of Northern Boreal Forests .................................................. 3
Alr 452 — Forest Protection ........................................................ 3
Alr 453 — Harvesting and Utilization of Forest Products ................. 3

4. Complete nine credits from the following list of restricted electives:

Geos 422 — Geoscience Applications of Remote Sensing ................. 3
Geos 430 — Map and Aerial Photo Analysis ................................... 3
Fish 430 — Fisheries Management ............................................. 3
Wlf 303 — Wildlife Management Techniques ................................. 3
Wlf 417 — Wildlife Management — Forest and Tundra ................. 3
Ba 201 — Processes of Management ............................................ 3
Ba 211 — The Forest in Real Life .............................................. 3
Bi 431 — Systematic Botany ..................................................... 3
Alr 300 — Internships in Natural Resources Management ............... 1-6
Alr 312 — Intro. to Range Management ....................................... 3
Alr 316 — Introduction to Real Estate and Land Economics ......... 3

5. Fulfill requirements of category 5 in the B.S. in natural resources management.

6. Minimum credits required ..................................................... 130

Preforestry Program

For students interested in a professional forestry degree, the School of Agriculture and Land Resources Management offers a two-year preforestry program that will permit them to transfer to an accredited forestry institution.

The preforestry program introduces the student to land resource management and provides lower level core courses common to most forestry curricula. Although forestry curricula vary by institution, UAF's preforestry program will allow the student to transfer to accredited four-year degree programs in forestry. For example, under an agreement with Northern Arizona University, a student who has completed the preforestry program may transfer to the accredited four-year forestry program at Northern Arizona University without loss of credit or class standing.

Students desiring to complete the two-year preforestry program at UAF with the intention of transferring to a specific four-year forestry degree program elsewhere should discuss these plans with their faculty adviser before registering for classes at UAF. This will ensure a course schedule that will provide the necessary courses required by the preforestry program.

In summary, a student who completes the preforestry program at UAF may transfer to a four-year accredited forestry degree program elsewhere, or may complete a four-year degree program at UAF in natural resources management under the forestry option.

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:

Biol 105-106 — Fundamentals of Biology, I and II .......................... 8
Biol 271 — Principles of Ecology .............................................. 4
Chem 105-106 — General Chemistry .......................................... 6
Chem 321 — Organic Chemistry .............................................. 4
Econ 235 — Introduction to Natural Resources Management ........... 3
Econ 335 — Intermediate Natural Resource Management ............... 3
Stat 401 — Applied Statistics .................................................. 3
Alr 101 — Conservation of Natural Resources .............................. 3
Alr 102 — Practicum in Natural Resource Management .................... 3
Alr 211 — Introduction to Agronomy & Horticulture ..................... 3

Alr 310 — Agricultural Concepts & Techniques .......................... 3
Alr 320 — Introduction to Animal Science .................................. 3
Alr 380 — Wildlife ............................................................... 3
Alr 480 — Soil Conservation .................................................. 3

3. Complete a minimum of 26 credits in the following natural resource electives:

Geos 101 — The Dynamic Earth .................................................. 4
Alr 201 — Processes of Natural Resources Management ................. 3
Alr 251 — Silvics and Dendrology ............................................ 3
Alr 330 — Internship in Natural Resources Management ............... 1-6
Alr 352 — Introduction to Range Management ................................ 3
Alr 353 — Introduction to Plant Pathology .................................. 3
Alr 372 — Applied Animal Nutrition ......................................... 3
Alr 380 — Natural Resource Policies ........................................ 3
Alr 381 — Natural Resource Legislation ..................................... 3
Alr 403 — Managing Food Production Systems ............................ 3
Alr 411 — Plant Propagation .................................................... 3
Alr 412 — Field Crop Production ............................................. 3
Alr 420 — Animal Nutrition and Metabolism ............................... 3
Alr 425 — Alaska's Reindeer Industry ....................................... 3

Any other approved ALR course not used in the above categories.

4. Complete a minimum of 12 credits from the following list of courses:

Biol 210 — Animal Physiology .................................................. 4
Biol 239 — General Microbiology ............................................. 4
Biol 342 — Cellular and Molecular Biology ................................. 4
Biol 352 — Principles of Genetics ............................................ 4
Biol 431 — Systematic Botany .................................................. 4
Biol 460 — Entomology ........................................................... 4
Biol 461 — Plant Physiology .................................................... 4

5. Complete a minimum of 12 credits in one of the following areas or subject areas beyond those taken to fulfill categories 2 and 3 above. These courses are to be selected for their clear pertinence to a cohesive program in resource study and must be approved by the Plant Animal Science Division Head.

Agriculture and Land Resources
Biological Sciences
Broadcasting, Journalism
Business Administration
Chemistry
Civil Engineering, Engineering Sciences and/or
Environmental Quality Engineering
Computer Science
Economics
Education
Geography
Geosciences
Political Science
Rural Development
Statistics
Wildlife Management

6. The total program must include a minimum of 12 credits in the following social sciences: anthropology, economics, sociology, political science, and/or psychology, with a demonstrated proficiency in computer applications prior to the junior year is required.

7. Minimum credits required ..................................................... 130

MINOR in Natural Resources Management

A minor in Natural Resources Management requires completion of Alr 101 and 15 credits of any other ALR courses, 6 credits of which must be upper division. The minor program must be approved by an ALR advisor.

Natural Resources Management — M.S. Degree

For complete information on the graduate program in natural resources management, see the UAF Graduate Catalog.

Northern Studies

Interdisciplinary

Degree: B.A.

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

The purpose of the northern studies program is to give interested students a broader study of the northern region — its environment,
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.

Nursing

The University of Alaska Anchorage College of Nursing is the only baccalaureate nursing program in Alaska and the majority of the courses is available on the Fairbanks campus. The College of Nursing has been designed with the unique health care needs of Alaskans in mind. A combination of climate, geography and divergent cultural background creates the opportunity — and necessity — for nurses to provide creative health care.

With this situation in mind, the curriculum at the College of Nursing has been developed to foster creativity and independent judgment as part of the role of professional nursing. The second year with nursing care of the essentially well and at risk client. The student learns basic theory and physical assessment, communication, nursing process and community health concepts, as well as screening procedures, health teaching and well child care. The fourth and fourth clinical courses are the only course available on the UAF campus. The third course deals with care of clients experiencing temporary disruptions of health, primarily in the hospital setting. During the fourth course the student focuses on nursing care of clients experiencing term-long disruptions of health in both hospital and community settings. Theory and practice includes working with groups of clients and community planning programs. The final course synthesizes the principles and practice learned in the previous courses. The student spends a concentrated amount of time in a clinical area of professional interest or need, integrating, expanding and practicing concepts and skills learned throughout the nursing curriculum. The College of Nursing has received full national accreditation for this program.

Recognizing the barriers that returning RN's encounter in pursuit of the baccalaureate degree, UAA has developed the RN Sections. As an adult learner with accumulated learning and experience, the RN can articulate well into the degree program. After completion of general education prerequisites and acceptance, the RN can earn 18 credits by successful completion of 18 of the core courses in Oceanography, and a clinical validation. This allows progression to two semesters and a summer sessions of study with concentration in physical assessment, family and community assessment, environmental health, mental health needs of aggregates, nursing and health care management, nursing research and clinical concentration.

For further information on the baccalaureate nursing program and continuing education offerings in nursing, please contact: UAA College of Nursing, Arctic Health Building, UAF, Fairbanks, Suite 106, PO Box 90010, Fairbanks, Alaska 99775, (907) 474-7764.

Oceanography

School of Fisheries and Ocean Sciences
Graduate Program in Marine Sciences and Limnology

Degree: M.S., Ph.D.
Minimum Requirements for Degree: M.S. — 30 credits; Ph.D. (open)

The Graduate Program in Marine Sciences and Limnology offers M.S. degrees in several areas of oceanography (physical, chemical, biological, geological, fisheries and marine biology). Limnological research projects are also undertaken under the oceanography degree. The Ph.D. degree is offered in oceanography.

Opportunities for laboratory and field work are available through the School of Fisheries and Ocean Sciences and the Institute of Northern Science. These include laboratories at Fairbanks, the Seward Marine Center, the Juneau Center for Fisheries and Ocean Sciences, and the Fishery Industrial Technology Center at Kodiak. Research vessels operated by the institute and school include the R/V Alpha Helix, which has open-ocean capabilities and operates in Alaskan coastal waters, the Gulf of Alaska, and the Beaufort Sea; and the R/V Little Dipper, which operates on day trips in Resurrection Bay, and the R/V Mayahe, which operates in southeast Alaska waters. Laboratory facilities include the use of modern instrumentation, including mass spectrometers, a variety of alpha, gamma and beta counting equipment, a flow cytometer facility, and a variety of gas and liquid chromatography equipment. Mainframe and
personal computing facilities are readily accessible to graduate students.

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

Office Professions

School of Career and Continuing Education
Business Systems and Technology Department

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

The Office Professions program provides students with the specific skills needed to obtain entry level employment or achieve career advancement. Review courses aimed at preparing candidates for the Certified Professional Secretary examination are offered annually.

Courses covering basic knowledge and skills, emerging technology, advanced procedures, and interpersonal skills are offered. Potential careers for graduates include office secretary, stenographer, file clerk, receptionist, word information processors and office supervisors. This department offers both an associate degree and a certificate program.

Requirements

Office Professions — A.A.S. Degree

1. Complete the following general degree requirements: Credits
   - Written Communication .................................................. 6
   - Oral Communication ...................................................... 3
   - Science, Mathematics or Natural Science ........................ 6
   - (At least 3 credits shall be math or natural science at the 100 level or above.
   Subtotal ................................................................. 15

2. Complete the following major degree requirements:
   Subtotal ...................................................(minimum of) 26-27

3. Complete 13 (minimum) credits from the following major specialty electives:
   - ACCT 101 — Elementary Accounting ............................. 3
   - ABUS 142 — Office Accounting I .................................. 3
   - ABUS 143 — Office Accounting II .................................. 3
   - OP 105 — Keyboarding II/Intermediate Typewriting .......... 4
   - OP 106 — Keyboarding III/Advanced Typewriting ............ 3
   - OP 131 — Business English ........................................... 3
   - OP 151 — Microcomputer Word Processing/WordPerfect or
     Calculating Machines ............................................... 2
   - OP 152 — Microcomputer Word Processing/DisplayWrite 4 ... 2
   - OP 203 — Calculating Machines ..................................... 2
   - OP 207 — Machine Transcription ................................... 2
   - OP 221 — Filing/Records Management ............................. 2
   - OP 214 — Medical Machine Transcription ....................... 2
   - Any other CAPS, ABUS or OP course ............................. 1-6
   Subtotal ................................................................. 7
   Degree Total ............................................................ 60

Office Professions — Certificate

1. Complete the following major specialty requirements: Credits
   - Acct. 101 — Elementary Accounting .............................. 3
   - OP 142 — Office Accounting I ..................................... 3
   - OP 105 — Keyboarding II/Intermediate Typewriting .......... 3
   - OP 106 — Keyboarding III/Advanced Typewriting ............ 3
   - OP 131 — Business English .......................................... 3
   - OP 151 — Microcomputer Word Processing/WordPerfect or
     Calculating Machines ............................................... 2
   - OP 152 — Microcomputer Word Processing/DisplayWrite 4 ... 2
   - OP 207 — Machine Transcription ................................... 2
   - OP 221 — Filing/Records Management ............................. 2
   - OP 214 — Medical Machine Transcription ....................... 2
   - Any other CAPS, ABUS or OP course ............................. 1-6
   Subtotal ................................................................. 9

Paraprofessional Counseling

School of Career and Continuing Education
Academic Programs

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

Paraprofessional counseling is a program designed to provide basic training for entry into the job market. It is also a program for personal enrichment. The major role of the paraprofessional counselor is to offer support counseling to those experiencing life changes. Possible areas of employment include alcohol and drug, crisis intervention, mental health and correctional institution programs.

Program Requirements

1. A personal interview with the advisor of the Paraprofessional Counseling program.
2. Three letters of recommendation, submitted to the program advisor prior to the second year.
3. A minimum grade of "C" in all courses required for the PPC degree.

Requirements

Paraprofessional Counseling — A.A.S. Degree

1. Complete the following general degree requirements: Credits
   - Written Communication .................................................. 6
   - Oral Communication ...................................................... 3
   - Science, Mathematics or Natural Science ........................ 6
   - (At least 3 credits shall be math or natural science at the 100 level or above.
   Subtotal ................................................................. 15

2. Complete the following major degree requirements:
   Subtotal ................................................................. 30

3. Complete 9 credits from the following major specialty requirements:
   - PPC 203 — Substance Abuse Counseling I (3)
   - PPC 204 — Working with Marriage and Family Problems (3)
   - PPC 207 — Personal Awareness and Growth (3)
   - PPC 212 — Counseling Children (3)
   - PPC 215 — Working with People of Other Cultures (3)
   - SOC 242 — The Family (3)
   - PPC — Special Topics (6)
   Subtotal ................................................................. 9
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 confronting 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, courses in petroleum engineering deal with 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
PETE 103 — Survey of the Energy Industry
MATH 200 — Calculus I
CHEM 105 — General Chemistry
ENGL 111 — Methods of Written Communication
Humorist Office or Social Science Elective

Spring Semester
ES 201 — Computer Techniques
MATH 201 — Calculus II
GE/PETE 208 — Geology for Engineers
CHEM 106 — General Chemistry II
Speech Communication Elective

Second Year

Fall Semester
PETE 205 — Introduction to Petroleum Drilling and Production
MATH 202 — Calculus III
PHYS 211 — General Physics I
ENGL 211/213 — Intermediate Exposition
Humorist Office or Social Science Elective

Spring Semester
ES 208 — Mechanics
MATH 302 — Differential Equations
PHYS 212 — General Physics II
ES 346 — Basic Thermodynamics
Humorist Office or Social Science Elective

Third Year

Fall Semester
PETE 301 — Reservoir Rock Properties
MATH 310 — Numerical Analysis
ES 331 — Mechanics of Materials
ES 341 — Fluid Mechanics
Humorist Office or Social Science Elective

Spring Semester
PETE 302 — Well Logging
PETE 305 — Underground Fluid Behavior and Lab
PETE 426 — Drilling Engr. & Lab
ME 441 Heat and Mass Transfer
GEOS 370 — Struct. Geol. for Petr. Engr

Fourth Year

Fall Semester
PETE 407 — Production Engr. & Lab
PETE 421 — Subsurface Engineering
PETE 431 — Natural Gas Engineering
PETE 476 — Reservoir Engineering

4. General Electives: 6 Credits

Degree Total: 60 Credits

Spring Semester
PETE 460 — Petroleum Recovery Meth.
PETE 478 — Well Test Analysis
PETE 490 — Reservoir Simulation
Humans or Social Science Elect.

Notes:
1. Sixteen credits in humanities and social sciences are required. All electives must be approved by the petroleum engineering faculty advisor. At least 6 of the 16 credits must be (a) at the 100-level or (b) advanced courses in a 100-level sequence, and at least 3 credits must be in the humanities and 3 in the social science designation.
2. GEO 101 may be taken in a fall semester in place of GE 201.
3. As approved by the Board of Trustees, students are required to take the EIT exam as a condition of graduation.

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: 38 credits in philosophy, including:

       Credits
PHIL 201 — Introduction to Philosophy
PHIL 202 — Introduction to Eastern Philosophy
PHIL 204 — Introduction to Logic
PHIL 351-352 — History of Philosophy and Science
PHIL 471 — Contemp. Philosophical Problems
PHIL 486 — B.A. Thesis in Philosophy
PHIL 495 — Special Topics

Choose two of the following:
PHIL 321 — Aesthetics
PHIL 322 — Ethics
PHIL 341 — Epistemology
PHIL 342 — Metaphysics
PHIL 381 — Topics in Logic

Choose two of the following:
PHIL 481 — Philosophy of Science
PHIL 482 — Comparative Religion
PHIL 483 — Philosophy of Social Science
PHIL 485 — Topics in Comparative Philosophies

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 201 - Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 351-352 - History of Philosophy and Science</td>
<td>6</td>
</tr>
<tr>
<td>PHIL 471 - Contemporary Philosophy Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose six credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 202 - Intro. to Eastern Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 204 - Introduction to Logic</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 321 - Aesthetics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 322 - Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 341 - Epistemology</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 342 - Metaphysics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 481 - Philosophy of Science</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 482 - Philosophy of Religion</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 483 - Philosophy of Social Science</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 485 - Topics in Comparative Philosophy</td>
<td>3</td>
</tr>
</tbody>
</table>

**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, and the physical and competitive natures of these activities. Students working toward teacher certification within the B.S. or B.A. in Physical Education must complete a minimum of 22 credits in the 200-level fundamentals series.

2. Courses which pertain to teaching physical education, coaching athletic teams in school or recreation programs, and in academic discipline courses to complete a teaching or coaching specialty in one’s certification. Students are required to complete one winter sport, one individual sport, and five electives from the 200 fundamendals series.

3. Finally, a program of courses is provided for the general and professional student to acquire individual skills, attitudes, knowledge, and physical fitness. Students are required to complete one winter sport, one individual sport, and five electives from the 200 fundamendals series.

**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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 103 or 104 - Contemporary Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 111-112 - Human Anatomy and Physiology I and II</td>
<td>8</td>
</tr>
<tr>
<td>MATH 107 — Elementary Functions or MATH 161 — Algebra for Business and Economics or MATH 171 — Mathematics for Life Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Complete the following program (major) requirements:

**Required Courses (22 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE 205 - Introduction to the Human Movement Sciences</td>
<td>2</td>
</tr>
<tr>
<td>PE 232 - Analysis of Human Movement</td>
<td>3</td>
</tr>
<tr>
<td>PE 246 - Advanced First Aid</td>
<td>2</td>
</tr>
<tr>
<td>PE 316 - Motor Development</td>
<td>3</td>
</tr>
<tr>
<td>PE 402 - Concepts and Design of Physical Fitness Activities</td>
<td>2</td>
</tr>
<tr>
<td>PE 421 - Physiology of Exercise</td>
<td>2</td>
</tr>
<tr>
<td>PE 432 - Biomechanics of Physical Performance</td>
<td>4</td>
</tr>
<tr>
<td>PE 457 - Adapted Programs of Physical Activity</td>
<td>3</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE 211 - Fundamentals of Softball</td>
<td>1</td>
</tr>
<tr>
<td>PE 212 - Fundamentals of Basketball</td>
<td>1</td>
</tr>
<tr>
<td>PE 213 - Fundamentals of Ice Sports</td>
<td>1</td>
</tr>
<tr>
<td>PE 214 - Fundamentals of Snow Sports</td>
<td>1</td>
</tr>
<tr>
<td>PE 215 - Fundamentals of Volleyball</td>
<td>1</td>
</tr>
<tr>
<td>PE 216 - Fundamentals of Rhythms</td>
<td>1</td>
</tr>
<tr>
<td>PE 217 - Fundamentals of Recreational Activities</td>
<td>1</td>
</tr>
</tbody>
</table>

**Elective Courses (select a minimum of 4 courses)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE 210 - Fundamentals of Soccer</td>
<td>1</td>
</tr>
<tr>
<td>PE 219 - Fundamentals of Aquatics</td>
<td>1</td>
</tr>
<tr>
<td>PE 220 - Fundamentals of Wrestling</td>
<td>1</td>
</tr>
<tr>
<td>PE 221 - Fundamentals of Gymnastics</td>
<td>1</td>
</tr>
<tr>
<td>PE 222 - Fundamentals of Track and Field</td>
<td>1</td>
</tr>
</tbody>
</table>

**Elective Courses (select a minimum of 7 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE 317 - Motor Learning</td>
<td>3</td>
</tr>
<tr>
<td>PE 321 - Practicum in Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>PE 322 - Movement Activities for Children</td>
<td>3</td>
</tr>
<tr>
<td>PE 391 - Theory of Basketball</td>
<td>3</td>
</tr>
<tr>
<td>PE 406 - Methods of Teaching P.E.</td>
<td>3</td>
</tr>
<tr>
<td>PE 411 - Sports &amp; Physical Activity in American Society</td>
<td>3</td>
</tr>
<tr>
<td>PE 427 - Administration of P.E. and Athletics</td>
<td>3</td>
</tr>
<tr>
<td>PE 440 - Prevention and Care of Athletic Injuries</td>
<td>3</td>
</tr>
<tr>
<td>PE 442 - Evaluation in Physical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

**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 within the B.S. or B.A. in Physical Education must complete:

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PE 306 - Techniques in Teaching Creative Dance</td>
<td>3</td>
</tr>
<tr>
<td>PE 307 - Techniques in Camp and Outdoor Recreation</td>
<td>3</td>
</tr>
<tr>
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</tr>
<tr>
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<td>3</td>
</tr>
<tr>
<td>PE 327 - Movement Activities for Children</td>
<td>3</td>
</tr>
<tr>
<td>PE 328 - Administration of P.E. and Athletics</td>
<td>3</td>
</tr>
<tr>
<td>PE 425 - Administration of P.E. and Athletics</td>
<td>3</td>
</tr>
<tr>
<td>PE 442 - Measurement and Evaluation in Physical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**AND the required courses from the Education Department:**

**Elective Courses (select a minimum of 8 credits)**

<table>
<thead>
<tr>
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<tr>
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</tr>
<tr>
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<td>1</td>
</tr>
<tr>
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<td>1</td>
</tr>
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</table>

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</table>

**AND the required courses from the Education Department:**

**Elective Courses (select a minimum of 8 credits)**

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**Elective Courses (select a minimum of 4 courses)**

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<td>3</td>
</tr>
<tr>
<td>PE 442 - Measurement and Evaluation in Physical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**AND the required courses from the Education Department:**

**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.
Physics

College of Natural Sciences
Department of Physics

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

(907) 474-7339

Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 130 credits; M.S. — 30 additional credits; M.A.T. — 36 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 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, opportunity 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: Credits
     PHYS 113 — Concepts of Physics
     PHYS 211-212 — General Physics
     PHYS 213 — Elementary Modern Physics
   - 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

Physics — B.S. Degree

1. Complete general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:
   - MATH 200-201-202, 302 and 9 additional credits at the 300-level or above.
3. Minimum credits required 130

Suggested Curriculum for B.S. Degree

First Year
Fall Semester 16 credits
ENGL 111 — Methods of Written Communication 3
MATH 200 — Calculus 4
CHEM 105 — General Chemistry 4
PHYS 211 — Concepts of Physics 1

Spring Semester 18 credits
PHYS 213 — Elementary Modern Physics 3
PHYS 211 — Calculus 4
CHEM 106 — General Chemistry 4
ES 201 — Computer Techniques 3

Second Year
Fall Semester 18 credits
MATH 202 — Calculus 4
PHYS 212 — General Physics 4
ENGL 211 — Intermediate Exposition with Modes of Literature or ENGL 213 — Intermediate Exposition with Modes of Literature 4
GEOL 101 or BIOL 105 3
Humanities/Social Science elective 3

Spring Semester 16 credits
MATH 302 — Differential Equations 3
PHYS 213 — Elementary Modern Physics 3

Third Year
Fall Semester 16 credits
MATH 421 — Applied Analysis I 4
PHYS 311 — Mechanics 4
PHYS 331 — Electricity and Magnetism 3
PHYS 381 — Physics Laboratory 2
Humanities/Social Science elective 3

Spring Semester 16 credits
MATH 422 — Applied Analysis II 4
PHYS 312 — Mechanics 4
PHYS 332 — Electricity and Magnetism 3
PHYS 382 — Physics Laboratory 2
Humanities/Social Science elective 3

Fourth Year
Fall Semester 16 credits
PHYS 411 — Modern Physics 4
PHYS 413 — Thermodynamics 4
PHYS 462 — Optics 4
ES 307 — Elements of Electrical Engineering 3
Free electives 1

Spring Semester 17 credits
PHYS 445 — Solid State Physics 4
ES 308 — Instrumentation and Measurement 3
Free electives 4

MINOR in Physics:
A minor in Physics requires 12-16 credits.

Physics — M.S., M.A.T., or Ph.D. Degree

Graduate work is offered in various fields 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 science. 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

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 201-202 — Principles of Economics I and II
     (may substitute another economics course for ECON 201 or 202 on the recommendation of advisor) 6
     HIST 131-132 — History of the U.S. 6
     JUST 110 — Introduction to Justice or PSY 101 — Introduction to Psychology 6

Humanities/Social Science electives 6
MATH 314 — Linear Algebra 3
Free electives 1

Third Year
Fall Semester 16 credits
MATH 421 — Applied Analysis I 4
PHYS 311 — Mechanics 4
PHYS 331 — Electricity and Magnetism 3
PHYS 381 — Physics Laboratory 2
Humanities/Social Science elective 3

Spring Semester 16 credits
MATH 422 — Applied Analysis II 4
PHYS 312 — Mechanics 4
PHYS 332 — Electricity and Magnetism 3
PHYS 382 — Physics Laboratory 2
Humanities/Social Science elective 3

Fourth Year
Fall Semester 16 credits
PHYS 411 — Modern Physics 4
PHYS 413 — Thermodynamics 4
PHYS 462 — Optics 4
ES 307 — Elements of Electrical Engineering 3
Free electives 1

Spring Semester 17 credits
PHYS 445 — Solid State Physics 4
ES 308 — Instrumentation and Measurement 3
Free electives 4

MINOR in Physics:
A minor in Physics requires 12-16 credits.

Physics — M.S., M.A.T., or Ph.D. Degree

Graduate work is offered in various fields 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 science. 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.
3. Complete 30 credits in political science, beyond PS 101 including:

**Three Credits in Policy & 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 201 — Comparative Politics: Methods of Political Analysis .......... 3
- Three of the following:
  - PS 202 — Comparative Politics: Contemporary Doctrines and Structures  
  - PS 310 — The Politics of Post-Industrial States ............................. 3
  - PS 311 — Government and Politics of the Soviet Union ................. 3
  - PS 312 — Government and Politics of China ................................ 3

**Six Credits in International Politics from:**
- PS 321 — International Politics .................................................. 3
- PS 332 — International Relations ................................................. 3
- PS 345 — The Supreme Court and the American Legal System .......... 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 456 — Political Behavior: Research Methods .............................. 3
- Three 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:
- PS 101 — Introduction to American Government and Politics .......... 3
- Three credits in policy and administration from the following:
  - PS 102, 210, 211, 212, or 263 ................................................. 3
- Three credits in comparative politics from the following:
  - PS 201, 202, 310, 311, or 312 ................................................. 3
- Three credits in international politics from the following:
  - PS 321, 322, 347, 480 or 481 .................................................. 3
- Three credits in political theory from the following:
  - PS 315, 411, 412, or 415 ......................................................... 3

---

**Psychology**

**Rural College**
Department of Behavioral Sciences and Human Services

**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

**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 emphases 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**

**Rural College**
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 on the Bristol Bay, Chukchi, Fairbanks, Interior and Kuskokwim campuses.

**Requirements**

**Rural Development — B.A. Degree**

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

**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
- Complete 21 credits from the following:
  - PSY 240 — Develop, Psychology in Cross-Cultural Persp ................. 3
  - PSY/SOC 473 — Social Science Research Methods .......................... 3
  - ANTH 242 — Native Cultures of Alaska ........................................ 3
  - Complete 21 credits from the following:
  - PSY 210 — Cross-Cultural Psychology ........................................ 3
  - PSY 230 — 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.
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Development Core (30 credits):</td>
<td></td>
</tr>
<tr>
<td>RD 325 - Rural Development in a Global Perspective</td>
<td>3</td>
</tr>
<tr>
<td>ED 338 - Education and Economic Development</td>
<td></td>
</tr>
<tr>
<td>RD 350 - Community Research and Planning</td>
<td>3</td>
</tr>
<tr>
<td>RD 400 - Rural Development Internship</td>
<td>3</td>
</tr>
<tr>
<td>RD 430 - Managing Community Development Projects</td>
<td>3</td>
</tr>
<tr>
<td>RD 475 - Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>RD or ED Elective</td>
<td>6</td>
</tr>
</tbody>
</table>

**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 and logic, or natural science 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALR 101 - Conservation of Natural Resources</td>
<td>3</td>
</tr>
<tr>
<td>ALR 251 - Introduction to Forest Systems</td>
<td>3</td>
</tr>
<tr>
<td>ALR 380 - Soils</td>
<td>3</td>
</tr>
<tr>
<td>ALR 401 - Natural Resources Legislation</td>
<td>3</td>
</tr>
<tr>
<td>ALR 450 - Forest Management</td>
<td>3</td>
</tr>
<tr>
<td>ANS 425 - Federal Indian Law and Alaska Natives</td>
<td>3</td>
</tr>
<tr>
<td>BIL 101 - Natural History of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>BIL 271 - Principles of Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BA 100 - Introduction to Data Processing and BASIC</td>
<td>3</td>
</tr>
<tr>
<td>ECON 235 - Intro. to Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>GEOS 101 - The Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>WLF 417 - Wildlife Management</td>
<td>3</td>
</tr>
<tr>
<td>WLF 419 - Waterfowl and Wetlands Ecology and Management</td>
<td>2</td>
</tr>
<tr>
<td>Approved electives</td>
<td>3 or more</td>
</tr>
</tbody>
</table>

**Local Government Administration Emphasis**

Designed for individuals interested in becoming involved in the administration of small municipal governments and/or IRA Tribal Governments.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101 - Elementary Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 303 - Governmental Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ANS 120 - Cultural Differences in Institutional Settings</td>
<td>3</td>
</tr>
<tr>
<td>ANS 425 - Federal Indian Law and Alaska Natives</td>
<td>3</td>
</tr>
<tr>
<td>ANS 475 - Alaska Native Social Change</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 305 - Comparative Political and Legal Systems</td>
<td>3</td>
</tr>
<tr>
<td>BA 100 - Introduction to Data Processing and BASIC</td>
<td>3</td>
</tr>
<tr>
<td>BA 101 - Intro. to American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>BA 210 - Alaska Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>BA 212 - Introduction to Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>SOC 407 - American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>SPC 330 - Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>SPC 335 - Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>Approved electives</td>
<td>3 or more</td>
</tr>
</tbody>
</table>

**Village Corporation Management Emphasis**

Designed for individuals interested in becoming involved in the management of ANCSA village corporations and related community-based enterprises.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101 - Elementary Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102 - Elementary Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306 - Economic Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANS 415 - Comparative Economic Development Processes</td>
<td>3</td>
</tr>
<tr>
<td>ANS 425 - Federal Indian Law and Alaska Natives</td>
<td>3</td>
</tr>
<tr>
<td>ANS 475 - Alaska Native Social Change</td>
<td>3</td>
</tr>
<tr>
<td>BA 100 - Introduction to Data Processing and BASIC</td>
<td>3</td>
</tr>
<tr>
<td>BA 151 - Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BA 331 - The Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>ECON 111 - Economics of Rural Alaska (offered only through off-campus program)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 137 - The Alaskan Economy</td>
<td>3</td>
</tr>
<tr>
<td>SPC 330 - Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>SPC 335 - Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>SPC 407 - Formal Organizations</td>
<td>6 or more</td>
</tr>
<tr>
<td>Approved electives</td>
<td>6 or more</td>
</tr>
</tbody>
</table>

**Community Research and Cultural Documentation**

Designed for individuals interested in becoming involved in accessing, organizing and disseminating information at the community level, particularly through community information centers.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANS 120 - Cultural Differences in Institutional Settings</td>
<td>3</td>
</tr>
<tr>
<td>ANS 301 - Native Cultural Heritage Documentation</td>
<td>3</td>
</tr>
<tr>
<td>ANS 320 - Language &amp; Culture: Application of Alaska</td>
<td>3</td>
</tr>
<tr>
<td>ANS 351 - Practicum in Native Cultural Expression</td>
<td>3</td>
</tr>
</tbody>
</table>

**Russian Studies**

**Interdisciplinary**

*Degree: B.A.*

**Minimum Requirements for Degree: 130 credits**

**Requirements**

**Russian Studies — B.A. Degree**

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

**Core courses (21-24 credits):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Anthropology Elective</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 308 - Geography of the Soviet Union</td>
<td>3</td>
</tr>
<tr>
<td>HIST 344 - Modern Russia</td>
<td>3</td>
</tr>
<tr>
<td>HIST 302 - Advanced Russian</td>
<td>3</td>
</tr>
<tr>
<td>HIST 303 - Advanced Russian</td>
<td>3</td>
</tr>
<tr>
<td>HIST 342 - Studies in Russian Lit. and Culture (once - 6 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 347 - Semantics (2 cr.)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 100 - Introduction to Data Processing and BASIC</td>
<td>3</td>
</tr>
<tr>
<td>HIST 111 - Economic of Rural Alaska</td>
<td>3</td>
</tr>
<tr>
<td>HIST 137 - The Alaskan Economy</td>
<td>3</td>
</tr>
<tr>
<td>SPC 330 - Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>SPC 335 - Organizational Communication</td>
<td>3</td>
</tr>
<tr>
<td>SPC 407 - Formal Organizations</td>
<td>3</td>
</tr>
<tr>
<td>SPC 407 - Formal Organizations</td>
<td>3</td>
</tr>
<tr>
<td>Approved electives</td>
<td>3 or more</td>
</tr>
<tr>
<td>Minimum credits required</td>
<td>130</td>
</tr>
</tbody>
</table>

*Students must complete two years of Russian language study (RUSS 101-102-201-202) or equivalent as a prerequisite for RUSS 301-303.*

**MINOR in Russian:**

A minor in Russian studies requires 15 credits taken from the core courses and approved by the program advisor.

**Science Management**

**School of Engineering**

**Department of Engineering and Science Management**

(907) 474-6121

**Degrees: M.S.**

**Minimum Requirements for Degrees: 33 credits (beyond a bachelor's degree in a scientific field)**
The science management curriculum is designed for graduate scientists 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 UAF Graduate Catalog.

Social Work

Rural College
Department of Behavioral Sciences and Human Services

(907) 474-7240

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, Chukchi and Northwest campuses.

The curriculum includes a liberal arts base, foundation requirements in the behavioral sciences, and courses in social policy and services, practice methods, and field instruction. A major emphasis is the preparation of the student for beginning social work practice with rural and Alaska Native populations.

The UAF baccalaureate 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. (Note: BIOL 103 or BIOL 111 must be taken to meet natural science requirement.)

2. Complete the following departmental core requirements:
   - *PSY 101 — Introduction to Psychology
   - *SOC 101 — Introduction to Sociology
   - SOC 250 — Introductory Statistics for Behav.
   - SOC 240 — Develop. Psychology in Cross-Cultural Persp.
   - SOC 473 — Social Science Research Methods
   - ANTH 242 — Native Cultures of Alaska

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 462 — Social Work Practice II
   - SWK 464 — 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 484 — Seminar in Social Work Practice
   - HMSC 205 — Factors in Health and Disease
   - HMSC 210 — Crisis Intervention
   - HMSC 230 — Alcoholism: Theories of Etology
   - HMSC 255 — Foundations of Counseling II
   - HMSC 330 — Alcoholism: Treatment and Prevention
   - HMSC 330 — Foundations of Counseling I
   - HMSC 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

*S may be used toward general degree requirements where applicable.

Sociology

Rural College
Department of Behavioral Sciences and Human Services

(907) 474-7240

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
   - SOC 101 — Introduction to Sociology
   - *PSY 240 — Develop. Psychology in Cross-Cultural Persp.
   - *SOC 250 — Introductory Statistics for Behav.
   - *SOC 473 — Social Science Research Methods
   - ANTH 242 — Native Cultures of Alaska

3. Complete the following Sociology Core requirements:
   - SOC 301 — Rural Sociology
   - SOC 330 — Social Psychology
   - SOC 363 — Social Stratification
   - SOC 402 — Theories of Sociology

4. Complete 12 credits from the following:**
   - SOC 102 — Social Institutions
   - SOC 201 — Social Problems
   - SOC 242 — The Family: A Cross-Cultural Perspective
   - SOC 307 — Demography
   - SOC 309 — Urban Sociology
   - SOC 310 — Sociology of Later Life
   - SOC 335 — Sociology of Deviant Behavior
   - SOC 370 — Drugs and Drug Dependence
   - SOC 405 — Social Change
   - SOC 407 — Formal Organizations
   - SOC 408 — American Minority Groups
   - RD 325 — Community Org. & Devt. Strategies

   Minimum Credits required for Degree: 120

**May be used toward general degree requirements where applicable.

*Courses from this group not used toward the major may be applied toward 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

(907) 474-7339

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

(907) 474-7751

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 following three courses for the Oral Communication requirement: SPC 121, SPC 131, or SPC 141. The course completed to meet the University Oral Communication requirement 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

Credits

100 Level
SPC 121 — Fundamentals of Oral Communication-Interpersonal Emphasis ................................ 3
SPC 131 — Fundamentals of Oral Communication-Small Group Emphasis .......................... 3
SPC 141 — Fundamentals of Oral Communication-Public Speaking Emphasis .................. 3

200 Level
SPC 211 — Voice and Diction ................................... 3
SPC 231 — Business and Professional Communication .................................................. 3
SPC 251 — Argumentation and Debate .................................................. 3
SPC 261 — Oral Interpretation ........................................ 3
SPC 282 — Communication Research Methods .................................................. 3

300 Level
SPC 320 — Communication and Language .................................................. 3
SPC 321 — Nonverbal Communication .................................................. 3
SPC 322 — Interpersonal Communications .................................................. 3
SPC 330 — Intercultural Communication .................................................. 3
SPC 331 — Group Communication .................................................. 3
SPC 355 — Organizational Communication .................................................. 3
SPC 342 — Advanced Public Speaking .................................................. 3

400 Level
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 (3 credits) may be used to meet 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. 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 medical research; and maintaining quality control in industry. Employment opportunities are excellent for statisticians in many of these areas of application.

The curriculum for the B.S. in statistics provides a strong mathematics and statistics background and integrates this with an area of application. The program allows considerable flexibility in the choice of the area of application.

The statistics program is administered by the Department of Mathematical Sciences. In addition to the B.S. in statistics, the department offers a bachelor's degree in mathematics with an emphasis in statistics. A minor in statistics is also available.

Requirements

Statistics — B.S. Degree
1. Complete the general university requirements and B.S. degree requirements.*
2. Complete the following program (major) requirements:

A. Statistics Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 200</td>
<td>3</td>
</tr>
<tr>
<td>MATH 201</td>
<td>3</td>
</tr>
<tr>
<td>MATH 202</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Statistics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 211</td>
<td>3</td>
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<tr>
<td>MATH 212</td>
<td>3</td>
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<tr>
<td>MATH 213</td>
<td>3</td>
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<tr>
<td>MATH 214</td>
<td>3</td>
</tr>
<tr>
<td>MATH 215</td>
<td>3</td>
</tr>
</tbody>
</table>

C. Statistics Electives

Choose two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 301</td>
<td>3</td>
</tr>
<tr>
<td>STAT 302</td>
<td>3</td>
</tr>
<tr>
<td>STAT 303</td>
<td>3</td>
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<tr>
<td>STAT 304</td>
<td>3</td>
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<tr>
<td>STAT 305</td>
<td>3</td>
</tr>
<tr>
<td>STAT 306</td>
<td>3</td>
</tr>
</tbody>
</table>

D. Area of Application

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 411</td>
<td>3</td>
</tr>
<tr>
<td>STAT 412</td>
<td>3</td>
</tr>
<tr>
<td>STAT 413</td>
<td>3</td>
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<tr>
<td>STAT 414</td>
<td>3</td>
</tr>
<tr>
<td>STAT 415</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Minimum credits required: 120

*Credits received in the area of application may reduce the number of required credits in the general distribution requirements of humanities/social science and science. Elective courses must be approved as the second course in the written communication requirement.

**Examples of programs for areas of application for biology, wildlife, geology and economics are available. Other areas of application are available.

Minor in Statistics:
Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 301</td>
<td>3</td>
</tr>
<tr>
<td>STAT 302</td>
<td>3</td>
</tr>
<tr>
<td>STAT 303</td>
<td>3</td>
</tr>
<tr>
<td>STAT 304</td>
<td>3</td>
</tr>
<tr>
<td>STAT 305</td>
<td>3</td>
</tr>
</tbody>
</table>

(Examples: Any other STAT course; statistics related courses such as BA 360/RBA 684, GEOS 430, ECON 326, ANTH 421, etc.)

*MATH 371 requires MATH 200-201-202 as prerequisites.

(A minor in statistics may be used with a major in mathematics as long as there is no double-counting of courses in both the major and minor.)

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:

   A. Complete a minimum of 45 credits in theater and stipulated related courses as specified below, including the following foundation courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 121</td>
<td>Fundamentals of Acting</td>
<td>3</td>
</tr>
<tr>
<td>THR 241</td>
<td>Basic Stagecraft</td>
<td>3</td>
</tr>
<tr>
<td>THR 243</td>
<td>Intermediate Stagecraft</td>
<td>3</td>
</tr>
<tr>
<td>THR 341</td>
<td>Theater History I or THR 412 — Theater History II</td>
<td>3</td>
</tr>
</tbody>
</table>

B. Complete the following:

1. A minimum of two courses from:

   - THR 221 — Intermediate Acting (3)
   - THR 225 — Movement for the Actor (3)
   - THR 226 — Advanced Acting (3)
   - THR 325 — Theater Speech (3)
   - THR 351 — Makeup for Theater (3)
   - THR 421 — Advanced Acting II (4)

2. A minimum of two courses from:

   - THR 341 — Intermediate Stagecraft (3)
   - THR 343 — Scene Design (3)
   - THR 347 — Lighting Design (3)
   - THR 355 — History of Stage Costume (3)

* A minimum of two courses from:

   - ENGL 422 — Shakespeare: History Plays and Tragedies (3)
   - ENGL 425 — Shakespeare: Comedies 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 243 — Music of World Cultures

   * A minimum of one course from:

   - ART 105 or 106 — Beginning Drawing
   - JB 213 — Audio Production
   - SB 106 — Television Production
   - ES 101 — Graphics (2 cr.)
   - PER 100 — Modern Dance, Fencing, Gymnastics (1 cr. each)
   - SPC 261 — Oral Interpretation
   - SPC 251 — Voice and Diction
   - FL 110 — Pronunciation of French, German, Italian and Spanish

6. A minimum of two courses from:

   - Additional course(s) from 1, 2, and 3 above
   - THR 211 — Theatre Appreciation
   - THR 413 — Playscript Analysis
   - THR 435 — Advanced Directing
   - A second semester of Theater History
   - An individual study in theater

7. Minimum credits required: 130

* May be used to meet general degree requirements wherever applicable.

**MINOR in Theater:**

A minor in Theater requires 18 credits in theater courses including the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 121</td>
<td>Fundamentals of Acting</td>
<td>3</td>
</tr>
<tr>
<td>THR 211</td>
<td>Theatre Appreciation</td>
<td>3</td>
</tr>
</tbody>
</table>

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 at 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.

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### 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, mining, 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 student-faculty interaction. Some student-instructor interaction is necessary for students to 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., Ph.D.

**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 the field and laboratory research needed to provide additional information on the workings of wild animal populations, the condition of their habitat, and habitual-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 Southeastern 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 Fisheries Research Unit, and several local 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.
2. Complete the following degree and program (major) requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALR 101</td>
<td>3</td>
</tr>
<tr>
<td>ALR 380</td>
<td>3</td>
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<tr>
<td>ALR 400</td>
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<tr>
<td>ALR 401</td>
<td>3</td>
</tr>
<tr>
<td>STAT 301</td>
<td>3</td>
</tr>
<tr>
<td>STAT 402</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 105-106</td>
<td>8</td>
</tr>
</tbody>
</table>

*See the course catalog for details.*
BIOL 205 — Vertebrate Anatomy 
or BIOL 317 — Comp. Anatomy ............................................. 4
*BIOL 210 — Animal Physiology ............................................. 4
*BIOL 239 — Introduction to Plant Biology .............................. 4
BIOL 271 — Principles of Ecology ........................................... 4
BIOL 331 — Systematic Botany .................................................. 4
BIOL 362 — Principles of Genetics ........................................... 4
BIOL 425 — Ornithology ......................................................... 4
BIOL 471 — Population Ecology ............................................... 4
CHEM 105-106 — General Chemistry ...................................... 3
ENGL 213 — Intermediate Exposition ...................................... 3
ENGL 314 — Technical Writing or ENGL 414 — Research Writing .. 3
MATH 272-273 — Introduction to Calculus for the Life Sciences ... 6
PHYS 103 — College Physics .................................................... 4
SPC 141 — Fund of Oral Comm: Public Speaking ...................... 3
WLF 101 — Survey of Wildlife Sciences ................................... 1
WLF 201 — Wildlife Management Principles ............................ 1
WLF 303 — Wildlife Management Techniques ........................... 1
WLF 360 — Nutrition and Physical Ecology of Wildlife ............... 1
WLF 410 — Wildlife Populations and Their Management .......... 3
BIOL 473 — Limnology ............................................................ 3
CS 201 — 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

In addition:
1. Complete the remainder of the B.S. social sciences/humanities requirement, 8 credits.
2. Complete sufficient electives to bring total to 130 credits.
3. 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.
2. Complete the following degree and program (major) requirements:

Courses Credits
ALR 101 — Conservation of Natural Resources ....................... 3
ALR 380 — Special Topics ...................................................... 3
ALR 401 — Natural Resource Policies ..................................... 3
ALR 430 — Land-Use Planning .............................................. 3
STAT 301 — Elementary Probabilities and Statistics ............... 3
BIOL 105-106 — Fundamentals of Biology ............................. 8
BIOL 205 — Vertebrate Anatomy ............................................ 4
*BIOL 210 — Animal Physiology ............................................ 4
BIOL 271 — Principles of Ecology ........................................... 4
BIOL 331 — Systematic Botany .................................................. 4
BIOL 362 — Principles of Genetics ........................................... 4
BIOL 425 — Mammalogy or BIOL 426 — Ornithology ................. 3
BIOL 471 — Population Ecology ............................................... 4
CHEM 105-106 — General Chemistry ...................................... 3
ECON 235 — Introduction to Natural Resource Economics ....... 3
ENGL 111 — Methods of Written Communication .................. 3
ENGL 213 — Intermediate Exposition ...................................... 3
ENGL 314 — Technical Writing or ENGL 414 — Research Writing .. 3
MATH 272-273 — Introduction to Calculus for the Life Sciences ... 6
PHYS 103 — College Physics .................................................... 4
SPC 141 — Fund of Oral Comm: Public Speaking ...................... 3
WLF 101 — Survey of Wildlife Sciences ................................... 1
WLF 201 — Wildlife Management Principles ............................ 1
WLF 410 — Wildlife Populations and Their Management .......... 3
WLF 303 — Wildlife Management Techniques .......................... 3
BIOL 473 — Limnology ............................................................ 3

In addition:
1. At least 9 credits must be completed from this group:
GEOG 202 — Geology of Alaska ............................................. 3
GEOG 302 — Map and Nature ................................................. 3
*JB 102 — Broadcasting and Society ....................................... 3
*JB 301 — Basic Newsgathering and Processing ....................... 3
*JB 311 — Basic Photography ................................................... 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 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 308 — Urban Sociology ..................................................... 3

2. At least 1 of the following courses must be included:
ALR 460 — Principles of Outdoor Recreation Management .......... 3
ALR 450 — Forest Management ................................................. 3
ALR 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 429 — Introduction to Fisheries Science ......................... 3
FISH 430 — Fisheries Management .......................................... 3
WLF 436 — 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 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.

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 leader, Alaska Cooperative Wildlife Research Unit, University of Alaska Fairbanks, Fairbanks, Alaska. Applications for these assistantships should be sent to the unit leader; such applications are supplementary to the application for admission for graduate study.

Wildlife Management — M.S. or Ph.D. 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

(907) 474-7542

Degrees: M.S., Ph.D.

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

For complete information on the graduate programs in zoology, see the UAF Graduate Catalog.
UAF's classroom can extend to the Tanana River, which flows just south of Fairbanks. From a riverboat, Johanne Rosing of Qaortfoq, Greenland, prepares to band a mew gull during the annual Rural Alaska Honors Institute.
Course Descriptions

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/Ft. Greely, Eielson AFB and Ft. Wainwright 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 316 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.

000-049 — Non-credit courses
050-099 — Developmental courses
Developmental courses are preparatory courses which do not apply to associate of arts, baccalaureate or graduate degrees. Credits earned in these courses may be applied toward associate of applied science degree requirements, with approval of program or department head.
100-299 — Lower-division courses
300-499 — Upper-division courses
Freshman and sophomore students may be required to obtain special permission to take 300 and 400 level courses unless such courses are required in the first two years of their curriculum as printed in this catalog.
500-599 — Post-baccalaureate courses
Post-baccalaureate courses are considered professional and specialized. Such courses are not interchangeable with 600 level courses for graduate degree programs.
600-699 — Graduate courses
A few well qualified undergraduates may be admitted to graduate courses with the permission of the head of the department in which the course is offered.

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.

Course Credits

One credit represents satisfactory completion of 600 minutes of lecture or 1600 or 2400 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 lecture and laboratory hours 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.

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, Written Communication, etc.) are identified in the course description section of this catalog by the following designators:

- h — Humanities
- m — Mathematics
- n — Natural Science
- o — Oral Communication
- p — Physical Science
- q — Pre-professional
- s — Social Science
- w — Written Communication

For example, HIST 341, History of Alaska (3+0)h may be utilized to satisfy the "social science elective" requirement. ENGL 111, Methods of Written Communication (3+0)w may be used to meet the written communication general degree requirement.

Special topics courses are not given course classifications.

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.
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 and Spring
Elementary Accounting (3+0)
An introduction course in 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 and Spring
Intermediate Accounting (3+0)
A continuation of introductory accounting concepts and procedures emphasizing the problems of businesses organized as partnerships or corporations and performing manufacturing operations. Also available via Independent Learning. (Prerequisite: ACCT 101.)

**ACCT 303** 3 Credits Spring
Governmental Accounting (3+0)
Principles and operation of 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)
A study of federal and state income taxes relating primarily to the individual residing in Alaska and an introduction to corporate income taxation. The course entails tax reporting, planning, and research. (Prerequisite: ACCT 102 or permission of instructor.)

**ACCT 316** 3 Credits Spring
Accounting Information Systems (3+0)
The design and analysis of accounting systems for business entities in various industries. Internal control for the business, data processing and its relationship to accounting systems examined. Materials fee: $20.00. (Prerequisite: ACCT 102.)

**ACCT 323** 3 Credits As Demand Warrants
Petroleum Accounting (3+0)
Financial reporting and accounting for the petroleum industry with an emphasis on the 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)
A course in managerial accounting with a managerial emphasis focusing 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. This course is designed for accounting majors. (Prerequisite: ACCT 102.)

**ACCT 352** 3 Credits Fall and Spring
Management Accounting (3+0)
A managerial accounting course focusing on business policy profit planning, resource planning, control concepts, reporting for management control, and the impact of public reporting on management decisions. (Prerequisites: ACCT 101 and 102.)

**ACCT 361** 3 Credits Fall
Intermediate Accounting (3+0)
A study of federal income tax for all entities, gift, estate, and payroll taxes. The course entails tax research, tax planning, and tax reporting for domestic and foreign tax payers. (Prerequisite: ACCT 310.)

**ACCT 404** 3 Credits Fall
Advanced Cost Accounting and Controllership (3+0)
A study of the controllership function in contemporary organizations and related reporting requirements. Advanced costs accounting and managerial considerations will be a major emphasis of study as it relates to contemporary organizations. (Prerequisites: ACCT 316, 342, 362; BA 325 and 360.)

**ACCT 405** 3 Credits Spring
Contemporary Issues in Accounting (3+0)
A study of current developments in financial and managerial accounting theory and research. Relevant court cases, SEC rulings, FASB and AICPA publications, and academic accounting research will be emphasized. (Prerequisite: ACCT 401.)

**ACCT 452** 3 Credits Fall
Auditing (3+0)
A study of the procedures for verification of financial data and the professional standards applicable to the auditor's examination of financial statements and his expression of opinion relative to them. (Prerequisite: ACCT 310 and 403 or permission of instructor.)

**ACCT 471** 3 Credits As Demand Warrants
Tax Planning and Research (3+0)
Tax planning and research primarily for business organizations. Tax planning for estates, trusts, and individuals will be examined. The course is designed for tax practitioners as well as for 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)
An examination of advanced auditing theory and practice, including audit techniques and internal control of computer systems. The course is designed for auditor practitioners as well as for students without field experience in auditing. Materials fee: $20.00. (Prerequisites: ACCT 310 and 452. This course assumes prior exposure to auditing and information systems.)

**ACCT 473** 3 Credits Fall
Applied Systems Design (3+0)
The development and implementation of a computer-based accounting information system for a small business or not-for-profit entity. Materials fee: $20.00. (Prerequisites: ACCT 310, 342 or 362.)

**ACCT 481** 1 Credit As Demand Warrants
Personal Tax Planning (1+0)
The course will concern personal tax planning rather than tax preparation. The course will focus on the provisions of tax law affecting the individual taxpayer. (Prerequisites: Upper division standing, permission of instructor.)

**ACCT 482** 1 Credit As Demand Warrants
Business Tax Planning (1+0)
The course will concern business tax planning rather than tax preparation. The course will focus on applicable tax credits, business deductions, profit sharing plans, and various state taxes. (Prerequisites: Upper division standing or permission of instructor.)

**ACCT 483** 1 Credit As Demand Warrants
Estate Tax Planning (1+0)
The course will entail estate tax planning. The course will focus on gift, estate, and social security taxes. (Prerequisites: 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)

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**Agriculture and Land Resources**

**RESOURCES MANAGEMENT**

**ALR 101** 3 Credits Fall
Conservation of Natural Resources (3+0)
Consideration of natural resources including discussion of their biological and physical nature, social and economic aspects of use, conflicts of use, and alternative means for conservation. Majors in all fields are welcome. (Prerequisite: Placement in ENGL 111.)
ALR 102 1-3 credits Fall and Spring
Practicum in Natural Resources Management
An individual study opportunity providing practical experience in some field related to natural resources management. This supervised, occupational experience may take place on a farm, in a greenhouse, in a managed forest, with an agency or business, or in another approved location. (Prerequisites: Enrolment limited to Natural Resource Management majors only.)

