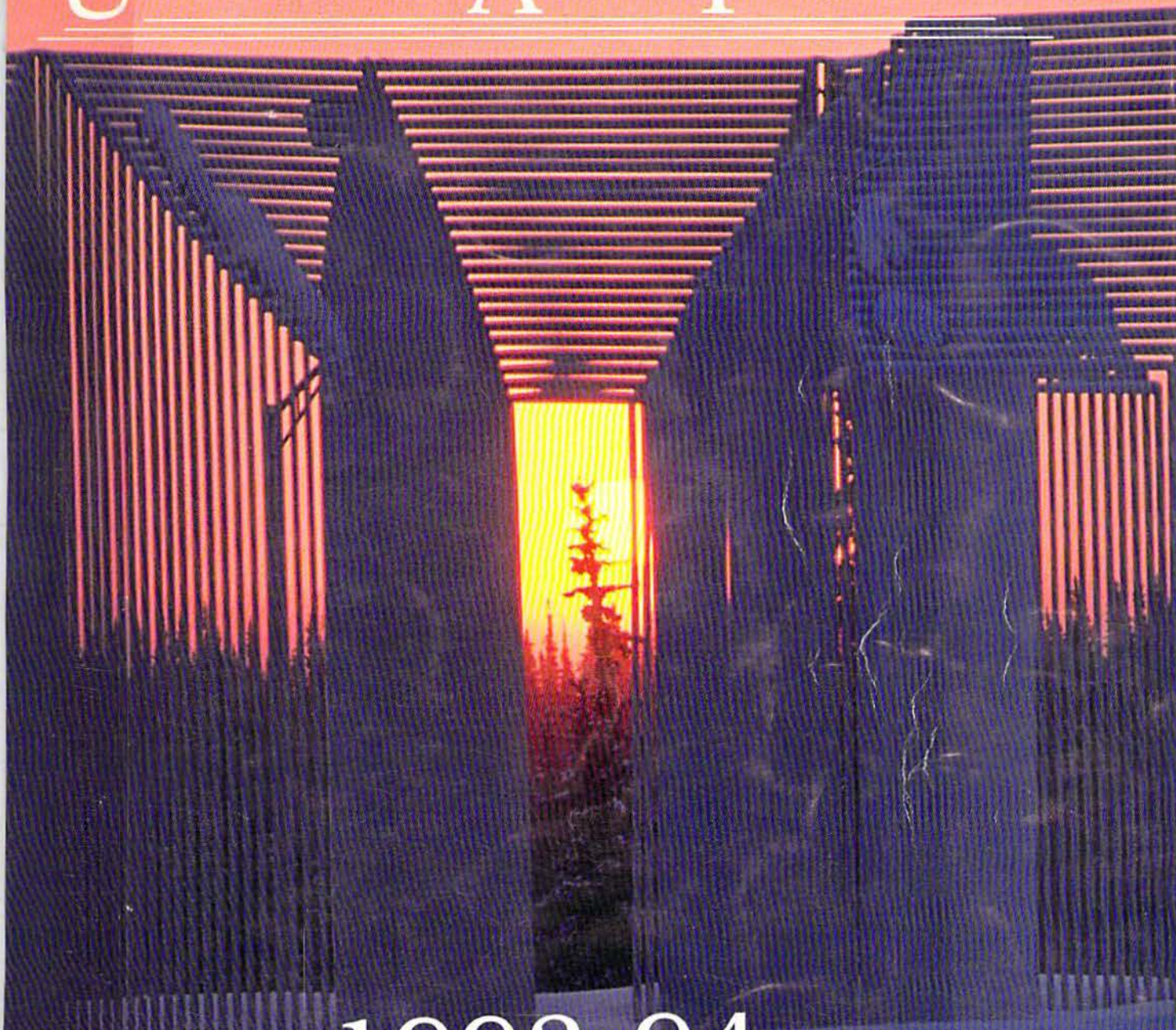
# UNIVERSITY OF ALASKA FAIRBANKS



# 1993-94

## UNDERGRADUATE

# CATALOG

UNIVERSITY OF ALASKA FAIRBANKS

Main Campus

# Academic Calendar

## Fall Semester — 1993

| | |
|---|---|
| Application for admission deadline for fall semester | Aug. 1 |
| Orientation for new students | Sun.-Wed., Aug. 29-Sept. 1 |
| Residence halls opens, 9 a.m. | Mon., Aug. 30 |
| Dining commons opens | Mon., Aug. 30 |
| Registration materials and advisers available | Tues.-Wed., Aug. 31-Sept. 1 |
| Registration: course selection | Tues.-Wed., Aug. 31-Sept. 1 |
| Registration: fee payment | Thurs.-Thurs., Sept. 2-9 |
| Last day for residence halls check in | Wed., Sept. 1 |
| First day of instruction | Thurs., Sept. 2 |
| Labor Day (no classes) | Mon., Sept. 6 |
| Last day of late registration | Thurs., Sept. 9 |
| Last day to apply for fall graduation | Fri., Oct. 15 |
| Mid-term grades for freshmen due | Oct. 15-21 |
| Last day for student-initiated withdrawals | Thurs., Nov. 4 |
| Priority registration for the spring semester | Begins Nov. 15 |
| Thanksgiving holidays | Thurs.-Sun., Nov. 25-28 |
| Last day of instruction | Mon., Dec. 13 |
| Study day | Tues., Dec. 14 |
| Final examinations | Wed.-Sat., Dec. 15-18 |
| Dining commons closes | Sat., Dec. 18 |
| Residence halls close, noon | Sun., Dec. 19 |
| Grades due to Admissions and Records | Mon., Dec. 20 |

## Spring Semester — 1994

| | |
|---|---|
| Application for admission deadline for spring semester | Dec. 1 |
| Orientation for new students | Mon.-Tue., Jan. 10-11 |
| Residence halls opens, 9 a.m. | Sun., Jan. 9 |
| Dining commons opens | Mon., Jan. 10 |
| Registration materials and advisers available | Mon., Jan. 10 |
| Registration: course selection | Tues.-Wed., Jan. 11-12 |
| Registration: fee payment | Thurs.-Wed., Jan. 13-19 |
| Last day for residence halls check in | Wed., Jan. 12 |
| First day of instruction | Thurs., Jan. 13 |
| Last day of late registration | Wed., Jan. 19 |
| Last day to apply for spring graduation | Tues., Feb. 15 |
| Mid-term grades for freshmen due | Feb. 25-Mar. 3 |
| Spring recess | Mon.-Sun., Mar. 7-13 |
| Last day for student-initiated withdrawals | Wed., Mar. 23 |
| Priority registration for the fall semester | Begins Apr. 5 |
| All Campus Day (no classes) | Fri., Apr. 22 |
| Last day of instruction | Fri., Apr. 29 |
| Final examinations | Mon.-Thurs., May 2-5 |
| Dining commons closes | Thurs., May 5 |
| Residence halls close, noon | Fri., May 6 |
| Commencement | Sun., May 8 |
| Grades due to Admissions and Records | Wed., May 11 |

*For academic calendar information for UAF's branch campuses, contact the campuses directly (see p. 2).*

1993-94

UNDERGRADUATE

# CATALOG




## 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
- Computing Sciences Accreditation Board
- Council on Social Work Education
- National Association of Schools of Music
- National Council for Accreditation of Teacher Education

## About this Catalog

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

If you're a current or enrolling student, you should also refer to the Class Schedule or the Community Bulletin, which list classes offered, their locations, and when they meet. Schedules and bulletins are available a few weeks before semesters begin.