ALR 201 3 credits Fall
Processes of Natural Resources Management (3+0)
An introductory course in natural resources management institutions and processes. Emphasizes public lands and resources, but considers private firms and native regional corporations as well. (Prerequisites: ALR 101 and at least sophomore standing.)

ALR 220 3 credits Spring
Elements of Information Transfer for Natural Resource Managers (3+0)
Introduction to information transfer process used by natural resource managers, including principles of the extension processes: identification of, and networking with various publics, with an emphasis on natural resources-oriented agencies; tools, techniques (formal and informal), and planning strategies for promoting effective information transfer; theory and practical applications. (Prerequisites: ALR 101 and a speech communications course or permission of instructor.)

ALR 231 3 Credits Spring
Arctic Survival (3+0)
(Same as AVTY 231)
Use of principles, procedures, techniques and equipment to survive extreme arctic conditions and to assist in safe recovery. Lab is required. Materials fee: $35.00.

ALR 235 3 Credits Spring
Elements of Weather (3+0)
(Same as AVTY 235)
Weather as it affects aircraft operators with an emphasis on Interior Alaska.

ALR 300 1-3 Credits Fall, Spring, Summer
Internship in Natural Resources Management
Supervised programs designed to provide carefully selected upper division or graduate students with practical experience working with government units or agencies in natural resources management. Opportunities to apply theories and practical application, observe procedures and operations of the agencies, and become better prepared for professional employment. (Prerequisite: ALR 101, at least upper division standing, and permission of instructor.)

ALR 302 2 Credits Spring
Aerial Data Collection (2+0)
(Same as AVTY 302)
The specific uses of aircraft to collect resource data from aerial observations to the operation of specialized equipment used to collect remote sensing data. Includes aspects of mission design and sampling strategies. The course is intended for people who plan to be involved in data collection, including air workers, mission pilots and managers. (Prerequisite: AVTY 301.)

ALR 302L 1 Credit Spring
Aerial Data Collection Laboratory (0+2)
(Same as AVTY 302L)
Lab portion of ALR 302. (Prerequisites: AVTY 301 and 302.)

ALR 310 3 Credits Spring
Agricultural Concepts and Techniques (3+0)
Concepts and techniques of agriculture in its broadest sense as related to past, present, and future cultures; food and fiber production; uses of wild and domestic plants and animals; esthetics; and quality and protection of the environment. (Prerequisite: BIOL 105, 106; CHEM 105, 106.)

ALR 360 3 Credits Alternate Spring
Outdoor Recreation Planning (3+0)
The course develops on the basic theory and practices related to the allocation of natural resources for recreational purposes, including concomitant services related to that use. Macrobehavioral patterns are studied as they influence the allocation process. (Prerequisites: ALR 101 and ECON 235 or equivalent, or with permission of instructor. Next offered: 1992-93.)

ALR 400 6 Credits Alternate Spring
Natural Resource Policies (3+0)
The origin and significance of public policies in land, water, forest, wildlife, mineral, petroleum, agricultural and aesthetic resources. Focuses on Alaskan and relevant national issues. (Prerequisites: Upper division or graduate standing. Next offered: 1992-93.)

ALR 401 3 Credits Alternate Spring
Natural Resources Legislation (3+0)
The background and importance of selected federal and Alaskan legislation in land management, resource conservation and environmental areas. (Prerequisite: Upper division or graduate standing in agriculture, wildlife, fisheries, natural resources management, or related fields, or permission of instructor. Next offered: 1990-91.)

ALR 402 3 Credits Spring
Aircraft Management (3+0)
(Same as AVTY 425)
Methods for securing, dispatching, and monitoring aircraft operations for managers. Topics to be emphasized include safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling. (Prerequisite: AVTY 301.)

ALR 403 4 Credits Alternate Spring
Managing Food Production Systems (3+3)
The examination of alternative and traditional food production systems in light of changing economic conditions in world markets; emphasis on subarctic areas. Available economic and engineering principles will form the core of the course. Applications include development of a diversified plan for food production. Personal computers will be used in development of budget and cash flows. (Prerequisites: ALR 310, ALR 320, basic economics can be taken concurrently), and basic knowledge of operation of a personal computer, or permissions of instructor. Next offered: 1991-92.)

ALR 425 2 Credits Spring
Alaska's Reindeer Industry (2+0)
Alaska's reindeer industry will be examined as a practical case in natural resources management. Social, economic, historical, and ecological aspects will be addressed. Emphasis will be placed on (1) the multi-disciplinary nature of natural resource management and planning; and (2) the coordination of agency and private involvement in management of the reindeer industry's resource base. (Prerequisites: ALR 101, at least junior standing or permission of instructor.)

ALR 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 are emphasized. (Prerequisite: Upper division standing.)

ALR 460 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: at least junior standing or permission of instructor.)

ALR 461 3 Credits Alternate Spring
Interpretive Services (3+0)
Naturalist and other visitor programs in outdoor recreation areas: philosophy, planning, and development of interpretive programs; resources, agencies, users, interpretive media, and program evaluation. (Prerequisites: At least junior standing or permission of instructor. Next offered: 1990-91.)

ALR 462 3 Credits Fall
Alaskan Environmental Education (3+0)
(Same as ED 462)
Environmental concepts, motivational and discovery techniques, and practical skills for utilizing the environment inside and outside the formal classroom in all subject areas. Course content includes information on curriculum materials (K-12), interpretive and audiovisual aids, facilities, environmental problem solving and applications of environmental education to situations from the public schools to summer camp, short courses, and workshops for individuals of any age. (Prerequisites: at least junior standing or permission of instructor.)

ALR 630 3 Credits Fall
Planning Theory (3+0)

ALR 631 3 Credits Spring
Planning Practicum (3+0)

ALR 641 3 Credits Alternate Spring
Natural Resources Applications of Remote Sensing (2+3)

ALR 675 3 Credits Alternate Fall
Applied Ecosystem Science (3+0)

ALR 680 3 Credits Alternate Fall
Environmental Decision-Making (3+0)

ALR 681 3 Credits Alternate Spring
Natural Protection and Management (3+0)

ALR 690 3 Credits Alternate Fall
Advanced Topics in Resource Management (3+0)
FOREST SCIENCES

ALR 251 3 credits  Spring  Silvics and Dendrology (3+0)
The ecological requirements and characteristics of tree species of the Northern Forest and western North American forest; silvical characteristics including range, climate, soils, shade tolerance, growth, and principal enemies. Family and species characteristics essential for identification on sight or with a key are stressed. (Prerequisites: ALR 101 and introductory biology course or permission of instructor.)

ALR 340 3 Credits  Spring  Natural Resources Measurements (2+3)
Introduction to the techniques and instrumentation used in the measurement and inventory of natural resources. Measurements used by managers of land, timber, range, wildlife, water, and recreation resources will be discussed. (Prerequisites: junior standing or permission of instructor.)

ALR 370 3 Credits  Fall  Introduction to Watershed Management (2+3)
Examination of the hydrologic cycle and the influence of land management techniques on water quantity, quality, and timing. Topics of water yield, soil erosion and non-point pollution, snowpack management, and land use alternatives will be discussed. (Prerequisites: BOT 239, and GEOS 101, or permission of instructor.)

ALR 450 3 Credits  Alternate Fall  Forest Management (3+0)
Introduction to forest land management for production of goods and services; relation of timber production to other forest land uses; topics include allowable cut, management planning inventory, valuation. (Prerequisites: ALR 350, ECON 235, or permission of instructor. Next offered: 1990-91.)

ALR 452 3 Credits  Alternate Spring  Forest Protection (3+0)
The basic principles and practical management systems for forest protection from fire, insects, and diseases are presented. Emphasis is on understanding the role of these factors in managing forest ecosystems, and problems and techniques particularly important in the forest of high latitudes, especially in Alaska. (Prerequisites: BOT 105, 106, 271, BOT 239; ALR 350 or instructor's permission. Next offered: 1990-91.)

ALR 453 3 Credits  Alternate Fall  Harvesting and Utilization of Forest Products (3+0)
The first half of this course will be an in-depth study of timber harvesting systems including timber cutting, cutting, and transport processes. Both manual and mechanized aspects will be considered. The second half of the course will cover the technology of processing wood into various products including lumber, plywood, veneer, pulp, and energy. (Prerequisites: ALR 101 and 350. Next offered: 1990-91.)

ALR 640 3 Credits  Alternate Spring  Simulation and Modeling in Resource Management (3+0)
ALR 670 3 Credits  Alternate Fall  Biometeorology (3+0)
ALR 672 2 Credits  Alternate Fall  Dynamics of Nitrogen in Forest Ecosystems (2+0)
ALR 683 3 Credits  Alternate Spring  Natural Area Protection and Management

PLANT AND ANIMAL SCIENCES

ALR 211 3 Credits  Alternate Fall  Introduction to Agronomy and Horticulture (2+3)
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. Next offered: 1991-92.)

ALR 312 3 Credits  Alternate Fall  Introduction to Range Management (3+0)
Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands, including discussions on the origin of the discipline, management practices, important rangelands of North America, with emphasis on Alaska's rangelands and grazers. (Prerequisites: BIOL 105, 106, BOT 239 or permission of instructor; ALR 320, 321 recommended. Next offered: 1990-91.)

ALR 313 4 Credits  Alternate Spring  Introduction to Plant Pathology (3+3)
An introduction to the field of plant pathology: non-parasitic and parasitic causes of plant diseases; methods of plant infestation and mechanism of plant defenses; epidemiology and disease control. (Prerequisites: BIOL 105 and 106; BOT 239 recommended. Next offered: 1990-91.)

ALR 320 3 Credits  Alternate Fall  Introduction to Animal Science (2+3)

ALR 321 3 Credits  Alternate Fall  Applied Animal Nutrition (2+3)
Application of feeding standards and feedstuffs 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.)

ALR 380 3 Credits  Spring  Soils (2+3)
Origin and development, weathering, classification, terminology, physical and chemical properties, biology, aeration, and moisture; reaction and liming; manures and fertilizers; management; problems in Alaska. (Prerequisite: CHEM 105.)

ALR 411 3 Credits  Alternate Fall  Plant Propagation (2+3)
Principles of plant propagation, including seeds, bulbs, divisions, layers, cuttings, buds, grafts, and rootstocks. Where possible, emphasis will be placed on the propagation of indigenous plants. (Prerequisites: ALR 311 or permission of instructor. Next offered: 1990-91.)

ALR 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. (Prerequisites: ALR 311. Next offered: 1990-91.)

ALR 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: 1991-92.)

ALR 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. (Prerequisites: ALR 380. Next offered: 1991-92.)

ALR 607 3 Credits  Alternate Spring  Biotechnology (3+0)
(Same as ENE 607)

Airframe and Powerplant

AFPM 111 3 Credits  As Demand Warrants  General Airframe and Powerplant (3+4)
Introduction to Airframe and Powerplant Mechanics including shop practices, basic math, applied physics, F.A.A. regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Designed to prepare the student for the F.A.A. Airframes Airframe Structures Written, Oral and Practical Exam. Materials fee: $25.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)
COURSE DESCRIPTIONS—AIRFRAME AND POWERPLANT

AFPM 145 1 Credit As Demand Warrants
Basic Mathematics (1+0)
A beginning course in Mathematics. The course contains a thorough review of applied and technical mathematics, including common and decimal fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; and performing fundamental algebraic operations as they relate to the construction of aircraft and their engines. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 146 2 Credits As Demand Warrants
Basic Electricity (2+0)
A beginning level course in electrical theory and concepts. The course is directed towards the needs of the aviation mechanic and includes a study of Ohm’s law, electrical circuits, diagrams, batteries, and a variety of electrical components. (Prerequisite: Admission to A & P Program or permission of the instructor.)

AFPM 147 0.5 Credits As Demand Warrants
Physics for Mechanics
A study of the principles and applications of mechanics with emphasis placed on levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamic principles will be covered. (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
A beginning course designed to build skill and knowledge of basic drafting. The student will learn to use drafting symbols and schematic diagrams, make sketches of repairs and alterations, and use 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
A practical course covering the study of rigid and flexible fluid lines and fittings, including their 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)
This course covers basic shop practices, including the selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic material processes, and all 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)
This course covers the basic aircraft cleaning materials, methods, and an in-depth study of aircraft corrosion control. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 152 1 Credit As Demand Warrants
Federal Aviation Regulations (1+0)
This course provides an overview of the Federal Aviation Regulations as they apply to the maintenance of aircraft. Includes a study of maintenance forms and records, maintenance publications, and the 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)
A study of weighing procedures, weight, arms, moments, center of gravity computations, and placarding. The student will compute loading an aircraft, completing required forms, and weigh an aircraft. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 154 0.5 Credits As Demand Warrants
Ground Operations & Service
This course includes both theory and practice in the starting, moving, servicing, securing, and fueling 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)
Principles, practices, procedures, techniques relating to aircraft wood, doped, fabric finishes, building, sheet metal, assembly and rigging and inspection. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Meet the 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)
A study of aircraft electrical, hydraulic and pneumatic, landing gear, power plant and weapons, aircraft instrument, aircraft fuel, communication and navigation, cabin atmosphere control, and fire protection systems. Inspection, checking, troubleshooting, repair and servicing is also covered. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Meet the 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, and inspecting turbo jets, turbo shaft, and turbo fan engines as well as overhaul, inspection, and fundamentals of reciprocating engines. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 216 3 Credits As Demand Warrants
MOS Powerplant Sys/Components (3+0)
Fuel metering, induction systems, propellers, control systems, and powerplant electricity. The repair, inspection, service and troubleshooting of the above area. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 230 2.5 Credits As Demand Warrants
Aircraft Electrical Systems
Overview of electrical systems and their use in aircraft. Wiring, control, indication, and protection devices are covered for both AC and DC systems. Inspection, troubleshooting and repair of these systems is emphasized. 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
The installation, inspection, testing and service of engine electrical system wiring, controls, indicator and protective devices. Also, repair and service of electrical generating systems. Materials fee: $15.00.

AFPM 235 5 Credits As Demand Warrants
Aircraft Reciprocating Engines (5+0)
A survey of the history and development of the aircraft reciprocating engine. The student will engage in the repair, overhaul, and inspection of various types of engines. Operation and troubleshooting of engines is also discussed. Materials fee: $120.00.

AFPM 240 1.5 Credits As Demand Warrants
Turbo Engines
Development, theory and operation of modern gas turbine engines. Included is the study of engine design, performance, accessories and subsystems along with an investigation of engine maintenance and overhaul.

AFPM 244 1.5 Credits As Demand Warrants
Lubricating Systems
Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and its 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
Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems, in addition to 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
Fundamental operation of fuel metering systems in aircraft powerplants. Use of technical data to repair and overhaul carburetors and components. Includes the inspection and service of water injection systems. Materials fee: $10.00. (Prerequisite: Admission to A & P Program or permission of the instructor.)

AFPM 248 0.5 Credits As Demand Warrants
Induction Systems
The operation and service of aircraft induction, preheat, anti-ice and super charger systems.

AFPM 249 0.5 Credits As Demand Warrants
Powerplant Cooling Systems
Inspection, service and repair of engine cooling systems. Both air and liquid cooled installations will be discussed. (Prerequisite: Admission to A & P Program or permission of instructor.)
AFPM 250 0.5 Credits As Demand Warrants
Powerplant Exhaust Systems
Inspection, service and repair of engine exhaust systems. Operations of turbo compounded engines, thrust reversers, and noise suppressors are also presented. (Prerequisite: Admission to A & P program or permission of instructor.)

AFPM 251 1.5 Credits As Demand Warrants
Fuel Systems
A practical course covering the inspection, servicing, troubleshooting and repair of aircraft 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 will be covered. 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
A survey of speed and takeoff warning and anti-skid braking systems used in aircraft. Inspection, troubleshooting, service and repair of these systems is discussed. (Prerequisite: Admission to A & P program or permission of instructor.)

AFPM 254 0.5 Credits As Demand Warrants
Ice and Rain Control Systems
Inspection, operation and troubleshooting of de-ice and anti-ice systems.

AFPM 255 0.5 Credits As Demand Warrants
Fire Protection Systems
A practical course covering the inspection, servicing, troubleshooting and repair of aircraft 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
Operation of aircraft avionics, autopilots and antennas, including their inspection and installation.

AFPM 257 0.5 Credits As Demand Warrants
Instrument Systems
A practical course covering 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. Their operation, inspection, troubleshooting, service and repair will be covered.

AFPM 259 1.5 Credits As Demand Warrants
Hydraulic and Pneumatic Systems
The operation of hydraulic and pneumatic systems and their uses in aircraft. Included is the identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing, and troubleshooting of systems.

AFPM 260 2 Credits As Demand Warrants
Aircraft Landing Gear Systems (2+0)
Comprehensive examination of simple and complex aircraft landing gear systems. Included is the operation of mechanical and hydraulic retraction mechanisms, service and repair of those systems, and 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
Inspection, service and repair of wood aircraft structures. Identification and selection of woods, characteristics of glues, patching and splicing are discussed. Materials fee: $5.00. (Prerequisites: 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: Admissions to A & P program or permission of instructor.)

AFPM 263 0.5 Credits As Demand Warrants
Aircraft Finishes
Identification and selection of aircraft finishing materials. Application of paints, dopes, primers, and trim. Materials fee: $30.00. (Prerequisite: Admission to A & P program and permission of instructor.)

AFPM 264 3.5 Credits As Demand Warrants
Sheet Metal Structures
Techniques of sheet metal fabrication, inspection and repair as they relate to aircraft. Included are the use of rivets and fasteners, repair of aircraft interiors and service of plastic, honeycomb and bonded structures. Materials fee: $85.00.

AFPM 265 1.5 Credits As Demand Warrants
Aircraft Welding
The use of contemporary welding methods on aircraft structures. Includes oxyacetylene, arc, inert gas and brazing techniques. The inspection of welded structure and safety procedures are stressed. Materials fee: $10.00-100.00.

AFPM 266 1.5 Credits As Demand Warrants
Assembly and Rigging
Review of aerodynamic theory and the function of aircraft control surfaces. The fabrication and installation of control devices for fixed and rotary wing aircraft, jacking and control surface balance. Materials fee: $15.00. (Prerequisite: Admission to A & P program or instructor permission.)

AFPM 267 0.5 Credits As Demand Warrants
Airframe Inspections
Students develop those skills required to inspect and return an aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections are discussed. (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
Methodology and recordkeeping for the inspection of aircraft reciprocating and gas turbine engines. (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 instructor permission.)

Alaska Native Languages

ANL 141 3 Credits Fall
Beginning Athabaskan — Koyukon or Kutchin (3+0) h
ANL 142 3 Credits Spring
ANL 142 Beginning Athabaskan — Koyukon or Kutchin (3+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. Open to speakers and non-speakers. Literacy and grammatical analysis for speakers. For others, 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.)

ANL 150 1 Credit As Demand Warrants
ANL 150 Interpretive Communication (1+0)
ANL 150 Interpretive Communication (1+0)
Participants will explore communication processes which occur in Yup'ik and English speaking cultures. They will develop working solutions that address identified problem areas in cross-cultural communication. This includes situations such as conversations, meetings, traveling and interpreting. This course will concentrate heavily upon interpreting meaning in what is communicated between people of different socio-cultural backgrounds.

ANL 151 3 Credits As Demand Warrants
ANL 151 3 Credits As Demand Warrants
Inter-Ethnic Communications (3+0)
Students will acquire an understanding of the differences in cross-cultural interaction and, therefore, be able to function better in a cross-cultural situation. The students will apply understanding of cross-cultural interactions to various communication settings. The course will concentrate heavily on the Yup'ik ways of communication.

ANL 215 3 Credits Fall
ANL 215 3 Credits Fall
Alaska Native Languages: Eskimo-Aleut (3+0) h
A survey of the Native languages of Alaska, particularly of the Eskimo-Aleut languages: history, present and future, with examples of language structure, present situation and prospects as a cultural force. Open to all students.
Alaska Native Studies

ANS 101 3 Credits Fall
Introduction to Alaska Native Studies (3+4)
Introductory information on the Alaska Native Community, including overview of significant Native issues and a review of literature and resources pertinent to Alaska Native Studies.

ANS 103 1 Credit As Demand Warrants
Beginning Eskimo Dance (1+2)
Teaching of contemporary and traditional Yup'ik Eskimo dance through the means of singing, drumming, and motions of the stage. In-depth analysis of each song and its relation to contemporary and traditional cultural lifestyles.

ANS 110 1 Credit Fall and Spring
Parliamentary Procedures (1+0)
(Same as PS 110)
Introduction to the rules and principles of parliamentary procedure and their application to group decision-making processes.

ANS 120 3 Credits Fall
Cultural Differences in Institutional Settings (3+0)
Introduction to the phenomena of culturally organized thought processes, with emphasis on the communication patterns resulting from the interaction of peoples from different linguistic/culture traditions in modern institutional settings. Special attention is paid to Alaska Native and non-Native communication patterns.

ANS 160 1 Credit Fall
Alaska Native Dance (2+0)
Traditional Native Alaskan dancing, singing, and drumming of songs from Alaska's major indigenous groups will be 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 Theater (3+0)
(Same as THR 161)
Introduction to playwriting and acting within an Alaska Native cultural context. Original theatrical works based on traditional themes and contemporary issues will be developed and rehearsed. Tuma Theater will tour its annual production each spring, its membership to be selected from the class. (Prerequisite for ANS/THR 361, Advanced Tuma Theater.)

ANS 250 3 Credits Fall and Spring
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 251 1-3 Credits Fall and Spring
Practicum in Native Cultural Expression (0-3 variable)
Students actively and regularly engaged in the formal organization, promotion, and expression of Alaska Native cultural heritage may enroll in this practicum for 1-3 credits. The practicum may be repeated through three semesters providing the accumulated credits do not exceed three. (Prerequisite: Permission of the Department Head.)

ANS 268 3 Credits Fall and Spring
Beginning Native Art Studio (1+4)
(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 Alternate Spring
Rhetorical Expression of the Alaska Native Experience (3+0)
Investigation in rhetorical methods of creative expression of the Alaska Native experience. Emphasis is on the student's development of expressive abilities in a variety of Native and Western forms. Publication of student work is a possibility. (Prerequisite: ENGL 111 and permission of instructor.)

ANS 310 3 Credits Fall
The Alaska Native Land Settlement (3+0)
An examination of Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. (Prerequisites: ANTH 242 or PS 263 or HIST 100; ECON 101 and ECON 137; or permission of instructor.)
ANS 315 3 Credits  Alternate Spring
Tribal People and Development (3+0) h
(Same as RD 315)
Comparative examination of socio-economic development processes as they impact tribal peoples in third and fourth world societies. Particular attention is given to the implications of these processes for Alaska Native peoples. (Prerequisites: 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)
Examination of aspects of language, ethnicity, and their interrelationships. Emphasis is placed on the systems language uses to communicate ethnicity, identity and how communication between ethnic groups is affected by patterns of language use. Attention is paid to the 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)
Comparative study of indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance under federal Indian law and Alaska state charted local government with 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 2 Credits  Fall
Contemporary Native American Literature (3+0) h
(Same as ENGL 340)
An exploration of the contemporary Native American writing in English, including novels, short stories, poetry, and plays. Some examples of Native American film will also be introduced when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisites: ENGL 111 or permission of instructor.)

ANS 351 1-3 Credits  Fall and Spring
Practicum in Native Cultural Expression (0-variable)
Continuation of ANS 351, for students actively involved in providing education, promotion, and expression of Alaskan Native cultural heritage projects. (Festival of Native Arts leadership, Tuma Theater, Tribal magazine, etc.) A maximum of 3 practicum credits can be applied toward a Native studies major or minor. (Prerequisite: Permission of instructor.)

ANS 360 1 Credit  Spring
Advanced Native Dance (0+2) h
Advanced techniques in Native dance with emphasis on the cultural meanings of the dance performance. (Prerequisite: ANS 160 or permission of instructor.)

ANS 361 3 Credits  Fall
Advanced Tuma Theater (3+0) h
(Same as THR 361)
Continuation of ANS/THR 161 with more advanced involvement in writing (and other production oriented creative activity), research and development of original theatrical works to be performed by the Tuma Theater touring group. (Prerequisites: ANS/THR 161 and either THR 221, THR 241, THR 343, THR 347 or permission of instructor.)

ANS 365 3 Credits  Fall
Native Art of Alaska (3+0) h
(Same as ART 365)
A study of art forms of the Eskimo, Indian and Aleut ranging from prehistory to the present: emphasis upon the changes in forms through the centuries. (Prerequisites: Advanced standing or permission of the instructor.)

ANS 366 3 Credits  Alternate Spring
Northwest Coast Indian Art (3+0) h (Same as ART 366)
An in-depth examination of the 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)
An in-depth study of Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces up to the beginning of the 20th century. (Next offered: 1990-91.)

ANS 368 3 Credits  Fall and Spring
Intermediate Native Art Studio (1+4) h
(Same as ART 368)
Understanding and applying the more advanced traditional designs and technologies of Native art. (Prerequisite: ART 268 or permission of instructor.)

ANS 375 3 Credits  Alternate Spring
Native American Religion and Philosophy (3+0) h
Philosophical aspects of Native American worldviews, emphasizing systems of belief and knowledge, explanations of natural phenomena, and relations of human beings to the natural environment through ritual and ceremonial observances. (Prerequisites: ANTH 242 or permission of the instructor; PHIL 201 is recommended. Next offered: 1991-92.)

ANS 401 3 Credits  Fall and Spring
Cultural Knowledge of Native Elders (3+0) h
Intensive study with prominent Native tradition-bearers in Native philosophies, values, and oral traditions. Students elicit traditional knowledge through methods and conventions of 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) Examination of the development of different school systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisites: ANTH 242 or HIST 100; or permission of instructor.)

ANS 425 3 Credits  Fall
Federal Indian Law and Alaska Natives (3+0) s
A "special relationship" developed between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. This course examines federal Indian law and policy which evolved from this relationship with special attention to the 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)
Use of the case-study approach to develop comparative frameworks for assessing scope and nature of Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations are examined for factors promoting or limiting Aboriginal self-determination. (Prerequisite: Upper division standing or instructor's permission. Next offered: 1991-92.)

ANS 488 3 Credits  Fall and Spring
Advanced Native Art Studio (1+4) h
(Same as ART 488)
Understanding and applying the advanced traditional designs and technologies of Native art with particular emphasis on the use of contemporary materials to interpret traditional forms. (Prerequisite: ART 388 or permission of instructor.)

ANS 475 3 Credits  Spring
Alaska Native Social Change (3+0) s
Study is made of tradition and change in Native social institutions in contemporary society. Attention is given to methods of identifying and analyzing significant Native social change processes for better public understanding. (Prerequisites: ANTH 242 or permission of the instructor.)

Alaska Studies

ALST 102A 1 Credit  As Demand Warrants
Creative Response (1+0)
Introduces students to sampling of the stories of the indigenous people of Alaska. Reviews sample work of Native Alaskan artists of the state. Examines music of Inupiat, Yup'ik and Koyukon cultures (songs and dances).

ALST 102B 1 Credit  As Demand Warrants
The People (5-0)
Deals with topics of sociology, psychology and politics found in the state of Alaska. Surveys the area of social sciences and relates issues to Alaskan culture.

ALST 103C 1 Credit  As Demand Warrants
The Land (1+4)
Introduces students to geography and branches of earth science as they related to the land mass of Alaska. Current issues related to the particular area of study are also included.

ALST 107 1 Credit  As Demand Warrants
Land Resource Management (1+4)
This course provides students with the tools necessary to become more actively involved in overseeing the use of land and the political aspects of natural resource management. Land and resource management is the application of knowledge and skills necessary to take care of the land and other natural resources for people's welfare.
American Sign Language

ASLG 101 3 Credits As Demand Warrants
American Sign Language I (3+0)h
Study of visual-gestural language used by most deaf Americans with emphasis on the acquisition of both receptive and expressive conversational skills. The cultural aspects of everyday life experiences of deaf people will be included.

ASLG 110 1 Credit As Demand Warrants
American Sign Language Prac (1+0)h
A course designed to develop skill in the practice with American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels welcomed.

ASLG 202 3 Credits As Demand Warrants
American Sign Language II (3+0)h
Further development of expressive and receptive conversational skills. Increased understanding of the culture that is an integral part of the language. This course is a continuation of American Sign Language I. (Prerequisite: ASLG 101 or permission of instructor.)

ASLG 203 3 Credits As Demand Warrants
American Sign Language III (3+0)h
Continuation of ASLG 201 and 202, with a deepening understanding of the grammar, conceptual structure, and lexical items of American Sign Language. Enhanced cultural awareness and refinement of expressive and receptive signing skills will assist students in communicating and understanding American Sign Language in diverse contexts. (Prerequisite: ASLG 202 or permission of instructor.)

ASLG 204 3 Credits As Demand Warrants
American Sign Language IV (3+0)h
A continuation of ASLG 203, spontaneous and interactive use of American Sign Language will be stressed with a detailed understanding of grammar, structure, and lexical components. Further awareness of the accompanying cultural aspects will encourage comfortable communication in American Sign Language at an advanced level. (Prerequisite: ASLG 203 or permission of the instructor.)

Anthropology

ANTH 101 3 Credits Fall and Spring
Introduction to Anthropology (3+0) s
An introduction to the study of 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.

ANTH 102 3 Credits Fall and Spring
Faces of Culture (3+0) s
Television enhanced instruction in cultural anthropology including an introduction to methods, theories, fundamental concepts and foundations for understanding differences in cultures; provides background for more specialized courses in cultural anthropology. Telecourse fee: $20.00.

ANTH 103 3 Credits Fall
Human Evolution and World Prehistory (3+0) n
An introduction to the study of human evolution and cultural development on a global basis, including a review of methods, concepts and theories which serve as the scientific foundation for archaeology and physical anthropology.

ANTH 104 3 Credits Alternate Fall
Social/Cultural Anthropology (3+0) s
Introduction to social and cultural anthropology, open to majors and non-majors. Basic concepts and principles underlying anthropological study of society and culture. Emphasis on non-western ethnographic context. (Next offered: 1990-91.)

ANTH 105 1 Credit As Demand Warrants
Introduction to the History and Culture of the Seward Peninsula (1+0) (Same as HIST 105)
This course introduces the student to the cultural history of the peoples who have lived in or near the Seward Peninsula for the last 10,000 years. Information is presented from the disciplines of physical anthropology, ethnography, ethnology, linguistics, archaeology, ecology and climatology. Through lectures, discussions, readings, films, guest speakers and examination of Eskimo artifacts, students gain a basic familiarity with the several Eskimo and Euroamerican cultures which have existed within western Alaska.

ANTH 111 3 Credits Alternate Spring
Ancient Civilizations (3+0) s
A survey of the major civilizations of the Old and New World from a comparative, anthropological perspective. Antecedents and influences of these civilizations on their neighbors will be stressed. Major societal institutions to be considered include economics, science, religion, and social organization. (Next offered: 1989-90.)

ANTH 123 3 Credits Alternate Fall
Origins of Alaska’s Native Peoples (3+0) s
Origins and affinities of Alaska’s native peoples are examined from an archaeologist’s point of view. (Next offered: 1991-92.)

ANTH 203 3 Credits Every Third Spring
Women in Society (3+0) s
An examination of the nature of sex roles cross-culturally. The history of the study of sex roles, an emphasis on female roles, in anthropology is discussed. Current research on the biological and cultural aspects of these rules is presented and various hypotheses in anthropology regarding male and female behavior cross-culturally are discussed and supplemented by in-depth studies of cultures representing different types of technologically/environmental adaptations — hunting, horticultural, pastoral, agricultural, and industrial societies. (Next offered: 1991-92.)

ANTH 210 3 Credits Every Third Spring
New World Prehistory (3+0) s
The cultural history of native Americans from earliest times excluding Alaska and Canada, including those in Mexico and Peruvian states. (Prerequisites: ANTH 103 or 211 or permission of instructor. Next offered: 1991-92.)

ANTH 211 3 Credits Alternate Fall
Fundamentals of Archaeology (2+3) s
An introduction to methods and techniques of archaeological field and laboratory research. Materials fee: $10.00. (Prerequisite: ANTH 103. Next offered: 1991-92.)

ANTH 212 3 Credits Alternate Spring
Old World Prehistory (3+0) s
The archaeological record for the development of human culture from the very beginnings of humankind to the rise of civilization. (Prerequisites: ANTH 103 or 211 or permission of instructor. Next offered: 1990-91.)

ANTH 230 3 Credits Fall
The Oral Tradition: Folklore and Oral History (3+0) h
An introduction to the study of folklore and oral history. An emphasis is placed on the importance of oral tradition in human communication and the advantages and disadvantages of recording and studying it. Methods of finding and linguistic anthropology and anthropological linguistics in relation to oral traditions of a variety of cultures; study of folklorists and historians. Academic approaches to collection and interpretation compared to and contrasted with those whose goal is to preserve their own traditions. A field project is required. (Prerequisite: ANTH 104.)

ANTH 242 3 Credits Spring
Native Cultures of Alaska (3+0) s
An introduction to the traditional Aleut, Eskimo, and Indian (Athabaskan and Tlingit) cultures of Alaska. Comparative information on Eskimo and Indian cultures in Canada is also presented. Includes a discussion of linguistic groupings as well as the cultural groups; presentation of population changes through time; subsistence patterns, social organization and religion in terms of local ecology. Precontact interaction between native groups of Alaska is also explored. This is a general introductory course presenting an overall view of the cultures of Native Alaskans. Also available via Independent Learning. Materials fee: $20.00.
ANTH 250 3 Credits alternate Fall
Archaeological Laboratory Techniques (3+0)
Practical experience in archaeological laboratory procedures including
lithic analysis and microwear typology. Students will examine
and analyze collections from several early man sites in Alaska, and will
be actively engaged in helping solve specific research problems that per-
tain to those collections. (Prerequisite: Permission of instructor.)

ANTH 280 3 Credits Alternate Fall
Anthropology of Religion (3+0)
This course focuses on one of the more fascinating subsystems of
human culture and society — religion or supernatural belief. As
approached from the perspective of anthropology, the study of religion is
both comparative and wide ranging. While much of the material will
emphasize religion in the context of "primitive" society, its role in the
more complex society will also be examined. Among the various topics
the student can expect to encounter are: religious practitioners, ritual,
belief systems, and the relationship of religious behavior to other
aspects of social behavior. (Prerequisite: Junior standing or permission
of instructor.)

ANTH 301 3 Credits Fall
World Ethnography (3+0)
Cultural heritage, social systems, modes of economic adaptation and
culture, and practices are explored for human populations in major geographic
regions of the world. Culture areas to be covered during different
semesters, contingent on available faculty expertise, include: North America,
Northeastern Eurasia, Far East (China, Japan, Korea), India and
Southeast Asia, Central Asia and the Middle East, Sub-Saharan African
Europe and U.S.S.R. (Prerequisites: ANTH 104 and junior standing or
permission of instructor.)

ANTH 305 3 Credits As Demand Warrants
Comparative Political and Legal Systems (3+0)
An examination of political systems and the law from a comparative
standpoint. The primary focus will be on case studies drawn from non-
industrial societies, developing nations, and parapolitical systems or
encapsulated societies, such as native peoples in the U.S. Major areas of
coverage will be political structures and institutions, social conflict,
dispute settlement, social control and the law, political competition over
critical resources; and ethnicity. (Prerequisite: ANTH 104 or permission
of instructor.)

ANTH 307 3 Credits As Demand Warrants
Kinship and the Family (3+0)
Examination through case studies of the forms and function of family
and household organization, kinship and marriage in diverse human
socio-cultural systems. Case studies will be drawn from tribal and
complex societies including contemporary United States. (Prerequisites:
ANTH 104 or permission of instructor. Next offered: 1991-92.)

ANTH 309 3 Credits Alternate Spring
Arctic Prehistory (3+0)
The archaeological cultures of the northern regions from the time of
first occupation up to the ethnographic present. Prerequisites: student
will be paid to the adaptations to changing environments in time and
space as seen through past technological and economic systems, as well
as settlement patterns. Materials fee: $25.00. (Prerequisites: ANTH 103
or permission of instructor. Next offered: 1991-92.)

ANTH 315 3 Credits Alternate Fall
Human Biology (2+3)
The biology of recent and modern human populations, including
systematics, behavior, ecology and inter- and intrapopulation genetic and
morphological variation. Some emphasis will be made on the varia-
tudes, and changing nutritional and disease patterns. Introduction to
human skeletal biology, including metrical and nonmetrical variation,
aging and sexing skeletal remains, and paleopathology. Materials fee:
$10.00. (Prerequisite: ANTH 103 or BICL 103. Next offered: 1991-92.)

ANTH 320 3 Credits Spring
Language and Culture: Applications of Alaska (3+0)
(Same as ANS 320)
Examination of aspects of language, ethnicity, and their interrelations-
ships. Emphasis is placed on the system language uses to communicate
ethnic identity and how communication between ethnic groups is
affected by patterns of language use. Attention is paid to the applicabil-
ity of these concepts to non/Native communication patterns.
(Prerequisites: ANS 120 and ANL 215 or 216 or permission of
instructor.)

ANTH 321 3 Credits As Demand Warrants
Physical Anthropology of the Americas (3+0)
An areal survey of the physical anthropology of the peoples of North
and South America, including Eskimo, Aleut and Indian populations.
The primary theoretical approach will be the analysis of population
variations and of the recent historical factors. Materials fee: $25.00.
(Prerequisites: ANTH 242 or permission of instructor. Next offered:
1991-92.)

ANTH 322 3 Credits Alternate Fall
Archaeology of China from Earliest Times to 771 B.C. (3+0)
A detailed survey of early human developments, the rise of agricul-
tural communities, and the Golden Age states (Xia, Shang, Zhou).
(Prerequisites: Any archaeology course or Asian history course or
permission of instructor. Next offered: 1991-92.)

ANTH 323 3 Credits Alternate Fall
The People of Alaskan Southwest: Aleuts Kodiak Islanders and
the Chugach (3+0)
Cultural heritage and present conditions of the Aleuts, including people
of the Aleutian archipelago, Kodiak Islanders, people of the Alaska
Peninsula and the Chugach of Prince William Sound. Materials fee:
$25.00. (Prerequisites: ANTH 242 or permission of instructor. Next
offered: 1991-92.)

ANTH 324 3 Credits Alternate Spring
The Inupiak and Yupik Peoples (3+0)
Study of the contemporary conditions and traditional heritage of
the Inupiak and Yuki peoples including the impact of Europeans on
these populations and cultures. Materials fee: $20.00. (Prerequisites:
ANTH 242 or permission of instructor. Next offered: 1991-92.)

ANTH 328 3 Credits Alternate Spring
The People of Alaskan SE (3+0)
The Tlingit, Haida and Tsimshian societies are discussed in the frame-
work of Northwest Coast culture-area, including impact of Russian
penetration and of the recent historical factors. Materials fee: $15.00.
(Prerequisite: ANTH 242 or permission of instructor. Next offered:
1991-92.)

ANTH 383 3 Credits Alternate Fall
Athabaskan Peoples of Alaska and Adjacent Canada (3+0)
Study of the contemporary conditions and traditional heritage of the
Athabaskan populations of Alaska and Canada, including the impact of
Euroamericans on these populations and cultures. Materials fee:
$20.00. (Prerequisites: ANTH 242 or permission of instructor. Next
offered: 1990-91.)

ANTH 410 3 Credits Alternate Fall
History of Social/Cultural Anthropology (3+0)
The major theoretical approaches in cultural/social anthropology
presented chronologically from the formulation of the discipline of
anthropology to current theory. The substance of the various ap-
proaches is used for discussions regarding the nature of the discipline,
its goals and methods, and the relevance of theoretical perspectives to
interpretations in anthropology. (Prerequisite: Junior standing or per-
mission of instructor. Next offered: 1990-91.)

ANTH 412 3 Credits As Demand Warrants
Anthropology of Art (3+0)
An anthropological study of art in cross-cultural perspective. Primary
focus is on the social context of art production and use, and on cross-
cultural variations in definition of an artist's role. (Prerequisites: Se-
ior standing or permission of instructor.)

ANTH 413 3 Credits Alternate Spring
Archaeological Method & Theory (2+3)
Archaeological methods and analysis will be presented as the frame-
work for discussion and assessment of different perspectives in archae-
ology. These various perspectives will be illustrated through the study
of their application to specific research problems. Materials fee: $10.00.
(Prerequisite: A course in archaeology or permission of the instructor.
Next offered: 1990-91.)
ANTH 414 3 Credits Alternate Spring
Environmental Archaeology (3+0)
Introduction to Quaternary environmental reconstruction through the integration of geological, archaeological, botanical, and ecological data. (Prerequisite: A course in archaeology or permission of the instructor.)

ANTH 421 3 Credits Alternate Fall
Analytical Techniques (3+0)
Classification, sampling, collection and analysis of anthropological data: parametric and non-parametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and methods of illustrating results of analysis. (Prerequisites: Any 200 level Anthropology course. Next offered: 1991-92.)

ANTH 422 3 Credits As Demand Warrants
Human Osteology (2+3)
Human skeletal analysis: bone biology, skeletal anatomy, aging and sexing, metric and non-metric traits of skeleton and dentition, paleopathology, and palaeodemography. Inferences on genetic relationships between and patterns of behavior within prehistoric groups derived from skeletal material. Materials fee: $10.00. (Prerequisite: ANTH 315 or permission of instructor.)

ANTH 423 3 Credits Alternate Spring
Paleoanthropology (2+3)
An in-depth analysis of the Plio-Pleistocene hominid fossil record, including comparative primate and hominid skeletal and dental anatomy, taphonomy, and long-term biogeographical adaptations. (Prerequisites: ANTH 103 and ANTH 212 or permission of instructor. Next offered: 1990-91.)

ANTH 428 3 Credits Every Third Fall
Archaeological Anthropology (3+4)
The investigation of the biological, environmental and cultural factors and their interplay in defining the human condition, with examples from Arctic and other populations. (Prerequisites: Junior standing or permission of instructor. Next offered: 1991-92.)

ANTH 465 3 Credits Alternate Spring
Geoarchaeology (3+0)
(Same as GEOS 465)
The geological context of archaeological 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 101, an introductory course in archaeology, or permission of instructor. Next offered: 1991-92.)

ANTH 600 0-1 Credits Fall and Spring
Anthropology Colloquium (1+0)

ANTH 601 3 Credits Alternate Fall
Proseminar in Social/Cultural Anthropology (3+0)
Seminar: Language and Culture (3+0) s

ANTH 604 3 Credits As Demand Warrants
Seminar: Problems in Archaeology (3+0)

ANTH 608 3 Credits Every Third Spring
Classics in Anthropology (3+0)

ANTH 611 3 Credits Alternate Fall
Proseminar in Archaeology (3+0)

ANTH 612 3 Credits As Demand Warrants
Paleoecology (3+4)

ANTH 613 3 Credits As Demand Warrants
Seminar: Problems in Arctic Archaeology (3+0)

ANTH 614 3 Credits Alternate Spring
Archaeology of Siberia (3+0)

ANTH 615 3 Credits As Demand Warrants
Seminar: Archaeological Method and Theory (3+0)

ANTH 616 3 Credits Alternate Spring
Classics in Archaeology (3+0)

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)
This will be a 'hands-on' course, introducing the student to basic video equipment operation and elementary equipment maintenance. Camera techniques, portable video recorders, lighting, audio, and simple video production will all be covered.

APAR 103 1 Credit As Demand Warrants
Editing Videotape (1+1)
An introduction to the principles and operations in the electronic editing of videotape. This 'hands-on' course will be of particular value to the serious user, either at work or in the home. Persons successfully completing this course will qualify for access to Media Center videotape editing facilities.

APAR 105 1 Credit As Demand Warrants
Community TV Production (1+1)
This course is designed for people who wish to become actively involved in producing programming for the Nome Public Access Cable Television (NPACT) channel. The class will have 'hands-on' training with a variety of video equipment and will be responsible for producing at least one 30-minute production. Participants will handle all aspects of production. Emphasis will be on using available video technology to fulfill communications needs. This will be a production lab class which will run 10 weeks.

APAR 107 1 Credit As Demand Warrants
Beading (1+1)
This introductory course will teach the application of beads to various materials, three kinds of stitches, and use of a bead loom.

APAR 157 1-2 Credits As Demand Warrants
Skin Sewing (1+2)
This is an introduction to skin sewing. Students will begin sewing projects dependent upon their individual ability and experience levels. After the students have been assessed, they will be introduced to larger projects (e.g. slippers, mukluks, mittens, fur hats, vests and ruffs). Materials fee: $35.00.

Applied Business

ABUS 01 3 Credits As Demand Warrants
Bookkeeping For Business (3+0)
Basic concepts and procedures of practical bookkeeping. Fundamental bookkeeping principles, practices, and procedures necessary in record- ing and preparing financial data for service and merchandising business. Covers businesses owned by one individual only (sole proprietorships).

ABUS 052 3 Credits As Demand Warrants
Bookkeeping for Business II (3+0)
Continuation of ACCT 051. Accounting for business partnerships of corporations. Covers other materials selected by teacher, based on student interest.

ABUS 056 1 Credit As Demand Warrants
Mathematics for the Office (1+0)
This course reviews basic math processes applied to banking, payroll, business expense reports, commissions, and discounts.

ABUS 070 1 Credit Fall and Spring
Job Readiness Skills (1+0)
Understanding of pre-employment skills and human relation skills necessary for job success, including how to identify career choices and employment opportunities; how to prepare a resume, job applications, a cover letter and a follow-up letter, and how to develop human relation skills. The student will select, prepare and be interviewed for jobs which match his/her skills identified through a self-assessment inventory. Offered at Northwest Campus.

ABUS 081 3 Credits As Demand Warrants
World of Business (3+4)
Preparatory skills for business.

ABUS 083 3 Credits As Demand Warrants
Introductory Accounting (3+0)
This course is designed for the student who has not had high school bookkeeping. This course covers fundamental accounting procedures for a one-owner service and merchandising business.

ABUS 100 3 Credits As Demand Warrants
Accounting For Small Business (3+0)
Financial accounting for small businesses, particularly aimed at the practicality of local business.
ABUS 120  1-3 Credits  As Demand Warrants
Basics of Investing
This course covers personal financial planning, goal setting, and investing. Also, a study will be made of stocks, bonds, trusts, securities, options, real estate and other investment vehicles. The topics of inflation, taxes, interest rates, retirement, and selecting financial plans are covered. Also available via Independent Learning.

ABUS 130  3 Credits  As Demand Warrants
Real Estate (3+0)
This course introduces students to the broad social and economic impact of real estate and provides fundamental preparation work for the Real Estate licensing examination. Course content includes essential details in buying, selling, leasing, and investing in residential and investment real estate. Also covers, deeds, mortgages, leases, title insurance, sales, brokerage and other related subjects are discussed.

ABUS 131  3 Credits  As Demand Warrants
Recordkeeping for Business (3+0)
A course designed to teach skills in keeping business records and banking procedures as a cashier, sales clerk, purchasing agent or payroll clerk.

ABUS 141  2 Credits  As Demand Warrants
Payroll Accounting (2+0)
An introduction to payroll records and laws that payroll personnel need to know. It maintains students with methods used to compile payroll information, compute earnings, figure deductions, calculate net wages, and how to prepare the necessary city, state and federal tax report forms.

ABUS 142  2 Credits  As Demand Warrants
Office Accounting I (2+0)
A basic course introducing the basic accounting procedures used in service and trade businesses. It presents the complete accounting cycle including recordkeeping, posting and preparation of financial statements, bank reconciliation, payroll computations and closing books for periods. Also, accounts receivable, accounts payable, purchasing, credit and other accounting requirements common to retail, trade and service businesses are covered.

ABUS 143  2 Credits  As Demand Warrants
Office Accounting II (2+0)
An introduction to financial activities of partnerships and corporations with emphasis on accrual basis accounting. Areas covered include notes payable, notes receivables, interest transactions, sales debts, partnership equity accounting, corporate stock transactions, corporate earnings, capital transactions, bonds, long term liabilities and investments.

ABUS 154  3 Credit  As Demand Warrants
Human Relations (3+0)
A basic course in human relations exploring attitudes, self-concepts, personal communication styles, motivation, interactions, positive reinforcements, team building and leadership development.

ABUS 155  2 Credits  As Demand Warrants
Business Math (2+0)
A review of basic math computation skills applied to various business areas. Emphasis is on applications.

ABUS 156  2 Credits  As Demand Warrants
Writing for the Office (2+0)
(Same as OP 156)
This course will cover writing tasks encountered in typical office situations. Students will learn to write successful letters, minutes, and reports which convey their intent and get desired responses. The course if offered in two modules: Module A-1 Credit: Module B-1 Credit.

ABUS 160  3 Credits  As Demand Warrants
Principles of Banking (3+0)
A comprehensive introduction to banking in today's economy. Topics include language and documents of banking, check processing, teller functions, deposits, credit and payment functions, loans, investments, trust, the Federal Reserve System and other regulatory agencies.

ABUS 161  3 credits  As Demand Warrants
Found/Structure-Credit Union (3+0)
An introduction to credit unions, their organization and functions, financial development, regulations, insurance, bonding and management.

ABUS 165  3 Credits  As Demand Warrants
Installment Lending (3+0)
Principles of credit evaluations, open-end credit, marketing bank services, collection policies and procedures, financial statement analysis, and other details of installment credit.

ABUS 166  3 Credits  As Demand Warrants
Residential Mortgage Lending (3+0)
Provides a background in the varied real estate mortgage credit operations of commercial banks; addresses the manner in which funds are channeled into mortgage markets, the financing of residential and income producing property and administrative tasks common to most mortgage departments.

ABUS 167  3 Credits  As Demand Warrants
Branch Management
Presents a comprehensive overview of the branch functions and the manager's role in their operations and provides a complete introduction to the functional aspects of the branch management position.

ABUS 179  3 Credits  As Demand Warrants
Fundamentals of Supervision (3+0)
A course introducing effective supervisory concepts including planning, organizing, controlling and directing functions. Other topics include communicating and delegating effectively, morale, productivity, decision making, position discipline and performance goals development.

ABUS 181  3 Credits  As Demand Warrants
Law & Banking Applications (3+0)
Examination of the legal structure that is implicit in the normal course of bank operations. Exploration of legal situations that occur in a deposit, collection, dishonor and return, and payment of checks. Legal relationships of the various parties in bank collection channels and between a bank and it's depositors are discussed. (Prerequisite: Principles of Banking or Foundations & Structure of Credit Unions)

ABUS 185  3 Credits  As Demand Warrants
Teller Operations Training (3+0)
Entry level job skills for work as a teller in a bank, savings loan, or credit union. Principles of banking, banking terms, and concepts, teller operations such as balancing, cash control, handling instrument orders, detecting forgery and counterfeit money, responding to robbery, and customer relations. (Prerequisite: OP 195 Pre-Employment Skills.)

ABUS 186  2 Credits  As Demand Warrants
Personal Income Tax (2+0)
A basic course in personal income tax, covering taxable income, deductions, credit, exemptions, and computation. Also, computer use, recordkeeping methods, tax forms and new tax laws are studied.

ABUS 211  2 Credits  As Demand Warrants
Tax For Business Entities (2+0)
Covers tax reports which must be submitted by a business. Tax planning and strategies to reduce the tax bill, payroll tax reports and depository requirements, methods of compensation, acquiring and disposing of business assets, and planning for corporate reorganization or liquidation and a review of new tax laws are also studied.

ABUS 221  1-3 Credits  As Demand Warrants
Microcomputer Accounting
This course covers the use of computers to process accounting transactions and provides an understanding of available software packages, microcomputer systems and hardware available in today's market. Computer terminology, system analysis, and actual computer operations in accounting are introduced. (also see CAPS 221.)

ABUS 222  3 Credits  As Demand Warrants
Computer Applications in Business (3+0)
This course is designed to provide the student with the skills and knowledge to use a microcomputer to solve business problems. The primary tools for problem solution will be the Lotus 1-2-3 spreadsheet program and a general ledger accounting program. Both programs are supplied and instruction in the use of each is provided. (Prerequisite: One accounting course or instructor's approval)

ABUS 223  3 Credits  As Demand Warrants
Real Estate Law (3+0)
A practical course surveying the various kinds of deeds and conveyances, mortgages, liens, rentals, appraisals, and other transactions in the field of real estate and the law. Also available via Independent Learning.

ABUS 224  3 Credits  As Demand Warrants
Money And Banking (3+0)
Basic economic principles as they relate to banking. Highlights are on the economy and how it works, the Federal Reserve System, the business of banking, monetary policy and its impact on financial market and banks, alternative theories of money's role in the economy, fiscal policy and trends in banking. (Prerequisite: ABUS 160 or ABUS 161.)

ABUS 230  3 Credits  As Demand Warrants
Applied Intermediate Accounting (3+0)
Review of accounting principles with emphasis on working capital, plant assets, intangible assets and financial statement presentation. Introduction to current accounting pronouncements.
ABUS 231 3 Credits As Demand Warrants
Introduction to Personnel (3+0)
A course on the organizational structure of a company, job analysis, staffing and organization, employee growth and development, employee supervision and developing leadership skills.

ABUS 232 3 Credits As Demand Warrants
Fundamentals of Management (3+0)
An examination of the basic functions of management to include planning, organizing, staffing, directing and controlling with particular attention to the human aspects of management and decision making. (Prerequisite: BA 151 or instructor permission.)

ABUS 233 3 Credits As Demand Warrants
Financial Management (3+0)
Analysis of the methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisite: BA 151, ACCT 101.)

ABUS 234 3 Credits As Demand Warrants
Financial Counseling (3+0)
Introduction to financial counseling processes, choosing and implementing actions plans, evaluation clients needs, generation of alternative solutions, problem solving, decision making and ethics in counseling relationships.

ABUS 241 3 Credits As Demand Warrants
Applied Business Law I (3+0)
A survey of the legal aspects of business problems including basic principles, institutions, and administration of law in contracts, agency, employment and personal sales and property ownership. Also available via Independent Learning. (Prerequisite: BA 151.)

ABUS 242 3 Credits As Demand Warrants
Applied Business Law II (3+0)
A survey of legal aspects of business problems including basic principles, institutions, and administration of law in insurance, suretyship, negotiable instruments, partnerships, corporations, trusts, wills, bankruptcy, torts and business crimes. (Prerequisite: ABUS 241.)