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

Photo: Dawn Dinwoodie graduated in May 1992 with a B.B.A. in management.

# Questions? Call or write

**Information ..... 474-7211**
**TTY ..... 474-6709**

Academic Affairs, 3rd floor Signers' Hall ..... 474-7096
Academic Computing, 403 Library ..... 474-7191
Administrative Services, Vice Chancellor for,
206 Administrative Services Center ..... 474-7340
Admissions and Records, 1st floor Signers' Hall ..... 474-7521
From within Alaska ..... 1(800) 478-1UAF
TTY ..... 474-6708
Advising Center, 5th floor Gruening ..... 474-6396
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 ..... 272-9531
Alaska Native Language Center, 218 Eielson ..... 474-7874
Alaska Teacher Placement, M-B-S Complex ..... 474-6644
Alumni Relations, 201 Constitution Hall ..... 474-7081
Arctic Biology, Institute of, 311 Irving ..... 474-7648
Associated Students of UAF, 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 Services, 5th floor Gruening ..... 474-7596
Chancellor's Office, 3rd floor Signers' Hall ..... 474-7112
Chukchi Campus, Box 297, Kotzebue, AK 99752 ..... 442-3400
Conferences and Special Events, 117 Eielson ..... 474-7800
Cooperative Extension Service, Arctic Health
Research Building ..... 474-7246
Delta Learning Center, Box 412, Delta Junction, AK 99737 .. 895-4292
Development, Office of, 316 Signers' Hall ..... 474-6402
Developmental Studies, Downtown Center ..... 451-7223
Disabilities, Services for Students with, HS&S Bldg ..... 474-7043
TTY ..... 474-7045
Distance Education, Center for, 129 Red Building ..... 474-5353
Downtown Center, 510 Second Ave., Fairbanks,
AK 99701 ..... 451-7223
TTY ..... 451-1985
Education, School of, 7th floor Gruening ..... 474-7341
Elderhostel, 118 Red Building ..... 474-6931
Engineering, School of, 539 Duckering ..... 474-7330
Environmental Health and Safety, Old U Park School ..... 474-5496
Equal Employment Opportunity, 108 Administrative
Services Center ..... 474-7700
Faculty Senate, 312 Signers' Hall ..... 474-7964
Financial Aid, 5th floor Gruening ..... 474-7256
Fisheries and Ocean Sciences, School of, 217 O'Neill ..... 474-7531
Fishery Industrial Technology Center, 900 Trident Way,
Kodiak, AK 99615 ..... 486-1500
Geophysical Institute, Elvey Building ..... 474-7798
GNOSIS (Library Computing System), 409 Library ..... 474-6310
Graduate School, 305 Signers' Hall ..... 474-7464
Health and Counseling, Center for, 2nd fl HS&S Building .... 474-7043
TTY ..... 474-7045
Honors Program, 515 Copper Lane ..... 474-6612
Housing Office, M-B-S Complex ..... 474-7247
Hutchison Career Center, 3750 Geist Road,
Fairbanks, AK 99709 ..... 474-5240
TTY ..... 474-5249
Interior Campus, Red Building ..... 474-5439
International Student Adviser, 5th floor Gruening ..... 474-7317
Juneau Center for Fisheries and Ocean Sciences,
11120 Glacier Hwy, Juneau, AK 99801 ..... 789-4441
KSUA-FM, 303 Constitution Hall ..... 474-7054
KUAC-FM and -TV, 208 Fine Arts/Theater ..... 474-7491
Kuskokwim Campus, Box 368, Bethel, AK 99559 ..... 543-4500
Learning Resource Center, Downtown Center ..... 451-7223
Liberal Arts, College of, 405 Gruening ..... 474-7231
Library, Rasmuson ..... 474-7403
TTY ..... 474-6744
Management, School of, 101 Bunnell ..... 474-7461
Marine Advisory Program, 2221 E. Northern Lights
Blvd., Suite 220, Anchorage, AK 99508 ..... 274-9691
Marine Science, Institute of, 217 O'Neill ..... 474-7531
McGrath Center, Box 269, McGrath, AK 99627 ..... 524-3074
Mineral Engineering, School of, 208 Brooks ..... 474-7366
Mineral Industry Research Laboratory, 210 O'Neill ..... 474-7135
Museum, UA ..... 474-7505
NANA House ..... 474-5285
Native Studies, 5th floor Gruening ..... 474-7181
Natural Sciences, College of, 465 Duckering ..... 474-7941
Northern Engineering, Institute of, 539A Duckering ..... 474-7775
Northwest Campus, Box 400, Nome, AK 99762 ..... 443-2201
Patty Center ..... 474-5057
Personnel Services, 108 Administrative Services Center ..... 474-7700
Petroleum Development Laboratory, 425 Duckering ..... 474-7743
Planning, Computing and Information Systems, 201 Eielson . 474-6638
Polar Ice Coring Office, 205 O'Neill ..... 474-5585
Pub, Wood Center ..... 474-7766
Research, Chancellor's Faculty Associate for,
3rd fl Signers' Hall ..... 474-5223
Residence Life, 5th floor Gruening ..... 474-7317
Rural Alaska Honors Institute, 508 Gruening ..... 474-6886
Rural Alaska, College of, 708 Gruening ..... 474-7106
Rural Student Services, 5th floor Gruening ..... 474-7871
Sea Grant, 138 Irving II ..... 474-7086
Security, HS&S Building ..... 474-7721
Small Business Development Center, Downtown Center ..... 456-1701
Student Development and Learning Center,
Downtown Center ..... 451-7223
Student Services, 5th floor Gruening ..... 474-7317
TTY ..... 474-6710
Summer Sessions, 2nd floor Signers' Hall ..... 474-7021
Sun Star, Wood Center ..... 474-7540
Tanana Valley Campus, Downtown Center ..... 451-7223
TTY and voice ..... 451-1985
Testing Services, 514 Gruening ..... 474-5277
Tok Center, Box 464, Tok, AK 99780 ..... 883-5613
University Relations and Institutional
Advancement, 210 Signers' Hall ..... 474-7581
Veterans' Information, 1st floor Signers' Hall ..... 474-7521
Wood Center ..... 474-7211
Yukon Flats Center, Box 194, Ft. Yukon, AK 99740 ..... 662-2521

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

The area code for UAF offices is (907).

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# 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 a special act of the Alaska Territorial Legislature. In 1922 the college opened, with six faculty members and six students. A year later, commencement was held, in honor of the school's first graduate.

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

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

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

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

Statehood changed the political system for the people who inhabited the vast land mass and waterways known as Alaska. Alaska's constitution was hammered out in what's now Constitution Hall on the UAF campus, and the document was signed, fittingly enough, in stately 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 Russia.

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, Nome and the Interior. UAF provides an important resource to rural Alaskans with its education centers in Fort Yukon, McGrath, Nenana, Tok and Unalaska.