ABUS 243 3 Credits As Demand Warrants
Applied Cost Accounting (3+0)
Principles and applications of cost accounting for manufacturing and non-manufacturing firms. The course covers job order and process costing with analysis of material and labor costs, overhead, inventory controls, production flow, and work in progress. Budgeting and decision making are emphasized using cost accounting methods. (Prerequisite: ACCT 101, ACCT 102 or ABUS 142 and ABUS 143.)

ABUS 244 3 Credits As Demand Warrants
Loan Officer Development (3+0)
A course designed to study and develop interpersonal skills necessary for dealing with customers and bank personnel. Other areas of study include: loan interview, problem identification, credit development, decision, communications, credit file reports, loan pricing, and negotiating skills.

ABUS 250 3 Credits As Demand Warrants
Introduction to Managerial Accounting (3+0)
A course in the use of accounting information for managerial decisions, planning and control. Topics include the accounting process, responsibility in accounting, performance measurement, capital budgeting, and analysis of financial reports. (Prerequisite: ACCT 101, 102.)

ABUS 252 3 Credits As Demand Warrants
Business Statistics (3+0)
Introduces descriptive and inferential statistics. Includes measures of control, trend and variability, partial and multiple correlation and regression, time series and forecasting. Presents computer applications. (Prerequisite: must have sophomore standing or instructor permission.)

ABUS 253 3 Credits As Demand Warrants
Principles of Retailing (3+0)
A course to acquaint students with current retail practices and technologies to assist them in preparing for a career in retailing or a service business. Areas covered include purchasing, store operation, computerized inventory control and electronic cash registers, finance and credit, personnel, sales promotions and selling.

ABUS 254 3 Credits As Demand Warrants
Salesmanship (3+0)
Designed for both people with and without sales experience. Explores salesmanship as a skill individuals use in selling themselves and their ideas as well as products and services. Topics include: personal selling, buyer behavior and communication, creative selling process, sales management, and time-use management.

ABUS 257 1 Credit As Demand Warrants
Accounts Receivable Management (1+0)
Covers the entire A/R system: credit policy and management, billing cycles, A/R reporting; collections procedures and legalities, analysis of A/R reports and functions of the Credit Department.

ABUS 258 1 Credit As Demand Warrants
Purchasing And Cost Control (1+0)
Covers the purchasing and accounts payable systems of an organization of business; forms design and use, accounts payable department functions, design of systems, receiving of merchandise, approving and paying of invoices, evaluating and choosing suppliers, accounting for accrued expenses, cash flow management, purchasing and inventory control.

ABUS 261 3 Credits As Demand Warrants
Analyzing Financial Statements (3+0)
An introduction to statement analysis, accounting data, cash flow management ratios, comparative statements, forecasting, liquidity, solvency and capital structure as they relate to financial conditions and performance of modern business enterprise.

ABUS 270 1 Credit As Demand Warrants
Financial Statement Ratio Analysis (1+0)
This course takes the accounting student from the preparation of financial statements to the use of these reports as management information for analysis. Key ratio studies are made in the context of the business decisions to which they apply. A great deal of practical problem-solving is included in the format.

ABUS 273 3 Credits As Demand Warrants
Managing A Small Business (3+0)
This course covers the fundamental of entrepreneurship and management with emphasis on starting up a new business, buying an existing business or a franchise. Other topics include managing, marketing, staffing, financing, budgeting, pricing, and operational analysis and control.

ABUS 299, 299 1-3 Credits As Demand Warrants
Practicum In Applied Business
An orientation to work and training with analysis of the work experience and the relationship of the job to career and academic goals. The higher levels are designed for the student seeking an associate degree and higher level opportunities for practical application of knowledge and skill. It may be essential for students to have access to the faculty advisor for extended periods of time on a regular basis. Topics may include 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)
This course covers the fundamental of surface and underground mining and emphasizes economic planning, proper exploration designs, environmental concerns, and safety factors.

AMIT 109 1 Credits As Demand Warrants
Underground Mine Safety (1+0)
This course fulfills the Mine Safety Health Administration requirements for new underground miner training. Topics covered include: rights of miners, self rescue devices, introduction to the work environment, escapeways, roof and ground control, ventilation, health, clean-up, hard recognition, first aid, mine gases, and electrical hazards. Students will be awarded a MSHA certificate upon successful completion of this class. Materials fee: $5.00.

AMIT 110 3 Credits As Demand Warrants
New Underground Miner Training (3+0)
This course is designed to provide the inexperienced underground miner with the mandatory MSHA federal training to become employable. Skills taught include: orientation to the mine environment, general mine inspection, scaling, staging, drilling, rock bolting, blasting, mucking, and mine rescue. Materials fee: $30.00.

AMIT 120 2 Credits As Demand Warrants
Explosives I (2+0)
This course discusses the 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)
This course covers the 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 will be studied. Also available via Independent Learning.
AMIT 129 1 Credit As Demand Warrants
Surface Mine Safety (1+0)
This course fulfills the Mine Safety Health Administration requirements for surface miner training. Course topics include rights of miners, introduction to the work environment, ground control, hazard recognition, first aid, and explosive safety. Students will be awarded a MSHA certificate upon successful completion of the class. Materials fee: $3.00.

AMIT 130 3 Credits As Demand Warrants
Surface Mining Operations (3+4)
This course covers the safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines will be studied in detail.

AMIT 140 3 Credits As Demand Warrants
Environmental Permitting (3+4)
This course covers the permits necessary for mineral development in Alaska. Students are encouraged to provide their own case histories.

AMIT 151 1 Credit As Demand Warrants
Settling Pond And Recycle Tech (1+0)
This course covers the 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)
This course is an overview of the sampling, theory and practice of fire assaying. Covered in depth are such topics as 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)
Laboratory procedures required for sample analysis, heap leaching and titrations will be taught in a production laboratory. Students will get hands-on experience by conducting individual projects.

AMIT 154 1 Credit As Demand Warrants
Water Quality and Flocculants (1+0)
A summary of the water quality processes involved using flocculants with emphasis on removing total suspended solids from placer mining water.

AMIT 155 1 Credit As Demand Warrants
Drilling Technology (1+0)
An introduction to the terminology and techniques used in exploration and production drilling.

AMIT 156 1 Credit As Demand Warrants
Applied Cartography (1+0)
Map and chart preparation is the focus of this class. Topics covered include drafting skills for prospecting maps, mine maps, permits and data presentation.

AMIT 161 1 Credit As Demand Warrants
Alaska Ore Deposits (1+0)
The geology, ore reserves and preliminary mining plans of significant Alaska mineral deposits will be discussed in detail.

AMIT 182 1 Credit As Demand Warrants
Geochemical Sampling (1+0)
A hands-on course in 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)
Topics of study include the 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. An optional field trip will be taken to an active coal mine. Job requirements, safety, and environmental consideration will be highlighted. Materials fee: $5.00.

AMIT 180 3 Credits As Demand Warrants
Colored Stone Grading and Evaluation (3+0)
Grading, appraisal, and identification of colored stones is the topic of this course. Formation and structure, properties, deposits and production, and the descriptions of major gemstones are major topics of this course.

AMIT 185 1 Credit As Demand Warrants
Diamond Evaluation & Grading (1+0)
This course is an introduction to diamonds: colors and clarity grading, mining of raw material, and detection of stimulants.

AMIT 205 1 Credit As Demand Warrants
Geomagnetic Surveying (1+0)
This course covers placer gold deposit prospecting using magnetic surveying. Students will conduct an actual survey and interpret the data.

AMIT 206 1 Credit As Demand Warrants
Electromagnetic Surveying (1+0)
This course covers electromagnetic geophysical exploration methods and operations using the VLF-EM-16. This instrument has had wide usage in the mining industry as an exploration tool for gold and/or massive sulfide deposits.

AMIT 210 3 Credits As Demand Warrants
Advanced Underground Mining (3+0)
Advanced techniques in underground mining is the topic of this course. Skill training will be conducted in safety, drilling, blasting, ground support, mucking, maintenance and utilities. Training will be conducted in the Silver Fox Mine.

AMIT 220 1 Credit As Demand Warrants
Explosives II (1+0)
An advanced course in the safe use of explosives. Students will get hands-on experience in blasting. Materials fee: $20.00.

AMIT 230 1 Credit As Demand Warrants
Field Methods (1+0)
Covers topographic map reading using a compass and basic field procedures.

AMIT 231 1 Credit As Demand Warrants
Heap Leaching (1+0)
An advanced course in heap leaching covering cyanide safety, leach pad construction and placement, cyanide processing, thioluae, care histories, applications to Alaska and economics.

AMIT 280 3 Credits As Demand Warrants
Colored Stone Evaluation II (3+0)
This course is a continuation of Colored Stone Evaluation I. Gemstones covered in this class are stones of the garnet, pyroxene, organic, inorganic, and specialty stones. (Prerequisite: AMIT 180 Colored Stone Evaluation I)

AMIT 282 1-2 Credits As Demand Warrants
Mining Coop Work Experience
A course for the student who has mastered basic mining techniques and terminology which provides practical work experience in a professional mining environment. Placement and work assignments will vary depending upon student experience.

Applied Photography

APHO 072 1 Credit As Demand Warrants
Photography Fundamentals (1+0)
How to make colorful, well-exposed photographs taking advantage of the capabilities of modern cameras. 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)
Learn how to process color film, mounted in slides for projection; make color prints and enlargements; mix color filters for special effects; and set 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)
Students develop their own print film using the Kodak Flexicolor C-41 and Hobby-pac processes. Proof sheets are then made from which selected enlargements are printed using Extraprint 2, Hobby-pac and Ektaflex processes. Students must have a camera and two rolls of film.

Art

ART 100 3 Credits As Demand Warrants
Art Exploration (3+0)
Recommended for students seeking initial exposure to various areas such as design, printmaking, weaving, and sculpture. Individual studio projects, lectures, and field trips to introduce possible areas for further concentrated study.

ART 101 3 Credits As Demand Warrants
Introduction To Ceramics (3+0)
Introduction to 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
An introductory course emphasizing self-expression by developing spontaneous artistic ideas into a more focused style. This course employs basic drawing materials and uses student assignments in still life, portrait, interior and landscape compositions as topics for classroom study. For the student who has had or is taking a course in drawing and wishes to explore his or her drawing abilities.

ART 105 3 Credits Fall, Spring
Beginning Drawing (1+4) h
Introduction to the techniques of fine drawing. Emphasis is placed on the development of individual approaches to drawing and the application of techniques and materials. Materials fee: $15.00.

ART 113 1-3 Credits As Demand Warrants
Introduction to Painting (1+2)
An introduction to the techniques of painting. Emphasis is placed on the development of individual approaches to painting and the application of the various techniques and materials available for painting.

ART 122 2 Credits Fall, Spring
Stained Glass (2+4)
This course covers the fundamental skills needed to construct stained glass pieces, with special attention given to the basics of glass cutting, leading and soldering. During this course, each student will complete 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 166 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 201 3 Credits Fall, Spring
Beginning Ceramics (1+4) h
An introduction to ceramics. 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
Introduction to the 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)
The course will introduce concepts in art education to persons with limited art background who are working with young children. The course will combine a philosophy of Art Education with the ‘hands-on’ experiences of the classroom teacher to more effectively integrate the visual arts into the classroom curriculum as enjoyment and enrichment. Can also be taken as ED 208.

ART 209 3 Credits Fall, Spring
Beginning Metalsmithing (1+4) h
Introduction to the 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
An introduction to 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
Introduction to painting in either medium. Introduction to pictorial principles and organization of paintings. Materials fee: $35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)
ART 366 3 Credits Alternate Spring
Northwest Coast Indian Art (3+0) h
(Same as ANS 366)
An in-depth examination of the arts of the Northwest Coast Indians and
the place of the art in their culture. (Next offered: 1991-92.)

ART 367 3 Credits Alternate Spring
Eskimo Art (3+0) h
(Same as ANS 367)
An in-depth study of Eskimo art from Alaska, Canada and Siberia
beginning with the earliest known pieces up to the beginning of the
20th century. (Next offered: 1990-91.)

ART 368 3 Credits Fall and Spring
Intermediate Native Art Studio (1+4) h
(Same as ANS 368)
Understanding and applying the more advanced traditional designs and
technologies of Naive art. (Prerequisite: ART 268 or permission of
instructor.)

ART 371 3 Credits Fall
Introduction to Computer Art (1+4)
An introduction to digital editing with an overview of the field of
computer art. (Prerequisites: Introductory computer course, one from
ART 105, 161, 162, or 163.)

ART 401 3 Credits Fall, Spring
Advanced Ceramics (1+4) h
Advanced ceramic work with an 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. (Prerequisites: ART 301 or permission of
instructor.)

ART 407 3 Credits Fall and Spring
Advanced Printmaking (1+4) h
An individual development of technical and creative processes in
printmaking. May be repeated for credit with permission of instructor.
Materials fee: $25.00. (Prerequisites: ART 307 or permission of
instructor.)

ART 409 3 Credits Fall and Spring
Advanced Metalsmithing and Jewelry (1+4) h
Continued investigation of materials and processes with an
introduction to hollowware skills and forging. May be repeated for credits with
permission of instructor. Materials fee: $35.00. (Prerequisites: ART 309 or
permission of instructor.)

ART 411 3 Credits Fall and Spring
Advanced Sculpture (1+4) h
Advanced investigation into the principles, practices and concepts of
sculpture. May be repeated for credit with permission of instructor.
Materials fee: $35.00. (Prerequisites: ART 311 or permission of
instructor.)

ART 412 3 Credits Fall and Spring
Advanced Painting (1+4) h
Individual experimentation and technical/conceptual development in
painting. Can be repeated for credits with permission of instructor.
(Prerequisite: ART 313.)

ART 417 3 Credits Every Third Fall
Lithography (1+4) h
An exploration of stone and metal plate lithography. Materials fee:
$25.00. (Prerequisite: ART 105, 207, or permission of instructor. Next
offered: Fall 1992.)

ART 419 3 Credits Fall, Spring
Life Drawing (1+4) h
Drawing from life, the study of artistic anatomy. Materials fee: $30.00.
(Prerequisite: ART 305 or permission of instructor.)

ART 427 3 Credits Every Third Spring
Relief (1+4) h
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.)

ART 437 3 Credits Every Third Fall
Intaglio (1+4) h
Intaglio printmaking with emphasis on experimentation and color
photo intaglio printing. Materials fee: $25.00. (Prerequisites: ART 105, 207, 267, or permission of the instructor. Next offered: 1990-91.)

ART 441 3 Credits Every Third Spring
Lost Wax Casting (1+4) h
The design and execution of jewelry and other small metal objects by
lost wax casting. Materials fee: $35.00. (Prerequisite: ART 409 or per-
mmission of the instructor. Next offered: 1990-91.)

ART 442 3 Credits Every Third Spring
Nonferrous Forging (1+4) h
A study of the design and execution of hammer forged nonferrous
metal objects. Materials fee: $35.00. (Prerequisite: ART 409 or permis-
sion of instructor. Next offered: 1991-92.)

ART 443 3 Credits Every Third Spring
Holloware (1+4) h
A study of the design and construction of holloware by raising, sinking,
and fabrication. Materials fee: $35.00. (Prerequisite: ART 409 or per-

ART 447 3 Credits Every Third Spring
Silkscreen (1+4) h
Silkscreen printing with photo processes. Materials fee: $25.00. (Prereq-
ts: ART 105, 162, 207, or permission of the instructor. Next offered:
1991-92.)

ART 450 3 Credits Every Third Fall
Raku Pottery (1+4) h
A one semester experience in Raku pottery building kilns, firing and
production techniques for Raku pottery. Materials fee: $35.00. (Pre-
quisite: ART 201 or permission of instructor. Next offered: 1990-91.)

ART 451 3 Credits Every Third Spring
Earthenware (1+4) h
A one semester experience in earthenware pottery including appropriate
bodies, glazes, decorations and firing techniques. Materials fee:
$35.00. (Prerequisite: ART 201 or permission of Instructor. Next offe-red: 1991-92.)

ART 452 3 Credits Every Third Fall
Porcelain (1+4) h
A one semester experience in porcelain including appropriate bodies,
glazes, decorations and firing techniques. Materials fee: $35.00. (Pre-
quisite: ART 201 or permission of instructor. Next offered: 1991-92.)

ART 454 3 Credits Every Third Fall
Vapor Glazing (1+4) h
A one semester experience in "salt glazing" (i.e., vapor glazing) including
clay, glazes, decorative techniques and kilns. Materials fee: $35.00. (Pre-
quisite: ART 201 or 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. (Prerequisites: Advanced standing or permission of
instructor.)

ART 468 3 Credits Fall and Spring
Advanced Native Art Studio (1+4) h
( Same as ANS 468)
Understanding and applying the advanced traditional designs and
technologies of Native art with particular emphasis on the 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 typography. (Prerequisites: ART 371; or CS 201 or
equivalent, ART 105 and one of ART 161, 162 or 163.)

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. Course will cover the Alaska Driver's Manual and all material necessary to gain an Alaska Driver's Permit. It will also include defensive driving methods for accident-free driving and basic mechanical information.

**AUTO 081** 1 Credit  As Demand Warrants  Behind-the-Wheel Training (0+3)  
This course will provide 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+4)  
A course designed to teach the parts and functions of a small engine and its electrical system. Proper dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs will be covered.

**AUTO 101** 1 Credit  As Demand Warrants  Auto Tune-Up (1+0)  
A dual purpose course servicing both as an introduction to a more advanced course and also as a consumer interest course. Instruction will focus attention on vehicle maintenance by the operator with tools commonly available. It will be a 'hands-on' approach to basic troubleshooting and maintenance.

**AUTO 170** 1 Credit  As Demand Warrants  Snowmachine Maintenance and Repair (1+4)  
An introduction to the fundamentals necessary for the operation and repair of a snow-machine. Specific areas that are covered are 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, aircraft flight instruments, navigation, navigation computers, national weather information and dissemination service. Federal Aviation Regulations, flight information publications, radio communications, and radio navigation in 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 will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Private Pilot certificate. 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 engines, multi-engine and turboprop aircraft), navigation, regulations and meteorology. In addition, employment considerations for commercial pilots are surveyed. This course will prepare students to take the FAA Commercial Pilot-Airplane written examination.

**AVTY 103** 2 Credits  As Demand Warrants  Commercial Flight Training (2+0)  
Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Commercial Pilot certificate. (Prerequisite: Private Pilot certificate 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 will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Single-Engine Sea Rating. (Prerequisite: Private Pilot certificate or higher, department approval required.)

**AVTY 107** 1 Credit  As Demand Warrants  Multi-Engine Flight Training (1+0)  
Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Multi-Engine Rating. (Prerequisite: Private Pilot certificate or higher, department approval required.)

**AVTY 108** 1 Credit  As Demand Warrants  Introduction to Skis (1+0)  
Flight instruction will be arranged by student through approved pilot school or independent flight instructor to flight school to introduce techniques of ski-lane 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 will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current 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  Biennial Flight Review (1+0)  
A review of Federal Aviation Regulations, air traffic control procedures, communications, normal and emergency aircraft procedures, and aircraft performance. (Prerequisite: Student must hold at least a Private Pilot certificate.)

**AVTY 111** 3 Credits  As Demand Warrants  Fundamentals of Aviation (3+0)  
A comprehensive introduction to basic concepts associated with the aircraft and its environment. The study of the aircraft and its components, including basic systems, the relationship of the Federal Aviation Administration as it impacts regulations, airports and airspace utilization will be studied along with aeronautical charts, navigation, weather theory, medical and emergency factors. This course will provide the opportunity to explore aviation in general as one acquires related knowledge and skills.

**AVTY 116** 3 Credits  As Demand Warrants  Aviation History (3+0)  
A survey of aviation from its early days to the present. The people, places, and machines contributing to the development of Alaskan aviation will be emphasized.

**AVTY 117** 3 Credits  As Demand Warrants  Aviation Weather (3+0)  
Weather and its effects on air transportation and air traffic control. Aviation 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 Simulator Instruction Basic Procedures (0+3)  
An introduction to the operation and use of the LINK CAT-IF flight simulator and selected practice in basic flight maneuvers, procedures and techniques. This individualized simulate flight training may serve as a valuable supplement to both Private Pilot Ground School and actual flight training. (Prerequisite: AVTY 100 or concurrent enrollment in AVTY 100, AVTY 111 or AVTY 112.)

**AVTY 115** 1-3 Credits  As Demand Warrants  Preventive Maintenance  
The course is designed for the pilot-owner who must make his/her decisions as to what maintenance should be done. A knowledge of the mechanics of the airplane, its power plant and systems will enable the student to evaluate any malfunction and will help make any decisions more accurate. (Prerequisite: AVTY 100 or permission of instructor.)

**AVTY 200** 4 Credits  As Demand Warrants  Instrument Ground School (4+0)  
Instrument operation in detail, altitude instrument flying, air traffic control and navigation facilities, pilot responsibilities. IFR enroute charts, approach plates, airspace and airway route system, ATC operations and procedures. Federal Aviation Regulations, flight planning, medical facts about pilots, meteorology, similar flights. Course includes visits to FAA RAPCO and AVTY facilities. (Prerequisite: AVTY 100, passing score on the FAA Private Pilot Written Exam or permission of the instructor. Must complete AVTY 102- Commercial Ground School.)

**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 examination. (Prerequisite: Commercial Pilot certificate or permission of instructor.)
AVTY 233 1 Credit As Demand Warrants
Loran C Navigation (3+0)
The student will gain sufficient understanding of the theory of Loran "C" to recognize positive and adverse conditions regarding its use, to be able to enter way points already programmed into the computer and effectively navigate them and to learn to reprogram the computer for enroute and arrival points to within 100 feet.

AVTY 235 3 Credits As Demand Warrants
Elements of Weather (3+0)
(Same as ALR 235)
Weather as it affects aircraft operators with an emphasis on Interior Alaska.

AVTY 239 4 Credits As Demand Warrants
Aircraft Dispatcher (4+0)
Coordinating functions that must be performed involving the aircraft and other departments of an airline business. (Prerequisite: Those wanting to be eligible for aircraft dispatcher certificate must be 23 years of age.)

AVTY 301 3 Credits Fall
Air Worker Strategies (3+0)
For pilots or air workers who use aviation in natural resources management; addresses areas of knowledge and skills necessary to use general aviation aircraft as a tool for field transportation, field logistics or as a platform for instrumentation and data collection. (Prerequisite: AVTY 101 or AVTY 111.)

AVTY 302 2 Credits Spring
Aerial Data Collection (2+0)
(Same as ALR 302)
The specific uses of aircraft to collect resource data from oblique observations to the operation of specialized equipment used to collect remote sensing data. Includes aspects of mission design and sampling strategies. The course is intended for people who plan to be involved in data collection, including air works, mission pilots and managers. (Prerequisite: AVTY 301.)

AVTY 410 2 Credits Summer
Techniques of Bush Flying (1+2)
Flight training emphasizing emergency procedures in remote locations, off-airport operations, critical flight attitudes, low level flight, terrain and special maneuvers and unique soft and short field take-offs and landings. (Prerequisites: AVTY 231, 235, 301, Commercial Rating and 20 hours taildragger time.)

Biological Science

BIOL 102 4 Credits Fall and Spring
Biological Science (3+3)
Introduction to the fundamental principles of biology; emphasis on their application to man in the modern world. Course is designed for non-science majors. Includes lectures, laboratory demonstrations, experiments, and discussions of contemporary biological topics. This course may not be used as biology elective credit for a major in biological science. Laboratory fee: $10.00-$40.00. (Offered every Fall at the Northwest Campus.)

BIOL 104 4 Credits Fall and Spring
Natural History of Alaska (3+0)
Aspects of the physical environment peculiar to the north and important in determining the biological setting; major ecosystem concepts to develop an appreciation for land use and wildlife management problems in both terrestrial and aquatic situations. This course may not be used as biology elective credit for a major in biological science. Also available via Independent Learning.

BIOL 105 4 Credits Fall
Principles of biology for the science major. First semester: cell structure, metabolism, genetics and evolution. Second semester: plant and animal structure and function, ecology. BIOL 105 is required for BIOL 106. Laboratory fee: $10.00. (Prerequisite: high school chemistry recommended.)

BIOL 106 4 Credits Spring
Fundamentals of Biology I and II (3+3)
Principles of biology for the science major. First semester: cell structure, metabolism, genetics and evolution. Second semester: plant and animal structure and function, ecology. BIOL 105 is required for BIOL 106. Laboratory fee: $10.00. (Prerequisite: high school chemistry recommended.)
BIOL 111 4 Credits Fall
Human Anatomy and Physiology I and II (3+3) n
Integrated view of human structure and function for students in nursing, therapy, physical education, and art. BIOL 111 will cover cells, tissues and organs, skeletal and muscle systems, the nervous system, and integument. BIOL 112 examines circulatory, respiratory, digestive, excretory, endocrine, and reproductive systems. BIOL 111 is required for BIOL 112. These courses may not be used as biology elective credit for majors in biological sciences. Laboratory fee: $10.00.

BIOL 105 3 Credits Fall
Introduction to Marine Biology: A general survey of marine organisms, evolution of marine life, habitats and communities of ocean zones, productivity, and marine resources. This course is designed for non-science majors and may not be used as biology elective credit for a major in biological science.

BIOL 210 4 Credits Spring
Animal Physiology (3+3) n
Animal function, including respiration, digestion, circulation, nerve and muscle function, hormones, and reproduction. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106; CHEM 103 and 104 or 105 may be taken concurrently.)

BIOL 222 4 Credits Fall
Vertebrate Anatomy (2+6) n
Anatomy of bony fishes, birds, and mammals. Laboratory dissections emphasized. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106. Next offered: 1991-92.)

BIOL 239 4 Credits Spring
Introduction to Plant Biology (3+3) n
Structure, function, ecology, and evolutionary patterns of the major groups of plants. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106.)

BIOL 240 4 Credits Spring
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 life. Laboratory fee: $20.00.

BIOL 271 4 Credits Fall
Principles of Ecology (4+0) n
Introduction to the basic principles of ecology and evolutionary biology. Environmental factors, their causation and influence upon plants and animals. Basic population biology: population structure, growth, and regulation. The mechanisms of evolutionary change in populations. The organization of biotic communities. The structure and function of ecosystems. (Prerequisites: BIOL 105 and 106.)

BIOL 305 4 Credits Fall
Invertebrate Zoology (3+3) n
Classification, structure, function, evolution, and life histories of invertebrate animals. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106, 210, and 271.)

BIOL 307 3 Credits Alternate Spring
Parasitology (2+3) n
Structure, function, life history, and ecology of animal parasites. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106 and BIOL 222 or permission of instructor. Next offered: 1990-91.)

BIOL 308 3 Credits Spring
Principles of Evolution (3+0) n
An introduction to the mechanisms of, and evidence for, the evolution of living systems. The coding and transmission of genetic information in populations, population variability, change, and stabilization. (Prerequisites: BIOL 105-106, 362, 271, or permission of the instructor.)

BIOL 317 4 Credits Alternate Spring
Comparative Anatomy of Vertebrates (2+6) n
Anatomy, phylogeny and evolution of the vertebrates. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106. Next offered: 1990-91.)

BIOL 328 3 Credits Spring
Biology of Marine Organisms (3+0) n
Introduction to biology of marine organisms: ocean as a habitat, distribution, classification, functional morphology, and general biology of the major biological groups; man and the oceans. (Prerequisites: Upper division standing in a biologically oriented major.)

BIOL 331 4 Credits Spring
Systematic Botany (2+6) n
Classification of flowering plants with emphasis on Alaskan flora; discussion of taxonomic principles and both classical and experimental methods of research. Prerequisites are required to ensure that each student will prepare a plant collection. Laboratory fee: $10.00. (Prerequisites: BIOL 239 or permission of the instructor. BIOL 362 recommended.)

BIOL 333 3 Credits Alternate Fall
Biology of the Non-Vascular Plants (2+3) n
The structure, function, comparative development, taxonomy, phylogeny and life histories of non-vascular cryptogams (algae, excluding blue greens, fungi, lichens, mosses and hepatics). Laboratory fee: $10.00. (Prerequisites: BIOL 239. Next offered: 1991-92.)

BIOL 334 4 Credits Alternate Fall
Structure and Function in Vascular Plants (3+3) n
Morphology, anatomy and physiology of vascular plants, stressing the interrelationships between development, anatomy, growth, water relations, photosynthesis, transport and metabolism. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106.)

BIOL 342 4 Credits Spring
Microbiology (3+3) n
A survey of morphology and physiology of microorganisms (viruses, bacteria, fungi, algae and protozoans). The role of these organisms in the environment and their relationship to humans are considered. Concepts of immunology are introduced. The laboratory stresses aseptic techniques for handling microorganisms. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106.)

BIOL 361 4 Credits Alternate Spring
Cell Biology (2+3) n
Detailed structure, including ultrastructure, and function of the cell: isolation, composition, and biochemical properties of cell organelles and their integration. Laboratory fee: $10.00. (Prerequisites: A year each of college chemistry and biology. Next offered: 1990-91.)

BIOL 384 3 Credits Alternate Fall
Biology of the Freshwater Fish of Alaska (3+0)
Life histories of Alaskan freshwater fish emphasizing species sought by fishermen. Emphasis is on reproduction, age, growth, migration, food, inter-relationships and habitat requirements. (Prerequisites: BIOL 105-106 or permission of instructor. Next offered: 1991-92.)

BIOL 406 4 Credits Alternate Spring
Entomology (3+3) n
Biological entomology. Identifying insects and related arthropods, with emphasis on anatomy, physiology, behavior, ecology, and evolution. Laboratories emphasize identification. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106 and 271.)

BIOL 407 3 Credits Alternate Fall
Aquatic Entomology (2+3)
Ecology, taxonomy, anatomy, physiology and evolution of aquatic insects. Laboratories emphasize identification and field/laboratory techniques. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106 and 271. BIOL 473 recommended or permission of instructor. Next offered: 1991-92.)

BIOL 414 4 Credits Fall
Comparative Physiology (3+3) n
Functional variations and relationships among animals: respiration, cardiovascular systems, metabolism, temperature regulation, osmoregulation, excretion, nerve and muscle function. Laboratory fee: $10.00. (Prerequisites: BIOL 210, CHEM 106 and CHEM 321 or permission of instructor.)

BIOL 418 4 Credits Alternate Spring
Developmental Biology (3+3) n
Morphological and molecular aspects of development of multicellular organisms, with emphasis on the regulation of morphogenesis. Laboratory fee: $10.00. (Prerequisites: BIOL 105-106, 210 or permission of instructor. Next offered: 1991-92.)

BIOL 425 3 Credits Fall
Mammalogy (2+3) n
Variety of mammals, their behavior, life histories, identification, physiology and systematics, morphology, distribution, and zoogeography. Laboratory fee: $10.00. (Prerequisites: BIOL 222, and either BIOL 205, or 317; or permission of instructor.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 426</td>
<td>3</td>
<td>Spring</td>
<td>Ornithology (2+3)n</td>
<td>The evolution, anatomy, physiology, distribution, migration, breeding biology of birds and their classification and identification. Laboratory fee: $10.00. (Prerequisites: BIOL 222, and either BIOL 205 or permission of instructor.) Concurrent enrollment in BIOL 479 is recommended.</td>
</tr>
<tr>
<td>BIOL 427</td>
<td>4</td>
<td>Fall</td>
<td>Ichthyology (3+3)n</td>
<td>Major groups of fishes, emphasizing the fishes of northwestern North America. Classification structure, evolution, general biology, and importance to man of the major groups. Laboratory fee: $10.00. (Prerequisites: BIOL 222, and either BIOL 205 or 317 or permission of the instructor.)</td>
</tr>
<tr>
<td>BIOL 441</td>
<td>3</td>
<td>Fall</td>
<td>Animal Behavior (2+3)n</td>
<td>Genetic and physiological bases of behavior, evolutionary and ecological principles of individual and social behavior, sociobiology, and the techniques of behavioral observation and analysis. Laboratory fee: $10.00. (Prerequisites: BIOL 219 and 271; or permission of instructor; Recommended: BIOL 308.)</td>
</tr>
<tr>
<td>BIOL 442</td>
<td>5</td>
<td>Alternate Fall</td>
<td>Bacteriology and Immunology (3+6)n</td>
<td>Morphology, physiology and systematics of bacteria. Introduction to microbial pathogenesis and concepts of immunology. Laboratory fee: $10.00. (Prerequisites: BIOL 342, CHEM 321 or permission of instructor. Next offered: 1990-91.)</td>
</tr>
<tr>
<td>BIOL 443</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Microbial Ecology (2+3)n</td>
<td>Laboratory investigation of ecological activity and impact of bacteria and fungi. Isolation and study of important genera. Laboratory fee: $10.00. (Prerequisites: BIOL 342, 271, or 442; or permission of instructor.)</td>
</tr>
<tr>
<td>BIOL 445</td>
<td>4</td>
<td>Fall</td>
<td>Molecular Evolution (3+3)</td>
<td>(Same as CHEM 443) The study of structure, function and evolution of hereditary molecules (nucleic acids). (Prerequisite: BIOL 362.)</td>
</tr>
<tr>
<td>BIOL 460</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Biomes of the World (3+0)</td>
<td>Survey of the major terrestrial ecosystems of the world; emphasis on global patterns of climate and ecosystem processes, ecological features, flora and fauna of major ecosystems and ecosystem convergence. (Prerequisite: BIOL 271. Next offered: 1990-91.)</td>
</tr>
<tr>
<td>BIOL 471</td>
<td>3</td>
<td>Spring</td>
<td>Population Ecology (3+0)</td>
<td>The study of populations of plants and animals, including population structure, natality, mortality, population growth, the regulation of population size, and population interactions in herbivory, predation, and parasitism. (Prerequisite: BIOL 271.)</td>
</tr>
<tr>
<td>BIOL 472</td>
<td>3</td>
<td>Fall</td>
<td>Communities and Ecosystems (3+0)</td>
<td>An analysis of the structure of plant and animal communities and their organization. The structuring forces of competition, predation, herbivory, mutualism, and the flow of energy and nutrients will be covered. Latitudinal gradients in species richness and biogeography will also be discussed. (Prerequisite: BIOL 271.)</td>
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<tr>
<td>BIOL 473</td>
<td>3</td>
<td>Fall</td>
<td>Limnology (2+3)</td>
<td>Physical, chemical and biological characteristics of fresh water, emphasizing ecological aspects important to fish and other organisms. Laboratory fee: $10.00. (Prerequisites: BIOL 271, CHEM 106 or permission of instructor.)</td>
</tr>
<tr>
<td>BIOL 474</td>
<td>4</td>
<td>Alternate Fall</td>
<td>Plant Ecology (3+3)</td>
<td>Principles and contemporary topics in plant ecology. Topics covered include autecology, community ecology, ecosystem ecology and evolutionary ecology. Laboratory fee: $10.00. (Prerequisites: BIOL 239, BIOL 271, STAT 301. Next offered: 1990-91.)</td>
</tr>
<tr>
<td>BIOL 475</td>
<td>2</td>
<td>Alternate Fall</td>
<td>Plant Communities of Alaska-Field Course (1+3)</td>
<td>A series of field trips to the plant communities of interior Alaska; emphasis on identification of vascular and non-vascular plants and the processes affecting the structure and evolution of Alaskan plant communities. Laboratory fee: $10.00. (Prerequisites: BIOL 239, permission of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>BIOL 477</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Ecology of Streams and Rivers (3+0)</td>
<td>Physical, chemical and (especially) biological aspects of stream and river ecosystems. Course will include considerations of the methods used in running water research and management of streams and rivers. (Prerequisites: BIOL 271 and 473, recommended or permission of instructor. Materials fee: $10.00. (Next offered: 1990-91.)</td>
</tr>
<tr>
<td>BIOL 478</td>
<td>2</td>
<td>Spring</td>
<td>Field Ecology (0+3)n</td>
<td>An intensive experience in the collection and interpretation of ecological data. The course consists of concentrated study for 10-12 days in early May. Students will engage in the design, execution, and analysis of field projects dealing with various aspects of ecology. Course is graded pass/fail. Field trip fee to be announced. Laboratory fee: $10.00. (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+3)n</td>
<td>Techniques of field ornithology, emphasizing identification of birds and bird-habitat relationships. The course consists of 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: $10.00. (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)</td>
<td>Effects of man-caused environmental stresses on the composition and dynamics of aquatic communities. Changes in diversity and matter and energy transfer. Biological indices. Water quality, standards and use classifications. (Prerequisites: BIOL 271 and 473 or permission of instructor. Next offered: 1991-92.)</td>
</tr>
<tr>
<td>BIOL 501</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Radioisotopic Techniques (2+3)</td>
<td>As Demand Warrants</td>
</tr>
<tr>
<td>BIOL 602</td>
<td>3</td>
<td>Fall</td>
<td>Research Design (3+0)</td>
<td></td>
</tr>
<tr>
<td>BIOL 611</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Fish Physiology (3+0)</td>
<td></td>
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<tr>
<td>BIOL 614</td>
<td>2</td>
<td>Alternate Spring</td>
<td>Grazing Ecology (2+0)</td>
<td>(Same as WLF 614)</td>
</tr>
<tr>
<td>BIOL 618</td>
<td>2</td>
<td>Alternate Spring</td>
<td>Biogeography (2+0)</td>
<td></td>
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<tr>
<td>BIOL 619</td>
<td>2</td>
<td>Alternate Fall</td>
<td>Marine Mammals (1+3)</td>
<td></td>
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<tr>
<td>BIOL 625</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Physiological Ecology: Energetics and Nutrition (2+4)</td>
<td></td>
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<tr>
<td>BIOL 626</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Physiological Ecology: Vertebrate Reproduction (2+3)</td>
<td></td>
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<tr>
<td>BIOL 627</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Chemical Ecology (3+0)</td>
<td></td>
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<tr>
<td>BIOL 628</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Advanced Animal Behavior (3+0)</td>
<td></td>
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<tr>
<td>BIOL 630</td>
<td>2</td>
<td>Alternate Fall</td>
<td>Modern Evolutionary Theory (2+0)</td>
<td></td>
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<tr>
<td>BIOL 638</td>
<td>1</td>
<td>Alternate Fall</td>
<td>Seminar in Ecology and Evolutionary Biology (2+0)</td>
<td></td>
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<tr>
<td>BIOL 649</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Molecular Genetics (3+0)</td>
<td></td>
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<tr>
<td>BIOL 650</td>
<td>3</td>
<td>Fairbanks, Alternate Fall</td>
<td>Fish Ecology (2+3)</td>
<td>Juneau, As Demand Warrants</td>
</tr>
<tr>
<td>BIOL 670</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Ecological Genetics (2+3)</td>
<td></td>
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<tr>
<td>BIOL 672</td>
<td>2</td>
<td>Alternate Fall</td>
<td>Ecosystem Processes (2+0+2)</td>
<td></td>
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<tr>
<td>BIOL 675</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Plant Physiological Ecology (2+3)</td>
<td></td>
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<tr>
<td>BIOL 677</td>
<td>3</td>
<td>Spring</td>
<td>Advanced Topics in Plant Ecology and Systematics (3+0)</td>
<td></td>
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<tr>
<td>BIOL 678</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Tropical Ecology Field Course (0+3+Arr)</td>
<td></td>
</tr>
<tr>
<td>BIOL 680</td>
<td>4</td>
<td>Alternate Fall</td>
<td>Data Analysis in Biology (3+3)</td>
<td>(Same as STAT 680)</td>
</tr>
</tbody>
</table>
Business Administration

Admittance to upper division School of Management courses will be 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. The exceptions to this include BA 301, BA 331 and BA 332. Any other exceptions require the approval of the BA department head.

BA 100 3 Credits Fall and Spring
Introduction to Data Processing and BASIC Language (3+0)
A general introductory business course designed to provide students with an overview of business applications of computers. Topics covered are: machine organizations, problem formulation, utilization of BASIC programming language in business applications, information flow management, applications of automatic data processing systems to include input-output procedures, and the utilization of business application programs available to the School of Management. Materials fee: $20.00. (Not for School of Management students. This course will not substitute for BA 101, Introduction to Management Information Systems.)

BA 101 3 Credits Fall and Spring
Introduction to Management Information Systems (3+0)
An introduction to the concepts, skills and software required for today's business education. Students will become familiar with selected current business software applications. Special emphasis will be placed on acquiring proficiency in the use of required School of Management software programs. Materials fee: $20.00.

BA 151 3 Credits Fall and Spring
Introduction to Business (3+0)
Business organization, nature of major business functions such as management, finance, accounting, marketing, personnel administration. The opportunities and requirements for professional business careers.

BA 160 3 Credits Fall
Tourism Principles and Practices (3+0)
Forces which influence the international and domestic hospitality, leisure, travel, and recreation industries. Socio-economic models and measure of regional impact, demand, and supply.

BA 201 3 Credits Alternate Spring
COBOL (2+2)
Training and practice in writing problems in the COBOL language. Multiple file processing, editing and report generating routines. Materials fee: $20.00. (Prerequisite: BA 101 or permission of instructor. Next offered: 1991-92.)

BA 229 3 Credits Alternate Fall
Basic Programming Languages (3+0)

BA 253 1-3 Credits Fall-Spring-Summer
Internship in Business (0+1-3)
Supervised work experience in an approved position which is related to the student's career interests or objectives. Number of credits given will depend on type of position and amount of time worked by the student. No student can count more than eight internship credits towards a degree. (Prerequisite: approval of program or department head.)

BA 301 3 Credits Fall
Processes of Management (3+0)
A systematic examination of the basic functions of management with particular attention on the human side of the organization. Modes of communication and coordination are evaluated in terms of the need for planning, controlling, and decision-making among the organizational components. An overall framework for effective integration of the distinct processes is emphasized. (Prerequisites: Junior standing or permission of instructor.)

BA 303 3 Credits Fall
Advanced Leadership (3+1)
(Same as MILS 303)
Comprehensive analysis of leadership styles and functions applicable to formal organizations. Lab: Advanced leadership development including enrichment seminars. (Prerequisite: Junior standing.)

BA 307 3 Credits Fall
Personnel Management (3+0)
Personnel practice in industry, analysis of labor-management problems, methods and administration of recruiting, selecting, training, and compensating employees, and labor laws and their applications. Materials fee: $10.00. (Prerequisite: BA 301 or permission of instructor.)

BA 310 3 Credits Fall and Spring
Intermediate Management Information Systems (3+0)
The role of information technology in organizations and its impact on management and strategic issues. Hands on use of the computer for developing and using decision support systems for management analysis in business. Materials fee: $20.00. (Prerequisite: BA 101.)

BA 317 3 Credits Fall
Employment Law (3+0)
Basic personnel and human resource management, including the major federal laws affecting personnel management and state employment laws including Alaska. (Prerequisites: BA 301, BA 307 or concurrent enrollment in BA 307.)

BA 323 3 Credits Fall and Spring
Financial Management (3+0)
Intensive analysis of the methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisites: ACCT 102, ECON 201, 202, 226. Highly recommended MATH 162 or equivalent, and ECON 227.)

BA 326 3 Credits Spring
Principles of Advertising (3+0)
(Same as J-326)
Theory and practice of advertising; including strategy, media use, production and distribution of advertisements, and measurement of advertising effectiveness. (Prerequisite: Junior standing.)

BA 327 3 Credits Spring
Collective Bargaining and Labor Relations (3+0)
An examination of labor law and current management practices in administering collective bargaining agreements; emphasizing recent problems, developments and trends in union management relations, negotiating, arbitration and unfair labor practices. (Prerequisites: BA 301, BA 307.)

BA 331 3 Credits Fall and Spring
The Legal Environment of Business (3+0)
An examination of the legal environment of business and management. Topics include the judicial system, legal processes, administrative procedures, product safety and advertising, debtor-creditor relations, issuing and trading securities, restraints of trade, monopolies, mergers, price discrimination, labor-management relations, labor standards and employee safety, business ethics and corporate social responsibility. Materials fee: $10.00. (Prerequisite: Junior standing or permission of instructor.)

BA 332 3 Credits Fall and Spring
Business Law (3+0)
The legal principles basic to a business person are presented in this course and include: the law of torts, contracts, agency, property, sales transactions, commercial paper, business organizations, government regulation of business, the uniform commercial code, the uniform partnership act and the uniform limited partnership act. Materials fee $10.00. (Prerequisite: BA 331.)

BA 333 3 Credits Fall and Spring
Principles of Marketing (3+0)
Role of marketing in society and economy. The business firm as a marketing system, and management of the firm's marketing effort. Also available via Independent Learning. (Prerequisite: ACCT 102, ECON 201, 202, 226.)

BA 335 3 Credits Fall
Introduction to Real Estate and Land Economics (3+0)
Study of processes and considerations that influence decisions of individuals and groups concerning real estate investment and utilization. Functions of various types of real estate operators are also considered in the course. (Prerequisites: Junior standing or permission of instructor.)

BA 345 3 Credits Spring and Fall
Operations Management (3+0)
An introduction to the operational field of production with emphasis on the design of efficient operating systems. Specific areas considered are: site selection, facilities planning, inventory management, production scheduling, and job design as applicable to all types of organizations. Materials fee: $20.00. (Prerequisites: BA 101 or equivalent, ACCT 102, ECON 201, 202, 228. Highly recommended, MATH 162 or equivalent and ECON 227.)
### COURSE DESCRIPTIONS—BUSINESS ADMINISTRATION

- **BA 372 3 Credits Spring**
  Hotel Administration (3+0)
  An intensive examination of the practices and concepts necessary 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. (Prerequisites: BA 160, BA 253 and BA 301.)

- **BA 375 3 Credits Fall**
  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. (Prerequisites: BA 343.)

- **BA 377 3 Credits Alternate Fall**
  Food and Beverage Management (3+0)
  Students will follow the development of a successful food and beverage system from its inception to operation and will deal with the diverse subjects of menu planning, purchasing, preparation, service, and food beverage cost control. (Prerequisites: BA 160, BA 253, BA 301. Next offered: 1990-91.)

- **BA 378 3 Credits Fall**
  Passenger Transportation Management (3+0)
  Students will become familiar with all modern forms of passenger transportation. Main emphasis will be put on those carriers presently operating in Alaska and future development of transportation in Alaska. (Prerequisites: BA 160 and BA 253.)

- **BA 390 3 Credits Fall**
  Organizational Theory and Behavior (3+0)
  A focus on people in organizations from the level of the individual, the group, and the organization. Topics covered include motivation, leadership, communication, group processes, organization structure and design, organizational development, and organizational change. (Prerequisites: PST 101 or SOC 101.)

- **BA 410 3 Credits Fall**
  Systems Analysis and Design (3+0)
  The System Development Lifecycle for Information Systems in both mainframe and microcomputer environments. Includes a term project. Materials fee: $20.00. (Prerequisite: BA 310, BA 312 and ACCT 316.)

- **BA 412 3 Credits Spring**
  MIS Project (0+6)
  Application of systems analysis and computer skills in building applications for Fairbanks organizations, both in public and private sectors. Each project will be carried out by a team of students. (Prerequisites: BA 410; concurrent enrollment in BA 414.)

- **BA 414 3 Credits Spring**
  Database Design for Management Information (3+0)
  Advanced systems analysis using modern techniques of data modeling with a study of the management and administrative problems in the coordination and management of organization data resources; focusing on the needs of medium-sized and large organizations. (Prerequisite: BA 410.)

- **BA 417 3 Credits Spring**
  Simulation Modeling for Decision Making (3+0)
  The concepts of computer simulation, probability distributions, modeling principles, and the language STELLA from basics to experiencing modeling a reasonably complex open system and making conclusions about the system. (Prerequisites: BA 101 or equivalent, ECON 227, MATH 162, ACCT 102, and BA 360 is recommended.)

- **BA 423 3 Credits Fall**
  Investment Management (3+0)
  Principles of investing in marketable securities from the individual’s perspective, the determination of value, analysis of growth, technical analysis, and portfolio management. Materials fee: $10.00. (Prerequisite: BA 325 or equivalent.)

- **BA 425 3 Credits Spring**
  Advanced Corporate Financial Problems (3+0)
  A consideration of corporate financial problems, planning and controls, and major functions performed by corporate financial managers. (Prerequisite: BA 325.)

- **BA 430 2 Credits Fall**
  Current Topics in Finance (3+0)
  An in-depth consideration of sophisticated and specialized applications of financial management principles. The topics covered will be those most timely to the Alaskan economy. Materials fee: $20.00. (Prerequisites: BA 325.)

- **BA 436 3 Credits Spring**
  Consumer Behavior (3+0)
  Examination of the complex system of communication in marketing. The role of culture and its effects on product discrimination. Social class, personality, symbolism, and persuasion are studied from the marketing manager’s point of view. The analysis is extended to the organizational influences on corporate buyers and the impact of buyer behavior on the strategy and tactics of marketing management. (Prerequisites: BA 343, ECON 226 and 227.)

- **BA 441 3 Credits Spring**
  Promotion Management (3+0)
  An examination of the areas of advertising, publicity, sales management, sales promotion, and the interrelationships necessary for effective promotions. (Prerequisite: BA 343.)

- **BA 443 3 Credits Spring**
  International Marketing (3+0)
  There are significant changes occurring in the world with respect to trade. Thus, comparisons of foreign markets with domestic markets are required. If the market is attractive, then it can be enlarged via direct export, direct investment, or joint ventures. All three methods will be examined. The problems of foreign pricing, communications, distribution, and advertising will also be viewed in terms of marketing management and research. (Prerequisite: BA 343.)

- **BA 444 3 Credits Fall**
  Marketing Research (3+0)
  To familiarize students with the basic processes and tools of marketing research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Students will apply techniques of data-gathering and analysis to a marketing problem. (Prerequisites: BA 343 and 430.)

- **BA 447 3 Credits Spring**
  Compensation Management (3+0)
  Theory and practice of wage and salary, benefits and risk management. Course focuses upon the planning, administration, auditing, adjusting and budgeting for compensation and risk. (Prerequisites: BA 301, 307 and 327.)

- **BA 453 3 Credits Fall and Spring**
  Internship in Business Administration (3+0)
  A supervised practical work experience designed to provide students with a meaningful external involvement in their major discipline. Admission dependent upon completion of satisfactory sponsorship arrangements and permission of the instructor. (Prerequisite: Senior standing and permission of instructor.)

- **BA 456 3 Credits Spring**
  Small Business Management (3+0)
  The course focuses on the operations and special problems of the small business with emphasis on both existing firms and new ventures. Subjects to be covered include starting new businesses, buying going concerns, acquiring and operating franchises, establishing lines of credit, management, legal matters, profit planning, pricing, inventory levels, record systems, tax regulations, and employee supervision. Materials fee: $20.00. (Prerequisites: Completion of all 300 level Business Administration, Accounting and Economics common body of knowledge requirements and senior standing in the School of Management.)

- **BA 457 3 Credits Spring**
  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 301, 307 and 317.)

- **BA 460 3 Credits Fall**
  International Business (3+0)
  An analysis of the relationships among nations with particular emphasis on the business, economic and social cultural institutions that influence the performance of managers. Formulation of objectives, strategies, and organizational structures within the context of international diversity will be addressed. (Prerequisite: senior standing. All 300 level requirements completed.)

- **BA 461 3 Credits Spring**
  International Finance (3+0)
  A study of the financing of foreign investment projects including foreign capital markets, financing exports, hedging foreign exchange risks, and capital budgeting in an international setting. (Prerequisites: BA 325.)
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<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 462</td>
<td>3</td>
<td>Fall and Spring  Administrative Policy (3+0)</td>
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<tr>
<td>BA 465</td>
<td>3</td>
<td>Alternate Spring  Tourism Destination Planning and Development (3+0)</td>
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<tr>
<td>BA 471</td>
<td>3</td>
<td>Alternate Spring  Tourism Seminar (3+0)</td>
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<tr>
<td>BA 475</td>
<td>3</td>
<td>As Demand Warrants  Transportation and Logistics (3+0)</td>
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<tr>
<td>BA 483</td>
<td>3</td>
<td>Spring  Marketing Management (3+0)</td>
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<tr>
<td>BA 603</td>
<td>3</td>
<td>Fall  Processes of Management (3+0)</td>
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<td>BA 604</td>
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<td>Spring  The Legal Environment of Business (3+0)</td>
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<td>BA 605</td>
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<td>Fall  Management Information Systems (3+0)</td>
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<td>BA 606</td>
<td>3</td>
<td>Spring  Quantitative Analysis (3+40)</td>
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<td>BA 625</td>
<td>3</td>
<td>Spring  Financial Management (3+0)</td>
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<td>BA 643</td>
<td>3</td>
<td>Fall  Marketing Management (3+0)</td>
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<td>BA 651</td>
<td>3</td>
<td>Spring  Organizational Theory and Behavior (3+0)</td>
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<tr>
<td>BA 661</td>
<td>3</td>
<td>As Demand Warrants  Human Resources Management (3+0)</td>
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<tr>
<td>BA 680</td>
<td>3</td>
<td>Fall  Seminar in Finance (3+0)</td>
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<tr>
<td>BA 683</td>
<td>3</td>
<td>Spring  Seminar in Marketing (3+0)</td>
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<td>BA 684</td>
<td>3</td>
<td>Fall  Production and Operations Management (3+0)</td>
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<td>BA 690</td>
<td>3</td>
<td>Spring  Administrative Policy (3+0)</td>
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<td>BA 691</td>
<td>3</td>
<td>Fall  Research Design and Methods (3+0)</td>
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**Chemistry**

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<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 075</td>
<td>3</td>
<td>As Demand Warrants  Introduction to Chemical Sciences (3+4)</td>
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<tr>
<td>CHEM 103</td>
<td>4</td>
<td>Fall  Basic General Chemistry (3+3)</td>
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<tr>
<td>CHEM 104</td>
<td>4</td>
<td>Spring  Beginnings in Biochemistry: A Survey of Organic Chemistry (3+0)</td>
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<tr>
<td>CHEM 105</td>
<td>4</td>
<td>Fall and Spring  General Chemistry (3+3)</td>
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<tr>
<td>CHEM 106</td>
<td>4</td>
<td>Fall and Spring  Organic Chemistry and the Modern World (3+3)</td>
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<td>CHEM 202</td>
<td>3</td>
<td>Spring  Inorganic Chemistry (3+3)</td>
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<tr>
<td>CHEM 212</td>
<td>3</td>
<td>Fall  Chemical Equilibrium and Analysis (3+0)</td>
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<td>CHEM 213</td>
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<td>Fall  Quantitative Analysis Laboratory (0+3)</td>
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<td>CHEM 321</td>
<td>3</td>
<td>Fall and Spring  Organometallic Chemistry (3+0)</td>
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<tr>
<td>CHEM 322</td>
<td>3</td>
<td>Fall and Spring  Organic Chemistry (3+0)</td>
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<td>CHEM 324</td>
<td>3</td>
<td>Fall and Spring  Physical Chemistry (3+0)</td>
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<tr>
<td>CHEM 331</td>
<td>3</td>
<td>Fall  Inorganic Chemistry (3+0)</td>
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<tr>
<td>CHEM 332</td>
<td>3</td>
<td>Spring  Biochemistry (3+0)</td>
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<tr>
<td>CHEM 333</td>
<td>3</td>
<td>Fall  Physical Chemistry (3+0)</td>
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<tr>
<td>CHEM 334</td>
<td>3</td>
<td>Spring  Physical Chemistry (3+0)</td>
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An in-depth survey of modern inorganic chemistry with application of physical chemistry to the study of the elements and their compounds. Major emphasis is on bonding, periodic properties and coordination chemistry. (Prerequisite or corequisite: CHEM 332.)
CHEM 412  3 Credits  Fall
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.)

CHEM 423  3 Credits  Spring
Analytical Instrumental Laboratory (1+6) n
An analytical chemistry laboratory emphasizing quantitative instrumental measurements with atomic and molecular absorption spectrometry, gas and liquid chromatography and potentiometry. $15.00. (Prerequisite: CHEM 212, Corequisite CHEM 331, 412.)

CHEM 433  3 Credits  Fall and Spring
Physical Instrumental Laboratory (1+6) n
A physical chemistry laboratory emphasizing quantitative instrumental measurements: calorimetry, conductance, polarimetry, IR, NMR, x-ray, and Raman spectroscopy. Laboratory fee: $15.00. (Prerequisite: CHEM 433.)

CHEM 445  4 Credits  Fall
Molecular Evolution (3+3)
The study of structure, function and evolution of hereditary molecules (nucleic acids). (Same as BIOL 445.)

CHEM 451  3 Credits  Fall
General Biochemistry (3+0)
Chemistry of biomolecules with emphasis on the bioenergetics and control of metabolic pathways via regulation of specific enzymes. (Prerequisites: CHEM 322; CHEM 331 and 322 recommended or permission of the instructor.)

CHEM 452  3 Credits  Spring
Biochemistry Laboratory (1+6)
An introduction to the 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 451.)

CHEM 602  3 Credits  Alternate Fall
Advanced Inorganic Chemistry (3+0)

CHEM 606  3 Credits  Alternate Fall
Atmospheric Chemistry (3+0)

CHEM 612  3 Credits  Alternate Fall
Advanced Analytical Chemistry (3+0)

CHEM 621  3 Credits  Alternate Fall
Enzymology and Bio-Organic Chemistry (3+0)

CHEM 622  3 Credits  Alternate Fall
Advanced Organic Chemistry II (3+0)

CHEM 631  3 Credits  Alternate Spring
Advanced Physical Chemistry (3+0)

CHEM 632  3 Credits  Alternate Spring
Molecular Spectroscopy (3+0)

CHEM 652  3 Credits  Alternate Spring
Advanced Biochemistry (3+0)

CHEM 653  3 Credits  Alternate Fall
Prokaryotic Molecular Biology (3+0)

CHEM 654  3 Credits  Alternate Spring
Protein Structure and Function (3+0)

CHEM 660  3 Credits  Spring
Chemical Oceanography (3+0)
(Same as MSL 660)

CHEM 662  3 Credits  Alternate Spring
Biochemical and Molecular Biology Research Techniques (0+3)

CHEM 673  3 Credits  Alternate Spring
Bioenergetics (3+0)

CHEM 688  0-1 Credits  Alternate Spring
Biochemical and Molecular Biology Seminar (1+0)

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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) 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, 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) h
Continuation of Chinese I. Increasing emphasis on reading ability and culture material. Conducted in Chinese. (Prerequisite: CHNS 102 or equivalent.)

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Civil Engineering

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. (Prerequisites: MATH 106.)

CE 326  4 Credits  Fall and Spring
Introduction to Geotechnical Engineering (3+3)
Introduction to the 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, ES 341, CE 336 or permission of the instructor.)

CE 334  3 Credits  Fall
Properties of Materials (2+3)
Introduction to the properties of engineering materials. Bonding, crystal, and amorphous structures. Relationships between microstructure and engineering properties. Modification of properties and environmental serviceability. Concrete and asphalt mixes. Laboratory fee: $10.00. (Corequisite: ES 331.)

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 and Spring
EIT Exam
Complete the EIT application and take the State of Alaska Engineering-In-Training Exam in the same semester of course registration. (Prerequisites: CE Junior standing or permission of instructor.)

CE 402  3 Credits  Fall
Introduction to Transportation Engineering (3+0)
Introduction to fundamentals of transportation engineering. Transportation systems, planning, design parameters, demand and mode specific consideration. Laboratory fee: $10.00. (Prerequisites: CE Junior standing or permission of instructor.)

CE 403  3 Credits  Fall
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)
Elementary study of aerial and terrestrial photography as applied to surveying and mapping. Flight planning and ground control. Analytical analysis of photographs by computer. Kelsh Plotter and other related equipment will be used. (Prerequisite: permission of the instructor. Next offered: 1991-92.)
CE 415  3 Credits  Fall
Advanced Surveying (2+3)
Aim: to develop microprocessor methods. Route surveying, including horizontal and vertical curves, spirals, crossing, and earthwork. Reduction of electronic distance measurements. Alaska State Plane Coordinate System. Several topics in new (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. Both metes and bounds descriptions and platted subdivisions are considered. (Prerequisite: CE 112 or permission of the instructor.)

CE 422  3 Credits  Spring
Foundation Engineering (3+0)
Principles of foundation design, ultimate bearing capacity of soils and effects of settlements on structure, design of footings and rafts, design of pile and pier foundations, retaining walls and anchored bulkheads, and current practice. Foundations on frozen soils, and construction problems in foundation engineering. (Prerequisite: CE 236, ES 301.)

CE 425  3 Credits  Fall
Advanced Soil Mechanics (2+3)
Soil formation, identification and classification, physical and mechanical properties of soil, seepage, drainage and frost action, subsisitigation, bearing capacity of soils, and lateral earth pressures and stability of slopes. Laboratory fee: $20.00. (Prerequisite: 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 resultants, shear and moment diagrams, deflections, internal stresses. Influence lines and criteria for moving loads. Indeterminate analysis to include methods of consistent deflections, slope deflection and moment distribution. Introduction to matrix methods. (Prerequisite: CE 334, ES 331.)

CE 432  3 Credits  Fall
Structural Engineering II (2+3)
The concepts of analysis/design will be examined for structural systems using advanced methods of structural analysis and computational techniques. The effects of material behavior, and modes of failure (building, bending, shear, connections) on design decisions will be examined. (Prerequisite: CE 431.)

CE 433  3 Credits  Fall
Reinforced Concrete Design (2+3)
Analysis and design of reinforced concrete components. 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.)

CE 434  3 Credits  Spring
Timber Design (2+3)
Essentials of structural design in timber. Design of basic components of solid and laminated timber, connections, arches, pole framing, diaphragms, stressed-skin construction, and timber shells. (Prerequisite: CE 331 and CE 431.)

CE 436  3 Credits  Spring
Structural Steel Design (2+3)
Analysis and design of structural steel components. 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.)

CE 438  3 Credits  Spring
Design of Engineered Systems (3+0)
Introduction to 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 semester of civil engineering B.S. program.)

CE 441  4 Credits  Spring
Environmental Engineering (3+3)
Introduction to fundamentals of environmental engineering including theory and application of water and wastewater engineering practice. Conservation, quality, treatment, and distribution of water supply. Water quality characterization, plant design, operation, and disposal. Introductory information on solid waste management and air pollution control. Laboratory fee: $10.00. (Prerequisite: CE 341 or permission of instructor.)

CE 442  3 Credits  Fall
Environmental Engineering II (3+0)
Advanced topics in environmental engineering. Each of the following subjects will be allocated about an equal portion of time for topic coverage. 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. (Prerequisite: CE 441 and junior CE standing.)

CE 445  3 Credits  Alternate Spring
Engineering Hydrology (2+3)
Engineering hydrology, design and analysis; extended coverage of hydrologic concepts from CE 344. Precipitation, evaporation analysis; groundwater hydraulics; runoff analysis and prediction; statistical hydrology; application of simulation models. (Prerequisite: CE 344.)

CE 446  3 Credits  Alternate Spring
Hydraulic Engineering (2+3)
Hydraulic design and analysis. Review of principles of fluid mechanics. Pipe network modeling, hydraulic systems (pumps and turbines), steady and unsteady flow in open channels, hydraulic structures, similitude. (Prerequisite: CE 344.)

CE 470  1 Credit  Fall and Spring
Civil Engineering Internship (0+3)
Designed to give students the opportunity to investigate the practical workings of engineering organizations. Assignments individually arranged with cooperating organizations and agencies. (Prerequisites: CE 344.)

CE 471  3 Credits  Fall Spring
Arctic Engineering (3+0)

CE 472  3 Credits  Alternate Spring
Pavement Design (3+0)

CE 477  3 Credits  Alternate Fall
Control Surveys (3+0)

CE 479  3 Credits  Alternate Spring
Civil Engineering Construction (3+0)

CE 481  3 Credits  Alternate Fall
Foundations and Retaining Structures (3+0)

CE 495  3 Credits  Alternate Fall
Soil Stabilization (3+0)

CE 496  3 Credits  Alternate Fall
Applications in Geotechnical Engineering (3+0)

CE 527  3 Credits  Spring
Earthquake Engineering I (3+0)

CE 530  3 Credits  Fall
Advanced Structural Analysis (3+0)

CE 531  3 Credits  Alternate Fall
Advanced Structural Design (3+0)

CE 537  3 Credits  Fall
Earthquake Engineering II (3+0)

CE 541  3 Credits  Alternate Fall
Advanced Water Resources Engineering (3+0)

CE 562  3 Credits  Alternate Spring
Open Channel and River Engineering (3+0)

CE 563  3 Credits  Alternate Spring
Groundwater Dynamics (3+0)

CE 576  3 Credits  Alternate Fall
Coastal Engineering (3+0)

CE 581  3 Credits  Alternate Spring
Frozen Ground Engineering (3+0)

CE 582  3 Credits  Alternate Fall
Ice Engineering (3+0)

CE 583  3 Credits  Alternate Fall
Arctic Hydrology and Hydraulic Engineering (3+0)

CE 584  3 Credits  Alternate Years
Arctic Utility Distribution (3+0)

CE 585  3 Credits  Alternate Spring
Topics in Frozen Ground Engineering (3+0)
College Student Personnel Administration

CSP 651  3 Credits  As Demand Warrants
Current Issues in Student Personnel Administration (3+4)

CSP 655  3 Credits  As Demand Warrants
Practicum in Student Personnel Administration (1+6)

CSP 665  3 Credits  As Demand Warrants
Practicum in Counseling: Higher Education/Agency (0+4)
(Same as COUN 665.)

Community Health Aide/Practitioner

CHP 082  1-3 Credit  As Demand Warrants
Community Health Aide Pre-session I
Assists the newly employed community health aide to function in the village clinic until rotation/or the entire session I. Introductory course in patient evaluation, use of the manual, reporting patients, medicines and lab tests are included. An introduction to emergency care is included if students have not had Emergency Trauma Training. (Prerequisite: Employee relative seriousness corporation as a Community Health Aide or permission of instructor.)

CHP 110  4 Credits  As Demand Warrants
Community Health Aide, Session I
This session focuses on a 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 female 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.)

CHP 111  3-4 Credits  As Demand Warrants
Community Health Aide, Session II
Session II material is reviewed and reinforced, especially patient evaluation, skills and emergency care. This session focuses on prevention, especially the child-bearing cycle, prenatal care, family planning, gynecology/obstetrics, well-child care, and adolescence. Topics of pediatrics include cardiovascular problems, nutrition, health education, health surveillance and promotion, environmental health, mental health, and health care. Upon completion, the CHA is prepared to conduct basic prenatal and well-child exams, recognize and manage most minor health problems seen in these areas and make appropriate referrals as necessary. Lab skills and clinical training time are scheduled fifty percent of the time. (Prerequisite: CHP 110.)

CHP 112  3-4 Credits  As Demand Warrants
Community Health Aide, Session III
Session III material is reviewed and reinforced, especially patient evaluation, skills, emergency care, prenatal and well-child care. Additional topics include chronic patient care, dental care, sexually transmitted diseases, health 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 female diseases, health surveillance and promotion, mental health and substance abuse. Lab skills and clinical training time are scheduled fifty percent of the time. (Prerequisite: CHP 111.)

CHP 113  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 health aide 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 110.)

CHP 114  2 Credits  As Demand Warrants
Community Health Aide Preceptorship
Students practice direct patient care, including history taking, physical exams, patient education and patient plan. Students receive 30 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 Child Health, etc. (Prerequisite: CHP 112.)

CHP 202  1-3 Credits  As Demand Warrants
Emergency Care for Community Health Practitioners
Will learn to evaluate and respond to a wide variety of emergency situations that may arise in the village setting. Included among skills to be learned are emergency assessment and treatment, administration of intravenous fluids, application of splints, bandages and transportation of the injured. (Prerequisite: CHP 110.)

CHP 203  1-3 Credits  As Demand Warrants
Clinical Update for Community Health Practitioners
Review, update and reinforce the knowledge and skills that were taught in CHP 110, 111 and 112. The major 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 110.)

CHP 206  1-3 Credits  As Demand Warrants
Mental Health and Substance Abuse
Designed to teach listening skills, drug therapy and family dynamics to the CHPs involved with both crisis intervention, long-term care and in the area of mental health, and substance abuse. Information will be provided on how mentally ill patient, the substance abuser, the co-dependent, and prevention activities for the village. (Prerequisite: CHP 110.)

CHP 207  1-3 Credits  As Demand Warrants
Maternal and Infant Health
Review of the anatomy of the reproductive system, family planning, nutrition, emergency delivery, post-partum care for mother and baby, and well-child evaluations and immunizations. (Prerequisite: CHP 110.)

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. Skills taught include male and female genitalia exam, pelvic exam, pap smear, gonorrhea culture and chlamydia culture. Prevention and patient education are emphasized. (Prerequisite: CHP 110.)

CHP 211  1-3 Credit  As Demand Warrants
Health Education
Methods and philosophy of health education, use and sources of audiovisual materials, preparing and presenting in a school and community health programs are included. A variety of teaching methods including role playing for individual and group presentations will be used for CHPs to teach their education knowledge and skills. (Prerequisite: CHP 110.)

Computer Applications

CAPS 100  1 Credit  As Demand Warrants
Introduction to Personal Computers (1+0)
An introduction to the personal computer which gives the first time user an overview of the three most popular uses of the personal computer: word processing, data base management and electronic spreadsheet. Students completing this course will have a basic understanding of how the computer works and how they might put it to work. Materials fee: $10.00.

CAPS 102  3 Credits  As Demand Warrants
Programming in BASIC (3+4)
Recommended as a first programming language for non-majors. Training in BASIC language. Students completing this course will have a basic understanding of problem-solving; analysis, flowcharting, testing and debugging and documentation. (Prerequisite: MATH 070 or 105 or equivalent.)

CAPS 103  1-3 Credits  As Demand Warrants
Computer Survey (1+4 to 3+4)
An introduction to the world of computers with an emphasis on microcomputers. Introduces the computer and provides computer terminology and how to use computers as a tool to make work easier and to extend the reach of the mind.
COURSE DESCRIPTIONS—COMPUTER SCIENCE / 131

CAPS 104 3 Credits As Demand Warrants
Introduction to Computer Programming (3+0)
Through readings, homework, computer assignments and computer project assignments, the student will learn the fundamental structure of the computer language PASCAL and be able to write elementary computer programs on the IBM-PC (or compatible) computer. Will also be able to understand what a computer is and how it functions, complex processes and output information. Computer networking will be an integral part of the course. (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 techniques, flowcharting, testing and debugging and documentation. (Prerequisite: Math 070 or 105 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
Programming in PASCAL (3+0)
Through textbook readings, lecture/discussion sessions and nine programming assignments the student will learn the fundamental structure of the computer language PASCAL (up to data types of single dimension arrays) and be able to write elementary computer programs on the University VAXVMNS in PASCAL. (Prerequisite: One computer programming course or equivalent.)

CAPS 110 3 Credits As Demand Warrants
Microcomputer as Learning Tool (3+0)
Concentration on word processing and other software to facilitate education. Telecommunications will be an important part of course. Materials fee: $10.00-$15.00. (Prerequisite: Typing skill required.)

CAPS 111 2 Credits As Demand Warrants
Computer Software for Beginners (2+0)
An absolute beginners class into the world of computers - without writing programs. An overview of computer hardware and software will be presented along with demonstrations and hands-on experience with telecommunications, word-processing, spreadsheets, data base management and tutorial software. IBM-PC, APPLE, and mainframe computers will be used. This is not a lab class; some out-of-class work on computers is expected.

CAPS 120 2 Credits As Demand Warrants
Introduction to LOGO (2+0)
An introduction to programming in LOGO. Topics include: recursion, interactive graphics, primitives, procedures, managing work space, filing, debugging and editing commands.

CAPS 122 1-2 Credits As Demand Warrants
Computer Software Application (1+0 to 2+0)
Provides student with an opportunity to learn to effectively use either spreadsheet or data base management software on a microcomputer. Some of the programs available for use include VISICALC, DBMASTER, APPLEWORKS, LOTUS 1-2-3, dBASE III.

CAPS 124 1 Credit As Demand Warrants
Apple Workshop (1+0)
Fundamentals of Apple computer operations, popular programs and DOS.

CAPS 125 3 Credits As Demand Warrants
Appleworks (3+0)
A beginning course, covering the major issues of the program 'APPLEWORKS' taught on the Apple line. APPLEWORKS has word processing, electronic spreadsheet, and data base capabilities. Materials fee: $10.00-$15.00.

CAPS 130 3 Credits As Demand Warrants
Introduction to BASIC Programming (3+0)
A beginning course in BASIC. Course will cover the arithmetic, logic, graphics, and file statements of Apple's BASIC. Materials fee: $10.00-15.00.

CAPS 135 3 Credit As Demand Warrants
Introduction to LOTUS 1-2-3 (3+0)
An in-depth course presenting spreadsheet concepts using the four major parts of 'LOTUS 1-2-3': worksheets, graphics, databases and macros. Materials fee: $10.00.

CAPS 140 3 Credits As Demand Warrants
Introduction to PASCAL (3+0)
An introduction to programming in PASCAL using Apple microcomputers with UCSD PASCAL.

CAPS 145 1 Credit As Demand Warrants
Introduction to MULTIMATE (1+0)
Course to teach business managers, program administrators, secretaries, office workers and others who require a high level of word processing productivity the preparation and revision of standard or customized business correspondence and reports using a contemporary, versatile software program and microcomputer. Students should bring two (2) double-density 5-1/4 diskettes to class. Materials fee: $10.00.

CAPS 150 3 Credits As Demand Warrants
Computer Business Applications (3+0)
Investigation of several ways to use microcomputers in a business including word processing, spreadsheets, data bases, graphics, project management and telecommunications. Each application will be introduced in class and possible uses in a business environment will be suggested. No previous experience necessary. Materials fee: $10.00.

CAPS 151 2 Credits As Demand Warrants
Introduction to Microcomputers at Home (2+0)
Introduction to home computer usage by typical consumers. Overview of home computers, uses, operations and programs. Does not satisfy certificate or degree requirements.

CAPS 152 2 Credits (2+0)
Programming in Assembly Language (2+0)
A course in programming the 6502 (Apple) computer in ASSEMBLY and MACHINE language. Course will include following topics: assembly coding, registers, stacks, indirect and indexed addressing, logic and arithmetic operations, binary and hexadecimal code.

CAPS 220 2 Credits As Demand Warrants
Microcomputer Graphics (2+0)
Practical techniques for generating computer graphics on the Apple. (Prerequisite: BASIC programming experience and Math 070 or equivalent Algebra II.)

CAPS 221 1-3 Credits As Demand Warrants
Microcomputer Accounting (1-3+0)
This course covers the use of computers to process accounting transactions and provides an understanding of available software packages, microcomputer systems and hardware available in today's market. Computer terminology, system analysis, and actual computer operations in accounting are introduced. (Also see ABUS 221)

Computer Science

CS 101 3 Credits Fall and Spring
Computers and Society (3+0)
A course in computer literacy for everyone. An overview of computing machines and the automatic processing of data. The interaction between social institutions and automated decision making. Some programming, but as a means of understanding the process rather than skill development. Materials fee (Eislein only): $15.00. (Prerequisite: Two years of high school mathematics, including at least one year of algebra.)

CS 103 3 Credits Fall
Introduction to Computer Programming (2+3)
A beginning course in programming for non-majors and for those computer science students who do not have the necessary background for CS 201. Concepts of structured programming and algorithm design are taught with the syntax of the PASCAL language. (Prerequisite: Two years of high school algebra.)

CS 201 3 Credits Fall and Spring
Computer Science I (2+3)
A year sequence providing an introduction to the discipline of computer science including problem solving, algorithm development, structured programming, top-down design, good programming style, concurrent programming, and elementary data structures. Concepts will be implemented with extensive programming experience in a structured language. (Prerequisites: For CS 201: one year high school level programming, ES 201 or CS 103 and mathematics placement at the 200-level. For CS 202: CS 201.)
CS 205 3 Credits Spring
Programming in C (3+0)
An introduction to the C programming language for students who have had some experience with other programming languages such as PAS-
CAL or FORTRAN. (Prerequisite: One year high school programming,
CS 103, CS 201, or ES 201.)

CS 271 3 Credits As Demand Warrants
Scientific Programming in FORTRAN (3+0)
Syntax and principles of the FORTRAN programming language. Ap-
lications to problems in science and engineering including the solution
of linear and non-linear equations, interpolation, numerical integra-
tion, monte-carlo techniques and the use of mathematical subroutine
libraries. (Prerequisites: One semester of calculus and previous pro-
gramming experience or consent of instructor.)

CS 281 3 Credits Fall
Computer Graphics (3+0)
Study of applications, design of graphics software, survey of input and
output devices, two and three dimensional geometric transformations,
curves, and surfaces. (Prerequisites: CS 261, MATH 200, and MATH
210.)

CS 301 3 Credits Fall
Assembly Language Programming (3+0)
Organization of computer registers, I/O, and control. Digital representa-
tion of data. Symbolic coding, instructions, addressing modes, pro-
gram segmentation, linkage, macros, and subroutines. (Prerequisites:
CS 201)

CS 302 3 Credits As Demand Warrants
Systems Programming (3+4)
Advanced assembly language programming including privileged in-
structions and system services. Applications to asynchronous I/O,
process control and communication, device drivers and file manage-
ment. (Prerequisite: CS 301. Next offered: 1991-92.)

CS 311 3 Credits Fall
Data Structures and Algorithms (3+4)
Data structures and the algorithms for their manipulation. Arrays,
tables, stacks, queues, trees, linked lists, sorting, searching, and hash-
ing. (Prerequisites: CS 202)

CS 321 3 Credits Spring
Operating Systems (3+0)
The functions of files and operating systems, review of required archi-
tectural 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 Spring
Programming Languages (3+0)
A study of the syntax and semantics of widely differing programming
languages. Syntax specification, block structure, binding, data struc-
tures, operators, and control structures. Comparison of several lan-
guages such as ALGOL, LISP, SNOBOL, and APL. Programming assign-
ments in each language. (Prerequisite: CS 311)

CS 381 3 Credits Alternate Spring
Advanced Computer Graphics (3+0)
Graphics hardware, display programming, transformations, hidden
line and surface elimination, approximation techniques for curve and
surface representation, and project. (Prerequisites: CS 281 and MATH
314. Next offered: 1990-91.)

CS 401 3 Credits Alternate Fall
Software Engineering (3+0)
Software design as an engineering discipline. Project planning, propos-
al writing, and management. Program design, verification, and docu-
mentation. Additional topics from object oriented design, real time
design, and validation. (Prerequisites: CS 311 and CS 321. Next offered:
1991-92.)

CS 402 3 Credits Spring
Senior Project and Professional Practice (3+0)
Students will work on group projects in a simulated computer industry
environment and produce appropriate documentation. The nature, ethics,
and legal considerations of the computer science profession will be dis-
cussed. Additional topics will be selected from project management, design
methodologies, technical presentation, human-machine interface and programming
team interactions as appropriate to the projects. (Prerequisites: CS 311,
CS 321 and Senior standing.)

CS 405 3 Credits Alternate Fall
Introduction to Expert Systems (3+0)
Introduction to expert systems, problem selection, knowledge acqui-
sition, knowledge representation, knowledge processing, expert sys-
tem shells, and validation and evaluation of expert systems. Case study
of existing expert systems. Individual projects to develop an expert
system are required. Materials fee: $10.00. (Prerequisite: CS 311 or
permission of the instructor. Next offered: 1990-91.)

CS 411 3 Credits Spring
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). CCG, Diphantine equa-
tions, systems (solving, sorting, and theory (recursion, Turing
machines). (Prerequisites: MATH 307, CS 311)

CS 421 3 Credits As Demand Warrants
Operating System Implementation (3+0)
Detail study of operating system functions and associated imple-
mentation 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 evalu-
ation of operating system segments as projects. (Prerequisite: CS 321.
Next offered: Spring 1991.)

CS 425 3 Credits Alternate Fall
Data Base System (3+0)
Data independence, relationships, and organization. Hierarchical, net-
work, and relational data models; canonical schema. Data description
languages, query facilities, relational calculus. File organization and
security, index organization, data integrity and reliability. (Prerequi-
sites: CS 311, CS 321. Next offered: 1990-91.)

CS 431 3 Credits As Demand Warrants
Programming Language Implementation (3+0)
Design and implementation of the major phases of modern high level
language translators including scanning, parsing, translation, code
generation and optimization. Students will develop a compiler for a
high level programming language in a group project which emphasizes
good software engineering practices in structured design, testing and
documentation. (Prerequisite: CS 331. Next offered: Spring 1992.)

CS 442 3 Credits Alternate Fall
Computer Communication and Networks (3+0)
Review of communication terminology, baud rates, band width, noise,
and error detection. Distributed processing and local and global net-
works. Interfacing problems, security, and reliability. Networks, ring
vs. spoke linkage, packet switching, and path optimization. Examples:
The ARPA net, Airline reservation systems. (Prerequisite: CS 321.
Next offered: 1990-91.)

CS 448 3 Credits Alternate Fall
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 communica-
tions, and networks. (Prerequisites: EE 342, CS 321. Next offered: 1990-91.)

CS 451 3 Credits Alternate Fall
Automata and Formal Languages (3+0)
Finite automata, regular languages, finite transducers, context free
languages, push down automata, parsing algorithms, deterministic con-
text free languages, recursive and recursively enumerable languages,
decision procedures, and undecidability. (Prerequisites: MATH 307,

CS 480 1-3 Credits As Demand Warrants
Student Internship
Students will work on a mainstream computer science project under
the joint direction of a faculty member and participating industry or
governmental agency. (Prerequisite: Participation in internship pro-
gram. Next offered: Fall 1990.)

CS 505 3 Credits As Demand Warrants
Artificial Intelligence (3+0)

CS 511 3 Credits Fall
Complexity of Algorithms (3+0)

CS 621 3 Credits As Demand Warrants
Advanced Systems Programming (3+0)

CS 622 3 Credits As Demand Warrants
Performance Evaluation (3+0)

CS 631 3 Credits Fall
Programming Language Implementation (3+0)

CS 641 3 Credits Spring
Advanced Systems Architecture (3+0)
COURSE DESCRIPTIONS—CULINARY ARTS / 133

Culinary Arts

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAH 105</td>
<td>3</td>
<td>Fall</td>
<td>Principles of Food Service I (3+0)</td>
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<tr>
<td></td>
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<td>Spring</td>
<td>Introduction to food service and the principle variations which students may encounter within the industry: professional standards, kitchen safety, first aid, storeroom operation, kitchen equipment and basic culinary terminology.</td>
</tr>
<tr>
<td>CAH 116</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Beginning Cake Decorating I (1+0)</td>
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<td>Introduction to the proper baking and icing of cakes. Topics include basic borders, buttercreme flowers, and leaves. Students will decorate a minimum of three cakes. Materials fee: $15.00.</td>
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<tr>
<td>CAH 117</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Intermediate Cake Decorating (1+0)</td>
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<td>A course designed for the more advanced cake decorator. Advanced methods such as pattern transfer, flowers and borders, water paper and chocolate on cakes for decoration, and flow in techniques will be covered. Class will decorate a minimum of three cakes. Materials fee: $15.00.</td>
</tr>
<tr>
<td>CAH 140</td>
<td>6</td>
<td>Fall</td>
<td>Principles of Cooking (6+0)</td>
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<tr>
<td></td>
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<td>Spring</td>
<td>Course gives the student an opportunity to learn basic food service skills in a commercial kitchen environment. Use of standardized recipes and procedures will be stressed. End product will be critiqued on a daily basis. Student assignments will rotate between a stock and soup station, vegetable station, pantry, and service line and grill. Emphasis will be on sanitary food handling practices and the development of professional work habits. Uniform cleaning fee: $105.00.</td>
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<tr>
<td>CAH 141</td>
<td>6</td>
<td>Fall</td>
<td>Food Production I (6+0)</td>
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<td></td>
<td>Spring</td>
<td>Continuation of CAH 140 with emphasis on preparation and use of small sauces, sautéing, roasting, braising, stewing and browning. Salad bar preparation and grill service will also be covered. Uniform cleaning fee: $105.00.</td>
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<tr>
<td>CAH 145</td>
<td>6</td>
<td>Fall</td>
<td>Principles of Baking (6+0)</td>
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<td></td>
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<td>Spring</td>
<td>Students will be taught basic commercial baking skills and procedures. Class will include lectures, demonstrations and hands-on activities. The use of standardized recipes and procedures will be stressed. End product will be critiqued on a daily basis. Emphasis will be on sanitary food handling, practices and the development of professional work habits. Uniform cleaning fee: $105.00.</td>
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<tr>
<td>CAH 146</td>
<td>6</td>
<td>Fall</td>
<td>Bakery Production I (6+0)</td>
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<td></td>
<td></td>
<td>Spring</td>
<td>Continuation of CAH 145 with emphasis on Danish and French pastries, combination breads, tortes and fancy dessert items. Uniform cleaning fee: $105.00.</td>
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<tr>
<td>CAH 150</td>
<td>1</td>
<td>Fall</td>
<td>Sanitation (1+0)</td>
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<td>Spring</td>
<td>Course will provide an understanding of sanitation principles essential to commercial kitchen personnel. Successful completion of the course will allow the student to receive certification by the National Institute for the Food Service Industry.</td>
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<tr>
<td>CAH 152</td>
<td>2</td>
<td>Fall</td>
<td>Supervisory Development (2+0)</td>
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<td>Spring</td>
<td>Introduction to the problems and challenges that food service supervisors deal with every day. Course will emphasize development of personnel management methods.</td>
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<tr>
<td>CAH 154</td>
<td>2</td>
<td>Fall</td>
<td>Dining Room Service (2+0)</td>
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<td>Spring</td>
<td>Introduction to American style table service. Students will participate in dining room service, management, controls and methods.</td>
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<tr>
<td>CAH 160</td>
<td>2</td>
<td>Fall</td>
<td>Principles of Nutrition (2+0)</td>
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<td>Spring</td>
<td>An introduction to the basic principles of nutrition with emphasis on nutrients and their function in relation to human health.</td>
</tr>
<tr>
<td>CAH 161</td>
<td>1</td>
<td>Fall</td>
<td>Pastry Tube Art (.5+1)</td>
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<tr>
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<td></td>
<td>Students work with basic cake and food product techniques including borders, flowers, cake designing, and proper use of pastry tube bags. Students will decorate two cakes and assorted fruit and vegetable items.</td>
</tr>
</tbody>
</table>

Cross Cultural Communication

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCC 104</td>
<td>3</td>
<td>Fall</td>
<td>University Communications (3+0)</td>
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<tr>
<td></td>
<td></td>
<td>Spring</td>
<td>(Same as DEV 104)</td>
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<td>Designed to introduce communication skills that are characteristic of university contexts (e.g., taking notes from lectures) and to address cultural differences between rural students and the university community. Links with selected lecture course. (Prerequisite: Referral from Rural Student Services.)</td>
</tr>
<tr>
<td>CCC 105</td>
<td>3</td>
<td>Fall</td>
<td>Intensive Reading Development (3+0)</td>
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<td></td>
<td></td>
<td>Spring</td>
<td>(Same as DEV 105)</td>
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<td>Develops and refines vocabulary, comprehension, and critical reading at the college level. Students develop appropriate strategies for reading a variety of texts and composing essays in relation to them. (Prerequisite: Referral from Rural Student Services.)</td>
</tr>
<tr>
<td>CCC 106</td>
<td>3</td>
<td>Fall</td>
<td>Intensive Writing Development (3+0)</td>
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<td>Spring</td>
<td>Emphasizes differences between speaking and writing, focusing on rhetorical patterns and style appropriate for formal writing in a university context. Prepares students for English 111. (Prerequisite: Referral from Rural Student Services.)</td>
</tr>
</tbody>
</table>
Cah 170 2 Credits Fall and 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 and Spring
Gourmet Baking (2+0)
Students will prepare a wide range of breads, pastries, fancy desserts,
French pastry, and simple tortes. Recipes will represent traditional
methods of baking along with current trends in home entertainment.
Materials fee: $45.00.
Cah 199 1-12 Credits Summer
Culinary Arts Work Study Internship
Students work in a variety of food service operations, learning current
cooking methods and techniques. Students are evaluated by the
management, including the coordinator and the employer. Enrollment by special permission only.
Cah 242 4 Credits Fall and Spring
Food Production II (4+0)
Continuation of CAH 140 with emphasis on a la carte and production
cooking. Students will prepare foods on the Advance 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 140.)
Cah 243 4 Credits Fall and Spring
Food Production III (4+0)
Continuation of CAH 242 with emphasis on international and new
trend American cooking. The role of the Gather Manager in the modern kitchen will also be explored. Uniform cleaning fee:
$105.00. (Prerequisite: CAH 242 or permission of instructor.)
Cah 244 4 Credits Fall and Spring
Bakery Production II (4+0)
Continuation of CAH 146 with emphasis on specialty breads, desserts,
cakes, tortes, and French pastries. Ability to plan and organize production,
schedule, and supervise other students will be emphasized. Uniform
cleaning fee: $105.00. (Prerequisite: CAH 146 or permission of instructor.)
Cah 245 4 Credits Fall and Spring
Bakery Production III (4+0)
Continuation of CAH 244 with emphasis on pastry buffet. Students will
produce artistic centerpieces, decorated tortes, sand cakes, assorted
French pastries, assorted petits fours, and assorted candies. Uniform
cleaning fee: $105.00. (Prerequisite: CAH 244 or permission of instructor.)
Cah 250 2 Credits As Demand Warrants
Gather Manager (2+0)
A course designed to give the student a hands-on experience in buffet
presentation of hot and cold foods. Students will produce platters,
mountain, fondues, aspics, and other items essential to culinary
expertise. Materials fee: $10.00.
Cah 253 2 Credits As Demand Warrants
Storeroom Purchasing and Receiving (2+0)
Introduction to formal and informal methods of purchasing, receiving,
and storing of food and nonfood items in food service operations.
Specifications, purchasing systems, and controls will be emphasized.
Cah 255 2 Credits As Demand Warrants
Food Service Management (2+0)
Study of the management team’s responsibility in the food service
operation. Students will 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)
An introduction to the study and evaluation of the wines of France,
Germany, Italy, and the California wine producing areas. Focus will be
on ‘point of sale’ approach for first level serving staff. Special attention
is given to selection 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 will be on preparing the new
summer menu. Special attention is given to building the cellar and
developing the wine list in the restaurants. Materials fee: $37.50. (Prerequisite:
CAH 257 or permission of instructor.)
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 in all three modules. These modules may be taken for elective credit.

The open entry/open exit lab block is designed to provide students with the opportunity to recognize and use resources available to ensure 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 in all three modules. These modules may be taken for elective credit.

**English**

**DEV 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.

**DEV 066**  1-3 Credits  Fall and Spring

English Skills Laboratory (0+3-9)

The open entry/open exit lab block is designed to provide students with individualized instruction where language building is needed. The lab is composed of three modules (spelling/vocabulary, writing, and grammar usage). It is not necessary for a student to enroll in all three modules. These modules may be taken for elective credit only, may not be used to fulfill written communication or humanities degree requirements and may be repeated as necessary.

**DEV 070**  3 Credits  As Demand Warrants

Preparatory College English (3+0)

Instruction in writing to improve students' fluency and accuracy, so they will be able to communicate ideas and information clearly and will be prepared to take ENGL 111. Placement by examination or student desire to enroll. Materials fee: $5.00.

**Mathematics**

**DEV 050**  3 Credits  As Demand Warrants

Basic College Mathematics (3+0)

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 will also be studied. Also available via Independent Learning.

**DEV 052**  3 Credits  Fall and Spring

Alternative Approaches to Math: Basic College Math (3+0)

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.)

**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. Also available via Independent Learning. (Prerequisite: DEV 050 or placement.)

**DEV 061**  1 Credit  Independent Learning Only

Review of Elementary Algebra

Designed to assist students in reviewing material covered by DEV 060. Individuals who have not previously taken an elementary algebra course are recommended to enroll in DEV 060. DEV 062 is a continuation of DEV 061.

**DEV 065**  1-3 Credits  As Demand Warrants

Mathematics Lab (0+3-9)

This course is an individual tutorial lab. Course 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. Also available via Independent Learning. (Prerequisite: DEV 060 or placement.)

**DEV 071**  1 Credit  Independent Learning Only

Review of Intermediate Algebra

Course reviews material covered in DEV 070. Individuals who have not taken an intermediate algebra course on the high-school level are recommended to enroll in DEV 070.

**DEV 072**  3 Credits  Fall

Alternative Approaches to Math: Intermediate Algebra (3+0)

Intermediate algebra: exponents, radicals, graphing, systems of equations, quadratic equations, inequalities, complex numbers, using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEV 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**Diesel Technology**

**DSL 150**  7 Credits  As Demand Warrants

Diesel Mechanics I (7+4)

Course covers 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 152**  7 Credits  As Demand Warrants

Diesel Mechanics II (7+4)

A continuation of DSL 150. Topics include air intake systems, exhaust systems, lube systems, cooling systems, and fuel systems. Materials fee: $125.00. (Prerequisite: DSL 150.)

**Drafting Technology**

**DRT 100**  1 Credit  As Demand Warrants

Introduction to Drafting Concepts (1+0)

An overview of the principles of architectural, civil and industrial drafting.

**DRT 101**  4 Credits  As Demand Warrants

Beginning Drafting I (4+4)

A beginning course designed to build skill and knowledge in 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+4)

An advanced course in drafting involving practice and skill development in geometric construction, sketching, orthographics and dimensioning, sections, auxiliaries and work on 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+4)

A course to teach the reading and interpretation of two and three dimensional blueprints of residential, light commercial and heavy commercial structures using conventional symbols and representations.

**DRT 123**  3 Credits  As Demand Warrants

Uniform Building Code (3+0)

This course will cover the minimum required construction standards as described in the display Uniform Building Code. The course teaches the proper use of local zoning ordinances and the Uniform Building Code as comprehensive building guides and explains their principle aspects as applied to various building types and trades. This course 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.)
Early Childhood Development (SCCE)

(Also see "Early Childhood Education" (ECDD) for non-Fairbanks courses.)

**ECHD 100 3 Credits As Demand Warrants**
Introduction to Early Childhood (3+0)
An introductory course in the care and education of young children. The needs and skills of young children will be determined. The skills needed by child care workers will be presented. LABS ARRANGED.

**ECHD 105 3 Credits As Demand Warrants**
Survey Programs/Young Child (3+0)
Students observe and contrast past and present programs in the community and formulate their own personal philosophy of early childhood education and child care.

**ECHD 110 1 Credit As Demand Warrants**
Practical Paths to Discipline & Guidance (1+0)
Practical techniques for guidance and discipline of 2-6 year old children.

**ECHD 120 3 Credits As Demand Warrants**
Nutrition, Health and Safety (3+0)
This course is designed for parents, care-givers and teachers of young children. It focuses on common illnesses and preventive health care, nutritional needs and safety aspects of rearing and teaching young children.

**ECHD 121 1 Credit As Demand Warrants**
Physical Activities Young Child (1+0)
Planning a center which promotes the physical development of children.

**ECHD 122 1 Credit As Demand Warrants**
Cognitive Activity/Young Child (1+0)
Activities and experiences which encourage questioning, probing, and problem-solving skills which are appropriate for different developmental levels and various learning styles of young children.

**ECHD 123 1 Credit As Demand Warrants**
Language Activity/Young Child (1+0)
Activities that will help children acquire and use language as a means of communicating their thoughts and feelings. It also includes nonverbal communication and understanding others.

**ECHD 124 1 Credit As Demand Warrants**
Creative Activity/Young Child (1+0)
Activities which provide a variety of experiences and media that stimulate children to explore and express their creative ability.

**ECHD 131 1 Credit As Demand Warrants**
Group Management (1+0)
This course emphasizes both direct and indirect guidance techniques. Theories of guidance, including body language effects, reinforcement, and logical consequences are discussed for cultural relevance and practical application.

**ECHD 135 2 Credits Spring**
Infant/Toddler Care (2+1)
Activities to stimulate development and learning of infants and toddlers individually and in a group setting. The class will cover discipline and guidance techniques, communication, health concerns and facility requirements: Weekly 2 hour lab required.

**ECHD 161 1 Credit As Demand Warrants**
Stories For Young Children (1+0)
Keep your youngster fascinated while you increase their reading readiness! This new course will demonstrate ideas and techniques for a variety of story telling methods. Especially helpful for Early Childhood teachers.

**ECHD 162 1 Credit As Demand Warrants**
Child Development Associate (1+0)
This course is designed to introduce the care giver to the Child Development Associate credential. This is a nationally recognized credential awarded to child caregivers who have successfully demonstrated their competency in working with young children. It is awarded through a grant from the United States Department of Health and Human Services.

**ECHD 163 1 Credit As Demand Warrants**
Learning Centers For Young Children (1+0)
Participants will explore how to use learning centers in preschool classrooms, how to set up learning centers and exchange ideas for learning center.

**ECHD 211 1 Credit As Demand Warrants**
Developing Positive Self-Concept (1+0)
This course stresses helping each child develop a sense of awareness and self-esteem. Emphasis is placed on providing success-oriented feelings and developing pride as an individual and as a member of a cultural/ethnic group.

**ECHD 221 1 Credit As Demand Warrants**
Positive Home-Center Relationship (1+0)
Stresses the importance of a positive and productive relationship between families and Child Development centers. Emphasis is on using this relationship to coordinate the child-rearing efforts of both the family and classroom teacher.

**ECHD 240 2 Credits As Demand Warrants**
Personnel Management in ECD Programs (2+0)
Management of personnel in child care programs, including in-service training, staff meetings and communication, staff supervision, evaluation, staff motivation, burn-out prevention, and termination of employees. Labor management specific to early childhood programs are explored.

**ECHD 241 2 Credits As Demand Warrants**
Observe/Record Behavior of Child (1+0)
This course will emphasize techniques for accurately observing children's behavior, including several methods of observation and techniques for graphing the results.
ECHD 243 3 Credits  As Demand Warrants  
Personal Development/Child Care Workers (3+0)  
Students will assess their learning needs as related to their current child care position; select and prioritize goals; consider alternative learning options; and plan and evaluate their professional growth.

ECHD 245 3 Credits  As Demand Warrants  
Child Development (3+0)  
(Same as PSY 245)  
Study of development from prenatal through middle childhood including the cognitive, emotional, social, and physical aspects of the young child. Course includes child observations. Emphasis is on the roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

ECD 250 3 Credits  As Demand Warrants  
Practicum ECHD I (3+0)  
This is a guided student teaching experience in working with a group of 3-6 year old children. The student will assume increasing responsibility for planning and lead teaching. Prerequisite: ECHD 100, 110, 120, 131, 255 and permission of the instructor.  

ECD 251 3 Credits  As Demand Warrants  
Practicum ECHD II (3+0)  
This is a guided field experience in working in a group of young children in a school or center with the intention of expanding on the needs and interests of the practicum student. Students who have demonstrated satisfactory competency in ECD 250 may choose to participate in an infant toddler center, child care center, early childhood education program or public school classroom. Schedule times and dates to be arranged. (Prerequisite: ECD 250 and instructor's permission.)

ECD 253 3 Credits  As Demand Warrants  
Activities for Young Children (3+0)  
Designed for parents, care-givers and teachers of children 2-6. Focus is on art, music, literature, and language experiences, science, math, food experiences, and excursions. Lab required.

ECD 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: PSY 245 or permission of instructor.)

ECD 265 2 Credits  As Demand Warrants  
Cultures, Learning & The Young Child (2+0)  
How culture affects development and learning patterns of young children. Will explore curriculum planning with emphasis on multi-cultural and multi-ethnic resources with special attention on the Alaskan Native Cultures.

**Early Childhood Education (Rural College)**

Early childhood education courses are not offered on the Fairbanks campus. See "Early Childhood Development" (ECHD) for Fairbanks area offerings.

ECDD 109 1 Credit  As Demand Warrants  
Orientation to Child Development (3+0)  
Students will develop an overall understanding of training programs for early childhood workers with specific training for working in a Child Development Associate Program. They will, through in-class exercises, be able to perform as CDA field trainers and/or CDA candidates from-on-the-job training into a career ladder leading to a profession in the field of early childhood education.

ECDD 111 1 Credit  As Demand Warrants  
A Safe Environment (1+0)  
The importance of a safe learning environment and includes the competencies which enable students to provide a safe environment for young children. Emphasis is placed on the measures necessary to reduce and prevent accidents. (CDA curriculum)

ECDD 112 1 Credit  As Demand Warrants  
A Healthy Learning Environment (1+0)  
Prepares the student to provide a learning environment for young children which is free of factors which may contribute to or cause illness. (CDA curriculum)

ECDD 113 1 Credit  As Demand Warrants  
Learning Environment (1+0)  
The arrangement of an environment which is conducive to learning and appropriate to the developmental level and learning style of children. It includes selection of materials and equipment, room arrangement, and scheduling. (CDA curriculum)

ECDD 121 1 Credit  As Demand Warrants  
Physical Activities for Young Children (1+0)  
The essentials of planning a center which provides space, materials, equipment, and activities which promote the physical development of children. It includes scheduling, planning, activities, and selection of equipment and materials. (CDA curriculum)

ECDD 122 1 Credit  As Demand Warrants  
Cognitive Activities for Young Children (1+0)  
Activities and experiences which encourage questioning, probing, and problem-solving skills which are appropriate for different developmental levels and various learning styles of young children (CDA curriculum)

ECDD 123 1 Credit  As Demand Warrants  
Communication Activities (1+0)  
Activities that will help children acquire and use language as a means of communicating their thoughts and feelings. It also includes non-verbal communication and understanding of others (CDA curriculum)

ECDD 124 1 Credit  As Demand Warrants  
Creative Activities for Young Children (1+0)  
Activities which provide a variety of experiences and media that stimulate children to explore and express their creative ability. (CDA curriculum)

ECDD 131 1 Credit  As Demand Warrants  
Guidance and Discipline (1+0)  
Indirect and direct guidance techniques. Theories of guidance, including body language, reinforcement, and logical consequences are discussed for cultural relevance and practical application. (CDA curriculum)

ECDD 132 1 Credit  As Demand Warrants  
Social Development for the Young Child (1+0)  
The development of social skills which enable children to function as productive members of a group. Emphasis is placed on the development of mutual respect and cooperative work/play between child and child/adult. (CDA curriculum)

ECDD 211 1 Credit  As Demand Warrants  
Developing Positive Self-Concepts for Young Children (1+0)  
Helping each child develop a sense of awareness and self-esteem. Emphasis is placed 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)

ECDD 212 1 Credit  As Demand Warrants  
Fall and Spring Developing Individual Strengths in Children (1+0)  
Use of activities, techniques and planning that will 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.

ECDD 221 1 Credit  As Demand Warrants  
Positive Home-Center Relationship (1+0)  
The importance of a positive and productive relationship between families and the child development educator. Emphasis is on using this relationship to coordinate the child rearing efforts of both the family and the educator.

ECDD 222 1 Credit  As Demand Warrants  
Program Management (1+0)  
The importance of coordination and communication among staff in the classroom. Emphasis is placed on effective group planning, using resources, improving communication, sharing information about children, maintaining records, and establishing and following policies, rules and regulations. (CDA curriculum)

ECDD 223 1 Credit  As Demand Warrants  
Professionalism (1+0)  
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)

ECDD 231 1 Credit  As Demand Warrants  
Screening (1+0)  
Activities which help the teacher to understand the purpose of screening young children and to know how to use good screening procedures. (CDA curriculum)

ECDD 232 1 Credit  As Demand Warrants  
Assessment/Recording (1+0)  
Activities that will help the teacher to understand assessment of young children, recording of assessment information, and staffing. (CDA curriculum)
Economics

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.

ECON 100 3 Credits Fall and Spring
Introduction to Current Economic Problems (3+0) s
A one semester course designed primarily for the student who plans no further work in economics. The course utilizes a less theoretical approach than is customary in introductory economics courses and focuses on such current problems as unemployment, inflation, pollution, poverty, etc.

ECON 111 3 Credits As Demand Warrants Economics of Rural Alaska (3+0) s
Introduction to basic economic concepts as they relate to issues and problems of contemporary rural development in rural Alaska. Special attention is paid to socio-economic consequences of the introduction of new technologies, modern economic infrastructures and corporate relationships to traditional, small scale communities.

ECON 137 3 Credits Spring The Alaskan Economy (3+0) s
A broad introductory examination of economic problems in Alaska; analysis of historical trends and current patterns of economic growth; particular emphasis on present and future alternative economic policies, and their potential impacts. Also available via Independent Learning.

ECON 201 3 Credits Fall and Spring Principles of Economics I: Microeconomics (3+0) s
Theory of prices and markets, income distribution, contemporary problems of labor, agriculture, market structure, pollution, etc. Also available via Independent Learning.

ECON 202 3 Credits Fall and Spring Principles of Economics II: Macroeconomics (3+0) s
Analysis and theory of national income, money and banking, and stabilization policy. Also available via Independent Learning.

ECON 226 3 Credits Fall and Spring Introduction to Statistics for Economics and Business (3+0) s
Problems in economics and business translated into statistical terms. Topics covered include descriptive measures, probability and probability distributions, sampling methods, sampling distributions, point and interval estimation, hypothesis testing, index numbers, and time series analysis. (Prerequisite: MATH 107-108 or MATH 161.)

ECON 227 3 Credits Fall and Spring Intermediate Statistics for Economics and Business (3+0) s
Extension of topics developed in ECON 226. Development of statistical techniques and their application to economic and business problems. Topics include simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, non-parametric methods, and decision theory. Materials fee: $20.00. (Prerequisites: ECON 226, MATH 162 or 200.)

ECON 235 3 Credits Fall Introduction to Natural Resource Economics (3+0) s
Introduction to microeconomic principles and their application to natural resource issues. Specific topics include supply, demand, marginality, optimality, elementary production economics, economic rent, and comparative advantage. These principles are applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure, and public outdoor recreation problems.

ECON 232 3 Credits Spring Managerial Economics (3+0) 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 201, 202 and MATH 162 or equivalent.)

ECON 324 3 Credits Spring Intermediate Macroeconomics (3+0) 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 201, 202 and MATH 162 or equivalent.)

ECON 335 3 Credits Spring Intermediate Natural Resource Economics (3+0) s
Extension of concepts developed in ECON 235, using a higher level of economic analysis in examining natural resource issues. Specific topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation, resource taxation, common property problems, externalities, public goods, valuation of non-market resources, and land use planning issues. (Prerequisites: ECON 201 or ECON 235.)

ECON 350 3 Credits Fall Money and Banking (3+0) s
The liquidity wealth system in the United States; to include the commercial banking system, the Federal Reserve System, and nonbank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives. (Prerequisites: ECON 201 and 202.)

ECON 351 3 Credits Alternate Fall Public Finance (3+0) s
Economic justifications for government: federal, state and local government, taxation, spending and debt, their effects on allocation, distribution, stabilization and growth. (Prerequisites: ECON 201 and 202. Next offered 1991-92.)

ECON 400 3 Credits As Demand Warrants Industrial Organization and Public Policy (3+0) s
The study of 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 201, 202, and 321.)

ECON 420 3 Credits Fall Labor Markets and Public Policy (3+0) s
The application of labor market analysis and wage theory as they relate to public policy issues. Topics include: determination of wages, taxation and employment, the economic impact of unions, the economics of discrimination, and issues relating to women's and minorities' changing roles in the labor market. (Prerequisites: ECON 201 and 202.)

ECON 436 3 Credits As Demand Warrants Energy Economics (3+0) s
A course concerned with market forces and institutions affecting the allocation of energy resources. Special attention is given to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time. (Prerequisites: ECON 201 or 215.)

ECON 437 3 Credits Alternate Fall Regional Economic Development (3+0) s
Determinants and effects of the spatial distribution of economic activity. Impact of public policy on regional development within the Alaska context. (Prerequisites: ECON 201 and 202. Next offered: 1990-91.)
Education

ED 101  1 Credit  Orientation to Alaska Native Education (1+0)
A seminar in which Native Alaska educators present information and lead discussions on issues that are directly related to rural and urban Alaskan Native education. Topics covered 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 105  3 Credits  Reading Activities in the Classroom (3+0)
Introduction to methods, materials and teaching of reading the classroom. Emphasis on techniques for working with small groups and for integrating a language experience approach, using personal language backgrounds with basal reading programs. Attention focused on teacher's guides and participation in demonstration lessons.