UAF's School of Fisheries and Ocean Sciences combines programs in Juneau and Kodiak with those in Fairbanks, and administers the Marine Advisory Program. The statewide Cooperative Extension Service, with 10 field offices, is also headquartered at UAF. UAF's public broadcasting stations KUAC-FM and -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-, sea- and space-grant institution. Its rural college has the primary responsibility for Alaska Native education and study, and UAF remains the only university offering doctoral degrees in Alaska. UAF's colleges and 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 48 states and 40 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, 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 1991 was 8,891 students; of these, about 3,600 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:

- 58 percent are female, 42 percent are male
- 71 percent are white, 14 percent are Alaska Native, 7 percent are other minorities, 8 percent are unreported
- 30 is the average age
- 89 percent are Alaska residents, 8 percent are from other states, 3 percent are from foreign countries
- 92 percent are undergraduate students, 8 percent are graduate students

## Faculty

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

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

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

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

## Main Campus in Fairbanks

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

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

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

As a UAF student on the main campus, you'll become very familiar with the Wood Center. The center is the focus of many of UAF's out-of-class activities. With a pub, snack bar, conference rooms, 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.

## Fairbanks Area

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

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

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

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

### Transportation to Fairbanks

Fairbanks is easily accessible by both land and air. Anchorage is only 365 miles away via the Parks Highway or the Alaska Railroad, and Seattle is 2,300 miles away via the Alaska Highway. Major airlines offer several daily flights to Anchorage and Seattle, as well as to many other destinations.

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

## Branch Campuses

When the University of Alaska system was restructured in 1987, UAF's instructional, research and public service programs were expanded throughout Alaska. In addition to the main campus in Fairbanks, UAF now has branch campuses in downtown Fairbanks, 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 throughout 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 is administered from Dillingham, with two subregional centers in Naknek and Iliamna. The 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.

The average enrollment at Bristol Bay Campus ranges from 250 to 300 students. The campus offers an Associate of Arts degree in general studies and Associate of Applied Science degrees in community health practitioner studies, early childhood education and applied small business, as well as course work in support of the UAF Bachelor of Arts degree in rural development and the Bachelor of Education degree through the Cross-Cultural Educational Development (XCED) Program. In addition, vocational and general interest courses are available.

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

**Chukchi Campus in Kotzebue** — The Chukchi Campus is located 26 miles north of the Arctic Circle, on the shores of the Chukchi Sea. The campus serves Kotzebue and 10 villages in a region of more than 36,000 square miles. Chukchi offers the Associate of Arts and Associate of Applied Science degrees, as well as courses leading to baccalaureate degrees in education, rural development and social work. Courses are offered by local instructors and through the College of Rural Alaska audioconferencing system.

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

**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 leading to three baccalaureate degrees: education, social work and rural development, as well as Associate of Arts and Associate of Applied Science degrees. Vocational and applied courses involve about half the student body.

**Tanana Valley Campus in Fairbanks** — The Tanana Valley Campus provides general education at the certificate and associate degree levels, as well as vocational/technical training. UAF's Downtown Center in Fairbanks is headquarters for the Tanana Valley Campus. 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, an integral part of the Tanana Valley Campus, 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.



Students in an airframe and powerplant class at Hutchison Career Center (left to right) Neil W. Abrahams, Richard Wilson, Brett Wener, Charles D. Wilson, Kevin Anderson and Brian Bourdon watch as instructor Albin Reynolds discusses technical details.



Raelene Andrew, a student at Kuskokwim Campus, determines at what temperatures seal oil and other liquids freeze.

# How to Enroll

## Applying for Admission

### When to Apply

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

You may reserve on-campus housing when your application for admission has been accepted. If you're interested in single student housing, you should send your application materials at least six months before you plan to enroll. For information on married student housing, contact the UAF Housing Office.

### 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 $30 processing fee for a bachelor's degree or $15 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 your official high school transcript sent to the Office of Admissions and Records.

   If you've attended other colleges and/or universities, you must request official transcripts from each college or university you attended. The transcripts should be sent to the Office of Admissions and Records by the schools. TRANSCRIPTS WILL NOT BE ACCEPTED IF YOU SUBMIT THEM.

   If you're a transfer applicant with less than 30 semester hours of credit, you must submit your high school transcript as well as college transcripts.
3. **Test Results** — If you're an entering freshman in a bachelor's degree program, you must submit the results of either the ACT or SAT examinations. Being accepted to 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 program or to a certificate program requiring English or mathematics, you must submit the results of the SAT, ACT or ASSET test.

   If you qualify for an associate or baccalaureate 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.

   You can get information on ACT or SAT testing centers, ASSET testing, test dates and obtaining test results, from your high school or from the UAF Testing Office.

### Conditional and Final Acceptance

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

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

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

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

### Immunization Policy

If you're a new student accepted for nine or more credits and/or live in university housing, you must submit the following:

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

#### Associate Degree

For admission to associate degree programs, you must be at least 18 years old or have earned a high school diploma or successfully completed the GED examination.

If you're an associate degree or certificate student in good standing with a high school diploma or its equivalent, and later wish to enter a baccalaureate degree program, you may be admitted after earning, with a "C" average, 14 credits at the 100 level or above, of which nine credits must satisfy general baccalaureate degree requirements.

#### Baccalaureate Degree (Bachelor's Degree)

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

high school grade point average and your completion of specific high school courses.

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

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

B. If you've graduated from high school, but don't meet minimum entrance requirements for the baccalaureate degree, you may be provisionally accepted provided you make up deficiencies by earning at least a "C" grade in each of the appropriate developmental or university courses, and complete nine credits of general baccalaureate degree requirements with a grade of "C" in each course.

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

See chart for high school entrance credit requirements.

## Transfer Students

If you're an applicant who has attended other accredited institutions, you are eligible for admission if you have a 2.0 GPA in your previous college work and an honorable dismissal from previous schools. If you're applying to a technical or scientific program, you may need to present a higher grade average and proof that you've completed appropriate background courses before you will be admitted to the program. If you'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. If you have attended an unaccredited postsecondary institution, your admission status will be determined on an individual basis.

## International Students

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

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

**TOEFL Test Requirements**

1. If you're from a country where English is not the native language, you must present a satisfactory score on the Test of English as a Foreign Language (TOEFL). You can't use any other proof of English competency (such as English credits from other schools).
2. If you're a permanent resident on an immigrant visa, a TOEFL score is required if all your formal education is from a country where English is not the primary language, or when the documents presented for admission don't clearly indicate your proficiency in English.
3. You must present a TOEFL score of at least 550.

## High School Entrance Credit Requirements for all Bachelor's Degree Programs

| | English | Math | Social Science | Natural / Phys. Sci |
|---|---|---|---|---|
| **High School Core Credits:** | | | | |
| Required for all freshmen (2.50 GPA in core-16 credit total) | 4 | 3 in college preparatory mathematics (selected from Algebra I, II, geometry, trigonometry, elementary functions, precalculus or calculus) | 3 | 3 (Includes 1 cr. lab science course in biology, chemistry or physics) |
| **College of Liberal Arts:** | | | | |
| Applied Statistics, Computer Science or Mathematics majors | 4 | Algebra-2<br>Geometry-1<br>Trig- 1/2<br>Adv Math- 1/2 | 3 | Nat. Sci.-2<br>Physics or Chemistry-1 |
| Physical Educ. majors | 4 | Algebra-2<br>Elective-1-3<br>(Selected from math core above) | 3 | Biology-1<br>Physics or Chemistry-1<br>Elective-1 |
| All other majors Liberal Arts | | Same as entrance core | | |
| **College of Natural Sciences:** | | | | |
| All majors | 4 | Algebra-2<br>Geometry-1<br>Trig.- 1/2 | 3 | Physics or Chemistry-1<br>Biology or Elective-2 |
| **College of Rural Alaska:** | | | | |
| All majors | | Same as entrance core | | |
| **School of Agriculture and Land Resources Management:** | | | | |
| Land Resources Mgt. majors | 4 | Algebra-2<br>Geometry-1<br>Trig- 1/2 | 3 | Physics or Chemistry-1<br>Biology or Elective-2 |
| **School of Engineering:** | | | | |
| All majors | 4 | Algebra-2<br>Geometry-1<br>Trig- 1/2 | 3 | Chemistry-1<br>Physics-1<br>Elective-1 |
| **School of Fisheries and Ocean Sciences:** | | | | |
| All majors | 4 | Algebra-2<br>Geometry-1<br>Trig.- 1/2 | 3 | Physics or Chemistry-1<br>Biology and / or Elective-2 |
| **School of Management:** | | | | |
| All majors (Two years Foreign Language highly recommended.) | 4 | Algebra-2<br>Geometry-1<br>Trig- 1/2 | 3 | Physics or Chemistry-1<br>Nat. Sci.-2 |
| **School of Mineral Engineering:** | | | | |
| All majors | 4 | Algebra-2<br>Geometry-1<br>Trig- 1/2 | 3 | Physics or Chemistry-1<br>Nat. Sci.-2 |

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 $10,000. This amount covers university fees, room and board on campus, and a reasonable amount of personal expenses. It does not include transportation to and from Alaska, summer living or cold weather clothing costs. Since the application for the F-1 visa requires affirmation that you don't intend to live in the United States permanently, **you aren't eligible for resident tuition fees.**
3. Your application should reach Admissions and Records by March 1 for the fall semester or October 1 for the spring semester. Your application must be completed and accepted by August 1 for the fall semester and December 1 for the spring semester in order to allow time for your I-20 form to be issued. You can't reserve on-campus housing until your application for admission has been accepted. If you're interested in single student housing, you should file your application materials at least eight months before you plan to enroll.

## Readmission of Former Degree-Seeking Students

As an undergraduate degree student, if you don't enroll for a semester or more, or if you enroll through the non-degree student registration process, you need to notify the Office of Admissions and Records in advance when you plan to resume studies in your degree program.

If you left UAF in good standing, haven't enrolled in an institution outside of the UAF system, and haven't been absent more than two years, you must request readmission and an update of your degree status before you register. No processing fee is required.

If you were on probation at UAF, or were enrolled in an institution elsewhere, or if it's been more than two years since you were last enrolled in your degree program at UAF, you will need to submit the regular undergraduate application for admission form, pay the $30 processing fee and submit official transcripts from any colleges or universities you attended since you last enrolled at UAF.

If you're a UAF graduate and are seeking to enter a second undergraduate degree program, you must submit an undergraduate application for admission. If you're a UAF associate or certificate student and you wish to enter a bachelor's degree program, you will have to submit an application for admission and pay a $15 processing fee.

## Non-Degree Students

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

## High School Students

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

## Students with Bachelor's Degrees

If you hold a bachelor's degree but have not defined or declared your graduate program, you may enroll as a non-degree student if space permits. You're in this category if you are:

1. Planning to take "interest courses."
2. Strengthening your preparation in order to be admitted to graduate study.
3. A transient student expecting to be at UAF only briefly.
4. Awaiting action on applications for graduate status.

**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 you earned previously can be used in your new program. The only time these credits will be included, however, is in GPA computations for graduation with honors (See "Graduation with Honors"). You may be allowed advanced standing or a waiver of requirements just as any non-bankrupt student, but you won't be allowed credit-by-examination for courses lost in bankruptcy.

# Course Placement

## English and Mathematics

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

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

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

| ACT-EACT Math Score (SAT) | Number of Semesters of High School Math | UAF Math Placement |
|---|---|---|
| 26 or higher (540 or higher) | with 1-8 | See Math Department |
| 21 to 25-22 to 26 (460-530) with | 6-8 | MATH 107, 161 |
| 21 to 25-22-26 (460-530) with | less than 6 | See Math Department |
| 19 to 20-21 (430-450) with | 7-8 | MATH 107, 161 |
| 19 to 20-21 (430-450) with | less than 7 | See Math Department |
| 17 to 18-19 to 20 (400-420) with | 8 | MATH 107, 161 |
| 17 to 18-19 to 20 (400-420) with | 4-7 | See Math Department |
| 17 to 18-19 to 20 (400-420) with | less than 4 | DEVM 070 |
| 13 to 16-17 to 18 (360-390) with | 1-8 | DEVM 070 |
| 12 or below-16 or below (350 or below) | 1-8 | DEVM 060 |

## Foreign Language

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

# Transfer of Credit

Credit accepted for transfer to UAF which has been earned at other regionally accredited institutions, through military educational experiences or credit accepted by special approval, is considered transfer credit. Where possible, transfer credit is equated with UAF courses.

The university will award course credit for specified national and state authorizations, certificates, credentials and/or examinations. The Office of Admissions and Records maintains an approved list of these together with appropriate course equivalencies.

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. Transfer credit normally isn't granted for courses with doctrinal religious content or for graduate courses (for undergraduate programs). Credit is not transferred for advanced placement credit or credit by examination awarded by another institution.
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) based on recommendations in the "Guide to the Evaluation of Educational Experience," published by the American Council on Education. 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.

# Transfer Within the UA System

In order to serve students who transfer among the three institutions that make up the University of Alaska system, UAF, UAA and UAS have identified fully transferable general education requirements for their baccalaureate degrees. These include:

| Category | Credit Hours |
|---|---|
| Written communication skills | 6 |
| Oral communication skills | 3 |
| Humanities/social sciences/fine arts | 15 |
| Quantitative skills/natural sciences | 10 |
| **Total** | **34** |

Credit for course work successfully completed at one UA institution toward fulfillment of the general education requirements at that institution shall transfer toward fulfillment of the same categories at all other University of Alaska institutions. This applies even if there is no directly matching course work at the institution to which the student transfers. It should be noted that the 34-credit common core is a minimum requirement for general education. An institution may require more than 34 general education credits for its baccalaureate degrees, and transfer students must meet the total requirement at the receiving institution. Transfer of general education beyond the 34