ED 106  1-3 Credits  Implementation of an Adult Education Program (1-4, 2+0 or 3+0)
This course covers a variety of areas necessary for setting up a village-based adult education program and its implementation. It includes: organizing the classroom, equipment and materials; grades and record keeping; testing and assessing appropriate levels of materials for individual students; lessons 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+4)
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 and school-based management. All materials are to be made in both the appropriate language of the children and English. Teaching teams are encouraged. (Recommended: Literacy in both languages of instruction.)

ED 201  3 Credits  Introduction to Education (2+3)
The reflective teacher is acquainted with the nature of teaching including the social, professional, and personality qualities often for effective teaching. Involves laboratory time in public schools as well as in social studies. Open to all students. Required for all students majoring in Education. (Prerequisite: Sophomore standing.)

ED 208  3 Credits  Art for the Classroom Teacher (3+4)
Introduce concepts in art education to persons with limited art background who are working with young children. It combines a philosophically of Art Education, Art History, and 'hands-on' experiences to enable the classroom teacher to more effectively integrate the visual arts into the classroom curriculum as enrichment and enrichment. Can also be taken as ART 208.

ED 210  3 Credits  Second Language Acquisition (3+0)
This course presents an intensive introduction to the study of how people acquire second languages, i.e., ones in addition to the ones they learn as young children in the home. We examine psychological, social and cultural aspects of second language acquisition including theory of second language acquisition, applied linguistic and sociolinguistic research, and insights of teachers and students of second languages. We also observe, analyze, and compare the acquisition of languages by people in the student's own communities. Throughout, the emphasis is on how second language acquisition studies can enlighten the practice of second language teaching and promoting bilingualism in western Alaska.

ED 211  3 Credits  Curriculum Development for Teaching a Second Language (3+4)
Intensive work in developing a program for teaching a second language. Topics include curriculum development for bilingual/bicultural or second language classroom or permission of instructor.

ED 212  3 Credits  Human Development and Learning (3+0)
Content is a synthesis of the interrelated principles of human growth, development, adjustment and learning. It is designed primarily for students preparing for a career in teaching but is also open to parents, counselors, community workers and others interested in human development and learning.

ED 214  3 Credits  Natural Approaches to Language Instruction (3+0)
A course in which students explore modern approaches, methods, techniques, and activities which have been proven to be successful in teaching second languages.

ED 215  3 Credits  Methods of Teaching a Second Language (3+0)
Provides student with a basic knowledge of second language acquisition theory. Students learn 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.
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ED 301 3 Credits  Fall and Spring
Foundations of Literacy Development (2.5+1.5)
The development of understanding of the process involved in becoming a literate language. Person. Language, reading, and writing development will be explored for children of varying ages and within various social contexts, with particular emphasis on the impact of out-of-school styles on school learning. Students may be asked to tutor at least one child. (Prerequisites: PSY 240 and ED 330. Should be taken the semester prior to enrolling in ED 421.)

ED 402 3 Credits  Fall and Spring
Methods of Teaching in the Secondary School (2+3)
Principles and methods of teaching appropriate for junior high and high school classrooms. Includes planning for effective teaching, classroom management, and implementation of teaching in regular classroom settings. Materials fee: $35.00. (Prerequisite: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 407 3 Credits  Fall and Spring
Reading Strategies for Secondary Teachers (3+0)
Techniques and materials to be used in helping the secondary students acquire the needed skills for greater comprehension of subject matter at the secondary level. Should be taken concurrently with ED 402. (Prerequisites: ED 330 and junior standing.)

ED 419 6 Credits  Fall and Spring
Integrated Methods and Curriculum Development (3-0)
The study of the unique and common concepts, content, methods and materials which characterize the teaching of mathematics, science, social studies and language arts; the development of written plans and units; and practical experience in the elementary school classrooms: MATH 205, PSY 240, ED 330, concurrent enrollment with ED 421. Should be taken semester prior to student teaching.

ED 420 3 Credits  Fall
Alaska Native Education (3+0)
(Same as ANS 420)
Examination of the development of different school systems historically serving the native population with current efforts toward local control and the cross-cultural nature of this education. (Prerequisites: ANTH 242 or HIST 100 or permission of instructor.)

ED 421 3 Credits  As Demand Warrants
Multi-Cultural Classrooms (2.5+1.5)
Methodology, instructional materials, and language arts content relevant to the instruction of developmental language, reading and writing in diverse classroom settings. (Prerequisites: PSY 240 and ED 330. Should be taken concurrently with ED 381 and ED 419 the semester prior to student teaching.)

ED 422 3 Credits  Independent Learning Only
Building a Practical Philosophy of Education
A study of philosophy as a distinct discipline with its own terminology, concepts, and processes and how it functions in the field of education. Special emphasis is given to an application of philosophy of education to cross-cultural situations in Alaskan classrooms. (Prerequisite: Junior standing or permission of the instructor.)

ED 424 3 Credits  Fall
Small High School Programs (2+3)
After examining secondary programs in general, students will be exposed to alternative approaches to the design of small high school programs, with particular emphasis on the 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  Spring
Community as an Educational Resource (2+3)
Practical experience to assist the student in developing greater awareness of the community as an educational resource. Methods and techniques for developing and implementing a community-oriented curriculum with practical experience in determining and using community resources will be provided. (Prerequisites: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 429 3 Credits  Spring
Microcomputer Application in the Classroom (2+2)
Strategies for effective use of microcomputers in the classroom; understanding of the 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 and Spring
Multicultural Teaching Techniques (2+3)
Development of effective teaching strategies for implementation in cross-cultural and multicultural classrooms with particular attention to instructional practices for secondary schools. Small school design, computer-based instruction, telecommunications, community-based education, intercultural linksages of coursework, experiential education, productive thinking skills, and individual programmed instruction. Guest lectures and field trips. There will be weekly participation in a practical experience in multicultural classrooms. (Prerequisites: 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)
An analysis of cultural development from the perspective of education as a process for transmitting culture with examination of various issues related to cultural transmission in a multi-cultural environment, with particular emphasis on the dynamics of cultural change. (Prerequisites: ED 330 and junior standing.)

ED 451 1-9 Credits  Fall and Spring
Practicum in Education
Practicum in education for insulin and advanced practicum students. Field placement will be arranged as required by course. Credit for this course may be earned in 1-9 credits. (Concurrent enrollment permitted with ED 402 and permission of instructor.)

ED 452 12 Credits  Fall and Spring
Elementary Student Teaching (1+33)
Supervised teaching in one or more elementary classrooms approved by the department of education. The school may be part of regular teaching duties, determined assignments, and cancel the registration of students doing unsatisfactory work. Students should expect to be involved in the public school setting for the entire school year for the duration of the university semester in fulfilling their assignment. (Prerequisites: See requirements for admission to student teaching.)

ED 453 12 Credits  Fall and Spring
Secondary Student Teaching (1+33)
Supervised teaching in secondary schools approved by the department of education. The school may be part of regular teaching duties, determined assignments, and cancel the registration of students doing unsatisfactory work. Students should expect to be involved in the public school setting for the entire school year for the duration of the university semester in fulfilling their assignment. (Prerequisites: See requirements for admission to student teaching.)

ED 454 9 Credits  Fall and Spring
Student Teaching K-12 (1+33)
Supervised teaching in all 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 secondary certification. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. Students should be expected to be involved in the public school setting for the entire school year for the duration of the university semester in fulfilling their assignment. (Prerequisites: See requirements for admission to student teaching.)

ED 456 3 Credits  Summer
Orientation to Teaching in Rural Alaska (2+3)
A study of the 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 ALR 462)
Environmental concepts, motivational and discovery techniques, and practical skills for utilizing the environment inside and outside the formal classroom in all subject areas. Course content includes information on curriculum materials (K-12), interpretive and audiovisual aids facilities, environmental problem solving and applications of environmental education to situations from the public schools to summer camps, short courses, and workshops for individuals of any age. (Prerequisites: Junior standing or permission of instructor.)

ED 470 3 Credits  As Demand Warrants
Human Resource Development (3+0)
Strategies and approaches which emphasize the mobilization and utilization of human resources within the general processes of socio-economic change and development in historical and cross-national contexts. (Prerequisite: Junior standing.)
COURSE DESCRIPTIONS—ELECTRICAL ENGINEERING / 143

EE 311 3 Credits Fall
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 wave equations to engineering systems. (Prerequisites: PHYS 211, MATH 302, EE 204.)

EE 312 3 Credits Spring
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, EE 391, MATH 302.)

EE 331 1 Credit Fall
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 1 Credit Spring
Electromagnetics Laboratory (0+3)
Use of Maxwell's equations in the analysis of waveguides, cavity resonators, transmission lines, antennas, and radio propagation. Laboratory fee: $25.00. (Corequisite: EE 312.)

EE 333 4 Credits Fall
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 Spring
Electronic Circuit Design (3+3)
Application of semiconductor devices in the design of circuits used in computation, automatic control, and communication. Laboratory fee: $25.00. (Prerequisite: EE 333.)

EE 341 4 Credits Fall
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 Spring
Computer Organization II (3+3)
Techniques of constructing input/output device drivers, dedicated signal processors, and central processor unit microprogrammable bit slice devices. Laboratory fee: $25.00. (Prerequisite: EE 341.)

EE 353 3 Credits Fall
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 Spring
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 Spring
Electrical Power Systems (3+3)
Alternate energy sources, transmission system components, elements of control, system protection, and interconnections. Laboratory fee: $25.00. (Prerequisite: EE 303.)

EE 406 4 Credits Fall
Electrical Power Engineering (3+3)
Symmetrical and unsymmetrical faults, load flow, economic operation of power systems, dynamic power system, stability, and computer aided fault and load flow analysis. Laboratory fee: $25.00. (Prerequisites: 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 394, EE 354, EE 442.)

EE 442 4 Credits Fall
Digital Systems Analysis and Design I (3+3)
Combination of digital and sequential logic implementation with Medium Scale Integration (MSI) and Large Scale Integration (LSI) microprocessors; Central Processor Unit (CPU) analysis and implementation with microprogrammable, "bit-slice" hardware; basic machine input/output (I/O); digital data transmission techniques. Laboratory fee: $25.00. (Prerequisites: EE 204 and EE 333—may be taken concurrently.)

EE 443 4 Credits Spring
Digital Systems Analysis and Design II (3+3)
Microcomputer interfacing/programming techniques. Effect of logic design; analog-digital and digital-analog converter design; digital filtering using microprocessors; 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 3 Credits Fall
Digital Signal Processing (2+3)
Discrete Fourier Transform (DFT) analyses and applications; FFT implementations; discrete convolution/correlation/statistical theory; application; errors and noise analysis; FIR/IIR filter design and implementation techniques. Laboratory fee: $25.00. (Prerequisites: EE 354 or equivalent.)

EE 454 4 Credits Spring
Advanced Digital Systems Application and Design (3+3)
Advanced, topical applications of digital 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 481 3 Credits Fall
Communication Systems (3+3)
Utilization of communication theory in the design and implementation of communication systems. Laboratory measurement of modulation, noise, channel spectrum, satellite link budget, and microwave path design. Laboratory fee: $25.00. (Prerequisites: EE 354 and senior standing.)

EE 482 4 Credits Spring
Communication Systems (3+3)
Theory and practice of communications systems, introduction to probability, statistics, and information theory, systems design and laboratory experience in analog and digital communication. (Prerequisites: EE 354, EE 334.)

EE 484 3 Credits Spring
Communication Networks (3+0)

EE 471 4 Credits Spring
Fundamentals of Automatic Control (4+0)
Linear system representation by transfer functions and state variables. The concept of 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, and 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)
### Electronics Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 610</td>
<td>3</td>
<td>Linear Systems (3+0)</td>
</tr>
<tr>
<td>EE 632</td>
<td>3</td>
<td>Quantum Electronics (3+0)</td>
</tr>
<tr>
<td>EE 635</td>
<td>3</td>
<td>Advanced Electronic Circuit Design (3+0)</td>
</tr>
<tr>
<td>EE 682</td>
<td>3</td>
<td>Communication Theory (3+0)</td>
</tr>
<tr>
<td>EE 684</td>
<td>3</td>
<td>Data Communication Techniques (3+0)</td>
</tr>
<tr>
<td>EE 671</td>
<td>3</td>
<td>Digital Control Systems (3+0)</td>
</tr>
</tbody>
</table>

### Electromagnetic Technology

- **ELT 101** 4 Credits: 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: Basic Electronics: AC Physics (3+0) - Principles of alternating current, vectors, phase relationships, inductive and capacitive reactance, and impedance. AC circuit analysis, series and parallel resonant circuits. Transformers, network analysis.

- **ELT 108** 3 Credits: 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 209** 3 Credits: 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: Amateur Radio Licensing - This course provides an overview of amateur radio. Specific code and radio theory will be provided for the Novice and General Amateur License Examination. For those already licensed, there will be opportunities in the areas of community emergency communications, net operations, repeaters, use in the public classroom, etc.

- **ELT 122** 3 Credits: 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.

- **ELT 123** 3 Credits: Electronic Circuit Fundamentals (3+0) - An Analysis of basic electronic circuits. Power supplies, amplifiers, and oscillators. Operational and failure analysis of basic circuits with troubleshooting procedures for each type.

- **ELT 171** 3 Credits: National Electric Code Study (3+0) - Systematic study of the National Electric Code and the rules governing the minimum requirements for the installation of electrical services, feeders and branch circuits and the requirements for the construction and installation of electrical equipment.

### Emergency Medical Technology

- **EMTT 103** 3 Credits: EMT: Emergency Trauma Training First Responder (3+0) - Provides training in emergency medical care for those who are apt to be the first person responding to an accident. Upon successful completion of the program, the student will be proficient not only in providing basic emergency medical care to victims of emergency, but also in taking any actions necessary to minimize patient suffering and prevent further injury. Materials fee: $10.00-$15.00.

- **EMTT 110** 1 Credit: As Demand Warrants - EMT: Cardiopulmonary Resuscitation (1+0) - This course is based on the Basic Life Support course offered by the American Heart Association. This course is recommended for anyone interested in knowing what to do in case of an emergency involving the interference with breathing and/or heart function.

- **EMTT 119** 4 Credits: As Demand Warrants - EMT: Emergency Medical Technician I (4+0) - Designed to train professional emergency care providers in techniques to administer life-saving first aid and run 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+0) - 120 hours of didactic and practical skills training, to provide competency in the life-saving skills of an Emergency Medical Technician-Ambulance including basic patient assessment, advanced shock management, trauma management, CPR, extrication and immobilization techniques. Similar to EMT 119, but emphasizing ambulance techniques.

- **EMTT 121** 2 Credits: As Demand Warrants - EMT: Emergency Medical Technician II (2+0) - Designed to improve the skills of basic EMTs in the area of trauma intervention to help decrease the possibility of mortality and morbidity for the seriously injured patient by acquainting the student with advanced techniques in fluid therapy. The use of MAST pants, utilization of specific drug therapy and advanced airway care. Materials fee: $85.00.

- **EMTT 123** 1 Credit: As Demand Warrants - EMT: Emergency Medical Technician III (1+0) - Introduction to basic trauma anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal 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 124** 1 Credit: As Demand Warrants - EMT: Emergency Medical Technician- Refresher (1+0) - This course will assist the EMT in maintaining the basic skills and knowledge of emergency medical procedures at the Basic EMT level; update EMT’s on emergency medical care procedural changes; introduce them to newly developed equipment and train them in its use, and expose them to changes in State licensure or other medico-legal requirements.

- **EMTT 247 A, B** 2 Credits: As Demand Warrants - Arctic Survival (1+2) - Study and acquisition of 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 and Science Management

- **ESM 401** 3 Credits: Fall - 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.

- **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. (Not offered for credit toward the Master of Science in Engineering Management or Science Management. Prerequisites: ESM 201 and senior standing in engineering or permission of instructor.)

### Project Management

- **ESM 600** 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) -
Engineering Science

ESM 620 3 Credits  Statistics for ESM (3+0)  Every Third Semester  
ESM 621 3 Credits  Operations Research (3+0)  Spring  
ESM 622 3 Credits  Computer Programming for Engineering Managers (3+0)  Fall and Spring  
ESM 684 3 Credits  Engineering Management Project (3+0)  Spring and Fall  

*Undergraduate engineering students who are taking graduate ESM courses as technical electives should have completed or be concurrently enrolled in ESM 450.

English

The written communication requirement for any baccalaureate degree is the successful completion of ENGL 111 and ENGL 211 or equivalent.

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.

Students with extensive backgrounds in literature and composition or with outstanding test scores on nationally recognized examinations (e.g., ACT score of 26 or higher, for example) may challenge both ENGL 111 and 211 or 213. Normally students will be required to complete a successful challenge of ENGL 111 before taking or challenging ENGL 211 or 213.

Required composition courses may also be taken through the University of Alaska Fairbanks Correspondence Study department.

DEVE 060 3 Credits  As Demand Warrants  Elementary Composition (3+0)  Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination.

DEVE 060 1-3 Credits  As Demand Warrants  English Skills Laboratory (0+3+9)  The open entry/open exit lab block is designed to provide students with individualized instruction in areas where language skills building is needed. The lab is composed of three modules (spelling/vocabulary, writing and grammar/usage) into which a student might be placed based upon pre-assessment as a tool for learning across the curriculum.

DEVE 070 3 Credits  As Demand Warrants  Preparation for College English (3+0)  Intensive practice in a variety of language skills to prepare students for ENGL 111. Materials fee: $5.00.

ENGL 104 3 Credits  As Demand Warrants  Institute on Language & Thought (3+0)  An intensive institute for developing critical thinking, writing, and reading skills using the Bard College model. The institute establishes a multi-media learning environment which supports a student's decision-making, research, collaboration, and independence. Offered only at the Kuskokwim Campus.

ENGL 111 3 Credits  Fall and Spring  Methods of Written Communication (3+0)  Instruction in writing expository prose, including generating topics as part of the writing process. Practice in developing organizing, revising, and editing compositions. Materials fee: $0.00-$8.00. Also available via Independent Learning. (Prerequisite: Placement examination or DEVE 070.)

ENGL 190H 3 Credits  Fall and Spring  Honors English Composition (3+0)  Intensive 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. (Prerequisites: Admission to the Honors Program or recommendation of instructor.)
<table>
<thead>
<tr>
<th>COURSE DESCRIPTIONS—ENGLISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 211 3 Credits Fall and Spring Intermediate Exposition, with Modes of Literature (3+0) w Instruction in writing through close analysis of literature. Research paper required. Materials fee: $0.00-$6.00. Also available via Independent Learning. (Prerequisites: Sophomore standing and completion of ENGL 111 or its equivalent.)</td>
</tr>
<tr>
<td>ENGL 212 3 Credits As Demand Warrants Business, Grant, and Report Writing (3+0) This course will cover forms and techniques of business, grant, and report writing. It may put special emphasis on one or another of these topics based on the given semester. It will not fulfill the second half of the baccalaureate requirements in written communication. (Prerequisite: ENGL 111.)</td>
</tr>
<tr>
<td>ENGL 213 3 Credits Fall and Spring Intermediate Exposition (3+0) w Instruction in writing through close analysis of expository prose from the social and natural sciences. Research paper required. Materials fee: $0.00-$8.00. (Prerequisites: Sophomore standing and completion of ENGL 111 or its equivalent.)</td>
</tr>
<tr>
<td>ENGL 215 3 Credits Spring Introduction to Poetry (3+0) h Analysis and appreciation of the various kinds of writing in verse (lyric, narrative, and other poetry), including the terminology used to describe poetic techniques. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 216 3 Credits Fall and 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 111 or permission of instructor.)</td>
</tr>
<tr>
<td>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 111.)</td>
</tr>
<tr>
<td>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 content to be announced at time of registration. Course may be repeated for credit when content varies. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 230 3-7 Credits Fall 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 communication and are not classified as humanities. (Prerequisite: Open only to students for whom English is a foreign language. Permission of instructor required.)</td>
</tr>
<tr>
<td>ENGL 271 3 Credits Fall and Spring Introduction to Creative Writing-Fiction (3+0) h A study of the forms and techniques of fiction for beginning students; discussion of students' work in class and in individual conferences. Materials fee: $10.00. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 272 3 Credits Fall Introduction to Creative Writing-Poetry (3+0) h A study of the forms and techniques of poetry for beginning students; discussion of students' work in class and in individual conferences. Materials fee: $5.00. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 290H 2 Credits Fall Summer Reading Program (Honors) (2+0) A summer reading course of selected readings in a variety of disciplines. Group discussion and written responses to the readings follow in the fall. Students are required to keep a summer journal. The course may be repeated for credit. (Prerequisite: ENGL 111 or enrollment in the Honors Program.)</td>
</tr>
<tr>
<td>ENGL 301 3 Credits Fall Continental Literature in Translation: From the Ancient World through the Renaissance (3+0) h Readings in Greek plays, The Iliad, The Aeneid, Dante: the classical background out of which the western literary tradition has sprung. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 306 3 Credits Spring Survey of American Literature (3+0) h Comprehensive study of American thought as reflected in its major writers, including works representative of American Calvinism, Rationalism, Transcendentalism, Romanticism, Realism, Naturalism, and Modernism. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 308 3 Credits Fall Survey of British Literature: Beowulf to the Romantic Period (3+0) h Survey of writers and works in Old and Middle English, including Chaucer, through the Elizabethan period (Shakespeare), the Restoration, and the Neoclassic Period of the 18th Century. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 309 3 Credits Spring Survey of British Literature: Romantic Period to the Present (3+0) h 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 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 310 3 Credits Spring Literary Criticism (3+0) h Introduction to the history and principles of literary criticism, from the earliest days to the end of the 19th century. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 311 3 Credits Spring Writing Non-Fiction Prose (3+0) h 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. (Prerequisite: Junior standing. ENGL 211 or 213 or permission of instructor.) Course does not fulfill the second half of the general degree requirement in written communication.</td>
</tr>
<tr>
<td>ENGL 314 3 Credits Fall and Spring Technical Writing (2+0+1) h Instruction in writing job applications with resumes, as well as letters of inquiry, complaint, and evaluation. Practice in preparing tables, graphs, process descriptions, technical instructions, abstracts, grant proposals. Practice in writing technical reports, such as progress, laboratory, survey, incident, inspection, feasibility, and research reports. Course does not fulfill the second half of the general degree requirement in written communication. Also available via Independent Learning. Materials fee: $3.00. (Prerequisites: Junior standing and ENGL 211 or 213 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 318 3 Credits Fall and Spring Modern English Grammar (3+0) h Study of the structure of current English as seen through traditional and contemporary grammatical theories. (Prerequisite: English 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 340 3 Credits Fall Contemporary Native American Literature (3+0) h An exploration of contemporary Native American writing in English, including novels, short stories, poetry, and plays. Some examples of Native American film will also be introduced when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
<tr>
<td>ENGL 349 3 Credits Fall Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h (Same as ANS 349) Survey of traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Attention to bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111 or permission of instructor.)</td>
</tr>
</tbody>
</table>
ENGL 390 3 Credits 
Alternate Spring
Literature of Alaska and the Yukon Territory (3+0) h
Study of representative works of fiction, verse, and non-fiction which deal with Alaska and the Yukon Territory. Also available via Independent Learning. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)

ENGL 371 3 Credits 
Fall and Spring
Intermediate Creative Writing (3+0) h
Practice and guidance in writing fiction, poetry, drama, and essays. Students' work will be 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.)

ENGL 403 3 Credits 
Every Third Spring
American Renaissance (3+0) h
Study of American literature of the mid-nineteenth century: Poe through Whitman. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1991-92.)

ENGL 404 3 Credits 
Every Third Spring
American Realism (3+0) h
Study of American literature from the Civil War to World War I: Twain through James. (Prerequisite: ENGL 111 or permission of instructor. ENGL 307 desirable but not required. Next offered: 1990-91.)

ENGL 405 3 Credits 
Every Third Fall
British Writers of the 19th Century: Romantic Period (3+0) h
Study of English literary romanticism including authors such as Byron, Keats, Shelley, Coleridge, Wordsworth, Austen, the Bronte sisters, and Scott. (Prerequisite: ENGL 111 or permission of instructor. ENGL 308 desirable but not required. Next offered: 1990-91.)

ENGL 406 3 Credits 
Every Third Fall
British Writers of the 19th Century: Victorian Period (3+0) h
Study of the 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 111 or permission of instructor. ENGL 309 desirable but not required. Next offered: 1990-91.)

ENGL 407 3 Credits 
Every Third Fall
British Writers of the Restoration and 18th Century: Neo-Classical Period (3+0) h
Study of new 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, Defoe, Addison, Steele, Pope, Johnson, Boswell, Goldsmith, and Sheridan. (Prerequisites: ENGL 111 and junior standing or permission of instructor. ENGL 308 recommended. Next offered: 1991-92.)

ENGL 408 3 Credits 
Every Third Fall
American Origins. (3+0) h
Study of the writers who contributed to the development of a national literary identity: Braddock through Cooper. (Prerequisites: ENGL 111 and junior standing or permission of instructor. ENGL 307 recommended but not required. Next offered: 1990-91.)

ENGL 414 3 Credits 
Fall
Research Writing (3+0) h
Practice in reporting primary and secondary research in the forms and styles appropriate to the student's field. Preference given to seniors. (Prerequisite: ENGL 111 and 211 or 213 or their equivalent.)

ENGL 421 3 Credits 
Alternate Spring
Chaucer and His Age (3+0) h
Major poetry of Chaucer and his contemporaries, with emphasis on The Canterbury Tales, and survey of criticism. (Prerequisite: ENGL 111 or permission of instructor; ENGL 308 desirable but not required. Next offered: 1990-91.)

ENGL 422 3 Credits 
Fall
Shakespeare: History Plays and Tragedies (3+0) h
Major chronicle plays and tragedies, including significant criticism. (Prerequisite: ENGL 111 or permission of instructor; ENGL 308 desirable but not required.)

ENGL 425 3 Credits 
Spring
Shakespeare: Comedies and Non-Dramatic Poetry (3+0) h
Major comedies and non-dramatic poems, including significant criticism. (Prerequisite: ENGL 111 or permission of instructor. ENGL 308 desirable but not required.)

ENGL 428 3 Credits 
Every Third Fall
Milton (3+0) h
Major poetry and prose, and survey of Miltonian criticism. (Prerequisite: ENGL 111 or permission of instructor; ENGL 308 desirable but not required. Next offered: 1990-91.)

ENGL 444 3 Credits 
Every Third Spring
Fiction in Translation (3+0) h
Major fiction in English translation. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)

ENGL 445 3 Credits 
Alternate Fall
20th-Century Drama: From Chekhov to Ionesco (3+0) h
The major dramatists and their achievements. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)

ENGL 446 3 Credits 
Alternate Spring
Major Modern and Contemporary Poetry (3+0) h
Yeats to the present. (Prerequisite: ENGL 111 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 111 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 111 or permission of instructor. Next offered: 1990-91.)

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 111 or permission of instructor. Next offered: 1990-91.)

ENGL 462 3 Credits 
Alternate Spring
Applied English Linguistics (3+0) h
The topics for each offering of the course will be announced. Examples are teaching English as a second language, dialects and education, dictionaries, stylistics, and composition. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1991-92.)

ENGL 471 3 Credits 
Fall and Spring
Undergraduate Writers' Workshop (3+0) h
Discussion of craft and techniques and student work intended for advanced students who will prepare a brief, finished manuscript as a final project. May be repeated one time for credit. Materials fee: $10.00. (Prerequisites: 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 111 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) h
Theoretical background and workshop experience for teaching composition in middle and high schools with current pedagogy on teaching of writing stressed. A variety of teaching methods will be demonstrated and discussed. Writing, teaching demonstrations, reports, group and class discussions are required. (Prerequisites: Completion of university composition requirement with grade of B or higher, or permission of instructor. Next offered: 1991-92.)

ENGL 501 3 Credits 
Spring
Bibliography, Methods, and Criticism (3+0) h

ENGL 503 3 Credits 
As Demand Warrants
Studies in British Literature: Old and Middle English (3+0)

ENGL 504 3 Credits 
Every Third Fall
Studies in British Literature: Renaissance and 17th Century (3+0)

ENGL 507 3 Credits 
Every Third Spring
Studies in British Literature: Restoration, 18th and 19th Centuries (3+0)

ENGL 508 3 Credits 
Every Third Spring
Studies in British Literature: 20th Century (3+0)

ENGL 509 3 Credits 
Every Third Spring
Studies in American Literature: Colonial Period and 19th Century (3+0)

ENGL 520 3 Credits 
Every Third Fall
Studies in American Literature: 20th Century (3+0)

ENGL 601 3 Credits 
Alternate Spring
Internship in Publishing (3+1)
**English as a Second Language**

**ESLG 051 1-3 Credits**

**Speaking English as a Second Language**
For students who do not speak English as their first language, but who can understand and follow simple instructions in English, this class provides ample opportunity to engage in English conversation. 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**

**Reading English as a Second Language**
For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English. 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. May be repeated up to nine credits.

**ESLG 071 1-3 Credits**

**Writing English as a Second Language**
For students whose first language is not English, this class provides an opportunity to develop the skills at writing simple English compositions. 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**

**EQS 201 3 Credits**

**Environmental Management (3+0)**
The study of social processes affecting the environment including law, environmental assessment, social/economic constraints, political processes and society’s influence on environmental values. Topics include NEPA, energy sources and impacts, population control, resource development, conservation and preservation, acid rain, greenhouse effect, deforestation, pollution and hazardous waste abatement and treatment strategies. Case studies are used and the course is integrated with and complements ALR 101.

**EQE 641 3 Credits**

**Environmental Quality Science Measurements (2+3)**

**EQE 642 3 Credits**

**Modeling for Environmental Management (3+0)**

**EQE 643 3 Credits**

**Air Pollution Management (4+0)**

**EQE 644 3 Credits**

**Environmental Quality Evaluation (3+0)**

**EQE 645 3 Credits**

**Unit Processes - Chemical and Physical (3+0)**

**EQE 646 3 Credits**

**Unit Processes - Biological (3+0)**

**EQE 647 3 Credits**

**Biotechnology (3+0)**
(Same as ALR 607)

**EQE 648 3 Credits**

**Solid Waste Management (3+0)**

**EQE 649 3 Credits**

**Hazardous and Toxic Waste Management (3+0)**
(Same as GE 649)

**Eskimo**

**ESK 101 5 Credits**

**Fall**

**ESK 102 5 Credits**

**Spring**

**Elementary Yup’ik Eskimo (5+0)**
Introduction to Central Yup’ik, the language of the Yukon and Kuskokwim deltans and Bristol Bay. Open to both speakers and non-speakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences.

**ESK 103 3 Credits**

**As Demand Warrants**
**Yup’ik Made Easy (3+0)**
An entry-level course for those wishing to learn the Yup’ik language. The very popular and highly successful TPR (Total Physical Response) methods, through commands and actions is used. The study of grammar, reading and writing will not be covered in this course. The focus will be on teaching comprehension of the language in everyday situations. For others, it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences.

**ESK 104 3 Credits**

**As Demand Warrants**
**Yup’ik Made Easy II (3+0)**
A continuation of ESK 103 for those wishing to learn the Yup’ik language. The very popular and highly successful TPR (Total Physical Response) methods, through commands and actions is used. The study of grammar, reading and writing will only be covered indirectly in this course. The focus will be on teaching comprehension of the language in everyday situations. Vocabulary from ESK 103 will be briefly reviewed.

**ESK 105 1-3 Credits**

**As Demand Warrants**

**ESK 106 1-3 Credits**

**As Demand Warrants**
**Conversational Central Yup’ik (1+3)**
Introductory courses for students who wish to acquire the ability to speak Central Yupik, the language of Norton Sound, the lower Yukon and Kuskokwim Rivers and the Delta, and Bristol Bay. Students first learn to understand simple spoken language, then to speak simple Central Yupik, developing a beginning level of communicative competence in the language. (Prerequisite: ESK 105 for 106.)

**ESK 108 3 Credits**

**Spring**
**Yup’ik Literacy (3+4)**
Literacy training for speakers of Yupik languages (Central Yupik, St. Lawrence Island Yupik, and Alutiiq). Learning to read and write the language.

**ESK 109 3 Credits**

**As Demand Warrants**
**Yup’ik Orthography (3+0)**
Yupik orthography is an entry level-class designed for those who are fluent in Central Yupik. The course will cover reading, silent and oral, and writing, emphasizing specific skills and practical application of those skills through writing assignments. Dialect differences in the Central Yupik region will be used to demonstrate standardization of the writing systems. (Prerequisite: demonstrated conversational Yupik skills)

**ESK 111 5 Credits**

**Fall**

**ESK 112 5 Credits**

**Spring**
**Elementary Inupiaq Eskimo (5+0)**
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.
ESK 115  1-3 Credits  As Demand Warrants
ESK 118  1-3 Credits  As Demand Warrants

Conversational Inupiaq (1-3)
Introductory course for students who wish to acquire the ability to speak Inupiaq. 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.)

ESK 118  3 Credits  Spring

Inupiatq Literacy (3-0)
Literacy training for speakers of Alaskan Inupiaq. Learning to read and write the language.

ESK 130  3 Credits  As Demand Warrants

Beginning Yup'ik Grammar (3-0)
Literacy and grammatical analysis of the Central Yupik language are introduced in this course. Both Yupik speakers and nonspeakers 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 Yupik skills.)

ESK 155  1-3 Credits  As Demand Warrants
ESK 156  1-3 Credits  As Demand Warrants

Conversational Siberian Yupik (1-3)
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.

ESK 158  1-3 Credits  As Demand Warrants

Siberian Yupik Orthography (1-3)
Introduction to the standard writing system (orthography) of Siberian Yupik. Students learn the skills of spelling, reading, and writing words in Siberian Yupik, which are the fundamentals of basic literacy. (Prerequisite: ability to speak Siberian Yupik or permission of the instructor.)

ESK 201  3 Credits  Fall
ESK 202  3 Credits  Spring

Intermediate Yup'ik (3-0) h
Continuation of ESK 101-102. Increasing emphasis on speaking, reading, and writing.

ESK 203  4 Credits  As Demand Warrants

Yup'ik Made Easy III (3-0) h
A continuation of Yup'ik Made Easy I and II using TPR (total physical response), where students learn to comprehend the language through commands and actions. Reading and writing will be covered only indirectly, since the focus will be on teaching comprehension and speech in everyday situations. Vocabulary from previous classes will be briefly reviewed. (Prerequisite: ESK 104 or instructor permission.)

ESK 208  3 Credits  As Demand Warrants

Yup'ik Composition (3-0)
An examination of the development of written Yupik and exploration of writing for entertainment, information, transcription of oral narratives and note taking in meetings where Yupik is the dominant language. New writing styles will be examined, rather than simply translating the standard categories of English composition. Students will receive extensive practice in Yupik orthography and participate in the evaluation of each other's writings. (Prerequisite: ESK 108)

ESK 211  3 Credits  Fall
ESK 212  3 Credits  Spring

Intermediate Inupiaq Eskimo (3-0) h
Continuation of Eskimo 111-112, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary.

ESK 218  3 Credits  As Demand Warrants

Inupiaq Composition (3-0)
An examination of the development of written Inupiaq and exploration of the many possible uses of Inupiaq writing. Students will participate in making games, and then to speak simple Inupiaq, developing a beginning level of communicative competence in the language. (Prerequisite: ESK 115 for 116.)

ESK 301  3 Credits  Fall

Advanced Yup'ik Eskimo (3-0) h
Continuation of ESK 201-202. Completes the basic study of the Yup'ik grammar. (Prerequisites: ESK 101, 102, 201-202 or permission of instructor.)

ESK 415  3 Credits  Spring

Additional Topics in Advanced Yup'ik Eskimo (3-0) h
Further study of Yup'ik linguistics. Includes text transcription, editing, analysis, and discussion. Study of related Eskimo languages from the standpoint of Central Yupik. Additional topics to be studied depend on the interests of the students and the instructor. (Prerequisites: ESK 101, 102, 201-202 or permission of instructor.)

ESK 417  3 Credits  Spring

Advanced Inupiaq Eskimo (3-0) h
Advanced study in Inupiaq Eskimo. A continuation of Esk. 212. (Prerequisites: Completion of ESK 111, 112, 211, 212 or permission of Instructor.)

Fire Science

FSCI 101  3 Credits  As Demand Warrants

Introduction to Fire Science (3-0)
An introduction to Fire Science and Fire Protection; 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 103  3 Credits  As Demand Warrants

Fundamentals of Fire Prevention (3-0)
Organization and function of fire prevention; inspections; surveying and mapping procedures; recognition of fire and life hazards; engineering a solution of a fire hazard; enforcing the solution of a fire hazard; fire safety education.

FSCI 107  3 Credits  As Demand Warrants

Fire Tactics and Strategy (3-0)
Principles of fire control through utilization of manpower, equipment and extinguishing agents. (Prerequisite FSCI 101 or equivalent or permission of instructor)

FSCI 111  3 Credits  As Demand Warrants

Fire Company Organization & Management (3-0)
Review of fire department organization; planning, organizing and supervising to meet the needs of the fire department, with emphasis on the company officer's role.

FSCI 115  3 Credits  As Demand Warrants

Fire Apparatus and Equipment (3-0)
Fire apparatus design, specifications and performance capabilities, effective utilization of apparatus in fire emergencies

FSCI 117  3 Credits  As Demand Warrants

Rescue Practices (3-0)
Rescue problems and techniques; emergency rescue equipment; toxic gases; chemicals and diseases; radiation hazards; card of the victims, including emergency childbirth, respiration and resuscitation, extrication, and other emergency conditions.

FSCI 121  3 Credits  As Demand Warrants

Introduction to Fire Chemistry & Physics (3-0)
Introduction to nomenclatures, principles and procedures of chemistry as related to fire problems.

FSCI 123  3 Credits  As Demand Warrants

Fire Investigation (3-0)
Determining cause of fires (accidental, suspicious and incendiary; types of fires; related laws; introduction to arson and incendiarism; recognizing and preserving evidence; interviewing witnesses and suspects; arrest and detention procedures; court procedures and giving court testimony.

FSCI 151  3 Credits  As Demand Warrants

Wildland Fire Control I (3-0)
A course designed to provide the student with a fundamental knowledge of the factors affecting wildland fire prevention, fire behavior, and control techniques.

FSCI 153  3 Credits  As Demand Warrants

Wildland Fire Organization and Management (3-0)
A review of fire organization, the steps involved in organizing for suppression, and a study of management functions.

FSCI 155  3 Credits  As Demand Warrants

Fire Behavior I (3-0)
Course includes fire triangle, ignition temperatures, sources of heat, transfer, weather factors, forest fuel factors and topography, interplay of fuels and prediction of fire behavior on our wildland fires.
FSCI 158 3 Credits  As Demand Warrants
Fire Planning in Aviation (3+0)
A course designed to provide the student with 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.

FSCI 157 3 Credits  As Demand Warrants
Aircraft Operations (3+0)
Use of aircraft for suppression of wildland fires and support of the service function—emphasis on air safety.

FSCI 158 3 Credits  As Demand Warrants
Fire Operation Function (3+0)
A course designed to provide the student with an overview of the operation function including organization, implementation of the incident action plan, tactical use of resources, ordering additional resources, appointment of geographical and functional supervisors, support and operations of fixed wing and rotor aircraft.

FSCI 161 3 Credits  As Demand Warrants
Fire Logistics Functions (3+0)
Contains basic organization and procedures of the support function. Includes study of the Service Chief position and its subordinate positions.

FSCI 162 3 Credits  As Demand Warrants
Methods/Instruction For Fire Service Training (3+0)
A course designed to provide the student with the 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.

FSCI 163 3 Credits  As Demand Warrants
Wildland Air Attack (3+0)
Proper use and management of aircraft as a tool in fire support, specifically the use of helicopters and fixed wing tanker attack.

FSCI 202 3 Credits  As Demand Warrants
Fire Hydraulics (3+0)
Review of applied mathematics; hydraulic laws as applied to fire service; applications of formulas and mental calculations; hydraulics and water supply problems.

FSCI 204 3 Credits  As Demand Warrants
Hazardous Materials I (3+0)
An introduction to basic fire chemistry and physics. Problems of flammability as encountered by firefighters when dealing with fuels and oxidizers. Elementary fire fighting practices pertaining to hazardous materials in storage and transit.

FSCI 205 3 Credits  As Demand Warrants
Hazardous Materials II (3+0)
A second semester course in Hazardous Materials covering handling identification and fire fighting practices involving explosive, toxic, and radioactive materials in storage and transit. (Prerequisite: FSCI 204 or instructor's permission)

FSCI 206 3 Credits  As Demand Warrants
Building Construction/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)

FSCI 208 3 Credits  As Demand Warrants
Fire Service Records and Reporting (3+0)
A course designed for all members to the fire service in the use of typical records and report systems. Involves knowledge and understanding of fire department record systems, principles of report writing, applications in the area of pre-fire survey, post-fire reporting, research and planning.

FSCI 212 3 Credits  As Demand Warrants
Codes and Ordinances (3+0)
Familiarization and interpretation of national, state and local codes, ordinances and laws which influence the field of fire prevention. (Prerequisites: FSCI 101 or permission of instructor)

FSCI 214 3 Credits  As Demand Warrants
Fire Protection Equipment and Systems (3+0)
Portable fire extinguishing equipment; protection systems for specific hazards; sprinkler systems; and fire detection and alarm systems.

FSCI 215 3 Credits  As Demand Warrants
Wildland Fire Prevention/Law Enforcement (3+0)
The organization and functions of fire prevention; objectives and policy, education and enforcement, analysis and inspection techniques; public relations as affected by fire prevention; fire investigation; basic law enforcement techniques.

FSCI 224 3 Credits  As Demand Warrants
Wildland Fire Business Management (3+0)
A course covering the duties and responsibilities of a fire officer as they relate to fire management practices and programs. Promotes professionalism and effects a sound fire management program. Covers procedures required in identified finance jobs in a wildland organization, including the financial management of a large complex wildland fire.

FSCI 226 3 Credits  As Demand Warrants
Wildland Fire Plan/Multi Use Management (3+0)
Fire management and its role in a multiple use resource management program. Includes resource management, prescribed fire wildfire practices, environment, management goals and objectives, and fire planning.

FSCI 228 3 Credits  As Demand Warrants
Prescribed Burning/Fuels Management (3+0)
Course analyzes different fuels and evaluates benefits and effect of management practices. Includes prescribed fire procedures and objectives.

FSCI 230 3 Credits  As Demand Warrants
Fire Research & Development (3+0)
Research and development in the area of fire prevention, detection, prescribed burns, fire suppression, and post suppression.

FSCI 262 3 Credits  As Demand Warrants
Wildland Fire Control II (3+0)
A course designed to provide the student with advanced management skills and techniques. Topics include political and environmental considerations as they apply to wildland fires, line officer/incident management team roles and responsibilities, available technology and the problems involved with the wildland-urban interface.

FSCI 263 3 Credits  As Demand Warrants
Wildland Fire Environment Considerations (3+0)
Course covers ecosystems, erosion, soil properties and revegetation, fire ecology, fuel and the environment, fire control practices, and smoke management.

FSCI 270 3 Credits  As Demand Warrants
Incident Command Function (3+0)
A course designed to provide the student with 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.

Fisheries

Fisheries courses are offered at both the Fairbanks Campus and at the UAF Juneau Center for Fisheries and Ocean Science. Those offered only at Fairbanks will be identified by the initial "F" following the course number. Courses offered only at Juneau will be identified with the letter "J" following the course number. Students attending both units should consult with their academic advisor about which courses are available in Juneau.

FISH 101 3 Credits  Fairbanks, Spring
Introduction to Fisheries (3+0)
A survey of the values, habitats, biology, ecology and management of fisheries with particular reference to Alaskan fisheries and issues.

FISH 261F 3 Credits  Fall
Introduction to Seafood Science and Nutrition (3+0)
An introduction to the common level courses in fisheries sciences. Includes studies students to the application of scientific and engineering principles in the harvesting, processing, preservation, and marketing of Alaska's rich fisheries resources. (Prerequisites: CHEM 105 or BIOL 105 or consent of instructor)

FISH 301 3 Credits  Alternate Fall
Biology of Commercially Important Salmonid Fishes (3+0)
Biology, life history and ecology of economically valuable salmonids. Management of salmonid fisheries. (Prerequisite: FISH 301. Next offered: 1990-91.)

FISH 302 4 Credits  Alternate Spring
Biology of Commercially Important Marine Fishes (3+0)
Review of the major marine fish resources of Alaska. The taxonomy, distribution, life history and ecological relationships of marine fishes will be studied, with emphasis on demersal, early life history and the effects of fisheries on stocks. (Prerequisite: BIOL 222 [J BIOL 209]. Next offered: 1990-91.)
FISH 383 4 Credits Alternate Fall Biology of Commercially Important Invertebrates (3+3) Topics covered include the taxonomy, morphology, physiology, and ecology of commercially important invertebrates. A history of the management and fishery of the major species will also be covered. Emphasis will be on Alaskan species. (Prerequisite: BIOL 222 | BIOL 209). Next offered: 1990-91.)

FISH 400 3 Credits Fairbanks, Fall Fisheries Science (F 2+3, J 3+0) 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 301 | J STAT 373.)

FISH 401 3 Credits Fairbanks, Spring Fisheries Management (3+0) The principles, concepts and techniques of fisheries management are reviewed in terms of their biological, economic, social and political aspects. Topics covered are stocking and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. To clarify concepts and practices, examples of several fisheries are used. (Prerequisite: BIOL 271. Next offered: Juneau: 1990-91.)

FISH 411 F Credit Arr Fisheries Field Trip As Demand Warrants A trip to acquaint students with some of the principal fisheries of the state and problems involved in their management. (Prerequisite: major in fisheries biology or admission by arrangement.)

FISH 418F 4 Credits Alternate Fall Renewable Resource Management Systems (4+0) Develops the abilities to recognize, process and apply critical information in the management of renewable resources by examples from Alaskan fisheries. The computer is explored as a primary tool of resource management. (Prerequisite: STAT 301 | J STAT 373). STAT 401 recommended. Next offered: 1990-91.)

FISH 420F 3 Credits Fall Modeling, Simulation and Ecological Theory (3+0) Introduction to 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 281.)

FISH 421F 4 Credits Alternate Spring Fisheries Population Dynamics (4+0) Review and analysis of the major quantitative techniques available for assessing and predicting the status of fish populations. Demonstration and use of field and laboratory techniques and model verification; examples and case histories. (Prerequisite: STAT 301 | J STAT 373). FISH 418 recommended. Next offered: 1990-91.)

FISH 430F 3 Credits Alternate Fall Salmon Culture (1+4) Biology and technology of artificial propagation of salmonids. Reproduction, embryology, growth, nutrition, genetics and pathology of salmonids in both extensive (sea ranching) and intensive rearing systems. 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, CHEM 106, FISH 381. Next offered: 1991-92.)

FISH 445F 3 Credits Alternate Spring Sampling Methods in Fisheries (2+2) A review of standard and specialized sampling techniques in aquatic habitats. Basic sampling theory and statistical considerations will be included, as well as demonstrations and use of field laboratory techniques. Shipboard sampling will be part of the course. (Prerequisite: STAT 301 | J STAT 373). Next offered: 1991-92.)

FISH 601F 3 Credits Alternate Fall Quantitative Fishery Science (3+0)

FISH 602 3 Credits Juneau, Alternate Fall Advanced Fisheries Management (2+3) Fairbanks, Alt Spring

FISH 606F 4 Credits As Demand Warrants Finfish and Shellfish Diseases (3+3)

FISH 621F 4 Credits Alternate Fall Advanced Fisheries Population Dynamics I (3+2)

FISH 622F 4 Credits Alternate Spring Advanced Fisheries Population Dynamics II (3+2)

FISH 651F 3 Credits As Demand Warrants Fishery Genetics (3+0)

FISH 652F 3 Credits As Demand Warrants Use of Electrophoresis in Fisheries (1+4)

FISH 661 3 Credits Seafood Processing and Preservation (3+0)

FISH 662 3 Credits Seafood Composition and Analysis (3+0) Alternate Fall

Foreign Languages

FL 110 2 Credits As Demand Warrants How to Pronounce French, German, Italian, and Spanish (2+0) Designed to meet the needs of 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.

French

For information on studying in Europe, see Study Abroad.

FREN 075 3 Credits As Demand Warrants

FREN 076 3 Credits As Demand Warrants

FREN 101 5 Credits Fall Elementary French I and II (5+0) h An introductory course for students who wish to acquire the ability to speak French. Students first learn to understand simple spoken language, then to speak simple French, developing a beginning level of communicative competence in the language. (Prerequisite: FREN 075 for 076.

FREN 102 5 Credits Spring Elementary French I and II (5+0) h

FREN 201 3 Credits Fall Intermediate French I and II (3+4) h Continuation of FREN 102. Increasing emphasis on reading ability and culture material. Conducted in French. (Prerequisite: FREN 102 or equivalent.)

FREN 202F 3 Credits As Demand Warrants Intermediate French I and II (3+4) h

FREN 288 2 Credits Spring Individual Study: Reading French h Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical 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; use of Foreign Language Learning Center.