## Table of Substitutions

**The following table specifies courses accepted by transfer to UAF which may substitute for UAF's core curriculum requirements.**

| Core Curriculum Courses | Transfer Course |
|---|---|
| MATH 131X<br>Concepts & Contemporary Applications of Mathematics | a 100-level or above mathematics course having a prerequisite of at least two years of high school algebra |
| MATH 200, 201, 202, 262, 272 Calculus | a calculus course at the 100-level or above |
| ENGL 111X<br>Methods of Written Communication | the required first semester composition course at the 100-level (must be basic freshman composition and not developmental) |
| ENGL 211X<br>Intermediate Exposition with Modes of Literature OR<br>ENGL 213X<br>Intermediate Exposition | the second half of the introductory composition series at the 100-level or above |
| SPC 131X<br>Fundamentals of Oral Communication Group Context OR<br>SPC 142X<br>Fundamentals of Oral Commmunication Public Context | a 100-level or above performance course in fundamentals of speech communications, public speaking or small group communication |
| Natural sciences - 8 credits | courses in basic natural sciences (biology, chemistry, earth sciences, physics) with labs, at the 100-level or above. Non-lab courses transferable only as a second natural science course. To fulfill core requirements, a transfer student must complete two lab courses or two labs |
| **PERSPECTIVES ON THE HUMAN CONDITION** | |
| HIST 100X<br>Modern World History | a Western or non-Western civilization course at the 100-level or above |
| ECON/PS 100X<br>Political Economy | a foundation course in political science, economics or law |
| ANTH/SOC 100X<br>Individual, Society and Culture | a foundation course in sociology, social/cultural anthropology, social psychology, psychology, language and culture, or cultural geography at the 100-level or above |
| ENGL/FL 200X<br>World Literatures | a literature course taken at the 200-level or above |
| ART/MUS/THR 200X<br>Aesthetic Appreciation | a history or appreciation course in art, theater or music at the 100-level or above |
| PHIL 322X<br>Ethics (Values and Choices) | an upper-division course in ethics |
| **OTHER:** | |
| Foreign Language | a minimum of two semesters in a single, non-English language |

credits described above will be determined on the basis of individual requirements specified by university catalogs. Completion of the 35-credit lower division requirements (100- and 200-level courses) of the UAF baccalaureate core will meet the general education requirements at the University of Alaska Anchorage and the University of Alaska Southeast.

## Undergraduate Admission Requirements in Brief

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

# Alternative Ways to Earn Credit

## Advanced Placement Credit

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

## Local Advanced Placement Credit

**English** — If you're an incoming freshman with an English ACT score of 26 or higher, an English Enhanced ACT score of 30 or higher, or a verbal SAT score of 600 or higher, you may receive credit for ENGL 111X in one of two ways: 1) by enrolling in a 200 or 300 level literature course and completing it with a grade of "C" or better; or 2) waiting until you have sophomore standing (30 credits or more) and then completing ENGL 211 or 213 with a grade of "C" or better. You must submit an "Application for ENGL 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 at UAF with a grade of "C" or better, you may also receive credit for any prerequisite calculus course.

## College Board Advanced Placement

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

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

| Examination | UAF Course Equivalent | Credits |
|---|---|---|
| American Gov't & Politics | PS 101 | 3 |
| American History | HIST 131/132 | 6 |
| Art: History | ART 261/262 | 6 |
| Art: Studio (drawing) | ART electives | 6 |
| Art: Studio (gen portfolio) | ART electives | 6 |
| Biology | BIOL 105X/106X | 8 |
| Chemistry | CHEM 105X/106X | 8 |
| Classics: Virgil (Level 3) | LANG electives | 8 |
| Classics: Latin Lyric | LANG electives | 8 |
| Comparative Gov't & Politics | PS 201 | 3 |
| Computer Science A | CS 201 | 3 |
| Computer Science AB | CS 201/202 | 6 |
| Economics-Micro | ECON 201 | 3 |
| Economics-Macro | ECON 202 | 3 |
| English Lit & Comp | ENGL 111X | 3 |
| English Lang & Comp | ENGL 111X | 3 |
| European History | HIST 101/102 | 6 |
| French Language | FREN 101/102 | 10 |
| French Literature | FREN elective (200 level) | 2 |
| | FREN 201 | 3 |
| German Language | GER 101/102 | 10 |
| Math: Calculus AB | MATH 200X | 4 |
| Math: Calculus BC | MATH 200X/201X | 8 |
| Music Listening & Literature | MUS 123 | 3 |
| | MUS electives | 3 |
| Music Theory | MUS 131/132/133/134 | 8 |
| Physics B | PHYS 103X/104X | 8 |
| Physics C: Mechanics | PHYS 211X | 4 |
| Physics C: Elec & Mag | PHYS 212X | 4 |
| Spanish Language | SPAN 101/102 | 10 |
| Spanish Literature | SPAN elec (200 level) | 2 |
| | SPAN 201 | 3 |

X = Course meets baccalaureate core requirement. Students should consult the "Table of Substitutions" to determine what other courses may meet baccalaureate core requirements.

## 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 $38 each, and are administered by appointment. To register for a CLEP exam or to receive more information, contact Testing Services.

The following criteria apply to **CLEP General Exams:**

1. If you've earned as many as six semester credits in an area covered by a CLEP General Exam, no credit will be awarded for successfully completing that exam.
2. UAF currently accepts credit for all five CLEP General Exams listed below.
   - **English Composition w/Essay** — Three credits for ENGL 111X 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 for approved CLEP Subject Exams is 50 with the exception of the listed foreign languages. French Level I minimum score is 42; Level II - 50; German Level I - 44; Level II - 55; Spanish Level I - 45; Level II - 55.***

**CLEP Subject Exams Currently Accepted**

| Test Name | UAF Course | Credits |
|---|---|---|
| American Government | PS 101 | 3 |
| American History I | HIST 131 | 3 |
| American History II | HIST 132 | 3 |
| Biology | BIOL 105X/106X* | 8 |
| Calculus w/Elem. Functions | MATH 200 | 4 |
| College Algebra | MATH 107 or 161 | 3 |
| College Algebra/Trig. | MATH 107/108 | 5 |
| Educational Psychology | ED 330 | 3 |
| French/Level I** | FREN 101/102 | 10 |
| French/Level II** | FREN 201/202 | 6 |
| General Chemistry | CHEM 105X/106X | 8 |
| General Psychology | PSY 101 | 3 |
| German/Level I** | GER 101/102 | 10 |
| German/Level II** | GER 201/202 | 6 |
| Human Growth & Devmt. | PSY 240 | 3 |
| Info. Syst. & Computer Apps. | AIS 310 | 3 |
| Intro. Accounting | ACCT 101 | 3 |
| Intro. Business Law | BA 330 | 4 |
| Intro. Marketing | BA 343 | 3 |
| Intro. Microeconomics | ECON 201 | 3 |
| Intro. Macroeconomics | ECON 202 | 3 |
| Intro. Sociology | SOC 101 | 3 |
| Spanish/Level I | SPAN 101/102 | 10 |
| Spanish/Level II | SPAN 201/202 | 6 |
| Trigonometry | MATH 108 | 2 |
| Western Civilization I | HIST 101 | 3 |
| Western Civilization II | HIST 102 | 3 |

* Laboratory experience required

** Minimum score required varies on each subject level

**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.

*** A native speaker may take CLEP or DANTES examinations in the native foreign language but may not receive credit at the 100-level. Credit at the 200-level may be granted if the exam results are sufficiently high.

**C. Local Credit by Exam Program**

You can be awarded credit through the local credit by exam program if you're currently enrolled. Subject to departmental approval, most courses are available for credit by exam, except those with numbers ending -90 through -99 (193, 292, 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 $40 per credit hour for undergraduate and graduate courses. Contact the Testing Services Office to obtain credit by examination forms or for more information on challenging a course.

## Independent Learning

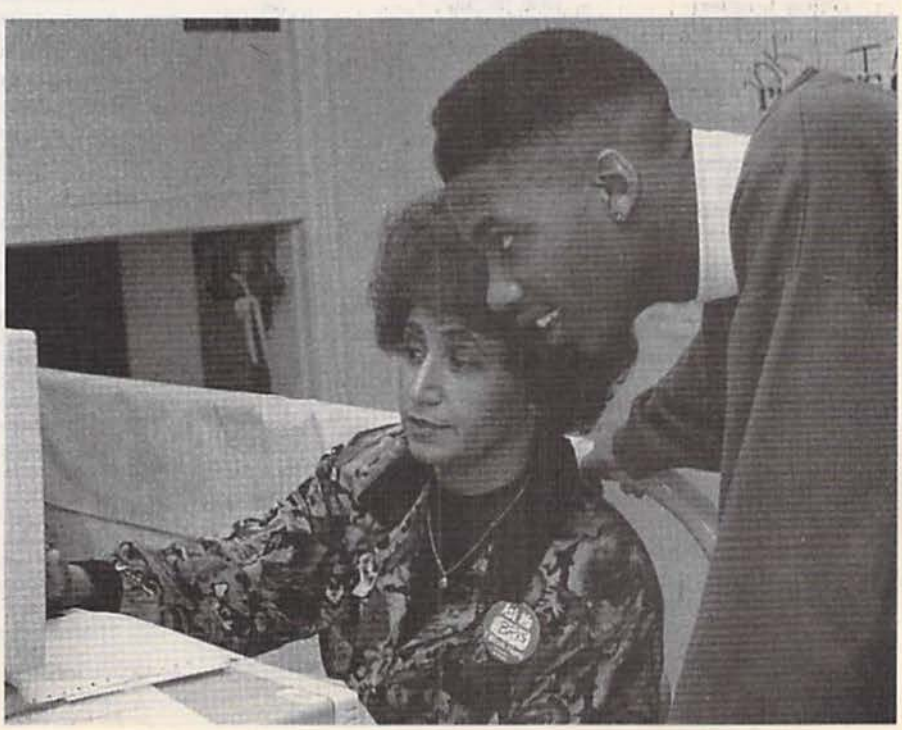
The Independent Learning Program, administered by the Center for Distance Education and Independent Learning, offers an alternative for people who seek a college education but cannot attend classes. The unique advantage of independent learning (correspondence study) is its flexibility. You select your own hours of study and work at your own pace in surroundings you choose. Independent learning 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, independent learning courses count as residence credit. When you enroll in an independent learning 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 an independent learning course at other times of the year, the credit and grade will not impact the credit load or semester grade point average for any other UAF semester enrollments.

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

## Credit for Prior Learning

In acknowledging that individuals learn a great deal outside the walls of educational institutions, some UAF departments participate in a program where up to 25 percent of the total credit requirements may be granted to you for prior learning if you're an enrolled certificate, associate or bachelor's degree student. Credentials are reviewed by faculty from participating departments who make recommendations for awarding prior learning credit for specific courses that will apply toward certificate, 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. The university will award transfer credit for specified national and state authorizations, certificates, credentials and/or examinations (see "Transfer of Credit.") which don't need to be reviewed for credit for prior learning.



Records manager Brigitte Mayes registers freshman Crofton Whitfield for the 1992 fall semester.

# 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 student, the ASSET test, are required if you're a first-time degree or certificate student, a transfer student with less than 30 acceptable credits, or planning to take 100-level written communication or mathematics courses. A placement test is recommended for all first-time students. The test results must be on file with the Office of Admissions and Records before you can register. Contact the UAF Testing Office for further information.

To determine the best options, alternatives and sequences of classes to take, you should discuss your course selections early with your 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 department head to the Office of Admissions and Records so the course can be removed from the students' enrollment files.

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

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

### Credit-No-Credit Option

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

You may elect the credit-no-credit option for one undesignated elective each semester during the first two weeks of the semester. The instructor doesn't know your status in the course, and you complete the course the same way as other students in the class. Credit for the course is awarded if your performance is at the "C" level or higher; if your performance falls below that level, the course will not be recorded on your academic record. In either case, the course won't be included in any GPA calculations and, if credit is granted, a grade of "CR" will be entered for the course.

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

### Auditing

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

The requirement, acceptance and review of work, and lab privileges are at the discretion of the instructor. No grades are given, no credit is awarded and audited courses don't apply toward degree requirements, nor will they transfer to other institutions.

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

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

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

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

### Adding, Dropping and Withdrawing from Courses

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

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

**Withdrawing from All of Your Classes** — If you want to withdraw from all of your classes, you will need to obtain a total

withdrawal form from the Office of Admissions and Records. After 60 percent of the semester or session has passed, a total withdrawal can only be initiated by the dean of the college/school in which your major is located or, if you're undeclared, by the Dean of Student Services.

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

| Action | Begins** | Ends | Remarks |
|---|---|---|---|
| To Add a Class or to Register Late | First day of instruction for the semester | Fifth day of instruction for the semester | Adviser's signature required for student in degree program |
| To Drop a Class (Course does not appear on transcript) | First day of instruction for the semester | 10th day of instruction for the semester | Adviser's signature required for student in degree program |
| Withdrawal from a Class (Class appears on transcript with a "W" grade) | 11th day of instruction for the semester | When 60 percent of the semester has passed | Adviser's signature required for student in degree program |
| Total Withdrawal from the University (student initiated) | First day of instruction for the semester | When 60 percent of the semester has passed | Adviser's signature required for student in degree program |
| Total Withdrawal from the University (dean initiated) | When 60 percent of the semester has passed | Last day of instruction for the semester | Must be initiated by the dean of the college or school in which the student is majoring or by the Dean of Student Services for undeclared majors or non-degree students |
| Credit-No-Credit Option | First day of instruction for the semester | 10th day of instruction for the semester | Only free electives may be taken under this option |

Add/drop forms, total withdrawal forms and credit-no-credit forms must be submitted to the Office of Admissions and Records by the appropriate deadlines.
** The first day of instruction for all semester-length courses is the date indicated as the first day of instruction in the official semester academic calendar. It may not be the first day that a class meets.
Add, drop, withdrawal and credit-no-credit option deadlines will be adjusted proportionally for courses that are less than a semester in length.

# 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.

## Appeal Procedure

Students wanting to appeal an academic decision should begin an appeal within 30 days after the beginning of the next regular semester in which the decision was made.

Appeals can be made in writing or in person. You can get advice and answers to questions about the process from the Dean of Student Services. During your appeal, you should be prepared to explain what you wish to appeal, why you are appealing it and how you attempted to resolve the issue so far. If possible, propose potential solutions and compromises.

To appeal the denial of admission, you should contact the Director of Admissions and Records, who will forward the appeal to the appropriate officials within the university.