FREN 301 3 Credits As Demand Warrants

FREN 302 3 Credits As Demand Warrants

FREN 342 3 Credits Spring Studies in French Literature and Culture (3+0) h Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in French. Student may repeat course for credit when topics vary. (Prerequisites: French 301 or 303 or equivalent and at least sophomore standing, or permission of instructor.)
**Geography**

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<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Term(s)</th>
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</thead>
<tbody>
<tr>
<td>FREN 487</td>
<td>2</td>
<td>Individual Study: Translation of French Texts</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>FREN 488</td>
<td>3</td>
<td>Individual Study: Senior Project</td>
<td>As Demand Warrants</td>
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</table>

**Geography**

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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Term(s)</th>
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<tbody>
<tr>
<td>GEOG 101</td>
<td>3</td>
<td>Introductory Geography (3+0)</td>
<td>Fall and Spring</td>
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<tr>
<td>GEOG 103</td>
<td>3</td>
<td>World Economic Geography (3+0)</td>
<td>Fall and Spring</td>
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<tr>
<td>GEOG 202</td>
<td>3</td>
<td>Geography of United States and Canada (3+0)</td>
<td>Alternate Fall</td>
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<tr>
<td>GEOG 203</td>
<td>3 or 4</td>
<td>Elements of Physical Geography (3+0 or 3+3)</td>
<td>Fall and Spring</td>
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<tr>
<td>GEOG 301</td>
<td>3</td>
<td>Geographic Field Research Techniques</td>
<td>Alternate Fall</td>
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<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Geography of Alaska (3+0)</td>
<td>Spring</td>
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<tr>
<td>GEOG 305</td>
<td>3</td>
<td>Geography of Europe (except U.S.S.R.) (3+0)</td>
<td>Alternate Fall</td>
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<tr>
<td>GEOG 306</td>
<td>3</td>
<td>Geography of the Soviet Union (3+0)</td>
<td>Alternate Spring</td>
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<tr>
<td>GEOG 309</td>
<td>3</td>
<td>Geography (1+0)</td>
<td>Alternate Spring</td>
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<tr>
<td>GEOG 401</td>
<td>3</td>
<td>Weather and Climate (3+0)</td>
<td>Alternate Fall</td>
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<td>GEOG 402</td>
<td>3</td>
<td>Culture and Environment (3+0)</td>
<td>Alternate Fall</td>
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<td>GEOG 404</td>
<td>3</td>
<td>Urban Geography (3+0)</td>
<td>Alternate Fall</td>
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<td>GEOG 405</td>
<td>3</td>
<td>Political Geography (3+0)</td>
<td>Alternate Fall</td>
</tr>
<tr>
<td>GEOG 408</td>
<td>3</td>
<td>Quantitative Research Techniques (3+0)</td>
<td>Alternate Spring</td>
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<tr>
<td>GEOG 411</td>
<td>3</td>
<td>Geography of Asia (3+0)</td>
<td>Alternate Fall</td>
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<tr>
<td>GEOG 311</td>
<td>3</td>
<td>Geography of Africa (3+0)</td>
<td>Alternate Fall</td>
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<tr>
<td>GEOG 315</td>
<td>3</td>
<td>Physical and Cultural Geography of Africa</td>
<td>As Demand Warrants</td>
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<tr>
<td>GEOG 327</td>
<td>3</td>
<td>Cold Lands (3+0)</td>
<td>Spring</td>
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**Geological Engineering**

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
<th>Term(s)</th>
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<tbody>
<tr>
<td>GE 101</td>
<td>1</td>
<td>Introduction to Geological Engineering (1+0)</td>
<td>Fall</td>
</tr>
<tr>
<td>GE 261</td>
<td>3</td>
<td>General Geology for Engineers (2+3)</td>
<td>Spring</td>
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*GEOS 261*

Study of common rocks and minerals, landforms, erosion. Geologic materials and engineering application of geology. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)
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<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Title</th>
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<tbody>
<tr>
<td>GE 365</td>
<td>3</td>
<td>Fall</td>
<td>Geologic Engineering I (3+6)</td>
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<td>Geological and geotechnical factors for the solution of engineering</td>
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<td>problems. Special emphasis on soils and permafrost. Some fieldwork</td>
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<td></td>
<td>and student report. (Prerequisites: GEOS 101 or GEOS/GE 261 and ES</td>
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<td>208 or ES 209.)</td>
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<tr>
<td>GE 372</td>
<td>3</td>
<td>Spring</td>
<td>Rock Engineering (3+0)</td>
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<td>Rock engineering related to tunnels, slope design, and strata control.</td>
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<td>Some field work and student report. (Prerequisites: GEOS 101 or GE/</td>
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<td>GEOS 261 and ES 208 or ES 209.)</td>
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<tr>
<td>GE 375</td>
<td>3</td>
<td>Fall</td>
<td>Terrain Analysis (3+0)</td>
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<td>Evaluation of terrain characteristics using basic geomorphic and</td>
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<td>engineering principles. Consideration given to Alaskan applications.</td>
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<td>GE 405</td>
<td>4</td>
<td>Spring</td>
<td>Exploration Geophysics (3+3)</td>
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<td>Introduction to the theory and application of gravity, magnetic,</td>
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<td>electrical, electromagetic, radioactive, and seismic methods as used</td>
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<td>for geophysical exploration. Some field work required. (Prerequisites:</td>
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<td>GE/GEOS 261 or GEOS 101.)</td>
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<td>GE 420</td>
<td>3</td>
<td>Spring</td>
<td>Subsurface Hydrology (2+3)</td>
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<td>Study of hydraulic characteristics of earth materials, engineering</td>
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<td>problems and models related to subsurface fluids, and properties of</td>
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<td>water. (Prerequisites: GEOS 263 and PHYS 211.)</td>
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<td>GE 431</td>
<td>2</td>
<td>Alternate Fall</td>
<td>Applied Ore Microscopy (1+3)</td>
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<td>Preparation of polished sections of ores. Identification of ore</td>
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<td>minerals in reflected light by physical, optical, and chemical methods.</td>
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<td>Applications to ore genesis, drill core interpretation, beneficiation,</td>
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<td>and process control. (Prerequisite: GEOS 213 or permission of the</td>
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<td>instructor. Next offered: 1991-92.)</td>
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<td>GE 435</td>
<td>3</td>
<td>Spring</td>
<td>Exploration Design (3+4)</td>
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<td>Geologic, engineering and economic considerations applied to the</td>
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<td>design and development of mineral exploration programs. (Prerequisites:</td>
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<td>GEOS 314 and GEOS 214 or permission of instructor.)</td>
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<td>GE 440</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Slope Stabilization (3+0)</td>
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<td>Slope design for open pit mining and other excavations. Stability</td>
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<td>analysis by various methods and on-site measuring and monitoring</td>
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<td>techniques. (Prerequisites: ES 331 or permission of instructor. Next</td>
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<td>offered: 1991-92.)</td>
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<td>GE 471</td>
<td>3</td>
<td>Spring</td>
<td>Remote Sensing for Engineering (3+0)</td>
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<td>Applications of remote sensing to geological engineering problems.</td>
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<td>Introduction to digital satellite image processing with hands-on</td>
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<td>practice. (Prerequisites: GEOS 101 or GE/GEOS 261, GEOS 408, PHYS 212)</td>
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<tr>
<td>GE 480</td>
<td>2</td>
<td>Spring</td>
<td>Geologic Engineering II (1+3)</td>
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<td>A detailed study of geological and engineering factors for the</td>
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<td>solution of engineering problems. A term project is required. (Prereq</td>
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<td>uisites: GE 365, GE 375 or permission of instructor.)</td>
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<tr>
<td>GE 630</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Advanced Applied Mining Geology (2+3)</td>
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<td>GE 631</td>
<td>3</td>
<td>Spring</td>
<td>Electron Microprobe Methods (2+3)</td>
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<tr>
<td>GE 633</td>
<td>3</td>
<td>Fall</td>
<td>Fluid Inclusion Methods in Mineral and Petroleum Exploration (2+3)</td>
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<td>GE 635</td>
<td>3</td>
<td>Spring</td>
<td>Geostatistical Ore Reserve Estimation (2+3)</td>
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<td>(Same as MIN 635)</td>
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<tr>
<td>GE 649</td>
<td>3</td>
<td>Every Fifth Semester</td>
<td>Hazardous and Toxic Waste Management (3+0)</td>
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<td>(Same as EGE 649)</td>
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<td>GE 666</td>
<td>3</td>
<td>Alternate Fall</td>
<td>Advanced Engineering Geology (2+3)</td>
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<td>GE 668</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Tunneling Geotechniques (3+0)</td>
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<tr>
<td>GE 671</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Exploration Applications of Digital Image Processing (2+3)</td>
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**GEOSCIENCE (Geology and Geophysics)**

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<tbody>
<tr>
<td>GEOS 100</td>
<td>4</td>
<td>Spring</td>
<td>Introduction to Earth Science (3+3)</td>
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<td></td>
<td>A survey of four main disciplines of earth science-geology,</td>
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<td>oceanography, meteorology, and astronomy. The lab portion has two</td>
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<td>main goals, one to provide students with a vehicle to learn</td>
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<td>scientific methodology and two, to provide students with lab</td>
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<td>evidence to support theories presented in lecture. (Prerequisite:</td>
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<td>English placement test)</td>
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<tr>
<td>GEOS 101</td>
<td>4</td>
<td>Spring</td>
<td>The Dynamic Earth (3+3)</td>
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<td>Introduction to physical geology: a study of the earth, its</td>
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<td>materials, and the processes that affect changes upon and within</td>
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<td>it. Laboratory training in the use of topographic maps and the</td>
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<td>recognition of common rocks and minerals. Laboratory fee: $15.00.</td>
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<tr>
<td>GEOS 102</td>
<td>4</td>
<td>Independent Learning Only</td>
<td>Principles of Geology (3+3)</td>
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<td>Designed to offer an introduction to geology including an</td>
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<td>understanding of earth processes (both on the earth's surface and</td>
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<td>at depth) and the origin and classification of major rock types.</td>
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<td>By the end of the course, students should have an understanding of</td>
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<td>factors that have shaped the Earth, geologic events and processes</td>
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<td>occurring today, and some ideas on what may occur in Earth's</td>
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<td>future. Will not substitute for GEOS 101.</td>
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<tr>
<td>GEOS 103</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Geology of America's National Park (3+0)</td>
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<td>Geological origins of the physical features of Alaska-mountains,</td>
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<td>volcanoes, islands and glaciers. Designed for those who want to</td>
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<td>learn more about the geology of Alaska and the processes that</td>
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<td>formed it.</td>
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<tr>
<td>GEOS 105</td>
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<td>As Demand Warrants</td>
<td>Geology of the USA National Park (3+0)</td>
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<td>Geological origins of the physical features of the national parks</td>
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<td>and monuments that have been selected. Brief descriptions of their</td>
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<td>geologic history.</td>
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<td>GEOS 112</td>
<td>4</td>
<td>Spring</td>
<td>Principles of Geology (3+3)</td>
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<td>An introduction to the principles of historical geologic</td>
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<td>interpretation, the development of the geologic time scale, the</td>
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<td>stratigraphic record and its interpretation. Sedimentation and plate</td>
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<td>tectonics, the fossil record and its utilization, biostratigraphy,</td>
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<td>and the evolution of the North American continent through geologic</td>
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<td>time. Laboratory examination of fossils, interpretation of</td>
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<td>geologic maps and stratigraphic columns. Laboratory fee: $10.00.</td>
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<td>(Prerequisites: GEOS 101 with lab (4 credits) or GEOS/GE 261.)</td>
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<tr>
<td>GEOS 120A</td>
<td>1</td>
<td>Spring</td>
<td>Volcanoes (1+0)</td>
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<td>A course for the non-specialist on the causes, effects,</td>
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<td>measurements and prediction of earthquakes. Topics include the</td>
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<td>distribution of earthquakes and relation to plate tectonics.</td>
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<td>Catastrophic events in historic times, size and frequency of</td>
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<td>earthquakes, man-made earth­quakes and earthquake prediction and</td>
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<td>GEOS 120B</td>
<td>1</td>
<td>Spring</td>
<td>Volcanoes (1+0)</td>
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<td>A survey course on volcanoes for the non-specialist. Topics will</td>
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<td>include the type of volcanic eruptions and characteristics deposits,</td>
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<td>volcanic rocks, size and frequency of eruptions, the distribution</td>
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<td>of volcanoes in relation to plate tectonics, volcanism and</td>
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<td>geothermal energy, assessment of volcanic hazards, prediction and</td>
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<td>control of eruptions.</td>
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<tr>
<td>GEOS 120C</td>
<td>1</td>
<td>Spring</td>
<td>Geology of Alaska (3+0)</td>
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<td>An overview of the geology of Alaska for non-majors. Modern</td>
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<td>geologic processes in Alaska will be used as a basis for</td>
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<td>understanding past geologic evolution of the region. The origin and</td>
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<td>recovery of Alaska's petroleum and mineral resources will be</td>
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<td>discussed. (Prerequisites: GEOS 101.)</td>
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<td>GEOS 213</td>
<td>4</td>
<td>Fall</td>
<td>Mineralogy (2+3)</td>
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<td>Introduction to mineral chemistry, atomic structure, elementary</td>
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<td>crystallography, optical crystallography and descriptive and</td>
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<td>determinative mineralogy. Includes introduction to instrumental</td>
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<td>determinative techniques (x-ray diffraction, petrographic</td>
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<td>microscopy). (Prerequisites: GEOS 101 or 261; CHEM 105 and</td>
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<td>concurrent registration in MATH 107-108.)</td>
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GEOS 214  4 Credits  Spring
Petroleum and Petrology (2+6) n
Study of the origin, occurrence, and classification of igneous, sedimentary, and metamorphic rocks. Laboratory work involves hand lens identification and thin section examination of representative igneous, sedimentary and metamorphic rocks. Laboratory Fee: $10.00. (Prerequisite: GEOS 213.)

GEOS 261  3 Credits  Spring
General Geology for Engineers (2+3) n
(Also as GE 261)
Study of common rocks and minerals, landforms, erosion, Geologic materials and engineering application of geology. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)

GEOS 262  3 Credits  Alternate Fall
Rocks and Minerals (2+3)
Minerals and rocks in the earth; their physical properties, classification, mode of occurrence and economic applications. Role of rock materials in soil formation and fluid flow. Influence of minerals and rock properties on economic deposits and construction. Labs on recognition and measurement of physical properties. Course may not be used to satisfy degree requirements in Geology or Geological Engineering. $10.00. (Prerequisite: GEOS 214 or equivalent.)

GEOS 304  3 Credits  Fall
Geomorphology (2+3) n
Study of the Earth's surface features and the processes which create or modify them. Application to Quaternary history, environmental science and related fields. Laboratory examination of topographic maps and aerial photographs, introduction to geomorphic measurements. Laboratory fee: $10.00. (Prerequisite: GEOS 101.)

GEOS 314  4 Credits  Spring
Structural Geology (3+3) n
Origin and interpretation of primary and secondary geologic structures. Graphical solution of structural problems. Laboratory Fee: $10.00. (Prerequisite: GEOS 212, PHYS 103 or 211, MATH 201, GEOS 214 or concurrent registration.)

GEOS 321  3 Credits  Alternate Fall
Sedimentology (3+3) n
Basic concepts of sediments, including origin, classification, composition, transportation, deposition, and diagenesis. Laboratory instruction covers identification and description of hand specimens as well as techniques of textural and compositional analysis. Laboratory fee: $10.00. (Prerequisite: GEOS 213 or permission of Instructor. Next offered: 1990-91.)

GEOS 322  4 Credits  Spring
Stratigraphy and Sedimentation (3+3) n
Analysis of sequence in sediments including principles of litho-, bio- and chronostratigraphy and facies analysis. Surface and subsurface methods utilizing petrologic and geophysical data. Laboratory emphasizes correlation problem from geologic maps and subsurface data. (Prerequisites: GEOS 101 or GEOS 261, and GEOS 112.)

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 some 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. (Prerequisite: GEOS 262 or permission of instructor. Next offered: 1990-91.)

GEOS 351  4 or 6 Credits  As Demand Warrants
Field Geology (Arranged) n
Practical experience in the procedures employed in collecting and presenting the basic data obtained from the field. Includes field mapping, lithostratigraphic and structural problems on topographic maps, aerial photographs, plane table maps, and presentation of results in a professional report and finished geologic map. Students pay own transportation, subsistence and course tuition fee. Entrance by preregistration only, apply through the department. Usually filled to capacity by February of current year. Geophysics options may elect to take this course for four credits if they also register for GEOS 451, Field Geophysics. All others must take six credits. (Prerequisites: Junior standing in geology, GEOS 350 or equivalent 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 structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration. (Prerequisites: GEOS 101 or GEOS 261. Next offered: 1989-90.)

GEOS 401  4 Credits  Fall
Invertebrate Paleontology (3+3) n
Study of the invertebrate phyla with fossil records. Emphasis on soft-part anatomy and classification, followed by study of hard-part anatomy of fossil groups and their classification. Recurrent emphasis on relevant biologic principles. Laboratory study of fossil materials. (Prerequisites: GEOS 101 or 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 the interpretation of geological structures, landscapes, landforms, and geomorphic processes. Techniques included are map compilation, photo mapping, statistical treatment of map data, and composite mapping for planning purposes. Laboratory fee: $10.00. (Prerequisite: GEOS 304 or permission of instructor.)

GEOS 410  2 Credits  Fall
Potential Methods in Geophysics (1+3) n
The fundamental principles of potential methods and the application to geophysical exploration will be studied along with the 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
The study of the fundamental principles of seismic exploration techniques, beginning with the basic laws of seismic wave propagation and ending with the practical application of the techniques, including both 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
The fundamental principles of electrical resistivity and current flow in the earth and the practical application in the realm of geophysical exploration will be studied. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 414  3 Credits  Fall
Introduction to Glaciology (3+0) n
A broad survey of and introduction to glaciology including thermodynamic and phase relations of phase relations, supercooling, nucleation, and freezing of water in the laboratory and in rivers, lakes, oceans, cloud droplets, soil, and animal and plant tissue. Physical processes in seasonal and perennial snow and transformation of snow to glacier ice will be examined, as well as nucleation and classification of glaciers, mass balance of glaciers, glacier flow and causes of glaciation. Physical properties and processes in frozen ground and sea ice will be studied. (Prerequisite: MATH 201 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 105-106 or permission of instructor.)

GEOS 418  3 Credits  Fall
Basic Geophysics (3+0) n
The basic concepts and techniques of geophysics as applied on a global scale. Topics covered will include the origin of the earth, its structure, and the large scale dynamic processes responsible for its surface features. Geophysical field techniques, including gravity, magnetics, and electrical methods will be discussed along with measurements of the earth's thermal structure, rotation rates, and the effects of the tides. (Prerequisite: Permission of the instructor.)

GEOS 419  4 Credits  Alternate Spring
Continuum Mechanics (4+0) n
Mechanics of physical continua, 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 and techniques used in earthquake prediction. Prequisites: Geoscience students: MATH 201; Civil Engineering students: ES 331. Next offered: 1992-93.

GEOS 422 3 Credits Fall
Earthquake Geophysics (3+3) n
Introduction to the scope of remote sensing and its applications to geologic, environmental and physical sciences. Includes examination of nomenclature, a review of types of remote sensing systems, and study of the factors in which remote sensing data is available. Emphasis placed on the 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
An introduction to the use of the computer and statistics in geology and related sciences. The course stresses 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 432L 2 Credits Fall
Glacial and Periglacial Geology Laboratory (1+3) n
Laboratory work includes identification, characterization and systematic description of major types of glacial landforms. Laboratory fee: $10.00. (Prerequisites: GEOS 214, GEOS 314, GEOS 232, GEOS 401)

GEOS 451 2 Credits Summer
Practical Field Geophysics n
Designed to be a "hands-on" practical geophysics course involving both data acquisition and reduction. Techniques used will include gravimetric, radiometric, resistivity, magnetic, electro-magnetic and seismic. Taught concurrently with the last two weeks of GEOS 351, Field Geology. Entrance by registration only; apply through the department. Class usually filled to capacity by February of current year. (Prerequisites: MATH 201, PHYS 212, and introductory exploration geophysics, and permission of instructor.)

GEOS 465 3 Credits Alternate Spring
Geochronology (3+0)
(Courts: AMTH 465)
The 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 101, an introductory course in archeology, or permission of instructor. Next offered: 1991-92.)

GEOS 470 4 Credits Alternate Fall
Petroleum Geology (3+3) n
The study of the basic elements required for hydrocarbon accumulation: source, maturation, migration, reservoir, seal, and trap. These elements, and exploration and production practices will be illustrated using examples of oil and gas fields throughout the world. The lab will provide practical experience with the techniques used in geologic and subsurface exploration. (Prerequisites: GEOS 314, GEOS 321, GEOS 322. Next offered: 1991-92.)

GEOS 492 1 Credit Fall and Spring
A weekly seminar series designed to explore a geologic theme of current interest for a complete semester. (Prerequisite: Senior or graduate standing or permission of instructor.)

GEOS 603 1 - 2 Credits As Demand Warrants
Advanced Field Mapping (0-3+1-3)

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 and techniques used in earthquake prediction. Prequisites: Geoscience students: MATH 201; Civil Engineering students: ES 331. Next offered: 1992-93.

GEOS 422 3 Credits Fall
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Introduction to the scope of remote sensing and its applications to geologic, environmental and physical sciences. Includes examination of nomenclature, a review of types of remote sensing systems, and study of the factors in which remote sensing data is available. Emphasis placed on the use of LANDSAT, radar imagery, thermal imagery and color infrared photography. (Prerequisites: PHYS 104, 212, junior standing or consent of instructor.)

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An introduction to the use of the computer and statistics in geology and related sciences. The course stresses 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.)

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Glacial and Periglacial Geology Laboratory (1+3) n
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GEOS 603 1 - 2 Credits As Demand Warrants
Advanced Field Mapping (0-3+1-3)

For information on studying in Europe see Study Abroad.

GER 075 3 Credits As Demand Warrants
Conversational German I and II (3+0) n
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; use of Foreign Language Learning Center.

GER 201 3 Credits Fall Intermediate 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.)

Health

HLTH 203 3 Credits Independent Learning Only Science of Nutrition
An introductory course in which the principles of nutrition and how they relate to the life cycle are studied. The effect this course has upon the student’s thinking relative to nutrition and upon the student’s dietary habits is an important outcome. A desired objective is improvement, where needed, in the student’s nutritional status.

HLTH 201 1 Credit As Demand Warrants Pharmacology Update (1+0) h
Update on pharmacology including review of old drugs and information on new drugs. Review of Pharmacological calculations and pharmacodynamics. (Prerequisite: Practicing or licensed nurse.)

History

HIST 101 3 Credits Fall Western Civilization (3+0) s
The origins and major political, economic, social, and intellectual developments of western civilization to 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) h
This course covers the history of the Yukon-Kuskokwim Delta beginning with oral traditions about the creation of the area, and ending with the passage of the Alaska Native Land Claims Act in 1971. The course concentrates on Yup’ik social, economic, and educational changes that have occurred, including both native and non-native accounts of these changes. 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)
(As Same as ANTH 205) h
This course introduces the student to the cultural history of the people who have lived on or near the Seward Peninsula for the last 10,000 years. Information is presented from the disciplines of physical anthropology, ethnography, ethnology, linguistics, archaeology, social anthropology, ecology, and climatology. Through lectures, discussions, readings, films, guest speakers, and examination of Eskimo artifacts, students gain a basic familiarity with the several Eskimo and Euro-American cultures with have existed in western Alaska.

HIST 110 3 Credits Fall and Spring History of Alaska Natives (3+0) s
The history of the Alaska Natives from contact to the signing of the Claims Settlement Act.

HIST 112 3 Credits Spring Alaska, Land and Its People (3+0) s
A survey of Alaska from earliest days to present, its peoples, problems, and prospects. Also available via Independent Learning.

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.
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<th>Course Code</th>
<th>Credits</th>
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<tr>
<td>HIST 200</td>
<td>3</td>
<td>Heritage of Alaska Natives (3+0)</td>
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<td>HIST 201</td>
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<td>History of the Bering Straits (3+0)</td>
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<td>HIST 221</td>
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<td>English History (3+0)</td>
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<td>HIST 250</td>
<td>3</td>
<td>Alaska History for Local Historians (3+0)</td>
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<td>HIST 275</td>
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<td>Gold Rush Era: Myth and Reality (3+0)</td>
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<td>HIST 305</td>
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<td>Europe: 1730-1830 (3+0)</td>
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<td>HIST 306</td>
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<td>Europe: 1830-1900 (3+0)</td>
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<td>HIST 315</td>
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<td>Europe: 1900-1945 (3+0)</td>
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<td>HIST 316</td>
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<td>Europe since 1945 (3+0)</td>
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<td>HIST 320</td>
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<td>Modern Scandinavia (3+0)</td>
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<td>HIST 330</td>
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<td>HIST 340</td>
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<td>Russian Eastward Expansion (3+0)</td>
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<td>HIST 341</td>
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<td>History of Alaska (3+0)</td>
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<td>HIST 344</td>
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<td>Modern Russia (3+0)</td>
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<td>HIST 350</td>
<td>3</td>
<td>History of the People's Republic of China (3+0)</td>
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<td>HIST 355</td>
<td>3</td>
<td>Canadian History: 1867 to Present (3+0)</td>
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<td>HIST 375</td>
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<td>History of the Northern Pacific (3+0)</td>
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<td>HIST 380</td>
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<td>Polar Exploration and its Literature (3+0)</td>
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<td>HIST 382</td>
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<td>History of Circumpolar Research (3+0)</td>
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<td>HIST 384</td>
<td>3</td>
<td>20th Century Circumpolar History (3+0)</td>
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**Note:** Prerequisites and credits vary depending on the course. For more information, please refer to the course catalog or consult with an instructor.
HIST 401 3 Credits  Alternate Fall
Renaissance and Reformation Europe (3+0) s
Political, economic, and intellectual developments during the 15th and
16th centuries in Europe. (Prerequisites: HIST 101 or 102 and junior
standing, or permission of instructor. Next offered: 1991-92.)

HIST 402 3 Credits  Alternate Fall
Seventeenth and Eighteenth Century Europe (3+0) s
Political, social, economic, and cultural developments during the 17th
and 18th centuries in Europe. (Prerequisites: HIST 101 or 102 and junior
standing, or permission of instructor. Next offered: 1990-91.)

HIST 403 3 Credits  Alternate Fall
Modern Germany (3+0) s
1848 to present: Unification, the Second Empire, WWI, the Weimar
Republic, National Socialism, WWII, the Holocaust, and the creation of
the post-war German states with different societies. Emphasis on
political, social, and economic developments. (Prerequisite: HIST 101
or 102. Next offered: 1989-90)

HIST 420 3 Credits  Alternate Spring
Approaches to Women's History (3+0) s
A theoretical and topical approach to the study of the history of women:
the role of women in politics, the economy, the family, warfare, the
influence of industrialization, and changing social structures on women.
(Prerequisites: HIST 102, 132, or permission of the instructor.
Next offered: 1990-91)

HIST 430 3 Credits  Alternate Fall
American Colonial History (3+0) s
Early American European settlement: economic and social development
of the American community establishment of political independence.
(Prerequisites: HIST 131, 132 or permission of instructor.
Next offered: 1991-92.)

HIST 435 3 Credits  Alternate Spring
Civil War and Reconstruction (3+0) s
Political, economic, social and diplomatic history of 1860-77, disruption
and re-establishment of the Union. (Prerequisites: HIST 131, 132 or
permission of instructor. Next offered: 1991-92.)

HIST 440 3 Credits  Alternate Fall
U.S. Westward Expansion 1763-1867 (3+0) s
Westward expansion and acquisition of territory, admission of new
states, development of land policy, treatment of native people. (Prereq-
usites: HIST 131 or permission of instructor. Next offered: 1991-92.)

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 'colonial' region in the
20th century. (Prerequisites: HIST 132 or HIST 440 or permission of
instructor.)

HIST 442 3 Credits  Independent Learning Only
History of the American Military (s)
A history of the military's place in American life and society from the
Colonial era to the early 1960's. Historically, the military has been and
remains one of the nation's most important institutions. It has shaped
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. (Prerequisites: HIST 131, 132 or
permission of instructor. Next offered: 1991-92.)

HIST 451 3 Credits  Independent Learning Only
History of U.S. Foreign Policy (s)
Analysis of the evolution of U.S. foreign policy with emphasis on the
post-World War II period and the emergence of a bipolar distribution
of power. Includes major discussion of the Vietnam War, American policy
in the Middle East, and the foreign policy views of the Kennedy, Nixon,
Carter and Reagan administrations. (Prerequisite: Junior standing or
permission of the 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
strategy. (Prerequisite: Junior standing or permission of instructor.
Next offered: 1991-92.)
HMSV 225  2 Credits  As Demand Warrants
Case Management (2+0)
(Same as Swk. 225)
Introduction to basic knowledge and skills needed to develop service plans in human service work and to maintain appropriate case records.
Legal and ethical issues in case management are considered and discussed.

HMSV 230  3 Credits  As Demand Warrants
Alcoholism: Causes and Consequences (3+0)
An examination of the theories concerning the causes of alcoholism to include physical and psychological factors, such as personality disorders or disorders. Data supporting these theories will be evaluated. (Prerequisites: SOC 101 or PSY 101 or permission of instructor.)

HMSV 235  3 Credits  As Demand Warrants
Foundations of Counseling I (3+0)
A survey of counseling philosophy and the various types of counseling systems that are used in most settings. An examination of the appropriate approach and system match will be undertaken so that the student will be able to make intelligent decisions concerning which approach to use. Some of the approaches examined will be psychoanalysis, behavior therapy, and humanistic approaches. Offshoots of these approaches will also be surveyed if they are in fairly wide use. Counseling ethics will be studied and ethical problems illustrated and discussed. (Prerequisites: PSY 101, PSY 240 or permission of instructor.)

HMSV 284  Variable Credits  As Demand Warrants
Human Services Seminar
Identification and discussion of issues relevant to the human services field. Specific topics to be announced. (Prerequisite: Permission of instructor.)

HMSV 330  3 Credits  As Demand Warrants
Alcoholism: Treatment and Prevention (3+0)
A survey of evaluation and treatment and prevention attempts in dealing with alcoholism and alcohol abuse with emphasis placed on prevention strategies. (Prerequisites: HMSV 230.)

HMSV 336  3 Credits  Spring
Foundations of Counseling II (3+0)
(Same as PSY 336)
Continuation of HMSV 255 — Foundations of Counseling I. Specific counseling strategies will be studied in-depth such as crisis intervention, individual techniques such as the rational therapies and specific behavioral approaches. The role of the counselor in community education and consultation will be explored as well methods of promoting community change. Issues in cross-cultural counseling will be studied to include those likely to be encountered in Alaska. (Prerequisite: HMSV 250 or PSY 355.)

HMSV 410  3 Credits  As Demand Warrants
Management of Human Services Programs (3+0)
Human service personnel at the baccalaureate level are often required to supervise associates or aides with less training, in rural areas such personnel may also assume responsibilities for program development and management. This course is designed to prepare students for supervisory and managerial tasks at a beginning level. It is anticipated that additional in-service training would be made available to provide techniques that are agency-specific. (Prerequisites: HMSV 255.)

HMSV 415  3 Credits  As Demand Warrants
Group Processes (3+0)
An examination of various group types to include problem solving, task-oriented groups, therapy groups, career guidance groups, and assertive training groups. Different theoretical orientations to groups counseling will also be discussed. (Prerequisites: HMSV 255 and HMSV 356.)

HMSV 445  3 Credits  Fall
Community Psychology (3+0)
(Same as PSY 445)
An examination of community psychology foundations to include community assessment consultation as edited in psychology. Topics covered during the community assessment include identification of areas for study, surveys, evaluation of services, and use of results for programming. During the community consultation portion, education, prevention, and service issues are covered. Particular attention will be given to rural and small community assessment and change especially as it applies to Alaska. (Prerequisites: PSY 101, SOC 101 and HMSV 201.)

HMSV 488  3-6 Credits  As Demand Warrants
Practicum in Human Services
This course teaches the student skills with which to work in a human service agency either concurrently with an agency placement or prior to placement. Skills covered include interviewing, assessment, facilitating, intervening, and in general, case management. Students will be meeting with an instructor from the Department weekly to learn counseling skills through use of instruction, role-playing, video tapes, and various types of feedback. In addition, an instructor will be appointed by the university from the agency for practicum supervision of the student. (Prerequisites: HMSV 255. Student must be a major in the program.)

Humanities

HUM 101  3 Credits  As Demand Warrants
Comparative Civilizations: A Cultural Perspective (3+0)
This course examines the humanities using both Western Civilization and the Yup'ik cultures as bases. It introduces fundamental principles of the performing and visual arts as displayed in Yup'ik and Non-Yup'ik art forms. It acquaints the student with ideas and cultural developments that have stirred and enriched civilization. It considers various 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)
The course has two aims: to provide an introduction to literature, poetry, drama, and to increase the student's appreciation of Alaskan literature written by both natives and non-Natives. Students will read examples from oral Native tradition, the frontier era, and meet the contemporary living writers by audioconference.

HUM 161  3 Credits  As Demand Warrants
In Our Own Image (3+0)
Focuses on some of the basic notions about people-how they see things and what they care about-and some very basic notions about the kinds of 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) h
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) h
A detailed treatment of the scientific rudiments, methods, and principles as they emerged from 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 periods or periods with reference to philosophy, literature, science, art and music.

HUM 220  3 Credits  As Demand Warrants
Film: Aesthetics, Criticism, History (3+0) h
This course examines the roles played by the city and the wilderness in contemporary imagination. The movies and books will introduce students to thought on the subject and teach them the skills of movie reviewing.

HUM 241  3 Credits  As Demand Warrants
Eskimo and World Literature (3+0)
These courses examine the literature of the Eskimo peoples as well as that of other North Americans, Asians, and Europeans. Universal and timely themes are found and compared which communicate aspects of the human experience which are valid across cultures and across times. HUM 241 is not prerequisite to HUM 242.

HUM 242  3 Credits  As Demand Warrants
The Modern Media: Search for Communication (3+0) h
Review of effects and trends in mass media relating society, media, and culture. (Prerequisites: 6 credits in communication, written or oral, or permission of instructor. Next offered: 1991-92.)
**Japanese**

For information on studying in Japan, see Study Abroad.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>JPN 101</td>
<td>5</td>
<td>Fall</td>
<td>Elementary Japanese I and II (5+0) h</td>
</tr>
<tr>
<td>JPN 102</td>
<td>5</td>
<td>Spring</td>
<td>Introduction to spoken and written Japanese. The student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. The cultural dimension will be explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese.</td>
</tr>
<tr>
<td>JPN 201</td>
<td>4</td>
<td>Fall</td>
<td>Intermediate Japanese I and II (4+0) h</td>
</tr>
<tr>
<td>JPN 202</td>
<td>4</td>
<td>Spring</td>
<td>The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension will be enhanced through the use of videotape materials. Courses are taught in Japanese. (Prerequisite: JPN 102 or equivalent.)</td>
</tr>
<tr>
<td>JPN 301</td>
<td>3</td>
<td>Fall</td>
<td>Advanced Japanese (3+0) h</td>
</tr>
<tr>
<td>JPN 302</td>
<td>3</td>
<td>Spring</td>
<td>The student will develop advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the Standard Tokyo dialect; and a study of television drama series. May be repeated with different topics. (Prerequisites: JPN 202 or equivalent.)</td>
</tr>
<tr>
<td>JPN 332</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Japanese Cultural Traditions (3+0) h</td>
</tr>
<tr>
<td>JPN 333</td>
<td>3</td>
<td>Alternate Spring</td>
<td>Twentieth Century Japanese Prose Fiction (3+0) h</td>
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**Journalism — Broadcasting**

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>JB 101</td>
<td>3</td>
<td>Fall and Spring</td>
<td>Introduction to Mass Communications (3+0) h</td>
</tr>
<tr>
<td>JB 102</td>
<td>3</td>
<td>Fall and Spring</td>
<td>Introduction to Broadcasting (3+0) h</td>
</tr>
<tr>
<td>JB 202</td>
<td>3</td>
<td>Fall and Spring</td>
<td>Basic Photography (2+3) h</td>
</tr>
<tr>
<td>JB 204</td>
<td>3</td>
<td>Fall and Spring</td>
<td>Basic Photojournalism (2+3) h</td>
</tr>
<tr>
<td>JB 211</td>
<td>3</td>
<td>Fall and Spring</td>
<td>Audio Production (2+3) h</td>
</tr>
<tr>
<td>JB 217</td>
<td>3</td>
<td>Spring</td>
<td>Introduction to the Study of Film (2+2) h</td>
</tr>
<tr>
<td>JB 240</td>
<td>3</td>
<td>Spring</td>
<td>International Communications (3+0) h</td>
</tr>
<tr>
<td>JB 301</td>
<td>4</td>
<td>Fall and Spring</td>
<td>Basic Newsgathering and Processing (2+4) h</td>
</tr>
<tr>
<td>JB 303</td>
<td>3</td>
<td>Spring</td>
<td>Intermediate Photography (2+3) h</td>
</tr>
<tr>
<td>JB 311</td>
<td>3</td>
<td>Fall and Spring</td>
<td>Magazine Article Writing (2+1) h</td>
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<tr>
<td>JB 315</td>
<td>3</td>
<td>Fall</td>
<td>Television Productions (2+4) h</td>
</tr>
<tr>
<td>JB 317</td>
<td>3</td>
<td>Spring</td>
<td>Broadcast Journalism (3+0) h</td>
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**Note:** Course information and requirements are subject to change. Please consult the university catalog for the most current information.
COURSE DESCRIPTIONS—JUSTICE / 161

JUST 110 3 Credits
Introduction to Justice (3+0)
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 221 3 Credits
Justice Organization and Management (3+0)
Survey of organizational structure and management styles of criminal justice agencies. Includes application and critique of major theoretical models.

JUST 222 3 Credits
Research Methods (3+0)
Same 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
Origins of Law (3+0)
Same 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
Criminology (3+0)
The study of the major areas of deviant behavior and its relationships to society, law, and law enforcement, including the theories of crime causation. (Prerequisites: SOC 101.)

JUST 250 3 Credits
Juveniles and the Law (3+0)
Survey of the structure and process of the juvenile justice system and the major theories of juvenile delinquency. (Next offered: 1991-92.)

JUST 250 3 Credits
Introduction to Public Administration (3+0)
Same 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: 1990-91.)

JUST 303 3 Credits
Introduction to Legal Processes (3+0)
Same as PS 303.
The purpose and functions of law in society, with a focus on legal reasoning and decisionmaking in civil cases. (Prerequisites: PS 101, JUST 110.)

JUST 310 3 Credits
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.)
KORE 232 3 Credits
Korean Culture (3+0)
An overview of Korean cultural traditions as revealed in the life styles, ways of thinking, literature, and arts. Lecture on paintings, architecture, shamanist rituals, and performing arts will be accompanied by video tapes and films. (Next offered: 1990-91.)

Library Science

LS 100 1 Credit
Library and Information Strategies (1+0)
An introductory course intended for students who do not have direct access to the Rasmuson Library. It will cover the principles of information organization and how libraries can provide access to informational and scholarly resources. Emphasis will be on use of a library via distance delivery methods.

LS 101 1 Credit
Library Skills (0+0)
An independent study course in college library skills and some resources and facilities common to academic libraries in general and to the Rasmuson Library in particular. After one introductory class meeting no further class sessions are held; the student works at his individual rate and on his own time schedule.

LS 307 1 Credit
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
Information Resources (1+0)
As Demand Warrants
Information organization, scholarly communication, and research process for a specific discipline, including major reference resources and bibliographic databases in the discipline. This course should be taken the semester before or during which the student takes an upper division course requiring a term paper. 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
History of Circumpolar Research (3+0)
Same as HIST 382
Explores the systematic development of knowledge of the circumpolar northern regions in all fields. Studies the history of arctic and subarctic sciences such as geological, biological and atmospheric sciences and the study of people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology as well as research in education, government and law are covered. The literature and source material for a study of these fields will be analyzed. Prerequisite: HIST 110 or 115 or ANTH 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 282 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 282)
This course is an introduction to second language teaching methods, using English as a Second Language (ESL) and Standard English as a Second Dialect (SES) for the examples. The class covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affect they have on how we teach. The different roles of the second language teacher and their acceptability is covered. Several specific language teaching methods, techniques and activities consistent with these methods, and adaptation of these methods to the needs of western Alaskan classrooms is also presented. (Prerequisite: Classroom experience.)
LING 216 3 Credits Alternate Fall
Languages of the World (3+0) h
A comprehensive survey of the world's languages — both past and present. Topics to be covered 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 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: PSY 240.)

LING 318 3 Credits Alternate Spring
Introduction to Phonetics and Phonology (3+0)
An introduction to the scientific study of human speech sounds, the mechanism of their production, and the sound systems of languages. (Prerequisite: Upper division standing or permission of instructor. Next offered: 1991-92.)

LING 320 3 Credits Alternate Spring
Intro. to Syntactic Theory (3+0) h
An introduction to the study of the principles and processes of sentence construction in language. (Prerequisite: 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: 1990-91.)

LING 350 3 Credits Alternate Fall
Historical Linguistics (3+0)

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: 1990-91.)

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: 1990-91.)

Marine Science and Limnology

MSL 111 3 Credits Juneau Alt. Fairbanks Spring
The Oceans (3+0) n
An introductory examination of the classic disciplines of ocean science beginning with important definitions and a general history of oceanography. Emphasis is on descriptive biological, physical, chemical and geological marine science. Additional topics of special interest including scuba, demonstrations of marine research instrumentation, and films of current oceanographic topics such as coastal upwelling and polar oceanography will supplement the lecture. (Next offered Juneau: 1991-92.)

MSL 311 3 Credits Juneau As Demand Warrants
Fairbanks Alternate Fall
Current Topics in Oceanographic Research (3+0)
Study of current oceanographic research problems from biology, chemistry, geology and physics. Topics will 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 Fairbanks: 1991-92.)

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.

DEVN 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-M 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-M 050 or placement.)

DEV-M 065 Variable Credit As Demand Warrants
Mathematics Lab
This course is an individual tutorial lab. Course content is selected according to the needs of the individual student from the topics covered in DEV-M 060 and DEV-M 066. (Placement required.)

DEV-M 070 3 Credits As Demand Warrants
Intermediate Algebra (3+0)
Second year high school algebra. Operations with rational functions, radical expressions, conic sections, quadratic equations and inequalities, Cartesian coordinate system and graphing, systems of equations, determinants and logarithms. (Prerequisites: DEV-M 060 or placement.)

MATH 080 3 Credits As Demand Warrants
Mathematics for the Trades (3+0)
Designed for students in diesel and welding areas. Topics from algebra, geometry and trigonometry are applied to Voc-Tech problems.

MATH 107 3 Credits Fall and Spring
Elementary Functions (3+0)
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, MATH 161 or MATH 171. Also available via Independent Learning. (Prerequisite: Two years of high school algebra and MATH 107 placement or higher.)

MATH 108 2-3 Credits Fall and Spring
Trigonometry (2-3+0)
A study of the trigonometric functions. Also available via Independent Learning. (Prerequisite: MATH 107 or concurrent registration in MATH 107.)

MATH 109 3 Credits As Demand Warrants
Analytic Geometry (3+0)
Rectangular coordinate system, the straight line, conic sections, transcendental curves, polar coordinates, parametric equations, and solid analytic geometry. (Prerequisite: Two years of high school algebra.)

MATH 110 3 Credits Fall and Spring
Mathematics of Finance (3+0)
Simple and compound interest, discount, annuities, amortization, sinking funds, depreciation, and capitalization. (Prerequisite: Two years high school mathematics, including at least one year of algebra.)

MATH 131 3 Credits Fall
Algebra for Business and Economics (3+0)
Functions of one and several variables studied with special attention given to linear, polynomial, rational, logarithmic, and exponential relationships. Geometric progressions as applied to compound interest and present value. Linear systems of equations and inequalities. All applications are from the fields of economics and business. Note: No credit may be earned for more than one of MATH 107, MATH 161 or MATH 171. (Prerequisite: Two years of high school algebra and MATH 161 placement or higher.)

MATH 162 4 Credits Fall and Spring
Calculus for Business and Economics (4+0)
Ordinary and partial derivatives, Maxima and minima problems, including the use of Lagrange multipliers. A brief introduction to the integral of a function of one variable. Applications include marginal cost, productivity, revenue, point elasticity of demand, competitive/monopolistic products, consumer's surplus, etc. Note: No credit may be earned for more than one of MATH 162, MATH 200, or MATH 272. (Prerequisites: MATH 161.)
MATH 305 3 Credits  As Demand Warrants
Geometry (3+0)
Topics selected from such fields as Euclidean and non-Euclidean plane
geometry, affine geometry, projective geometry, and topology. (Prereq-
usite: MATH 202 or permission of instructor.)

MATH 306 3 Credits  Alternate Spring
Introduction to the History and Philosophy of Mathematics (3+0)
A concise survey of the history and philosophy of mathematics for
students of mathematics, science, history and philosophy as well as 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. (Prerequisites: MATH 202 or permission of instructor. Next
offered: 1990-91.)

MATH 307 3 Credits  Fall
Discrete Mathematics (3+0)
Logic, counting, sets and functions, recurrence relations graphs and
trees. Additional topics may be chosen from probability theory. (Pre-
requisites: MATH 201 or 203 or permission of instructor.)

MATH 308 3 Credits  Spring
Abstract Algebra (3+0)
Theory of groups, rings and fields. (Prerequisites: MATH 215 or permis-
son of instructor. Recommended: MATH 307 and/or MATH 514.)

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 ordi-
nary 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, determin-
ants, linear transformations, and characteristic values. Inner product
spaces. (Prerequisite: MATH 202 or MATH 211.)

MATH 371 3 Credits  As Demand Warrants
Probability (3+0)
Probability spaces, conditional probability, random variables, contin-
uous and discrete distributions, expectation, moments, moment generat-
ing functions, and characteristic functions. (Prerequisite: MATH
202.)

MATH 401 3 Credits  Fall
Advanced Calculus (3+0)
A rigorous treatment of one and several dimensional calculus. Includes the
study of mappings from n-space and their continuity, differential-
ability and integrability properties as well as sequences and differen-
tial equations. (Prerequisites: MATH 215 or 202 for MATH 401; MATH 401 for
MATH 402.)

MATH 404 3 Credits  As Demand Warrants
Topology (3+0)
Introduction to topology, set theory, open sets, compactness, connect-
edness, product spaces, metric spaces and continua. (Prerequisites:
MATH 215 and MATH 202. Recommended: MATH 314 and/or MATH
308.)

MATH 408 3 Credits  As Demand Warrants
Mathematical Statistics (3+0)
Distribution of random variables and functions of random variables,
test theory, matrix-variate tests of hypotheses including various criteria
test. (Prerequisites: MATH 371 and STAT 301.)

MATH 421 4 Credits  Fall
Applied Analysis I (4+0)
Vector calculus, including gradient, divergence, and curl in orthogonal
cartesian coordinates, ordinary and partial differential equations and
boundary value problems, and Fourier series and integrals. (Pre-
requisites: MATH 302 or concurrent enrollment in MATH 302.)

MATH 422 4 Credits  Spring
Applied Analysis II (4+0)
Topics in multi-variate calculus, including boundary value problems and
partial differential equations of mathematical physics, complex func-
tions, including series, integrals, residues, conformal mapping, and
potential theory. (Prerequisite: MATH 421.)

MATH 423 3 Credits  As Demand Warrants
Applied Mathematics (3+0)
Topics 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 will
be selected from combinatorics, probability, statistics, perturbation,
numerical analysis, and differential equations. Students will develop a
modeling project. (Prerequisites: MATH 201, Recommended: One or
more of MATH 302, MATH 314, MATH 211, STAT 302, STAT 400; and
some programming experience.)

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
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 and Its Applications (3+0)

MATH 631 3 Credits  Spring
Theory of Modern Algebra (3+0)

MATH 651 3 Credits  Every third year
Toplogy (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

ME 150 1 Credit  Fall
Aerodynamics for Pilots (1+1)
Nature of the atmosphere, elementary airfoil theory, drag and power
requirements, performance calculations, and introduction to stability.
For those who desire a basic understanding of flight with minimum
mathematical background. (Prerequisite: High school algebra and gen-
eral science.)

ME 302 4 Credits  Spring
Mechanical Design (3+4)
Kinematics and dynamics of mechanisms. Analysis and design of dis-
placements, velocities, accelerations, and forces in linkages, cams, and
gear systems by analytical, experimental, and computer methods. (Pre-
requisites: ES 206 and ES 210.)

ME 313 3 Credits  Spring
Mechanical Engineering Thermodynamics (3+4)
Continuation of ES 346 including power and refrigeration cycles (Rank-
ine, Brayton, Otto, and Diesel), compressible flow (isentropic, shock
waves, and flow in ducts with friction), combustion and gas vapor
mixtures. (Prerequisites: ES 341 and ES 346).

ME 321 3 Credits  Fall
Industrial Processes (2+3)
Introductory course covering a wide spectrum of manufacturing
processes used in modern industry, primary and secondary manufac-
turing 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 403 4 Credits  Fall
Mechanical Design II (3+2)
Design and analysis of machines by analytical, experimental and com-
puter 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 391.)
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  Spring  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 and ES 301.)

ME 409  3 Credits  Spring  Controls (2+2)  Analysis and design of mechanical, electrical, and human control systems. (Prerequisites: ES 201, ES 301.)

ME 414  3 Credits  Fall  Thermal Systems Design (3+0)  Introduction to the design of power and space conditioning systems, energy conversion, heating, ventilating, air conditioning, total energy systems, and introduction to thermal system simulation and optimization. (Prerequisite: ES 346.)

ME 415  2 Credits  Fall  Thermal Systems Laboratory (1+3)  Testing and evaluation of components and energy systems such as pumps, fans, engines, heat exchangers, refrigerators, and heating/power plants. Laboratory fee: $15.00. (Prerequisites: ES 341 and ME 313.)

ME 416  3 Credits  Fall  Design of Mechanical Equipment for the Petroleum Industry (3+0)  Design, selection, and operation of mechanical equipment used in the production and processing of crude oil and gas. Instrumentation and control systems used with the mechanical equipment. (Prerequisites: ES 421 and ES 346.)

ME 441  3 Credits  Spring  Heat and Mass Transfer (3+0)  Fundamental concepts of heat and mass transfer including steady state and transient conduction, laminar and turbulent free and forced convection, evaporation, condensation, ice and frost formation, black body and radiation, and heat exchangers. (Prerequisite: ES 346.)

ME 450  3 Credits  As Demand Warrants  Theory of Flight (3+0)  Airfoil theory in subsonic and supersonic flow. Propulsion systems, stability and performance of aircraft. (Prerequisite: Consent of instructor.)

ME 489  3 Credits  Spring  Design Project I  A real or simulated engineering design project selected jointly by student and instructor. Emphasis on design of practical mechanical engineering systems and/or components which integrate student's engineering knowledge and skills. (Prerequisite: Senior standing.)

ME 601  3 Credits  Alternate Fall  Finite Element Analysis in Engineering (3+0)  

ME 604  3 Credits  Alternate Spring  Experimental Mechanics (2+3)  

ME 617  3 Credits  As Demand Warrants  Power Analysis (3+0)  

ME 631  3 Credits  Alternate Fall  Advanced Mechanics of Materials (3+0)  

ME 634  3 Credits  Alternate Spring  Advanced Materials Engineering (3+0)  

ME 641  3 Credits  Alternate Spring  Advanced Fluid Mechanics (3+0)  

ME 642  3 Credits  Alternate Spring  Advanced Heat Transfer (3+0)  

ME 685  3 Credits  Alternate Spring  Arctic Heat and Mass Transfer (3+0)  

ME 687  3 Credits  Alternate Spring  Arctic Materials Engineering (3+0)  

MECN 111  2 Credits  Fall  Map Reading and Orienteering (2+0)  Introduction to military and civilian topographical maps and their related informational content, use of the lenticular compass and map as navigational instruments. Practical exercises in orienteering complement academic instruction.

MILS 100, 200  1 Credit  Fall and Spring  Outdoor Skills Laboratory (0+2)  Introduction to the fundamentals of various outdoor skills such as mountaineering, orienteering, marksmanship, arctic survival, skiing, and snowshoeing. Emphasis is on practical work. The same skills are not taught both semesters. (Corequisite: Concurrent registration in another basic military science course [111, 112, 201 or 202])

MILS 101  2 Credits  Fall and Spring  U.S. Army and Society I (2+0)  Survey and analysis of the origin, development, organization and function of the American military. Focus is on the 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 is provided to include characteristics of officers and their relation to subordinate leaders and enlisted men and women.

MILS 111  2 Credits  Fall  U.S. Army and Society II (2+0)  Survey of human behavior and leadership in the organizational context of the army and military environment. The role of the soldier, military training, discipline, ethics, and professionalism are presented. Students are introduced 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 lenticular compass and map as navigational instruments. Practical exercises in orienteering complement academic instruction.

MILS 201  2 Credits  Fall  U.S. Defense and World Affairs (2+0)  A study of current world events and how they affect the military leader and defense structure. Historical as well as political events are studied to learn their relationships to the decision making processes. Geography is considered as an influential factor affecting the economic base of a nation, and both are considered in terms of socio-political influence on military thought. Current military strengths and weaknesses of power groups are discussed and analyzed.

MILS 202  2 Credits  Spring  Communications Arts for the Military Leader (2+0)  A study of the principles of public speaking and instructional techniques. Emphasis is upon the development of functional skills through rehearsed and unheared presentations. Instructional techniques, to include the use of audio-visual aids, provides intensive practice in developing lesson plans and skill in presentation.

MILS 250  3 Credits  Summer  Basic Camp  Six week practical field work to prepare students who did not take basic course for entrance into the advanced course. Camp prepares student in basic military skills and leadership experience. (Prerequisite: At least two years of schooling remaining upon completion of camp. Admission by arrangement with professor of military science.)
Mineral Preparation Engineering

Mineral Preparation Engineering

MPR 601 3 Credits Fall Froth Flotation (2+4)
MPR 606 3 Credits Spring Plant Design (1+4)
MPR 684 3 Credits Spring Mineral Preparation Research (1+4)
MPR 688 1 Credit Fall Graduate Seminar I (1+0)
(Same as M IN 888)
MIN 409 3 Credits Spring Operations Research and Computer Applications in Mineral Industry (3+0)
Use of operations research and computer techniques for understanding, analysis, forecasting and optimization of mining operations and systems. (Prerequisites: MIN 301 or concurrent registration, ES 201, and STAT 451 or STAT 301.)

MIN 410 3 Credits Alternate Fall Surface Materials Handling Systems (2+3)
The techniques and design of systems to move ore, concentrates, and waste materials in mining and milling operation. (Prerequisite: Senior standing or permission of the instructor. Next offered: 1991-92.)

MIN 415 3 Credits Alternate Fall Coal Preparation (2+3)

MIN 418 3 Credits Spring Emission Spectroscopy, X-Ray Spectroscopy, and Atomic Absorption (2+3)
Can be taken for any combination of parts A, B, C as demand warrants. (Admission 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 418B — Theory and application of x-ray spectrography and diffractometer: two one-hour classes and one three-hour lab per week for five weeks. One credit.

MIN 418C — 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 Regulation History of mining laws, 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 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 mines infrastructure. (Prerequisites: MIN 443 or concurrent registration.)

MIN 446 3 Credits Fall Underground Mining Methods and Their Design (3+0)
Design of main development openings; mining systems such as room and pillar, open stoping, supported stops and caving systems; selection of mining method and mine planning processes will be covered. (Prerequisites: MIN 301, MIN 302, and MIN 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 of frozen placer deposits. (Prerequisites: MIN 301, senior standing or permission of the instructor.)

MIN 472 3 Credits Alternate Spring Design, Construction and Stability of Mining Openings (3+0)
Stability and design of excavating methods, reinforcement and monitoring systems for openings constructed in rock mass. Construction in swelling rock and frozen ground, underground hazards (bursts and water inflow) as well as monitoring of deformation and stresses associated with the opening's presence are covered. (Prerequisites: MIN 370, MIN 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, MIN 445, MIN 446, and MIN 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 Theoretical and Experimental Methods in Rock Mechanics (2+3)

MIN 674 3 Credits Alternate Spring Selected Topics in Rock Mechanics (2+3)

MIN 688 1 Credit Fall Graduate Seminar I (1+0) (Same as MFR 688)

MIN 689 1 Credit Spring Graduate Seminar II (1+0)

**Museum Studies**

**Museum Studies**

MSM 211 3 Credits Alternate Fall Fundamentals of Museum Studies I (3+0)
An integrated view of the origin, structure and development of museums, types of museums and their functions, professional directions and ethics. Overview of collection management systems and techniques, and the role and ethics of museum conservation. (Prerequisite: Sophomore standing or permission of the instructor. Next offered: 1990-91.)

MSM 212 3 Credits Alternate Spring Fundamentals of Museum Studies II (3+0)
Museum education, including educational goals and objectives, the museum visitor, program development and publicity. A comprehensive survey of exhibits, theory and practices, management practices in a museological context including types of museum administrative frameworks, legal considerations, and financial management. (Prerequisite: MSM 211. Next offered: 1990-91.)

MSM 311 3 Credits Alternate Fall Museum Administration (3+0)
An exploration of the administrative philosophy and procedures found in both public and private, large and small museums; the types and sources of support and the types of interactions with local and national supportive groups. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1991-92.)

MSM 312 3 Credits Alternate Spring Museum Collection Management (3+0)
Basic curatorial techniques and problems; major aspects of collection management will be studied, from field collecting and other forms of acquisition through accessioning, cataloging, preparation, exhibition, technical care, and research requirements. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1991-92.)

MSM 487 3 Credits As Demand Warrants Museum Practicum Student participation in one or more phases of museum operations or disciplines. Special projects are to be developed by the student under the supervision of the appropriate museum personnel. (Prerequisites: MSM 211 and 212 and permission of the instructor.)

MSM 488 3 Credits As Demand Warrants Individual Research: Field Collecting Museum Specimens Collection of specimens in the field, addresses philosophies, purposes and goals of field collection, procedures for collecting museum specimens, methods of handling materials before it reaches the museum. Field trips may be required. By arrangement with the appropriate curator(s). May be repeated for credit with permission of instructor. (Prerequisites: MSM 211 and 212 and prior disciplinary preparatory or permission of the instructor.)
COURSE DESCRIPTIONS—MUSIC THEORY, MUSIC HISTORY AND MUSIC EDUCATION / 169

MUSIC

Music Ensembles And Class Lessons

MUS 101  1 Credit  Fall and Spring  Choral Society (0+3) h

MUS 151  1 Credit  Fall and Spring  Class Lesson (0+3) h
Class instruction in piano, voice, orchestral instrument, or guitar. Class lesson fee: see below. (MUS 151 may be repeated for credit. Course may not be audited.)

MUS 153  1 Credit  Fall and Spring  Functional Piano (1+0) h
Piano laboratory: instruction designed to help music majors obtain the performance, sight-reading, and harmonization-transposition skills needed to pass the Piano Proficiency Examination. It also provides non-music majors with an opportunity to study basic piano skills on a space-available basis. Lesson fee: see below. (Prerequisites: Music majors — MUS 131 or equivalent or concurrent enrollment in MUS 131; non-music majors: permission of instructor. Course may not be audited.)