To appeal academic actions such as academic warnings, academic probation, disqualification and grades, you should address the person who made the decision. Often problems can be resolved and misunderstandings cleared up through this step. If the issue isn't resolved to your satisfaction, you should appeal to the department head, dean, Provost (Vice Chancellor for Academic Affairs and Research), in that order. The decision of the Provost is final.

## Attendance

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

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

## Change of Grade Policy

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

## Class Standing

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

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

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

## Course Classifications

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

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

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

### The Baccalaureate Core

Courses that may be used to satisfy general baccalaureate core requirements have course numbers ending with "X." For example, English 111X, Speech Communication 141X and other such courses meet specific core requirements. See the requirements for the baccalaureate core for a listing of other specific courses.

Courses meeting the upper division writing intensive and oral communication intensive requirements for the baccalaureate core are identified in the course description of the catalog with the following designators:

o - oral communication intensive course
w - writing intensive course

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

## 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 to 18 credits per semester without special permission. To enroll in 19 credits or more, you need a 3.0 cumulative grade point average, and an overload approval by your adviser, department head and dean.

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

## Grading System and Grade Point Average (GPA) Computation

All course grades are letter grades unless otherwise specified in the class schedule. The method of grading (letter or pass/fail) is an integral part of the course structure and is included in the course description. It is the same for all students taking the course. Instructors are expected to state their grading policies in writing at the beginning of each course.

Grades appearing on academic records are as follows:

**A** 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.

**B** Indicates outstanding ability above the average level of performance.

**C** Indicates a satisfactory or average level of performance.

**D** The lowest passing grade, indicates work of below average quality and performance.

**F** Indicates failure. All "F" grades, including those earned in pass/fail courses, are included in the GPA calculations.

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

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

**DF** **Deferred** — Indicates that the course requirements cannot be completed by the end of the semester, that credit may be withheld without penalty until the course requirements are met within an approved time. This designation will be used for courses such as 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. You may be given a "W" if you don't attend a course you are auditing. See "Auditing."

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

**I** **Incomplete** — A temporary grade used to indicate that you've satisfactorily completed (C or better) the majority of the work in a course, but for personal 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.

### Computing Your GPA

Your grade point average (GPA) is a weighted numerical average of the grades you earn in your courses at UAF. To compute your GPA, the total number of credits you have attempted is divided into

the total number of grade points you have earned. Grade points are calculated by multiplying the number of grade points awarded, according to the chart below, by the number of credits attempted for the course. The following grades are figured in your GPA: A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F. Grades of I, DF, NB, W, P, AU and CR don't carry grade points and don't affect your GPA.

| Grade | Grade Points per Credit |
|---|---|
| A, A- | 4.0 |
| B+, B, B- | 3.0 |
| C+, C, C- | 2.0 |
| D+, D, D- | 1.0 |
| F | 0.0 |

Note: The UAF Faculty Senate has approved a change to the grade point computation policy that will be implement as soon as changes are made to the student information system. The change will give specific grade point vales per credit to plus (+) and minus (-) designators as follows: A-: 3,7, B+: 3.3, B-: 2.7, C+: 2.3, C-: 1.7, D+: 1.3, D-: 0.7.

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

All grades (original and retakes) for a course completed are included on your academic record, but only the last grade earned for a course is computed in your GPA unless the course is one that can be repeated for credit.

## 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 Dean of Student Services whether the student should be dismissed from UAF.

### 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.

## 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
10. Chancellor's List and Dean's List recognition each semester

## 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 major forms, available from Admissions and Records, must be completed. You need to have the written consent of the department heads concerned and turn the completed form into the Admissions and Records Office before a change of major is final.

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 adviser, 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 Provost (Vice Chancellor for Academic Affairs and Research), 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 Services.

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

**General University Requirements for Undergraduate Degrees**

| REQUIREMENTS | ASSOCIATE DEGREE | BACHELOR'S DEGREE |
|---|---|---|
| **Minimum Number of Credits Required** | 60 credits | 120 credits |
| **Credits that Must be Earned at UAF (residence credit)** | 15 of the last 30 credits | 30 of the last 36 credits |
| **Upper Division Credit (Courses with numbers between 300 and 499)** | | 39 credits total (some degrees require more); of the 39 credits, 24 must be earned at UAF |
| **Additional Credit that Must be Earned at UAF by Transfer Students** | | 12 credits in the major; 3 credits in the minor |
| **Grade Point Average Required** | 2.0 cumulative and in major | 2.0 cumulative and in major and minor |
| **Minimum Grades Required for Major** | No grade lower than "C" in courses required for major | No grade lower than "C" in courses required for major |
| **Correspondence Study Courses** | Maximum of 15 credits accepted for degree | Maximum of 32 credits accepted for degree |
| **Catalog Year that Can be Used to Meet Requirements** | May use any catalog in effect when enrolled as a degree-seeking student, regardless of major - 5 year limit on catalog year | May use any catalog in effect when enrolled as a degree-seeking student, regardless of major - 7 year limit on catalog year |
| **Second Degree Requirements** | Only one A.A. degree may be earned; 12 credits beyond first A.A.S. degree and all requirements for the second major must be met | 24 credits beyond the first bachelor's degree and all requirements for the second degree must be met |