MUS 203  1 Credit  Fall and Spring  Orchestra (0+3) h
(Admission by audition.)

MUS 205  1 Credit  Fall and Spring  Concert Band (0+3) h
(Admission by audition.)

MUS 211  1 Credit  Fall and Spring  "Choir of the North" (0+3) h
(Admission by audition.)

MUS 253  0 Credit  Fall and Spring  Piano Proficiency (0+1) h
Final phase of completion of piano proficiency examination. (Prerequisite: MUS 153 and permission of instructor.)

MUS 307  1 Credit  Fall and Spring  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.)

MUS 313  1, 2, 3 Credits  Fall and Spring  Opera Workshop (0+3, 6 or 9) h

MUS 317  1 Credit  Fall and Spring  Arctic Chamber Orchestra (0+3) h
Chamber Music. (Admission by audition.)

MUS 606  1-2 Credits  As Demand Warrants  Advanced Chamber Music (0+3)-(1+3) h

Applied Music

MUS 161, 162  2 or 4 Credits  Fall and Spring  Choral Attendance (1+0) h
Recital and concert attendance.

MUS 261, 262  2 or 4 Credits  Fall and Spring  Private Lessons h
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. Private lesson fee: see below. (Prerequisite: Admission by audition. Course may not be audited. Credit-No Credit grading not permitted.)

MUS 190  0 Credit  Fall and Spring  Recital Attendance (1+0) h
Recital and concert attendance.

MUS 361, 362  2 or 4 Credits  Fall and Spring  Junior Recital h
Half-length solo music performance recital. (Prerequisites: MUS 262 or equivalent, junior standing in music study, permission of instructor.)

MUS 461, 462  2 or 4 Credits  Fall and Spring  Senior Recital h
Full-length music solo 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 and Spring  Advanced Private Lessons
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: $70.00
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 Theory, Music History, and Music Education

MUS 103  3 Credits  Fall and Spring  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.

MUS 123  3 Credits  Spring  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.

MUS 124  3 Credits  Fall  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. The course examines the different uses of music in various societies, and includes demonstration of ethnic musical instruments.

MUS 131  2 Credits  Fall  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: Concurrent enrollment in MUS 133 for 131 and 134 for 132 required unless exempted by music theory placement test.)

MUS 133  2 Credits  Fall  Basic Ear Training (2+0) h
Ear training skills including sight reading, sight singing, error detection, and dictation. Use will be made of programmed materials in a laboratory situation in addition to classroom instruction. Concurrent enrollment in MUS 131 or 132 required unless exempted by music theory placement examination.

MUS 221  3 Credits  Fall  History of Music (3+0) h
Fall semester: Music before 1750. Spring semester: Music since 1750. (Prerequisite: MUS 131-132 or permission of the instructor.)

MUS 223  3 Credits  Spring  Native Alaskan Music (3+0) h
Eskimo and Indian dance and song styles in Alaska. Emphasis on their sound, effect, and purpose unique to each and the collection methods, analysis, and the development of a broad musical perspective.
MUS 231 2 Credits  Fall  Advanced Theory (1+2) h  Continued study of harmony and musical form through analysis of representative works from the standard repertoire. The second semester will be devoted to study and synthesis of 20th century stylistic and harmonic idioms. (Prerequisites: Concurrent enrollment in MUS 233 for 231 or 234 for 232 unless exempted by music theory placement test.)

MUS 232 2 Credits  Spring  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 or 232 for 234 required unless exempted by music theory placement test.)

MUS 308 3 Credits  Fall  Elementary School Music Methods (3+0) h  (Same as Ed. 300) Principles, procedures, and materials for teaching music to children at the elementary level. (Prerequisite: Ed. 330.)

MUS 315 2 Credits  Fall and Spring  Music Methods and Techniques (1+2) h  Instruction in voice and the basic instruments of band and orchestra. Emphasis on teaching methods in these areas. This course number is repeatable for credit. See Music Department Handbook. (Prerequisite: Permission of instructor.)

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.)

MUS 351 3 Credits  Fall  Conducting (3+0) h  Principles of conducting; interpretation of vocal and instrumental ensemble music. (Prerequisite: MUS 232.)

MUS 405 3 Credits  Spring  Secondary School Music Methods (2+3) h  Principles and methods of teaching music in junior and senior high school with emphasis on philosophies, management, objectives, teaching techniques, vocal, choral, and general music programs. Includes the implementation of teaching plans in classroom and rehearsal settings. (Prerequisite: Permission of instructor. Should be taken prior to Ed. 453 — Secondary Student Teaching.)

MUS 421 3 Credits  Alternate Fall  Music before 1620 (3+0) h  Music from its origins in Greek antiquity through the Middle Ages and the Renaissance up to and including the emergence of opera at the turn of the seventeenth century. Includes study of prominent composers, early musical forms, original sources in translation, development of musical notation, and development of early musical instruments. (Prerequisites: MUS 221 and 222 or permission of instructor. Next offered: 1991-92.)

MUS 422 3 Credits  Alternate Spring  Music in the Seventeenth and Eighteenth Centuries (3+0) h  Music from the turn of the seventeenth century through Beethoven. Examination of style and performance practices relating to opera, oratorio, cantata, sonata, and concerto, as well as chamber music. Development of keyboard instruments as well as other instrumental genres: strings, winds, and brasses. Intensive music listening as well as reading contemporary sources in translation. Style study of representative works from early Baroque composers through Bach, Handel, Haydn, Mozart, Beethoven, and others. Musical developments in Italy, England, France, Germany, Austria, and cross-cultural influences. (Prerequisites: MUS 221 and 222 or permission of instructor. Next offered: 1991-92.)

MUS 431 3 Credits  Alternate Spring  Counterpoint (3+0) h  Contrapuntal techniques by means of analysis and synthesis of pieces in contrapuntal idioms. (Next offered: 1991-92.)

MUS 432 3 Credits  Alternate Fall  Orchestration and Arranging (3+0) h  Instrumentation and arranging for vocal and instrumental ensembles. (Next offered: 1991-92.)

MUS 433 2-3 Credits  Alternate Fall  Seminar in Musical Composition (2+0, 3+0) h  Development of compositional skills based upon the works of predominately twentieth-century composers. Repeatable for credit. (Prerequisites: MUS 232 or equivalent and/or permission of instructor. Next offered: 1991-92.)

MUS 441 3 Credits  Alternate Fall  Alaska Native Music and Social Change (3+0) h  A consideration of cultural persistence and of differential change in musical form and function. (Prerequisites: MUS 232 or equivalent and/or permission of instructor. Next offered: 1990-91.)

MUS 501 3 Credits  Fall  Introduction to Graduate Study (3+0)

MUS 607 3 Credits  As Demand Warrants  Seminar in Elementary and Secondary General Classroom Music (3+0)

MUS 625 1-3 Credits  As Demand Warrants  Topics in Music History 1-3+0

MUS 631 3 Credits  Alternate Fall  Seminar in Music Theory: History and Pedagogy (3+0)

MUS 641 3 Credits  Alternate Fall  Methods of Ethnomusicological Research (3+0)

MUS 651 2-3 Credits  As Demand Warrants  Advanced Conducting and Rehearsal Techniques (2-3+0)

MUS 671 3 Credits  As Demand Warrants  Psychology of Music (3+0)

MUS 690 0 Credit  Fall and Spring  Graduate Recital

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.

NS 494 3 Credits  Alternate Spring  Seminar in Northern Studies (3+0) s  An interdisciplinary seminar focusing on topics relating to the North with emphasis on the physical sciences, the peoples and the socioeconomic and political aspects of the area. Specialists in the various fields will assign readings and conduct discussions. (Prerequisite: At least junior standing or permission of instructor. Next offered: 1991-92.)

Office Professions

OP 072 1 Credit  As Demand Warrants  Alphabetical Filing (1+0)  Organizing records alphabetically according to standard indexing rules for names of individuals, organizations and businesses firms.

OP 073 1 Credit  As Demand Warrants  Spelling and Vocabulary (1+0)  Designed to help the student develop skill in spelling correctly and using general and specialized terms in business.

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.

OP 082 1 Credit  As Demand Warrants  Clerical Accounting I (1+0)  Acquaints student with the relationship between accounting and business; develops an understanding of the steps of the accounting cycle, and understanding of the principles and procedures involved in handling cash.
Shorthand, of the office receptionist and providing the opportunity to develop speed and accuracy. Introduction to centering, typing and other abbreviating devices.

Instructor

OP 100 3 Credits
Alphabetic Shorthand (3+0)
Introduces alphabetic shorthand, including alphabet, shortcuts, phrasing, and other abbreviating devices.

Instructor

OP 101 4 Credits
Shorthand Principles I (4+0)
Provides student with instruction and practice in the use of 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.

Instructor

OP 102 4 Credits
Shorthand Principles II (4+0)
Development of ability to construct new outlines from dictation under stress of dictation at 60 to 100 wpm. (Prerequisite: OP 101 or 103 or permission of instructor.)

Instructor

OP 103 1-3 Credits
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 manuscripts. For those with no previous typing training, may be taken in 1-credit segments in the Office Professions lab. Materials fee: $10.00.

Instructor

OP 104 1 Credit
Typing Skill Building (1+0)
This course will help improve speed and/or accuracy on straight and end-of-the-period procedures. (Prerequisite: OP 082.)

Instructor

OP 105 3 Credits
Keyboarding II/Intermediate Typewriting (3+0)
Course is designed to attain at least minimal typing skill, experience and knowledge necessary for typist beginning an office career. Lab arranged. Materials fee: $5.00. (Prerequisite: OP 103 or permission of instructor.)

Instructor

OP 106 3 Credits
Keyboarding III/Advanced Typewriting (3+0)
Course is designed to achieve level of typing skill, experience, knowledge and production that will assure successful typing performance in business office position. Lab arranged. Materials fee: $5.00. (Prerequisite: OP 105 or permission of instructor.)

Instructor

OP 107 3 Credits
Medical Terminology (3+0)
Study of medical terminology, including analysis of its roots and origins. Anatomical, diagnostic, operative, and laboratory terminology of the human body systems, and selected medical specialties. Emphasis on spelling and pronunciation.

Instructor

OP 108 4 Credits
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.

Instructor

OP 109 1 Credit
Proofreading (1+0)
Provides instruction and practice in finding, making and correcting errors that are commonly made but often overlooked in business communication. Practice in recognizing frequently made errors, where they are likely to occur and special techniques of finding them will be provided. Open lab.

Instructor

OP 110 3 Credits
Office Procedures (3+0)
Duties and responsibilities of general office employees in various areas such as filing, effective processing of mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.

Instructor

OP 112 2 Credits
Introduction to Word Processing (2+0)
Course designed to teach how to type documents on a microcomputer using a word processing program.

Instructor

OP 128 2 Credits
Word Processing/Displaywriter (2+0)
Word processing training. All machine functions are covered and applied to word processing problems in simulated word processing setting. Should type 35 wpm prior to entry. Materials fee: $10.00. (Prerequisite: OP 103 or permission of instructor.)

Instructor

OP 131 3 Credits
Business English (3+0)
Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.

Instructor

OP 133 2 Credits
Microcomputer WordProcessing/WordPerfect (2+0)
Provides practice on an IBM compatible microcomputer using WordPerfect software to create, edit, and store documents as well as perform advanced applications using the software. Materials fee: $10.00. (Prerequisite: Keyboard speed of 35 wpm.)

Instructor

OP 152 2 Credits
Microcomputer WordProcessing/Displaywrite 4 (2+0)
Provides instruction on an IBM compatible microcomputer using DisplayWrite 4 software to create, edit and store documents as well as perform advanced applications using the software. Materials fee: $10.00. (Prerequisite: Keyboard speed of 35 wpm.)

Instructor

OP 154 1 Credit
Advanced Applications-Wordperfect (1+0)
Provides instruction and practice in the use of macros, headers/footers, advanced document formatting and manipulation, tables, math function, indexing, and other features specific to the Wordperfect software program. Materials fee: $5.00.

Instructor

OP 157 1 Credit
Introduction to Office Computers (1+0)
Provides an introduction to personal computers as well as the basics of spreadsheet, database and word processing software commonly used in an office setting. Materials fee: $10.00.

Instructor

OP 201 3 Credits
Shorthand III-Speed Dictation and Transcription (3+0)
Strengthen typing and shorthand skills to improve speed and accuracy of transcription and to develop a high degree of shorthand skills. (Prerequisite: OP 102, 105 or demonstration of equivalent proficiency.)

Instructor

OP 203 2 Credits
Calculating Machines (2+0)
Provides the student with basic operating knowledge of the electronic calculator in order to perform such business applications as discounting, amount and percent of change, prorating interest, commissions and payroll, to develop an occupation proficiency in the use of machines for initial job placement. Open lab. (Prerequisite: ABUS 155 strongly recommended.)

Instructor

OP 207 2 Credits
Machine Transcription (2+0)
Training in machine transcription with emphasis on machine speed. Review of language skills and vocabulary included. Materials fee: $5.00. (Prerequisites: OP 105 or permission of instructor.)

Instructor

OP 210 3 Credits
Legal Typewriting (3+0)
Provides legal procedures background as well as sharpen and refresh typewriting and transcription skills. Emphasis on understanding legal processes as well as developing expertise in legal typewriting and legal office procedures. Materials fee: $5.00. (Prerequisite: OP 105 or permission of instructor.)

Instructor

OP 211 2 Credits
Legal Office Transcription (2+0)
Provides training to enable the student to qualify for employment as an office worker, particularly as a forms typist in a hospital or medical office or to contribute to qualifications as a legal assistant or secretary. (Prerequisite: OP 105 or demonstration of equivalent proficiency.)

Instructor

OP 212 2 Credits
Intermediate Word Processing (2+0)
Practice in producing typical office communications and reports using a microcomputer and word processing program.

Instructor

OP 214 1 Credit
Medical Machine Transcription (1+0)
Instruction and practice needed to develop competency in formatting medical papers including a Medicare form, an admission form, a dental patient; preparing patient histories, medical reports, file cards and other medical documents. Develop competence in transcribing from machine dictation and in using medical terminology correctly. Materials fee: $5.00. (Prerequisite: OP 105 and 207.)

Instructor
Paraprofessional Counseling

PPC 101 3 Credits Fall
Models of Human Personality and Counseling I (3+0)
Introduction to basic personality theories and theoretical approaches to counseling.

PPC 102 3 Credits Spring
Models of Human Personality and Counseling II (3+0)
Theoretical approaches to personality, theory, ideal and problematic functioning and relevant intervention by the counselor. (Prerequisite: PPC 101.)

PPC 105 3 Credits Fall
Basic Helping Skills (3+0)
Introduction to the principles, skills and role of the helping process. A practical course which focuses on communication and how to have effective intervention with the client.

PPC 106 3 Credits Spring
Advanced Helping Skills (3+0)
Development of relationship skills with emphasis on specialized methods of crisis intervention, behavioral techniques, and other methods of intervention. (Prerequisite: PPC 105.)

PPC 120 1 Credit As Demand Warrants
Self-Esteem Issues (1+0)
Assessing, improving and maintaining self-esteem in ourselves and fostering positive self-esteem in children. (Next offered: Fall 1990.)

PPC 130 1 Credit As Demand Warrants
Stress Management (1+0)
Addresses the various techniques of stress management. Topics will include psycho-physiology of stress, acute and chronic stress and assessment of individual stress levels.

PPC 135 1 Credit As Demand Warrants
Journaling Techniques (1+0)
Journaling can serve a valuable therapeutic role in the helping relationship, both for client and helper. The class explores ways to enhance the healing process through specific exercises and techniques.

PPC 140 1 Credit As Demand Warrants
Understanding Disabilities (1+0)
An overview of disabling conditions focusing on developing helping skills for working with people with disabilities as well as their families. (Next offered: Fall 1990.)

PPC 141 1 Credit As Demand Warrants
Adult Child of the Alcoholic (1+0)
Examines special characteristics and skills which are developed by children who grow up in homes with an alcoholic parent. Effect of these learned roles in adulthood will be explored in depth. Suggestions for intervention (helping) strategies with both children and adults will be addressed.

PPC 145 2 Credits As Demand Warrants
Effective Parenting (2+0)
Effective parenting skills, including building self-esteem in parent and child, family communication, effective discipline techniques, assertive parenting techniques, and anger control. (Next offered: Fall 1990.)

PPC 150 1 Credit As Demand Warrants
Mediation: Resolving Conflicts (1+0)
Introduction to the theory and practice of mediation based on the principles of negotiation, arbitration, and compromise. (Next offered: Spring 1991.)

PPC 151 1 Credit As Demand Warrants
Blended Families (1+0)
Provides a close look at YOURS, MINE and OURS by exploring the relationship formation and development of children and parents as they try to form a new family unit. Types of problems which can be expected and alternative solutions will be discussed.

PPC 201 3 Credits Fall
Basic Principles/Group Counseling (3+0)
Introduction to concepts and techniques of counseling, methods for establishing effective group goals, objectives and group organization. (Prerequisite: PPC 101, 102, 105 or permission of the PPC advisor.)

PPC 203 3 Credits As Demand Warrants
Substance Abuse Counseling I (3+0)
Special difficulties of working with the drug/alcohol abusing person will be explored.

PPC 204 3 Credits As Demand Warrants
Working With Marriage and Family Problems (3+0)
Exploration of multiple factors affecting marriage today. Sources of marriage problems and specific skills in their assessment and treatment will be covered. Emphasis on systems approach.

PPC 206 3 Credits As Demand Warrants
Paraprofessional Roles-Ethics (3+0)
Basic ethics of counseling necessary for the professional.

PPC 207 3 Credits As Demand Warrants
Personal Awareness and Growth (3+0)
Individual and group experiences to help the individual become more aware of self and other.

PPC 208 3 Credits Fall
Human Problems and Evaluation I (3+0)
Introduction to adjustment psychology, inter-personal problems, intrapersonal problems and an overview of assessment devices used in the helping profession. (Prerequisites: PPC 101/102, PPC 105/106 or permission of PPC advisor.)

PPC 209 3 Credits Spring
Human Problems and Evaluation II (3+0)
A continuation of PPC 208 which further addresses the difference between constructive and destructive behavior and looks at how assessments are made. (Prerequisite: PPC 208.)
COURSE DESCRIPTIONS—PETROLEUM ENGINEERING / 173

PCC 212  3 Credits  Alternate Spring
Counseling Children (3+0)
Developing skills to work with children's emotional, social, and behavioral problems. Discusses developmental stages, self-esteem, normal vs. abnormal behavior, relationship of counselor and child, working with significant adults in the child's life, communication, identifying needs, problem solving, play therapy, changing behaviors, working with groups. (Prerequisites: six PCC credits, work experience or permission of instructor.)

PCC 215  3 Credits  As Demand Warrants
Working With People of Other Cultures (3+0)
This course is designed to provide an in-depth examination of counseling processes and techniques in multi-cultural, multi-lingual settings.  

PCC 220  3 Credits  Fall
Violence and Family Relationships (3+0)
Family violence whether directed toward a child, spouse, or elder, affects each member. Will focus on developing effective intervention skills for assisting families in violent relationships.

PCC 286  3 Credits  As Demand Warrants
Paraprofessional Practicum I (0+var)
Supervised on-the-job counseling experience in a community agency. Course allows students to develop and expand skills and knowledge taught in the classroom and to apply to situations working with individuals in a social service agency. (Prerequisites: PCC 101-102, PCC 105-106, PCC 206 and permission of instructor.)

PCC 289  3 Credits  As Demand Warrants
Paraprofessional Practicum II (0+9)
This practicum further develops the practical work experience of the student in a supervised social service agency. Practicum allows for more direct client contact with an increased opportunity for working with groups and families. (Prerequisites: PCC 288 and permission of instructor.)

Petroleum Engineering

PTE 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.

PTE 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.)

PTE 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: PTE 205 or permission of instructor.)

PTE 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.

PTE 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.)

PTE 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 contents, and interpretation of PVT reports for reservoir fluid samples. (Prerequisites: PTE 301, ES 346.)

PTE 321  3 Credits  Fall
Advanced Thermodynamics for Petroleum Engineers (3+0)
A thorough study of the thermodynamics involved 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.)

PTE 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.)

PTE 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. (Prerequisite: ES 346 and concurrent enrollment in ES 341.)

PTE 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. Reservoir surveillance. (Prerequisites: PETE 301, 302, and GEOS 370)

PTE 426  4 Credits  Spring
Drilling Engineering and Laboratory (3+3)
Principles of drilling, drilling fluids, drilling mud, drilling problems, mud logging, drill stem testing, rig types, rig design and selection, Drilling optimization. Well control. (Prerequisites: ES 331 and ES 341.)

PTE 431  2 Credits  Fall
Natural Gas Engineering (2+0)
The production of natural gas and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems. (Prerequisite: PETE 301.)

PTE 456  3 Credits  Spring
Petroleum Evaluation and Economic Decisions (3+0)
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 PTE 476.)

PTE 466  3 Credits  Spring
Petroleum Recovery Methods (3+0)
Discussion of flow and physiochemical 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.)

PTE 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 and PETE 405.)

PTE 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: PTE 476 and MATH 302)

PTE 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 PTE 476.)

PTE 607  3 Credits  Fall
Advanced Production Engineering (3+0)

PTE 610  3 Credits  Fall
Advanced Reservoir Engineering (3+0)

PTE 630  3 Credits  As Demand Warrants
Waterflooding (3+0)

PTE 661  3 Credits  Spring
Advanced Well Testing (3+0)

PTE 662  3 Credits  Every Third Semester
Advanced Oil Recovery (3+0)

PTE 663  3 Credits  Fall
Advanced Reservoir Simulation (3+0)

PTE 665  3 Credits  Every Third Semester
Advanced Phase Behavior (3+0)

PTE 666  3 Credits  Every Third Semester
Advanced Drilling and Completion (3+0)

PTE 670  3 Credits  Fall
Fluid Flow Through Porous Media (3+0)

PTE 683  3 Credits  Every Third Semester
Advanced Natural Gas Engineering (3+0)

PTE 684  3 Credits  Fall
Computational Methods in Petroleum Engineering (3+0)
Philosophy

PHIL 201 3 Credits As Demand Warrants
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 conclusions of the major philosophical traditions of the Far East. (Prerequisite: PHIL 201 or permission of the instructor.)

PHIL 204 3 Credits Fall and Spring
Introduction to Logic (3+0) h
Principles of deductive and inductive logic and application of these laws 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 322 3 Credits Alternate Spring
Ethics (3+0) h
Examination of ethical theories and basic issues of moral thought. (Prerequisite: PHIL 201. Next offered: 1991-92.)

PHIL 341 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
The nature of reality comprising both ontology and cosmology. (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 or 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 or social science.)

PHIL 371 3 Credits As Demand Warrants
Comparative 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 381 3 Credits Alternate Fall
Comparative Religion (3+0) h
Seven world faiths represent answers to questions of man’s duty, his destiny and his nature. (Prerequisite: Permission of the instructor. Next offered: 1991-92.)

PHIL 483 3 Credits Alternate Spring
Philosophy of Social Science (3+0) h
Comparison and analysis of various contemporary methodological positions in the social sciences. (Prerequisite: Junior standing. Next offered: 1991-92.)

PHIL 485 3 Credits As Demand Warrants
Comparative Religions (3+0) h
Explores, on an advanced level, modern and traditional philosophical questions, problems, and approaches to and within different cultural settings. Student should have at least an acquaintance with a second language and some multicultural experience. (Prerequisite: Nine credits in Philosophy. Next offered: Fall 1990.)

PHIL 486 3 Credits As Demand Warrants
B.A. Thesis in Philosophy (1+2+var) h
Student will be required to identify within the department a research topic demonstrating both student’s ability to philosophically analyze as well as ability to do cultural and historical research. (Prerequisite: Completion of all major requirements in Philosophy. Next offered: 1990-91.)

PHIL 487 3 Credits Alternate Fall
Philosophy of Ethics (3+0) h

Physical Education

PER 100 1 Credit As Demand Warrants
Physical Activities and Instruction (0+3)
Instruction, practice, and activity in a variety of physical activities, sports, and dance in separate sections. Laboratory fees for the following courses are: marksmanship, rifle marksmanship and bowling -$35.00.

PE 205 2 Credits Alternate Fall
Introduction to the Human Movement Sciences (2+0)
An overview of the human movement sciences that includes the inter-relationship 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 is included. (Next offered: 1990-91)

PE 208 2 Credits Alternate Fall
Advanced Life Saving (1+3)
Knowledge and skills necessary to provide aid and treatment in aquatic emergencies. Instruction in American Red Cross Cardio-Pulmonary Resuscitation, Advanced Lifesaving, Advanced Swimmer, and Basic First Aid. (Prerequisite: Swim Test Certification fee: $5.00 covers American Red Cross Advanced Life Saving Certification. (Next offered: 1991-92.)

PER 210 1 Credit As Demand Warrants
Water Safety (1+3)
Includes review of courses instructors are eligible to teach, teaching methods relative to those courses, general teaching methods, and practice teaching. Review and practice of swimming and lifesaving skills.

PE 211 1 Credit Alternate Fall
Fundamentals of Softball (1+3)
Basic skills in softball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week session. Next offered: 1990-91.)

PE 212 1 Credit Alternate Fall
Fundamentals of Basketball (1+3)
Basic skills in basketball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week session. Next offered: 1990-91.)

PE 213 1 Credit Alternate Spring
Fundamentals of Ice Sports (1+3)
Basic skills in ice sports will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week session. Next offered: 1990-91.)

PE 214 1 Credit Alternate Spring
Fundamentals of Snow Sports (1+3)
Basic skills in snow sports will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week session. Next offered: 1991-92.)

PE 215 1 Credit Alternate Fall
Fundamentals of Volleyball (1+3)
Basic skills in volleyball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week sessions. Next offered: 1991-92.)

PE 216 1 Credit Alternate Fall
Fundamentals of Rhythms (1+3)
Basic skills in rhythms will be presented with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week session. Next offered: 1990-91.)

PE 217 1 Credit Alternate Spring
Fundamentals of Recreational Activities (1+3)
Basic skills in recreational activities will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (7 week session. Next offered: 1991-92.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Term</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE 218</td>
<td>1</td>
<td>Alternate Fall</td>
<td>Fundamentals of Soccer (1+3)</td>
<td></td>
<td>1990-91.</td>
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<tr>
<td>PE 219</td>
<td>1</td>
<td>Alternate Spring</td>
<td>Fundamentals of Aquatics (1+3)</td>
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<td>1990-91.</td>
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<tr>
<td>PE 220</td>
<td>1</td>
<td>Third semester</td>
<td>Fundamentals of Wrestling (1+3)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 221</td>
<td>1</td>
<td>Alternate Fall</td>
<td>Fundamentals of Gymnastics (1+3)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 222</td>
<td>1</td>
<td>Alternate Spring</td>
<td>Fundamentals of Track and Field (1+3)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 223</td>
<td>3</td>
<td>Spring</td>
<td>Analysis of Human Movement (3+0)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 246</td>
<td>3</td>
<td>Fall</td>
<td>Advanced First Aid (3+0)</td>
<td></td>
<td>1990-91.</td>
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<tr>
<td>PE 300</td>
<td>1</td>
<td>Every third Fall</td>
<td>Advanced Theory and Techniques for Teaching Gymnastics (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 301</td>
<td>1</td>
<td>Third Fall</td>
<td>Advanced Theory and Techniques for Teaching Ice Sports (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 302</td>
<td>1</td>
<td>Third Fall</td>
<td>Advanced Theory and Techniques for Teaching Basketball (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 303</td>
<td>1</td>
<td>Third Fall</td>
<td>Advanced Theory and Techniques for Teaching Snow Sports (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 304</td>
<td>1</td>
<td>Third Fall</td>
<td>Advanced Theory and Techniques for Teaching Snow Sports (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 305</td>
<td>1</td>
<td>Third Fall</td>
<td>Advanced Theory and Techniques for Teaching Volleyball (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 306</td>
<td>1</td>
<td>Spring</td>
<td>Techniques in Teaching Creative Dance (1+3)*</td>
<td></td>
<td>1990-91.</td>
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<tr>
<td>PE 307</td>
<td>1</td>
<td>Third Fall</td>
<td>Techniques in Camping and Outdoor Recreation (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 308</td>
<td>1</td>
<td>Third Fall</td>
<td>Techniques in Track and Field (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 309</td>
<td>2</td>
<td>Spring</td>
<td>Aquatic Instruction (1+3)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 310</td>
<td>1</td>
<td>Third Spring</td>
<td>Techniques in Teaching Folk and Square Dance (1+3)*</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 316</td>
<td>3</td>
<td>Spring</td>
<td>Motor Development (3+0)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 317</td>
<td>3</td>
<td>Third Spring</td>
<td>Motor Learning (3+0)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 321</td>
<td>1</td>
<td>Spring</td>
<td>Practicum in Physical Education (0+3)</td>
<td></td>
<td>1990-91.</td>
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<tr>
<td>PE 327</td>
<td>2</td>
<td>Spring</td>
<td>Movement Activities for Children (2+0)</td>
<td></td>
<td>1990-91.</td>
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<tr>
<td>PE 400</td>
<td>2</td>
<td>Every third Fall</td>
<td>Judging and Coaching Gymnastics (1+3)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 401</td>
<td>2</td>
<td>Third Fall</td>
<td>Theory of Basketball (2+0)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 405</td>
<td>2</td>
<td>Fall</td>
<td>Concepts and Design of Physical Fitness Programs (15+15)</td>
<td></td>
<td>1990-91.</td>
</tr>
<tr>
<td>PE 406</td>
<td>3</td>
<td>Fall</td>
<td>Methods of Teaching Physical Education (2+3)</td>
<td></td>
<td>1990-91.</td>
</tr>
</tbody>
</table>

*Indicates course meets for 7 weeks.
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 309. Next offered: 1991-92.)

PE 411  3 Credits  Alternate Spring  
History and Philosophy of Sport and Physical Activity (3+0)  
Examines the role of sport and physical activity from the perspective of the major philosophies. The contributions of physical activity to survival, artistic development and popular culture particularly as they have influenced the role of physical activity in the United States. (Prerequisite: Junior Standing. Next offered 1991-92.)

PE 412  3 Credits  Alternate Fall  
Principles and Problems in Athletic Coaching (3+0)  
Philosophy and objectives of athletic competition at various age levels. The roles and responsibilities of the athletic coach. Problems of athletic coaching and management of athletes and their training. Content appropriate for those who plan to take leadership or coaching roles in any athletic programs, in schools, or in community recreation. (Prerequisite: permission of instructor. Next offered: 1990-91.)

PE 421  4 Credits  Alternate Fall  
Physiology of Exercise (3+3) n  
Study of the responses and adaptations of the human body to physical work, exercise and systematically applied stresses, including the effects of environmental stresses, especially those specific to northern regions. (Prerequisite: BIOL 111-112. Next offered: 1990-91.)

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 intercollegiate athletics. (Prerequisite: Junior standing. Next offered: 1991-92.)

PE 432  4 Credits  Alternate Fall  
Biomechanics of Human Performance (3+3) n  
Mechanical analysis of human movement, focusing both internally on musculo-skeletal interactions and externally on the body with the environment, for the purpose of understanding how humans move. (Prerequisites: BIOL 111-112, MATH 107. Next offered: 1991-92.)

PE 437  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 into regular programs in physical education and recreation. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1990-91.)

PE 440  3 Credits  Every third Spring  
Care and Prevention of Athletic Injuries (3+0)  
Scientific bases for the care and prevention of injuries, related to participation in sports and physical activity, 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: 1990-91.)

PE 442  3 Credits  Alternate Spring  
Measurements and Evaluation in Physical Education (3+0)  
Theory and application of the evaluation process in Physical Education including basic statistics, formation of measurable behavioral objectives, written test construction, survey of fitness and skill tests, their selection, administration and interpretation of results, and the use of basic computer programs to calculate various statistical values. (Prerequisites: Completion of 8 credits from 211-222. Next offered: 1990-91.)

Physics  

PHYS 101  3 Credits  Spring  
Introduction to Space Science (3+0) n  
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 103  4 Credits  Fall  
College Physics (3+3) n  
Unified classical and modern physics. Laboratory Fee: $5.00 (Prerequisite: High school algebra and geometry, PHYS 103 for PHYS 104 or permission of instructor.)

PHYS 113  1 Credit  Fall  
Concepts of Physics (1+0)  
A general review of experimental and theoretical studies of fundamental interactions of matter which have been recognized as major advances in human knowledge will be given. Application of these discoveries to modern technologies, such as solid state electronics, lasers, holography, nuclear fusion, medical diagnostics, remote sensing, etc., will be presented.

PHYS 211  4 Credits  Fall and Spring  
General Physics (3+3) n  
Classical physics using calculus for majors in mathematics, physical sciences, and engineering. Laboratory Fee: $5.00. (Prerequisites: At least concurrent registration in MATH 201, PHYS 211 for PHYS 212, or permission of instructor.)

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, elementary particles, simple transport theory, kinetic theory, and concepts of wave mechanics. (Prerequisites: PHYS 211 and 212 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 meteors, and cosmogony. 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 PHYS 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 211 and at least concurrent enrollment in MATH 302; PHYS 311 for PHYS 312, or permission of instructor.)

PHYS 313  4 Credits  Fall  
Thermodynamics and Statistical Physics (4+4) 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 212 or permission of instructor.)

PHYS 331  3 Credits  Fall  
Modern Physics (4+4) 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 PHYS 412, or permission of instructor.)

PHYS 411  4 Credits  Fall  
Modern Physics (4+4) 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 PHYS 412, or permission of instructor.)

PHYS 445  4 Credits  Spring  
Solid State Physics and Physical Electronics (4+4) n  
Theory of matter in the solid state and the interaction of matter with particles and waves, (Prerequisites: MATH 302, MATH 314 and PHYS 411 or permission of the instructor.)

PHYS 482  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, MATH 314 and PHYS 331 or permission of instructor.)
COURSE DESCRIPTIONS—POLITICAL SCIENCE / 177

PHY 611 3 Credits  Alternate Fall
PHY 612 3 Credits  Alternate Spring
Mathematical Physics (3+0)
(Same as MATH 611-612)

PHY 621 3 Credits  Alternate Fall
PHY 622 3 Credits  Alternate Spring
Classical Mechanics (3+0)

PHY 626 3 Credits  Alternate Fall
PHY 627 3 Credits  Alternate Spring
Fundamentals of Plasma Physics (3+0)
Advanced Plasma Physics (3+0)
Digital Time Series Analysis (3+0)

PHY 629 3 Credits  Alternate Fall
Methods of Numerical Simulation in Fluids and Plasma (3+0)
(Same as MSL 629)

PHY 631 3 Credits  Alternate Fall
PHY 632 3 Credits  Alternate Spring
Electromagnetic Theory (3+0)

PHY 640 3 Credits  Alternate Spring
Auroral Physics (3+0)

PHY 645 3 Credits  Alternate Fall
Fundamentals of Geophysical Fluid Dynamics (3+0)

PHY 650 3 Credits  Alternate Fall
Aeronomy (3+0)

PHY 651 3 Credits  Alternate Fall
PHY 652 3 Credits  Alternate Spring
Quantum Mechanics (3+0)

PHY 672 3 Credits  Alternate Fall
Magnetoospheric Physics (3+0)

PHY 673 3 Credits  Alternate Spring
Space Physics (3+0)

Political Science

PS 101 3 Credits  Fall and Spring
Introduction to American Government and Politics (3+0)
Principles, institutions, and practices of American national government; the Constitution, federalism, interest groups, parties, public opinion, and elections. Also available via Independent Learning.

PS 102 3 Credits  Fall and Spring
Introduction to American Government and Politics (3+0)
A survey of outstanding problems in policy areas of defense, energy, economic policy, civil rights, technology, social welfare, business regulation, pollution, and education.

PS 110 1 Credit  Fall and Spring
Parliamentary Procedures (1+0)
(Same as ANS 110)
Introduction to the rules and principles of parliamentary procedures and their application to group decision-making processes.

PS 201 3 Credits  Fall
Comparative Politics: Methods of Political Analysis (3+0)
Modern methods of analyzing political behavior and processes on a cross-national basis. Specific topics to be covered in different semesters. (This course may be repeated for a maximum of 6 credits.)

PS 202 3 Credits  Spring
Comparative Politics: Contemporary Doctrines and Structures (3+0)
Analysis of conflicting approaches to the solution of social and political problems with emphasis on nations employing various forms of ideological systems. (This course may be repeated for a maximum of 6 credits.)

PS 210 3 Credits  Spring
Alaska Government and Politics (3+0)
A comprehensive introduction to the state's government and politics, including political history (as a territory and state), Constitution, political parties, interest groups, elections, public opinion, Governor, Legislature, judiciary, administration, local government and public policy issues. An integrating theme of the course is the pattern of Alaska uniqueness, as compared to the contiguous-48 states. Special attention is given to relationships and responsiveness of government institutions to social, environmental, and political changes of Northern communities.

PS 211 3 Credits  Alternate Fall
State and Local Government (3+0)
Forms, functions, and policies of state and local governments in the United States. Intergovernmental relations and comparative analysis of the politics of the 50 states. (Next offered: 1991-92.)

PS 212 3 Credits  Alternate Spring
Introduction to Public Administration (3+0)
(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: 1990-91.)

PS 222 3 Credits  Fall
Research Methods (3+0)
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: PS 101.)

PS 250 3 Credits  Fall
Origins of Law (3+0)
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.

PS 263 3 Credits  Fall and Spring
Alaska Native Politics (3+0)
An introduction to the political development, organization, interests and activities of Alaska Natives; treatment of federal leadership issues, history of federal Indian policy, evolution of Native leadership, village and regional government, land claims, and community politics from the Alaska Native brotherhood to ANCSA to the Alaska Native Coalition. An emphasis of the course is comparison between Alaska Native political developments and those of other circumpolar Northern Native communities.

PS 301 3 Credits  Alternate Fall
American Presidency (3+0)
A study of the institutional aspects of the presidency in the American political system. (Prerequisite: PS 101 or consent of instructor. Next offered: 1990-91.)

PS 302 3 Credits  Alternate Spring
Congress and Public Policy (3+0)
A study of the American Congress in the political system. (Prerequisite: PS 101. Next offered: 1991-92.)

PS 303 3 Credits  Fall
Introduction to Legal Processes (3+0)
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.)

PS 310 3 Credits  Alternate Fall
The Politics of Post-Industrial States (3+0)
Political systems of societies which have completed their industrial revolutions. The problem of the welfare state, the no-growth society, the end of ideology, the loss of the working ethic, identity in homogeneous societies. Countries: the U.S., Great Britain, Canada, Soviet Union, Germany, Scandinavian nations, Japan. (Prerequisite: PS 101 or 102 or consent of Instructor. PS 201 strongly recommended. Next offered: 1991-92.)

PS 311 3 Credits  Alternate Spring
Government and Politics of the Soviet Union (3+0)
A survey of Soviet institutions and political processes. (Prerequisites: PS 201 or permission of Instructor. Next offered: 1991-92.)

PS 312 3 Credits  Alternate Fall
Government and Politics of China (3+0)
Modern Chinese politics and society, including government institutions, political processes, foreign relations, and U.S.-China relations. (Prerequisites: PS 201 or consent of Instructor. Next offered: 1990-91.)

PS 315 3 Credits  Alternate Spring
American Political Thought (3+0)
Political ideas in the United States from colonial times to the present: Puritanism, revolution, ideas, constitutionalism, nature of the Union, Progressive movement, pragmatism. (Prerequisite: PS 101 or consent of Instructor. HIS 131 and 132 strongly recommended. Next offered: 1990-91.)
PS 321 3 Credits  
International Politics (3+0) s  
Introduction to the international political system. Survey of international political theory; means of influence and power in international politics; arms control and disarmament; international economic relations; 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.)

PS 322 3 Credits  
International Law and Organizations (3+0) s  
Introduction to international law, including development of 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: 1990-91.)

PS 325 3 Credits  
Native Self Government (3+0) s  
(Same as ANS 325)  
Comparative study of indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance federal Indian Law and Alaska state chartered local government with 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.)

PS 401 3 Credits  
Political Behavior: Organizations (3+0) s  
Alternate Spring  
How organizations and groups in the U.S. behave. 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: 1990-91.)

PS 402 3 Credits  
Political Behavior: Individuals (3+0) s  
Alternate Spring  
How individuals behave in the U.S. polity. 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: 1990-91.)

PS 403 3 Credits  
Public Policy (3+0) s  
Alternate Spring  
Discussion of the way in which the policy process works and how policy analysis is carried out. Examples of policy issues from recent cases, especially in Alaska. (Prerequisites: PS 101 and junior standing. Next offered: 1991-92.)

PS 404 3 Credits  
Introduction to Legal Research and Writing (3+0)  
(Same as JUST 404)  
Alternate Spring  
The 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) h  
Alternate Fall  

PS 412 3 Credits  
Modern Political Theory (3+0) s  
Alternate Spring  
Political ideas from the Renaissance to the modern world. Theories of Machiavelli, Hobbes, Locke, Rousseau, Burke, Marx, and Lenin. (Prerequisites: 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  
Alternate Fall  
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; PS 412 strongly recommended. Next offered: 1990-91.)

PS 420 3 Credits  
Environmental Politics (3+0) s  
Alternate Fall  
Examination of the politics of environmental policy decisions at the federal level of government, focusing on the environmental movement as a force reshaping American society. Topics include the limits to growth theory, impact assessment policy, and wilderness politics. (Next offered: 1990-91.)

PS 425 3 Credits  
The Supreme Court and the American Legal System (3+0) s  
Alternate Fall  
The role of the Supreme Court in the development of American law with emphasis on the influence of social, political, and economic factors on the behavior of courts. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1990-91.)

PS 436 3 Credits  
The Courts 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. (Prerequisites: PS 101. Next offered: 1990-91.)

PS 437 3 Credits  
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 450 3 Credits  
Comparative Aboriginal Rights and Policies (3+0) s  
Alternate Spring  
(Same as ANS 450)  
Use of the case-study approach to develop comparative frameworks for assessing scope and nature of Aboriginal Rights and Policies in different Native-State Systems. Seven Aboriginal situations are examined for factors promoting or limiting Aboriginal 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 and Spring  
Study of public agencies or organizations through actual experience. (Admission by permission of the instructor.)

PS 480 1-3 Credits  
Model United Nations (1-3+0) s  
Alternate Spring  
The history, organization, functions, and procedures of the United Nations. Can be taken for any combination of parts A, B, C for a total of 6 credits.

PS 480A Model U.N.: Member Nations  
Fall  
Introduction to United Nations organization and procedures. 1 credit (may be repeated for a maximum of 2 credits).

PS 480B Model U.N.: Simulation  
Spring  
Introduction to the use of simulation in international policymaking and administration, focusing on a United Nations member nation. 1 credit (may be repeated for a maximum of 2 credits).

PS 480C Model U.N.: Conference Participation  
Spring  
Participation in the Annual Session of the Model United Nations. 1 credit (may be repeated for a maximum of 2 credits). (Prerequisite: PS 321 or permission of instructor.)

PS 481 3 Credits  
Geopolitics and the International Environment (3+0) s  
Fall and Spring  
As Demand Warrants  
Survey of the relationship of the international environment and world politics, with a focus on resource politics. Energy policies from an international perspective, including bi-lateral and multi-lateral negotiations (concerning acid rain and global warming, for example) and negotiations between host states and trans-national corporations over management and the distribution of the costs and benefits of resource exploitation. (Prerequisites: PS 101 or 102 or permission of instructor; PS 321 strongly recommended.)

Psychology

PSY 101 3 Credits  
Introduction to Psychology (3+0) s  
Fall and Spring  
Fundamentals and basic principles of general psychology emphasizing both the natural science orientation and the social science orientation including the cultural, environment, heredity, and psychological basis for integrated behavior; visual perception and its sensory basis; audition and the other senses; motivation and emotion; basic processes in learning; problem solving, and thinking; personality; psychological disorders; and the prevention, treatment, and therapeutic strategies. Also available via Independent Learning or via television as a self-paced, computer-aided course; special telecourse fee: $20.00.
COURSE DESCRIPTIONS—PSYCHOLOGY / 179

PSY 110  1 Credit  Fall and Spring  Orientation to College (2+0)
(Same as DEV 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  As Demand Warrants  Counseling Skills I (3+0)
The study and acquisition of counseling techniques centered on the development of a helping relationship. Emphasis on communication skills including forms of questioning, responses and lending, non-verbal communication. Other topics include delineation of the counselor role, ethics and confidentiality and making referrals. Extensive use of role playing and videotaping as learning approaches.

PSY 210  3 Credits  Alternate Spring  Cross-Cultural Psychology (3+0) s
A survey of the concepts, premises, and methods of cross-cultural psychology emphasizing its use in testing, extending, and refining psychological theories developed in Western settings. Topics include perceptions, cognition, social behavior, psychopathology, and social change as they relate to cultural variation. (Prerequisite: PSY 101. Next offered: 1991-92.)

PSY 230  3 Credits  As Demand Warrants  Psychology of Adjustment (3+0) s
Study of the psychology of adjustment, growth, and creativity, including an understanding of personality pattern, and an exploration of burgeoning techniques and methods for furthering creative potential. (Prerequisite: PSY 101.)

PSY 240  3 Credits  Fall and Spring  Developmental Psychology in Cross-Cultural Perspective (3+0) s
The development of the individual is examined from both a psychological and cross-cultural perspective. Key topics will be the development of cognition, personality, and social behavior with attention to relevant research on those cultures found in Alaska. Also available via Independent Learning. (Prerequisite: PSY 101.)

PSY 245  3 Credits  As Demand Warrants  Child Development (3+0) (Same as ECHD 245)
Study of development from prenatal through middle childhood including the cognitive, emotional, social and physical aspects of the child. Concepts include learning, heredity and environment. Emphasis is on the roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

PSY 250  3 Credits  Fall and Spring  Introductory Statistics for Behavioral Sciences (3+0) (Same as SOC 250)
Introduction to the purposes and procedures of statistics: calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means.

PSY 255  3 Credits  Fall  Foundations of Counseling I (3+0) (Same as HMSV 255)
This course is a survey of counseling philosophy and the various types of counseling systems that are used in most settings. An examination of the various techniques and system match will be undertaken so that the student will be able to make intelligent decisions concerning which approach to use. Some of the techniques examined will be psychoanalysis, behavior therapy, and humanistic approaches. Offshoots of these approaches will be surveyed if they are in fairly wide use. Counseling ethics will be studied and ethical problems illustrated and discussed. (Prerequisites: PSY 101 and PSY 240 or permission of instructor.)

PSY 261  3 Credits  As Demand Warrants  Counseling Skills II (3+0)
A continuation of PSY 161 to further develop counseling skills and increase sophistication in the application of skills. Topics include specific counseling strategies and techniques, goal-setting, termination issues 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 262  2 Credits  As Demand Warrants  Family Counseling Skills (2+0) s
Concentration on practical counseling skills set against the backdrop of family systems theory. Techniques developed by family therapists will be applied to the solution of problems of everyday living and those presented to local human service agencies. Students are encouraged to integrate theoretical and practical learning with their own style. (Prerequisites: PSY 101, 161, or permission of instructor.)

PSY 267  3 Credits  As Demand Warrants  Stress and the Family (3+0)
A study of family in the context of both producing and reacting to stress. Focus is on sources of stress from inside and outside the family system. Concentration is on the normal, gradual and cumulative life stressors experienced during the life cycle of the family as well as the extraordinary stressors which occur suddenly and which frequently overwhelm the family's ability to cope. (Prerequisite: PSY 101 or permission of instructor.)

PSY 304  3 Credits  Fall  Personality (3+0) s
Psychological and social/cultural determinants of personality formation including appropriate theories in both areas. (Prerequisite: PSY 101.)

PSY 330  3 Credits  Spring  Social Psychology (3+0) s
(Same as SOC 330)
An analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and the various aspects of collective behavior on group and person. Of special concern are those aspects of social interaction that have cultural and intercultural variation. (Prerequisites: PSY 101 or SOC 101.)

PSY 345  3 Credits  Fall  Abnormal Psychology (3+0)
A study of abnormal behavior, its causes, treatment, and social impact. The major classifications of disorders are presented. (Prerequisite: PSY 101.)

PSY 350  3 Credits  Alternate Spring  Comparative Psychology (3+0) n
An integrated multidisciplinary behavioral approach to the study of comparative psychology emphasizing the basic premises, causal factors, functional consequences and interrelationships, and synthesis of animal behavior and etiology in the development and maintenance of behavioral patterns extant within both individual organisms and social groups. (Prerequisites: PSY 101, BIOL 105-106 and/or permission of instructor. Next offered: 1991-92.)

PSY 355  3 Credits  Spring  Foundations of Counseling II (3+0) (Same as HMSV 355)
This course is a continuation of HMSV 350—Foundations of Counseling I. Specific counseling strategies will be studied in-depth such as crisis intervention, individual techniques such as the rational therapies and specific behavioral approaches. The role of the counselor in community education and consultation will be explored as well methods of promoting community change. Issues in cross-cultural counseling will be studied to include those likely to be encountered in Alaska. (Prerequisites: HMSV 255 or PSY 255.)

PSY 360  3 Credits  Alternate Spring  Psychology of Women Across Cultures (3+0) s
A presentation of the major theories in the field of the psychology of women. Research and empirical data which describes the psychology of women as a discrete field with unique characteristics will be presented. Philosophical values of feminism and the history of women's roles in society will be considered throughout. The impact of culture on women interpersonally and intrapersonally will be examined across cultures. (Prerequisite: PSY 101 or permission of instructor.)

PSY 370  3 Credits  Alternate Fall  Drugs and Drug Dependence (3+0) s
(Same as SOC 370)
A multidisciplinary approach to the study of drugs and drug abuse emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological aspects of drug abuse, psychological and sociological causes and manifestations of drug abuse, recommended drug education alternatives and plans, and the 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: 1990-91.)
PSY 380 3 Credits Alternate Fall
Human Behavior in the Arctic (3+0)
A study of human behavior as it relates to cold climates. Emphasis will
be placed on living systems in Alaska and behavioral characteristics
that have evolved with these environments. Material will include structur-
al design as related to behavioral research. (Prerequisite: PSY 101. Next
offered: 1991-92.)

PSY 440 3 Credits Alternate Spring
Learning (3+0)
Survey of theory and research on the fundamentals of learning. Topics
to be covered include: animal learning, classical conditioning, instru-
mental learning, discrimination learning, biological constraints on
learning, and cross-cultural differences in learning styles. (Prerequi-
site: PSY 101. Next offered: 1990-91.)

PSY 445 3 Credits Fall
Community Psychology (3+0)
(Same as HMVS 445)
Community psychology foundations to include community assess-
ment and consultation with regard to areas for study, surveys, evalua-
tion, and planning for programming. During the community con-
 Albanization portion, education, prevention, and service issues
are covered with particular attention given to rural and small community
assessment and change, especially as it applied to Alaska. (Prereq-
isites: PSY 101, SOC 101.)

PSY 450 4 Credits Spring
Experimental Psychology (2+6)
An integrated approach to the study of experimental psychology. Em-
phasis will be placed on the research methodologies and techniques
exam inant in the diverse areas of experimental psychology. Students
will engage in the design, execution, and analysis of individual projects
involving both animal and human subjects, which relate to fields of
current research interest in psychology. (Prerequisites: PSY 101, PSY
250 or STAT 301, and CS course(s) strongly recommended and/or
permission of instructor.)

PSY 460 4 Credits Alternate Fall
Physiological Psychology (3+3)
An integrated multidisciplinary approach to the study of physiological
psychology — neuroanatomy and neurophysiology — emphasizing the
basic principles, cortical and subcortical organization, functional
mechanisms, and the physical-chemical foundations extant in the
physiological bases of behavior with special reference to such disci-
plines as neuroanatomy, neurochemistry, and electrophysiological
measures employed in the study of behavior and brain activity; re-
search methods and techniques, and extensive exploration into areas
of current research interest, including 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 strongly rec-
ommended, or permission of instructor. Next offered: 1991-92.)

PSY 470 3 Credits Alternate Spring
Sensation and Perception (3+0)
An integrated psychophysiological inquiry into the study of sensation
and perception emphasizing the essential principles, functions and
organization, fundamental mechanisms, and the structural complexity
extant in the sensory physiology of the special sensory processes —
audition, gustation, kinesthesia, olfaction, proprioception, somesthe-
sis, and vision — as well as an examination of the theoretical models
and systems of perception with special reference to the biological,
cultural, developmental, hereditary, physiological, psychological, and
social effects on the interpretation of perceptual and sensory phenome-
nas. (Prerequisites: PSY 101, PSY 460, and BIOL 105-106 or BIOL
111-112 strongly recommended; and/or permission of instructor. Next offered:
1991-92.)

PSY 473 3 Credits Fall
Social Science Research Methods (3+0)
(Same as SOC 473)
Techniques of social research: sampling, questionnaire construction,
interviewing and data analysis in surveys; field and laboratory experi-
ments, and attitude scaling. (Prerequisite: PSY/SOC 250).

PSY 610 3 Credits Fall
Alcohol: Pharmacology and Behavior (3+0)

PSY 615 3 Credits As Demand Warrants
Drug Action: Physiology and Behavior (3+0)

PSY 618 3 Credits As Demand Warrants
Community Treatment Alternatives (3+0)

PSY 620 3 Credits As Demand Warrants
Treatment of Drug and Alcohol Dependency (3+0)

PSY 625 3 Credits As Demand Warrants
Prevention of Alcohol and Drug Dependency (3+0)

PSY 630 3 Credits Fall
Community Psychology (3+0)

PSY 631 3 Credits Spring
Community Psychology: Cross-cultural Applications and the
Ethics of Change (3+0)

PSY 635 3 Credits Spring
Field-Based Research Methods (3+0)

PSY 638 3 Credits Alternate Fall
Social Policy and Social Change (3+0)
(Same as SOC 638)

PSY 645 3 Credits Alternate Fall
Prevention Theories and Strategies (3+0)
(Same as SOC 645)

PSY 646 3 Credits As Demand Warrants
Consultation (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 4 Credits Fall
Principles and Techniques of Individual Counseling (3+3)
(Same as COUN 663)

PSY 661 3 Credits Spring
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 Fall
Clinical Methods and Assessment (3+0)

PSY 664 3 Credits As Demand Warrants
Behavior Therapy (3+0)

PSY 665 3 Credits Alternate Spring
Psychoanalytic Theory and Clinical Method (3+0)

PSY 666 3 Credits As Demand Warrants
Family and Network Therapy (3+0)

PSY 667 3 Credits As Demand Warrants
Existential Psychotherapy (3+0)

PSY 668 3 Credits Spring
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 and Spring
Practicum in Community Psychology (2+7)

PSY 690 3-12 credits Falls and 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 Chris-
tian Church.

RELG 211 Credits As Demand Warrants
Survey of Shamanism
An in-depth survey of Shamanism with emphasis on North American
and Arctic Shamanism. Understanding general concepts of Shamanism
and an introduction to the traditional functions of Shamanism, past and
present perceptions of Shamanism and the basic principles and beliefs
related to 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 265  3 Credits  Fall
Perspectives on Subsistence in Alaska (2+0)
Examines the socio-economic, cultural, legal and political dimensions
of subsistence lifestyles in Alaska.

RD 300  3 Credits  Fall
Rural Development in a Global Perspective (3+0)
A comparative and theoretical approach to the process of change and
development in cross-cultural contexts, particularly in relation to their
effects on rural communities. (Prerequisite: Junior standing or permis­
sion of instructor.)

RD 315  3 Credits  Alternate Spring
Tribal People and Development (3+0)
Comparative examination of socio-economic development processes
as they impact upon peoples in third and fourth world societies.
Particular attention is given to the implications of these processes for
Alaska Native people. (Prerequisites: Junior standing or permission of
instructor. Next offered: 1991-92.)

RD 325  3 Credits  Spring
Community Development Strategies (3+0)
Examines community development/organizational strategies appro­
priate for a variety of institutional and community situations.

RD 338  3 Credits  As Demand Warrants
Education and Economic Development (3+0)
(Same as ED 328)
An examination of both theory and evidence linking varied forms of
education to economic growth and development. A comparative ap­
proach is utilized to explore 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 communi­
ty level research, planning and evaluation, activities related to the needs
of Native corporations, rural communities and the rural school dis­
tricts, 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 and Spring
Rural Development Internship
Structured experience in an appropriate educational, agency or corpo­
rate setting. An 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 then how we can use this information to shape
the actual project in positive directions. Particular attention will be
paid to data gathering and analysis techniques related to impact predic­
tions. Students will be required to carry out an impact analysis as part
of the course. (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 475  3 Credits  Fall and Spring
Rural Development Senior Project
Under faculty supervision, the student will be required to complete 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
Conversational Russian I and II (3+0)
An introductory course for students who wish to acquire the ability to
speak Russian. Students first learn to understand simple spoken lan­
guage, then to speak simple Russian developing a beginning level of
communicative competence in the language. (Prerequisite: RUSS 075
for 076.)

RUSS 101  5 Credits  Fall
RUSS 102  5 Credits  Spring
Elementary Russian I and II (5+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 com­
prehension and speaking basic vocabulary of approximately 750
words, exploration of the cultural dimension, implicitly through lan­
guage, and explicitly through texts and audio-visual materials; use of
Foreign Language Learning Center.

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 288  2 Credits  Alternate Spring
Individual Study: Reading Russian
Emphasis on expanding passive vocabulary and recognizing basic
grammatical structures; modern Soviet texts. (Prerequisites: RUSS
201, equivalent training or permission of instructor. Recommended to

RUSS 301  3 Credits  Alternate Fall
RUSS 303  3 Credits  Alternate Fall
Advanced Russian (3+0)
Discussions and essays on more difficult subjects or texts: translations,
stylistic exercises, and special grammatical problems. Conducted in
Russian. (Prerequisite: RUSS 202 or instructor's permission. Next off­
ered: RUSS 301, 1991-92; RUSS 303, 1990-91.)

RUSS 387  2 Credits  Alternate Fall
Individual Study: Semantics
Systematic expansion of passive and active vocabulary through analy­
sis of word fields, series of synonyms and antonyms, principles of word
formation, derivation, composition, etc. (Prerequisite: Two years of
Russian or permission of instructor. Next offered: 1991-92.)

RUSS 432  3 Credits  Spring
Studies in Russian Literature and Civilization (3+0)
Intensive study of authors, literary movements, periods, and/or
genres. Analysis of cultural material other than texts. Conducted in
Russian. Student may repeat course for credit if materials vary. (Prere­
quisites: RUSS 301 or 303 or equivalent, and at least sophomore
standing, or permission of instructor.)

RUSS 487  2 Credits  Alternate Fall
Individual Study: Translation (2+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. Con­
ducted in Russian. Student may repeat course for credit if materials
vary. (Prerequisites: RUSS 301 or 303 or equivalent and at least sopho­
more standing, or permission of instructor. Next offered: 1990-91.)

Science Application

Science application courses are not offered on the Fairbanks campus.

SCIA 100  1 Credit  As Demand Warrants
Introducing Astronomy (1+0)
Course on the history of astronomy, the structure of the universe and
its parts and the techniques used for studying the universe. Students
will use various optical instruments to observe celestial bodies.
### Social Work

**SWK 103 3 Credits**  
Social Work in the Human Services (3+0)  
Fall and Spring

Introduction to the profession of social work and the human services delivery system. Examines the historical development of social work focusing on the knowledge, values, and skills that characterize the social worker. Provides an orientation to the context for social work, including the diversity of human needs, human services, social policy and legislation which constitute society’s response to social problems. Services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.

**SWK 225 2 Credits**  
Case Management (2+0)  
(Same as HMSV 225)

Introduction to basic knowledge and skills needed to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management are considered and discussed. (Prerequisite: PSY 101, SOC 101 or permission of instructor.)

**SWK 306 3 Credits**  
Social Welfare: Policies and Issues (3+0)  
Spring

Social policies and how they effect the delivery of social services. Factors that have influenced the development of the current social service system and its place in the total social structure. Analysis of the dilemmas which develop in a welfare system attempting to deal with rapid social change. Exploration of alternative approaches to the solution of social problems and possible future developments in the social service system. (Prerequisite: SWK 103.)

**SWK 320 3 Credits**  
Rural Social Work (3+0)  
Spring

Preparation for practice in rural areas where there is a need for more than one delivery system, an understanding of rural customs, and a scarcity of resources. Emphasis will be on preparation for practice nationally with unique features of Alaska incorporated at key points. (Prerequisites: SWK 103, SOC 101.)

**SWK 353 3 Credits**  
Child Abuse and Neglect (3+0)

This course is designed to enable participants to identify and understand the dynamics, implications and treatments of child abuse and neglect for individuals and families in rural and urban Alaska. (Prerequisites: SWK 103 or permission of instructor.)

**SWK 442 3 Credits**  
Human Behavior in the Social Environment (3+0)  
Fall

This course presents theoretical frameworks considered useful for organizing knowledge about the understanding of personality development and social behavior of individuals. The course will encompass the study of the life cycle, including the processes that shape the individual differences. (Prerequisites: SWK 103, SOC 101, PSY 240, social work major, senior standing and concurrent with SWK 460, SWK 461.)

**SWK 460 3 Credits**  
Social Work Practice I (3+0)

Fall

Development of beginning skills in interviewing and helping processes with individuals, families and groups. Application of intervention strategies and techniques made to case materials, primarily in family and child welfare services. Contracting, case management and social brokerage are discussed. (Prerequisites: SWK 306, social work major, senior standing, concurrent with SWK 461, SWK 442.)

**SWK 461 6 Credits**  
Practicum in Social Work I (0+15)

Fall

Application of knowledge and skills to practice in agency setting as practitioners in problem-solving process, including problem assessment, planning and negotiating contracts, implementation and goal attainment for services. Conceptualizing, case management and social brokerage are discussed. Students complete 200 hours of direct practice in an approved agency under the supervision of a field instructor. (Prerequisites: SWK 306, social work major, senior standing, concurrent with SWK 460, SWK 442.)

**SWK 463 3 Credits**  
Social Work Practice II (3+0)

Spring

Further development of student’s knowledge of direct practice with clients and development of beginning skills in community work including social planning. Heavy emphasis placed on aspects of rural practice such as utilization of community associations and the informal helping network. (Prerequisites: SWK 460, SWK 481, SWK 442, social work major, senior standing, concurrent with SWK 464.)

**SWK 464 6 Credits**  
Praecicum in Social Work II (0+15)

Spring

Continuation of SWK 461; further experience of direct practice with client groups, development and use of beginning skills in community work including social planning, indirect or macro-social work methods focus. Emphasis placed on social work methods adapted to rural and cross-cultural settings. Students complete 200 hours of practice in an approved agency under the supervision of a field instructor. (Prerequisites: SWK 460, SWK 461, SWK 442, social work major, senior standing, concurrent with SWK 463.)

**SWK 494 3 Credits**  
Seminar in Social Work Practice Areas (3+0)

As Demand Warrants

The course covers problem areas in which social work is involved. Allows students to learn application of social work skills in rapid social change. Problem areas are covered separately in different semesters. Content will be announced in class schedule prior to each semester offered. Course may be repeated for credit when topic varies. (Prerequisites: SWK 103, junior or senior standing or permission of instructor.)
### Sociology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Term(s)</th>
<th>Description</th>
</tr>
</thead>
</table>
| SOC 101 | 3 Credits | Fall and Spring | **Introduction to Sociology (3+0)**
An introduction to the science of the individual as a social being, emphasizing the interactional, structural, and normative aspects of social behavior. An attempt is made to construct a cross-cultural framework in understanding human behavior. Also available via Independent Learning or via television as a self-paced, computer-aided course; special telecourse fee: $20.00.  

| SOC 102 | 3 Credits | Fall and Spring | **Social Institutions (3+0)**
A continuation of SOC 101: application of the concepts learned by developing and carrying out short surveys of sociological phenomena. Institutions of society, such as family, political and economic order, are examined, including their operation in the Alaska rural and cultural milieu. Also available via Independent Learning or via television as a self-paced, computer-aided course; special telecourse fee: $20.00. (Prerequisite: SOC 101.)  

| SOC 103 | 3 Credits | As Demand Warrants | **Current Woman (3+0)**
Explores both past history and current influences on Feminist Movement. Changing personal, sexual, family, economic and political roles of women. Emphasizes psychological impact of these changes on women's lives today.  

| SOC 201 | 3 Credits | Fall | **Social Problems (3+0)**
A study of the major problems facing contemporary society, including analysis of factors giving rise to these problems. Emphasis is given to cross-cultural differences in Alaska and other parts of the world. Also available via television as a self-paced, computer-aided course; special telecourse fee: $20.00.  

| SOC 242 | 3 Credits | Spring | **The Family: A Cross-Cultural Perspective (3+0)**
The study of contemporary patterns of marriage and family relationships. Various approaches such as developmental, systems, and social psychological are used to analyze these relationships. The family is followed through its life cycle, such as mate selection, marriage, early marital interaction, parenthood, the middle and later years, and possible dissolution. Attention is given to cross-cultural differences in Alaska as well as in other parts of the world. Also available via Independent Learning. (Prerequisites: SOC 101 or permission of instructor.)  

| SOC 250 | 3 Credits | Fall and Spring | **Introductory Statistics for Behavioral Sciences (3+0)**
(Same as PSY 250)
Introduction to the purposes and procedures of statistics; calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means.  

| SOC 301 | 3 Credits | Spring | **Rural Sociology (3+0)**
Application of the principles of sociology to the study of rural social systems in the U.S. and abroad. Topics covered include: sociological processes, changing values, economic development, demographic change, agrarian reforms, planned change, and rural community networks. Part of the focus will be on the rural communities of Alaska. (Prerequisites: SOC 101 or permission of instructor.)  

| SOC 307 | 3 Credits | Spring | **Demography (3+0)**
The study of formal demographic variables such as Fertility, Mortality, and Migration and their interaction with social demographic variables like social class, religion, race, residence, attributes, and values. The course also focuses on the Alaskan population dynamics.  

| SOC 309 | 3 Credits | As Demand Warrants | **Urban Sociology (3+0)**
Origin and development of urban society as an industrial-ecological phenomenon; the trends of migration and metropolitanism with future implications; and the urban-rural dichotomy in the Alaskan content. (Next offered: 1990-91.)  

| SOC 310 | 3 Credits | Alternate Spring | **Sociology of Later Life (3+0)**
An analysis of the social status and role of the aging in America, with comparisons with elderly in Alaska as well as those in other societies. (Prerequisite: SOC 101. Next offered: 1990-91.)  

| SOC 330 | 3 Credits | Spring | **Social Psychology (3+0)**
An analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and the various aspects of collective behavior on group and person. Of special concern are those aspects of social interaction that have cultural and intercultural variation. (Prerequisites: SOC 101 or PSY 101.)  

| SOC 335 | 3 Credits | Fall | **Sociology of Deviant Behavior (3+0)**
A study of the causes of deviant behavior, both criminal and non-criminal, with emphasis on the nature of social interaction and an examination of the social control groups and institutions. (Prerequisite: SOC 101.)  

| SOC 345 | 3 Credits | As Demand Warrants | **Sociology of Education (3+0)**
(Same as ED 345)
Examination of the ways in which social, political, and economic forces influence what happens in schools with focus on how the organization of schools affects what teachers can do in the classroom, 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.)  

| SOC 363 | 3 Credits | Fall | **Social Stratification (3+0)**
The study of the differential distribution of social power, privilege, and life chances in class and caste as the basis for social organization. Emphasis on occupational, educational, and other correlates which determine social structure. Also includes a comparative study of class and caste in India and the United States. (Prerequisite: SOC 101.)  

| SOC 370 | 3 Credits | Alternate Fall | **Drugs and Drug Dependence (3+0)**
(Same as PSY 370)
A multidisciplinary approach to the study of drugs and drug abuse emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological aspects of drug abuse, psychological and sociological causes and manifestations of drug abuse, recommended drug education alternatives and plans, and the 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: 1991-92.)  

| SOC 402 | 3 Credits | Spring | **Theories of Sociology (3+0)**
Major sociological theories and theorists of Western civilization. Review of important contributions and approaches of various "national schools" with emphasis on current American and European trends. (Prerequisite: Sociology 101.)  

| SOC 405 | 3 Credits | As Demand Warrants | **Social Change (3+0)**
(Same as PSY 250.)
Philosophy of change and its affiliation to socio-cultural change in terms of history, technology, axiology, and social movement. (Prerequisites: SOC 101 or permission of instructor.)  

| SOC 407 | 3 Credits | Alternate Fall | **Formal Organization (3+0)**
Theoretical and analytical approaches to the study of contemporary complex formal organizations, including their coordination, status and role interrelationships, and their diverse publics. Formal organizations unique to Alaska's multicultural population will be considered. (Prerequisite: SOC 101. Next offered: 1990-91.)  

| SOC 408 | 3 Credits | Alternate Fall | **American Minority Groups (3+0)**
An examination of the status of minority groups and intergroup relations in America, including changes in sociological, economic and political status. Theories and concepts of minority role behavior and intergroup relatives are applied to American and Alaskan racial and ethnic groups. (Prerequisite: SOC 101. Next offered: 1991-92.)  

| SOC 473 | 3 Credits | Fall | **Social Science Research Methods (3+0)**
(Same as PSY 473.)
Techniques of social research: sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments, and attitude scaling. (Prerequisite: PSY/SOC 250.)  

| SOC 638 | 3 Credits | Alternate Fall | **Social Policy and Social Change (3+0)**
(Same as PSY 638.)  

| SOC 645 | 3 Credits | Alternate Fall | **Prevention Theories and Strategies (3+0)**
(Same as PSY 645.)
Spanish

For information on studying in Europe, see Study Abroad.

SPAN 075 3 Credits As Demand Warrants
Conversational Spanish I and II (3+0)
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 for 076.)

SPAN 076 3 Credits As Demand Warrants

SPAN 100A 3 Credits As Demand Warrants
Beginning Spanish I and II (3+0)
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 Fall
SPAN 102 5 Credits Spring
Elementary Spanish 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, basic vocabulary of approximately 1000 words, exploration of the cultural dimension, implicitly through language and explicitly through texts and audio-visual materials; use of Foreign Language Learning Center. (Prerequisite for SPAN 102: SPAN 101 or 100B or the equivalent.)

SPAN 113 3 Credits As Demand Warrants
Spanish for Tourists (3+0)
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)
Continuation of SPAN 102. Increasing emphasis on reading ability and cultural material. Conducted in Spanish. (Prerequisite: SPAN 102 or equivalent.)

SPAN 288 2 Credits Spring
Individual Study: Reading Spanish h
Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures, development of true reading skill, and modern literary and/or non-literary texts. (Prerequisites: SPAN 201, equivalent training or permission of instructor. Recommended to be taken concurrently with SPAN 202.)

SPAN 301 3 Credits Alternate Fall
SPAN 302 3 Credits Alternate Fall
Advanced Spanish (3+0)
Discussions and essays on more difficult subjects or texts, translations, stylistic exercises, and special grammatical problems. Conducted in Spanish. (Prerequisite: SPAN 202 or equivalent. SPAN 301 next offered: 1991-92; SPAN 302: 1990-91.)

SPAN 387 2 Credits Fall
Individual Study: Semantics h
Systematic expansion of passive and active vocabulary through analyses of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. Conducted in Spanish. (Prerequisite: SPAN 202 or permission of instructor. Next offered: 1991-92.)

SPAN 432 3 Credits Spring
Studies in Hispanic Literature and Culture (3+0)
Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in Spanish. Student may repeat course for credit when topics vary. (Prerequisite: SPAN 303 or equivalent and at least sophomore standing or permission of instructor.)

SPAN 487 2 Credits Alternate Fall
Individual Study: Translation of Texts
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. (Prerequisite: SPAN 301 or 303 or equivalent and at least sophomore standing or permission of instructor. Next offered: 1990-91.)

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 121, 131 and 141) even if they have preregistered.

SPC 111 3 Credits As Demand Warrants
Fundamentals of Oral Communication (3+0)
An introduction to the concepts and processes of oral communication. Focuses on increased understanding of and effective performance in common interpersonal, group, and public communication situations.

SPC 121 3 Credits Fall and Spring
Fundamentals of Oral Communication: Interpersonal Emphasis (3+0)
An introduction to the communication process. Focuses on the core concepts of listening, perception, verbal and non-verbal communication, and organizing materials. Emphasizes increased understanding of and effective performance in TWO-PERSON COMMUNICATION SITUATIONS.

SPC 131 3 Credits Fall and Spring
Fundamentals of Oral Communication: Small Group Emphasis (3+0)
An introduction to the communication process. Focuses on the core concepts of listening, perception, verbal and non-verbal communication, and organizing materials. Emphasizes increased understanding of and effective performance in SMALL GROUP COMMUNICATION SITUATIONS.

SPC 141 3 Credits Fall and Spring
Fundamentals of Oral Communication: Public Speaking Emphasis (3+0)
An introduction to the communication process. Focuses on the core concepts of listening, perception, verbal and non-verbal communication, and organizing materials. Emphasizes increased understanding of and effective performance in PUBLIC SPEAKING SITUATIONS.

SPC 211 3 Credits As Demand Warrants
Voice and Diction (2+2)
Development of fluency and clarity in the voice, study and practice to improve speech and eliminate faults of articulation and pronunciation, phrasing, intonation, and emphasis, including individual analysis and tape recording. (Prerequisite: Any 100 level oral communication course or permission of instructor.)

SPC 231 3 Credits Alternate Years
Business and Professional Communication (3+0)
A pre-professional course designed to help business, professional, and communication students enhance their oral communication skills, focusing on superior/subordinate communication, interviewing, conference and meeting techniques, and presentation speaking. (Prerequisites: Any 100 level oral communication course or permission of instructor. Next offered: Spring 1991.)

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. (Prerequisites: Any 100 level oral communication course or permission of instructor. Next offered: Fall 1990.)

SPC 261 3 Credits Alternate Years
Oral Interpretation (3+0)
Interpretive reading of a variety of literary forms. Focuses on the development of (1) intellectual and emotional responsiveness to literature for increased understanding and appreciation, and (2) expression of skills of voice and body for effective oral interpretation of literature. (Prerequisites: Any 100 level oral communication course, THR 221, or permission of instructor. Next offered: Fall 1991.)
### Statistics

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<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Description</th>
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<tbody>
<tr>
<td>STAT 301</td>
<td>3 Credits</td>
<td>Elementary Probability and Statistics (3-0)</td>
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<td>Fall and Spring</td>
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<tr>
<td>STAT 482</td>
<td>3 Credits</td>
<td>Seminar in Speech Communication (3-0)</td>
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<td>Alternate Years</td>
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<tr>
<td>STAT 501</td>
<td>3 Credits</td>
<td>Regression and Analysis of Variance (3-0)</td>
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<td>Fall and Spring</td>
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<tr>
<td>STAT 601</td>
<td>3 Credits</td>
<td>Applied Multivariate Statistics (3-0)</td>
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<td>Alternate Spring</td>
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<tr>
<td>STAT 622</td>
<td>3 Credits</td>
<td>Experimental Design (3-0)</td>
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<tr>
<td>STAT 640</td>
<td>3 Credits</td>
<td>Exploratory Data Analysis (2-2)</td>
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<tr>
<td>STAT 661</td>
<td>3 Credits</td>
<td>Sampling Theory (3-0)</td>
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<td>Fairbanks, As Demand Warrants</td>
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</tbody>
</table>
### Theatrical Design

**THR 221** 3 Credits  Fall and Spring

**Intermediate Acting (1+4) h**

Continued development of physical, emotional and imaginative awareness. Text and character analysis, scene and monologue study and presentation. Introduction to improvisation. (Prerequisite: THR 121 or permission of 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 241** 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. Introduction of variety of character building methods. Study and performance of scenes and short plays. Introduction of audition techniques. (Prerequisite: THR 221, or permission of the instructor. Next offered: 1990-91.)

**THR 325** 3 Credits  Alternate Fall

**Theater Speech (2+2) h**

Vocal techniques for actors. Standard stage diction and foreign dialects. (Prerequisite: THR 221 or permission of instructor. Next offered: 1990-91.)

**THR 331** 3 Credits  Alternate Spring

**Fundamentals of Stage Direction (1+4) h**

An examination of the classical techniques of stage direction, with concentrati

**THR 341** 3 Credits  Spring

**Intermediate Stagecraft (2+2) h**

Principles and techniques of theatrical design. The student will conduct practical exercises and design projects applying the experience gained from the projects. (Prerequisite: THR 343 or permission of the instructor. May be taken concurrently with THR 353. Students will spend approximately $40 for materials. Next offered: 1990-91.)

**THR 345** 3 Credits  Alternate Spring

**Costume Construction and Design (3+0) h**

The Processes of research, design, and construction of period and modern costumes for the stage. The student will research and design projects representative of specific periods of dress, as well as to given practical experience in the areas of pattern drafting, theatrical construction methods, and creating and rendering techniques. (Prerequisite: THR 211 or permission of the instructor.)

**THR 411** 3 Credits  Alternate Years

**Theater History I (3+0) h**

Intensive examination of theatrical form and practice from its origins in storytelling and ritual through the French Neo-classic Theater. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1991-92.)

**THR 412** 3 Credits  Alternate Years

**Theater History II (3+0) h**

Intensive examination of theatrical form and practice from the English Renaissance through the present. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1990-91.)

**THR 413** 3 Credits  Alternate Fall

**Playwriting I (3+0) h**

Intensive investigation of the structure of playscripts designed to develop skills in analysis and interpretation for performance. (Prerequisites: Junior Standing, THR 211 or permission of instructor. Next offered: 1991-92.)
Trades and Technology

Trades and technology courses are not offered on the Fairbanks campus.

<table>
<thead>
<tr>
<th>COURSE DESCRIPTIONS—WELDING AND MATERIALS TECHNOLOGY</th>
<th>187</th>
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</thead>
<tbody>
<tr>
<td><strong>THR 421</strong> 3 Credits As Demand Warrants</td>
<td><strong>THR 131</strong> 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Advanced Acting II (1+4) h  Introduction of acting techniques for periods and styles. Intensive scene and monologue work. Introduction of ensemble work. Public performance of short plays. Intensive audition work. (Prerequisite: THR 221 or permission of the instructor. Next offered: 1991-92.)</td>
<td>Maintenance Mathematics (3+0) Practical application of mathematics as applied to 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.</td>
</tr>
<tr>
<td><strong>THR 435</strong> 3 Credits As Demand Warrants</td>
<td><strong>THR 132</strong> 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Advanced Stage Direction (1+4) h Study of major theories and current trends in stage direction. Working with different styles, periods and stage configurations. Emphasis on practical preparation for production: from concept to execution of a one act play for public performance. (Prerequisite: THR 331 or permission of instructor. Next offered: 1991-92.)</td>
<td>Building Maintenance Materials (3+0) Discusses the basic properties, processes and uses of metals and non-metallic materials, machines and building materials. Practical application of these materials to building maintenance situations will be emphasized.</td>
</tr>
<tr>
<td><strong>THR 456</strong> 3 Credits As Demand Warrants</td>
<td><strong>THR 133</strong> 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Intermediate Costuming (3+0) h Examination of theatrical costuming materials and methods and the continuation of the study of period styles. Special projects concerning campus.</td>
<td>Basic Hand and Power Tools (3+0) Includes proper nomenclature, uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.</td>
</tr>
<tr>
<td><strong>THR 471</strong> 3 Credits As Demand Warrants</td>
<td><strong>THR 134</strong> 1 Credit As Demand Warrants</td>
</tr>
<tr>
<td>Methods in Secondary Theatre Education (3+0) Principles and methods of teaching theatre in junior and senior high school with emphasis on philosophies, management, objectives, and teaching techniques. Related classroom and extracurricular theatre activities. Includes development and implementation of specific unit packages and rehearsal methods. (Prerequisite: THR 211, THR 354 or permission of instructor. Next offered: 1990-91.)</td>
<td>Maintenance Safety (1+0) Introduction to industrial safety including the following: recognizing safety hazards; working safely; handling materials safely; using machinery safely; personal protective equipment; electrical safety; fire protection and government safety regulations.</td>
</tr>
<tr>
<td><strong>TTCH</strong> 101 2 Credits</td>
<td><strong>TTCH</strong> 135 1 Credit As Demand Warrants</td>
</tr>
<tr>
<td>Machine Woodworking I (2+4) Introduction to woodworking power machines (circular saw, jointer, radial arm saw), joints, fasteners, and different stains and finishes used on wood.</td>
<td>Basic Maintenance Troubleshooting (1+0) Basic troubleshooting procedures used by building maintenance personnel in the repair of plant equipment and systems. Systematic approaches to troubleshooting, scheduled and unscheduled maintenance.</td>
</tr>
<tr>
<td><strong>TTCH</strong> 105 1 Credit As Demand Warrants</td>
<td><strong>TTCH</strong> 136 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Basic Electrical Wiring (1+4) Familiarizes the student with fundamental skills and career opportunities in electrical wiring.</td>
<td>Basic Shielded Metal-Arc Welding (3+0) Introduction to welding in preparation of further study. Topics include welding safety, electrical welding equipment, electrode identification and selection. Welding practice on mild steel in various welding positions. Assumes no previous knowledge on part of student.</td>
</tr>
<tr>
<td><strong>TTCH</strong> 106 3 Credits As Demand Warrants</td>
<td><strong>TTCH</strong> 137 1 Credit As Demand Warrants</td>
</tr>
<tr>
<td>Residential Electrical Systems (2+4) Provides basic electrical theory and technical skills for installation and service of electrical equipment commonly found in the home.</td>
<td>Maintenance and Repair (1+2) Students will learn to troubleshoot 10 common problems, read manuals, change parts, set electrodes, change nozzles, understand controls and order replacement parts.</td>
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<tr>
<td><strong>TTCH</strong> 113 3 Credits As Demand Warrants</td>
<td><strong>TTCH</strong> 214 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Basic Plumbing (3+0) Introduction to methods and materials used in household plumbing. Topics include pipe fittings and valves, pipe hangers and brackets, copper and plastic pipe fitting and plumbing fixtures.</td>
<td>Heating Systems Design (3+0) Comprehensive instruction in installation and design of heating systems. Topics include installation procedures of current systems, heat loss calculation, heat distribution through hydronic and air systems, and boiler and furnace sizing. Major emphasis is placed upon systems approach to heating system design.</td>
</tr>
<tr>
<td><strong>TTCH</strong> 117A 1 Credit As Demand Warrants</td>
<td><strong>TTCH</strong> 099, 199, 299 1-3 Credits As Demand Warrants</td>
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<tr>
<td>Four-Cycle Engine Repair (1+4) Covers four-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly of a four-cycle engine.</td>
<td>Practicum Allows the student to work on and develop the skills learned in prior courses. Designed to meet the needs of individual students.</td>
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<tr>
<td><strong>TTCH</strong> 117B 1 Credit As Demand Warrants</td>
<td><strong>WMT</strong> 101 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Two-Cycle Engine Repair Covers two-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly as well as familiarization with tools used in small engine repair.</td>
<td>Introduction to Welding (2+2) Introduction and orientation to the processes and procedures involved in the welding field. Course presented in a &quot;hands-on&quot; fashion.</td>
</tr>
<tr>
<td><strong>TTCH</strong> 120 4 Credits As Demand Warrants</td>
<td><strong>WMT</strong> 102 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Refrigeration and Air Conditioning (4+4) 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.</td>
<td>Intermediate Welding (2+2) Continuation of WMT 101 (Prerequisite: WMT 101.)</td>
</tr>
<tr>
<td><strong>TTCH</strong> 130 3 Credits As Demand Warrants</td>
<td><strong>WMT</strong> 103 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Blueprint and Schematic Reading (3+4) Basic blueprint and schematic reading skills used by building maintenance personnel. Introduction to machine drawings, building drawings, hydraulic and pneumatic drawings, electrical schematics and symbols, air conditioning and refrigeration drawings, welding and joining symbols.</td>
<td>Welding I (3+0) Entry-level course in basic oxy-acetylene, arc welding, flame cutting, brazing, and braze welding principles and practices. Materials fee: $200.00.</td>
</tr>
<tr>
<td><strong>WMT</strong> 105 3 Credits As Demand Warrants</td>
<td><strong>WMT</strong> 103 3 Credits As Demand Warrants</td>
</tr>
<tr>
<td>Welding II (3+0) Covers arc welding techniques and basic MIG and TIG welding. (Prerequisite: WMT 103 or permission of instructor.) Materials fee: $200.00.</td>
<td></td>
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</tbody>
</table>
WMT 110 1-3 Credits As Demand Warrants
Oxy-Acetylene Welding (OAW)
Up to three credits will be awarded toward the program 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). Courses are presented in competency based manner.

WMT 115 1 Credit As Demand Warrants
Bronze Gas Welding (OAW Bronze) (1G)
One credit will be awarded toward the program for successful completion of the certification test. WMT 115A-Certif OAW (1G). Course presented in competency based manner.

WMT 130 1-3 Credits As Demand Warrants
Shielded Metal Arc Welding (SMAW)
All positions will be emphasized for multiple pass fillet welds. Up to three credits will be awarded toward the program 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). Course presented in competency based manner.

WMT 150 1-3 Credits As Demand Warrants
Gas Tungsten Arc Welding (GTAW)
Use of tungsten and argon gas to do aluminum and stainless steel gas welding. Up to three credits will be awarded toward the program 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). Course presented in competency based manner.

WMT 160 1-3 Credits As Demand Warrants
Gas Metal Arc Weld Alum (GMAW)
Welding (3+0)
Course designed to prepare student to work on Microwave processes. Up to three credits will be awarded toward the program for successful completion of any of the four sections: 160A-Certif GMAW M.Steel (1F); 160B-Certif GMAW M.Steel (2F); 160C-Certif GMAW M.Steel (3F); 160D-Certif GMAW M.Steel (4F). Course presented in competency based manner.

WMT 241 3 Credits As Demand Warrants
Gas, MIG and TIG Welding (3+0)
Course covers gas shield welding with three common methods used in industry. Emphasis on metal specifications, cap joints, butt joints, tee joints and tube welding on steel, aluminum and stainless. Materials fee: $250.00. (Prerequisite: WMT 103 and 105.)

WMT 201 3 Credits As Demand Warrants
Aviation Welding (2+2)
Tungsten in gas and oxyacetylene will be used to weld Moly steel aircraft structural parts. Basic aircraft joints and sheet metal joints will be 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)
Survey of the history and nature of wildlife work. Lectures, supplemented by guest presentations, will introduce major aspects of wildlife biology and management as well as the research of local wildlife biologists and the 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, examples in the use of computers and quantitative methods in wildlife work. Some field trips may be included. (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. A brief discussion of the usefulness of a technique will precede its description or application. Topics covered include: using the wildlife literature and scientific writing; behavioral sampling; nomenclature, identification, and sexing and aging of wildlife; census methods; habitat evaluation and manipulation; biometry; home range; food habits and modeling; and necropsy techniques, animal condition, and wildlife diseases. A term paper is required. Laboratory fee: $10.00. (Prerequisites: WLF 201 or equivalent, BIOL 271.)

WLF 304 1-3 Credits Fall and Spring
Wildlife Internships
Programs designed to provide undergraduate students with practical experience in wildlife management in public or private agencies. Projects are approved by faculty members and supervised by professional agency staff. Not substitutable for courses required for major. (Prerequisites: 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: $10.00. (Prerequisites: BIOL 105, 106 or equivalent and permission of instructor. Recommended: BIOL 205 or 222 and BIOL 210. Next offered: 1991-92.)

WLF 360 3 Credits Fall
Nutrition and Physiological Ecology of Wildlife (3+0)
Concepts and techniques of nutrition and physiological ecology used by wildlife managers to understand relationships between wild animals and habitats they occupy. Includes techniques for constructing energy and nutrient budgets of wild animals and applications of these budgets to population level processes and habitat management. (Prerequisites: BIOL 210, 271, WLF 201.)

WLF 410 3 Credits Spring
Wildlife Populations and Their Management (2+3)
The characteristics and ecology of wildlife populations and the knowledge necessary for their wise management. Measurement of abundance, dispersal, fecundity and mortality, population modeling, competition and predation, and the management of rare species and their habitats. Laboratory fee: $10.00. (Prerequisites: BIOL 270, 271, WLF 301.)

WLF 417 2 Credits Alternate Spring
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: BIOL 425 and BIOL 426 or permission of the instructor. Next offered: 1991-92.)

WLF 419 4 Credits Alternate Fall
Waterfowl and Wetlands Ecology and Management (3+3)
Ecology of waterfowl and their associated wetland habitats. Management of populations, including harvest and manipulation of habitats. District, tower, harvest, economic and political factors important in the conservation of major species. (Prerequisites: BIOL 271, 425, and WLF 201 or permission of instructor. Next offered: 1991-92.)

WLF 420 3 Credits Spring
Wildlife Policy and Administration (3+3)
Study of laws and agencies shaping wildlife management in North America. History and current status of major policy issues. Organization of and funding sources for state and federal programs in wildlife conservation. (Prerequisite: A 3 credit course in wildlife management principles or permission of instructor.)

WLF 611 1 Credit As Demand Warrants
Credits Arr.
WLF 612 1 Credit As Demand Warrants
Credits Arr.
Wildlife Field Trip

WLF 614 2 Credits Alternate Spring
Grazing Ecology (2+0)
(Same as BIOL 614)

WLF 615 2 Credits Alternate Fall
Advanced Topics in Wildlife Management (2+0)

WLF 621 3 Credits Alternate Spring
Vertebrate Population Dynamics (2+3)

WLF 692 1 Credit Fall and Spring
Graduate Seminar (0+0+1)
Register

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P.O. Box 70364, Fairbanks, AK 99707

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 '84, D.Sc. (Hon.) (1956-1983)


Clark, Vena A., Associate Professor of Home Economics, Emeritus. Collier College '25, A.B.; Iowa State University '33, M.S. (1953-1967)


Cook, Donald, Professor of Mineral Beneficiation, Emeritus, University of Alaska '47, B.S.; '52, E.M.; Pennsylvania State University '58, M.S.; '60, Ph.D.; P.E. (1957-1979)


Davis, Charles W., Professor of Music, Emeritus. State University of Iowa '37, B.A.; '48, M.A. (1963-1979)


Decker, Charles Sterling, Professor of Physics, Emeritus. Reed College '58, B.A.; University of Alaska '61, M.S.; '68, Ph.D. (1958-1988)


Fohn-Hansen, Lydia, Associate Director of Cooperative Extension, Emeritus. Iowa State College '19, B.S.; '22, M.S.; University of Alaska '59, D.Hum. (1925-1936, 1940-1959)


Harbo, Samuel J., Professor of Wildlife Management and Biometrics, Emeritus. University of Nebraska '39, B.S.; University of Alaska '58, M.S.; North Carolina State University, Raleigh 72, Ph.D.


Hollerbach, Wolf, Professor of French and Spanish, Emeritus. Universite de Rennes '61, Doctorat d'Universite, University of Bonn '62, Wissenschaftliches Staatsexamen. (1965-1966)

Hood, Donald W., Professor of Marine Science, Emeritus. Pennsylvania State University '40, B.S.; Oklahoma State University '42, M.S.; Texas A&M University '50, Ph.D. (1965-1978)

Husnucker, 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 Zoophysiology, Emeritus. Bowdoin College '16, A.B.; '59, D.Sc. (Hon.); Harvard University '17, A.M.; Stanford University '24, Ph.D.; University of Oslo '56, M.D. (Hon.); University of Alaska '68, D.Sc. (Hon.) (1962-1975) Deceased


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
C&I Conference and Institutes
CC Chukchi Campus
CLA College of Liberal Arts
CNS College of Natural Sciences
CES Cooperative Extension Service
FITC Fishery Industrial Technology Center
GI Geophysical Institute
IAB Institute of Arctic Biology
IMS Institute of Marine Science
INE Institute of Northern Engineering
ICFOS Juneau Center for Fisheries and Ocean Sciences
KUC Kuskokwim Campus
LIB Egan Rasmuson Library
MAP Marine Advisory Program
NWC Northwest Campus
RC Rural College
RCTR Rural Centers
SALEM School of Agriculture and Land Resources Management
SCCE School of Career and Continuing Education
SOS School of Engineering
SFOS School of Fisheries and Ocean Sciences
SG Alaska Sea Grant College Program
SME School of Mineral Engineering
SOM School of Management
STUAFF Student Affairs
UAM University of Alaska Museum
VCA Vice Chancellor for Administration
VCAA Vice Chancellor for Academic Affairs
VCR Vice Chancellor for Research

Abrahams, Sherry Lynn — 1964 — Associate Professor of Library Science (1975). L.B. Bowling Green State University '56, B.A.; University of Illinois '59, M.S.L.S.


Akaosofu, Syun-Ichi — 1958 — Director of the Geophysical Institute (1986) and Professor of Geophysics (1964). Tohoku University '53, B.S.; '57, M.S.; University of Alaska '61, Ph.D.


Albrecht, C. Earl — 1979 — Affiliate Professor of Medical Science (1979). CNS. Maricopa College, '60, B.A.; Moravian Theological Seminary '58, B.D.; Jefferson Medical College '52, M.D.

Alexander, Barbara — 1977 — Associate Professor of Humanities (1985). CLA. University of Zurich '75, Ph.D.


Anderl, Robert — 1990 — Associate Professor of Library Science (1990). LIS. Syracuse University '65, M.S.L.S.


Ande, Roy — 1990 — Visiting Instructor of Speech Communication (1990). CLA. Bridgewater College '73, B.A.; University of Virginia School of Law '77, J.D.; University of Montana '86, M.A.

Andresen, Patricia A. — 1967 — Associate Professor of Mathematics (1977). CLA. University of Illinois '55, B.S.; University of Missouri '58, M.A.; University of California at Santa Barbara '76, Ph.D.

Andrews, Susan B. — 1989 — Assistant Professor of General Studies and Adjunct Assistant Professor of Journalism and Broadcasting (1989). CCS. Smith College '81, B.A.; University of Oregon '83, M.A.


Armbruster, W. Scott — 1980 — Associate 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, B.A.; Johns Hopkins University, M.S.; '83, Ph.D.

Arundale, Robert — 1979 — Associate Professor of Speech Communication (1985). CLA. Rensselaer 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 '67, A.B.; Michigan State University '72, M.A.; '76, Ph.D.

Aspnes, John D. — 1979 — Professor of Electrical Engineering (1981), and Head, Department of Electrical Engineering (1983). SOE. University of Wisconsin '65, M.S.; Montana State University '66, Ph.D.; P.E.


Badger, Mark O. — 1982 — Director of Production. KUAC-TV (1988). CLA.


Baker, Elisha R. — 1989 — Visiting Associate Professor (1989). SOE. Clemson University '70, B.S.; '72, M.S.; '75, Ph.D.

Baker, Grant C. — 1988 — Visiting Assistant Professor of Mechanical Engineering (1988). SOE. University of Washington, B.S.; University of Alaska Fairbanks, M.S.; Ph.D.

Baker, Jill H. — 1988 — Assistant Professor of Social Work (1988). RC. University of Texas '68, B.A.; University of Hawaii '81, M.S.W.


Barber, Willard E. — 1976 — Associate Professor of Fisheries (1988). SFOS. Arizona State University '65, B.A.; '68, M.S.; Michigan State University '70, Ph.D.

Barnes, Brian M. — 1986 — Assistant Professor of Zoophysiology (1986). IAB. CNS. University of California, Riverside '66, B.S.; University of Washington '83, Ph.D.


Barrick, Kenneth A. — 1985 — Assistant Professor of Geography (1985). CLA. Shippenburg University of Pennsylvania '74, B.A.; '78 M.S.; Southern Illinois University-Carbondale '82, M.S.; '83, Ph.D.


Basham, Charlotte S. — 1983 — Assistant Professor of Anthropology and Cross-Cultural Communication and Coordinator of Linguistics (1988). CLA. Arizona State University '67, B.A.; San Jose State University '77, M.A.; University of Michigan '86, Ph.D.
Kuhns, Chuck - 1978 - Captain, Fire Department (1981), VCAA. University of Alaska '80, A.A.S.
Kukendall, Jo - 1984 - Visiting Assistant Professor of Early Childhood (1988), SCEF. Oregon State University '64, B.S.; University of Southern California '66, Ed.D.
LaBerge, MaryEllen - 1988 - Placement Coordinator (1980), STUAFF. University of Alberta '69, B.P.E.
Lambert, John P. - 1982 - Associate Professor of Mathematics (1987). CLA. University of Cincinnati '64, B.S.; University of New Mexico '68, M.A.; Claremont Graduate School '68, Ph.D.
Lamie, Philip - 1987 - Assistant Professor of Art (1987), CLA. Herron School of Art '84, B.F.A.; Ohio State University '86, M.F.A.
Lamoreaux, Dennis W. - 1980 - Superintendent (1989), VCA. A.A.
Lando, Barbara M. - 1969 - Professor of Mathematics and Computer Science (1982). CLA. Georgian Court College '62, B.A.; Rutgers University '64, M.S.; '80, Ph.D.
Lando, Clifton A. - 1969 - Associate Professor of Mathematics (1973). Head: Department of Mathematical Sciences. Associate Dean, 1988. CLA. Lehigh University '62, B.A.; Rutgers University '64, M.S.; '89, 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, M.S.; '81, Ph.D.
LaRoe, Daniel J. - 1986 - Lead Analyst/Programmer (1989), VCA.
Lathbrook, G. Lynn - 1988 - Director of Athletics (1988), ATHREC. Fort Hays State University '70, B.S.; Springfield College '71, M.S.; University of Northern Colorado '76, Ed.D.
Launton, David - 1985 - Assistant Hockey Coach and Assistant Arena Manager (1985), ATHREC. Notre Dame '82, B.B.A.
Lauren, Gary A. - 1976 - Adjunct Associate Professor of Mycology (1980). CNS.SALRM. Western Washington State University '65, B.A.; University of Montana '70, M.S.; Virginia Polytechnic Institute and State University '75, Ph.D.
Lay, l. Stephen - 1989 - Editor and Information Specialist (1989), SALRM. Trinity University '69, B.A.; Ohio State University '68, M.A.
Layr, Paul W. - 1989 - Assistant Professor of Geophysics (1989), CNS. CL. Michigan State University '72, B.S.; Stanford University '74, M.S.; '86, Ph.D.
Leconte, Serge - 1979 - Associate Professor of Russian (1986), CLA. University of Alabama '70, B.A.; Vanderbilt University '71, M.A.; '74, Ph.D.
Lee, Jonah Y. H. - 1984 - Associate Professor of Mechanical Engineering (1989), SOE. Chung Yuan College '73, B.S.; South Dakota School of Mines and Technology '79, M.S.; Iowa State University '83, Ph.D.
Lee, Jong S. - 1982 - Director of Fishery Industrial Technology Center and Professor of Food Science (1982). SFO. University of California Berkeley '58, A.B.; Oregon State University '62, M.S.; '63, Ph.D.
Lee, Lou-Chuang - 1978 - Professor of Physics (1966). GI, CNS. National Taiwan University '69, B.S.; California Institute of Technology '72, M.S.; '79, Ph.D.
Leer, Jeffrey A. - 1976 - Instructor, Alaska Native Language Center (1987), CLA. Evergreen State College '76, B.A.; University of Chicago '87, M.A.
Lehman, John A. - 1987 - Associate Professor of Business Administration (1987), SOM. University of Michigan '72, B.A.; '73, M.A.; 77, B.A.; '81, Ph.D.
Leipzig, John S. - 1982 - Associate Professor of Speech Communication (1988), CLA. Western Michigan University '69, B.A.; University of South Florida '74, M.A.; Kent State University '80, Ph.D.
Lewis, Carol E. - 1973 - Associate Professor of Resource Management (1979). SALRM. University of Florida '82, B.S.; '64, M.S.; Georgetown University '71, Ph.D.; University of Alaska '76, M.B.A.
Lin, Hsing Kuang - 1986 - Assistant Professor of Hydrometallurgy (1987). SME. National Chung Kung University '74, B.S.; University of Alaska Fairbanks '80, M.S.; University of Salt Lake City '85, Ph.D.
Lincoln, Tamara P.K. - 1979 - Associate Professor of Library Science (1986), Lib. University of Idaho '61, B.F.A. '64, M.A.; Northern Illinois University '78, M.I.S.
Lincoln, Tamara P.K. - 1979 - Associate Professor of Library Science (1986), Lib. University of Idaho '61, B.F.A. '64, M.A.; Northern Illinois University '78, M.I.S.
Quarberg, Donald — 1979 — Associate Professor/Agricultural Agent (1985), CES. University of Wisconsin 72, B.S.; Texas A&M University 74, M.S.

Quinn II, Terrance J. — 1985 — Associate Professor of Population Dynamics (1985), ICFOS. University of Colorado 73, B.A.; University of Washington 77, M.F.A.; Ph.D.

Raafl, Luft — 1988 — Associate Professor of Civil Engineering (1988), SOE. American University of Beirut 71, B.E.; University of California, Berkeley 72, M.Sc.; 77, Ph.D.


Rager, Ira S. — 1985 — Coordinator, Military Extension (1986), SCCE.


Rao, Pennamani Dharma — 1966 — Professor of Coal Technology (1976) and Associate Director of MIRL (1989), SME. Andhra University '52, B.Sc.; '54, M.Sc.; Pennsylvania State University '59, M.S.; '61, Ph.D.

Rasmussen, Linda B. — 1986 — Advanced Nurse Practitioner, Center for Health and Counseling (1986), STUAFF. Loyola University of Chicago 90, B.S.N.; Simmons College, Boston 84, M.S.

Ray, Charles K. — 1957 — Director of Summer Sessions (1982) and Adjunct Professor of Education (1960), University of Colorado 51, B.A.; Columbia University 59, M.A., Ed.D.

Ray, Glen — 1983 — Instructor/Regional Leadership Specialist (1983) CES. Utah State University '65, B.A.; San Jose State University 77, M.A.

Raymond, James A. — 1980 — Affiliate Assistant Professor of Marine Science (1980), ICS. University of Pennsylvania '68, B.A.; University of California, San Diego 71, M.S.; '76, Ph.D.

Read, Colin L. — 1989 — Assistant Professor of Economics (1989) SOM. Capilano College 79, A.A.S.; Simon Fraser University 81, B.A.; School of Graduate Studies and Research, Queen's University '82, M.A.; '88 Ph.D.

Reeburgh, William S. — 1969 — Professor of Marine Science (1977) IMS. University of Oklahoma '61, B.A.; Johns Hopkins University '64, M.A.; '67, Ph.D.

Reed, E. Irene — 1970 — Program Coordinator, Alaska Native Language Center, CLA. University of Washington, 61, B.A.; University of Arizona 72, M.A.

Rees, Manfred H. — 1972 — Professor of Geophysics (1975), GI. West Virginia University '46, B.S.E.E.; University of Colorado '56, M.S.; '58, Ph.D.

Reeve, Karen — 1989 — Program Coordinator, Alaska Drug Abuse Response and Education Program (1989), STUAFF.

Reeve, Winifred A. — 1986 — Coordinator, Community Health Aid Program (1988), RC. College of St. Scholastica 72, B.A.

Reger, Richard D. — 1975 — Affiliate Associate Professor of Geology (1984), CNS. University of Alaska Fairbanks '63, B.A.; '64, M.S.; Arizona State University 73, Ph.D.

Reichardt, Paul B. — 1972 — Professor of Chemistry (1981), and Head, Department of Chemistry (1988), CNS. Davidson College '65, B.S.; University of Wisconsin 69, Ph.D.

Reisinger, John W. — 1972 — Chief Engineer, KUAC FM-TV (1980), CLA.

Reneker, Lyle A. — 1990 — Assistant Professor of Animal Science (1990), SOM. Land Grant University '74, B.S.; Laurentian University '83, M.S.; University of Alberta '89, Ph.D.


Reynolds, James B. — 1978 — Associate Professor of Fisheries and Unit Leader, Alaska Cooperative Fishery Research Unit (1978), IAB. SPOS. Utah State University '61, B.S.; Iowa State University '63, M.S.; '66, Ph.D.

Reynolds, Janice McKenna — 1988 — Vice Chancellor for Academic Affairs (1988), VCCA. Central Michigan '64, B.S.; Ohio State University '67, M.A.; '69, Ph.D.


Rice, Eileen Lynn — 1988 — Fiscal Officer (1988), SCCE. The Florida State University 71, B.A.; Babcock Graduate School of Management, Wake Forest University '81, M.B.A.

Rice, Michael L. — 1983 — Dean, School of Management (1983) and Professor of Business Administration (1983), SOM. Florida State University, Tallahassee '71, B.S.; '72, M.B.A.; University of North Carolina, Chapel Hill 75, Ph.D.

Riccio, Thomas P. — 1985 — Assistant Professor of Theatre (1988), CLA. Cleveland State University '78, B.A.; Boston University '82, M.F.A.


Rice, Eileen Lynn — 1988 — Fiscal Officer (1988), SCCE. The Florida State University 71, B.A.; Babcock Graduate School of Management, Wake Forest University '81, M.B.A.

Rice, Michael L. — 1983 — Dean, School of Management (1983) and Professor of Business Administration (1983), SOM. Florida State University, Tallahassee '71, B.S.; '72, M.B.A.; University of North Carolina, Chapel Hill 75, Ph.D.


Richmond, Allen P. — 1980 — Research Associate, SALRM (1980), Virginia Polytechnic Institute and State University 72, B.S.

Riley, Joe — 1984 — Producer/Reporter, KUAC-TV (1984), CLA. Furman University 78, B.A.

Riley, Julie — 1984 — Assistant Professor of Horticulture (1988) and Community Development (1984) CES. University of Wisconsin-Madison 77, B.S.; '90, M.S.
Weifen, Arvid — Assistant Professor of Airframe and Powerplant/Airaviation Technology, SCCE, St. Cloud State College, '71, B.S.


Weimer, Daniel R. — 1989 — Research Associate Professor (1989), GI, University of Michigan, '77, B.S.; '77, B.S.E.; University of Iowa, '83, M.S.; '84, Ph.D.

Weinartner, Thomas J. — 1988 — Postdoctoral Fellow (1988), IMS. Cornell University, '74, B.S.; University of Alaska, '80, M.S.; North Carolina State University, '80, Ph.D.

Weller, G. E. — 1989 — Professor of Geophysics (1973), GI, CNS. University of Melbourne, '62, B.S.; '64, M.S.; '87, Ph.D.

Wells, W. L. — 1984 — Assistant Professor of Exercise Physiology (1984) and Head, Department of Physical Education (1988), CLA. University of Minnesota, '71, B.S.; Indiana University, '73, M.S.; '81, Ph.D.

Wendler, Gerhard — 1986 — Professor of Geophysics (1982), GI, CNS. University of Innsbruck, '84, Ph.D.

Wescott, Eugene — 1958 — Professor of Geophysics (1974), CNS, GI, University of California, Los Angeles, '55, B.A.; University of Alaska, '60, M.S.; '84, 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, '76, M.A.

West, Sharon M. — 1973 — Associate Professor of Library Science (1981), LIB. University of Southern Colorado, '69, B.S.; University of Denver, '70, M.A.

Whalen, Stephen C. — 1979 — Postdoctoral Fellow (1980), IMS. University of Maine, '74, B.S.; Montana State University, '79, M.S.; University of Alaska, '86, Ph.D.


Wheelerburg, Rebecca — 1989 — Head Resident (1989), STUAAFF. Ohio Dominican College, Columbus, '84, B.A.

White, Alisa R. — 1988 — Assistant Professor of Broadcasting (1988), CLA. University of Tennessee, '60, B.A.; '64, M.S.


Wichmann, Henry — 1986 — Professor of Accounting (1986), SOM. University of Denver, '82, B.S.; Colorado State University, '84, M.A.; University of Northern Colorado, '72, Ph.D.

Wiess, Craig S. — 1977 — Business Management Specialist (1981), Associate Professor of Marine Science (1983), MAP. Oregon State University, '66, B.S.; '74, M.S.; '76, M.B.A.

Willett, Ann T. — 1989 — Fiscal Officer (1989), KUC.

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Pencils, paper and a computer all come in handy for Tiny Remm during a course at the UAF Downtown Center.
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Senior Christopher Bias stands out in a crowd during the 1989 graduation ceremony.
Summer days are perfect for soaking in the sun and smelling the flowers, as these students demonstrate between classes in Constitution Park.