# Baccalaureate Degree Requirements in Brief

| | To be completed by all: | Complete the following in addition to the Core: | | | | |
|---|---|---|---|---|---|---|
| **Academic Discipline** | **Baccalaureate Core** | **Bachelor of Arts** | **Bachelor of Science** | **Bachelor of Technology** | **Bachelor of Business Administration** | **Bachelor of Education** |
| **Communications** | ENGL 111X - 3 cr<br>ENGL 211X or<br>ENGL 213X - 3 cr<br>SPC 131X or<br>SPC 141X - 3 cr | 2 designated upper-division writing intensive (W) and 1 designated upper-division oral intensive (O) courses (see major requirements) | 2 designated upper-division writing intensive (W) and 1 designated upper-division oral intensive (O) courses (see major requirements) | ENGL 314 and 1 other designated upper-division writing intensive (W) and 1 designated upper-division oral intensive (O) courses (see major requirements) | 2 designated upper-division writing intensive (W) and 1 designated upper-division oral intensive (O) courses (see major requirements) | 2 designated upper-division writing intensive (W) and 1 designated upper-division oral intensive (O) courses (see major requirements) |
| **Humanities and Social Sciences** | Perspectives on the Human Condition (18 cr total):<br><br>ANTH/SOC 100X - 3 cr<br>ECON/PS 100X - 3 cr<br>HIST 100X - 3 cr<br>ART/MUS/THR 200X - 3 cr<br>ENGL/FL 200X - 3 cr<br>PHIL 322X or PS 300X - 3 cr<br>--or 12 credits from above plus 2 semester length courses in single Alaska Native or other non-English language taken at the university level | Humanities and Social Sciences (18 credits):<br>Any combination of courses at the 100-level or above with a minimum of 6 credits in humanities and 6 credits in social sciences or up to 12 credits of non-English language taken at the university level and at least 6 credits of social sciences | No additional humanities or social sciences unless required by major or minor | No additional humanities or social sciences unless required by major or minor | ECON 200 - 4cr<br>ECON 227 - 3 cr | LING 101 - 3 cr<br>Humanities Elec - 3 cr<br>ANTH 242 - 3 cr<br>PSY 101 - 3 cr<br>PSY 240 - 3 cr |
| **Mathematics** | MATH 131X or MATH 200, 201, 202, 262 or 272 or any math course having one of the above as a prerequisite - 3 or 4 cr | One 3-credit course at the 100-level or above from math, computer sciences or statistics | One 3-credit course at the 100-level or above from math, computer sciences or statistics | One 3-credit course at the 100-level or above from math, computer sciences or statistics | STAT 200 - 3 cr<br>MATH 161 - 3 cr<br>(MATH 262 should be taken to meet the core math requirement) | MATH 205 - 3 cr<br>MATH 206 - 3 cr |
| **Natural Sciences** | Complete one emphasis:<br><br>Breadth emphasis (8 credits):<br>BIOL 103X or<br>BIOL 104X - 4 cr<br>CHEM 100X - 4 cr<br>GEOS 100X - 4 cr<br>GEOS 120X - 4 cr<br>MSL 111X - 4 cr<br><br>Depth emphasis (8 credits):<br>(Complete one sequence)<br>BIOL 105X and 106X - 8 cr<br>BIOL 111X and 112X - 8 cr<br>CHEM 103X and 104X - 8 cr<br>CHEM 105X and 106X - 8 cr<br>GEOS 101X and 102X - 8 cr<br>GEOS 101X and 112X - 8 cr<br>PHYS 103X and 104X - 8 cr<br>PHYS 211X and 212X - 8 cr | No additional natural science unless required by the major or minor | One year sequence in one natural science beyond the core - 8 cr (The total natural science courses used to meet core and B.S. requirements must represent at least two different natural sciences.) | No additional natural science unless required by the major | No additional natural science required | No additional natural science unless required in concentration |
| **Library and Information Skills** | Successful completion library skills competency test or LS 100X or 101X - 0-1 cr<br>(to be completed during the first two years) | | | | | |
| **Other** | | | | Computer competency (any computer science or computer applications course) - 3 cr<br>Technology and society - 3 cr<br>Area of specialization - 30 or more cr<br>Option - 33 or 38 cr | Common Body of Knowledge - 31-34 cr | Concentration - 18-31 cr<br>Education - 48 cr |
| **Major Complex** | | At least 30 credits | At least 30 credits | | At least 30 credits | |
| **Minor Complex** | | Required<br>At least 15 credits | Optional<br>At least 15 credits | | Optional<br>At least 15 credits | |
| **Total Credits Required** | 38-40 cr | 120 cr | 120 cr | 120 cr | 130 cr | 130 cr |

# How to Earn a Degree

## Requirements

To earn a UAF degree, you must satisfy three sets of requirements: general university requirements, degree requirements, and program (major) requirements. General university requirements and degree requirements are described in this section of the catalog; major requirements are found in the Degrees and Programs section.

## General University Requirements

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

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

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

To receive a second associate of applied science degree, you must earn at least 12 credit hours beyond the first associate degree as well as completing all requirements for the major. As long as you've completed the additional 12-hour requirement, you may be awarded two degrees in one semester.

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

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

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

No more than 15 semester hours of correspondence study work are accepted toward an associate degree; 32 semester hours are accepted toward a bachelor's degree. If you want to use correspondence study credits from a school other than UAF to satisfy degree requirements, you must have the approval of those courses by the dean of the school or college from which you will graduate; otherwise, you take the risk of not having the courses accepted.

Since ENGL 211X and 213X are writing courses, either will satisfy the second half of the requirement in written communication for the bachelor's degree. But you can't enroll in ENGL 211X or 213X without first fulfilling the ENGL 111X requirement. (See "Local Advanced Placement Credit - English.")

### What catalog are you under?

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

You are considered enrolled in your degree program when you complete the appropriate degree student registration procedure. If you do not enroll for a semester or more, or if you enroll through the non-degree student registration process, you aren't considered enrolled as a degree student during that time.

## Residence Credit

Residence credit is UAF credit that you earn in formal classroom instruction, correspondence study, distance delivered courses, individual study or research through any unit of UAF. Transfer credit, advanced placement credit, credit for prior learning, formal service school credit, military service credit and credit granted through nationally prepared examinations are not considered residence credit, nor are credit by examination credits earned through locally prepared tests.

## Graduation

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

**Application for Graduation** — You need to formally apply for graduation. An application for graduation and non-refundable fee must be filed with the Office of Admissions and Records during the semester in which you plan to graduate. If you file your application by the published deadline, the graduation application fee is $20. If you miss that deadline, you still may submit your application for graduation and $30 fee up to six weeks before the last class day of the semester or summer term.

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

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

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

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

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

# Degree Requirements

## Certificate Programs

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

### Requirements

To enroll in a certificate program, and before receiving a certificate, you must formally be admitted. To earn a certificate, you may enroll in any course for which you are eligible.

To earn a certificate, you must earn at least 30 credits, including transfer credit. Fifteen semester hours must be residence credits. You must have a grade point average of 2.0 in all work, as well as in your major.

| | Credits |
|---|---|
| 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, Native Language Education and Office Management and Technology.

## Associate Degrees

### ASSOCIATE OF ARTS REQUIREMENTS

The Associate of Arts degree represents the completion of broad-based college study. This degree may serve as a starting point for your career or as a steppingstone to a baccalaureate program. You may earn only one A.A. degree.

### Requirements

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

**Communication (9 credits)** — Credits

- ENGL 111X—Methods of Written Communication ..... 3
- ENGL 211X—Intermediate Exposition with Modes of Literature OR *ENGL 212—Business, Grant and Report Writing OR ENGL 213X—Intermediate Exposition ..... 3
- SPC 131X—Fundamentals of Oral Communication: Group Context OR SPC 141X—Fundamentals of Oral Communication: Public Context ..... 3

**Mathematics or natural science (10 credits)**

- MATH 131X—Concepts and Contemporary Applications of Mathematics ..... 3
- (OR MATH 200, 201, 202, 262, 272 or any math course having one of these as a prerequisite)
- One natural science course, with lab, selected from the baccalaureate core ..... 4
- Mathematics or natural science elective ..... 3

**Humanities and social science (18 credits)**

- ANTH 100X/SOC 100X—Individual, Society and Culture ..... 3
- ECON 100X/PS 100X—Political Economy ..... 3
- HIST 100X—Modern World History ..... 3
- ART/MUS/THR 200X—Aesthetic Appreciation: Interrelationship of Art, Drama and Music ..... 3
- ENGL/FL 200X—World Literatures ..... 3
- Humanities or social science elective ..... 3
- (Two semester length courses in a single non-English language taken at the university level may substitute for one of the required courses above and the three-credit humanities or social science elective.)

**Library and information skills (0-1 credit)**

- Successful completion of library skills competency test or LS 100X or LS 101X ..... 0-1

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

**General electives (22-23 credits)** — Credits

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

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

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

### ASSOCIATE OF APPLIED SCIENCE REQUIREMENTS

Associate of Applied Science degrees are awarded in specific occupational fields with emphasis on entering the job market. This degree, usually seen as a terminal degree, can serve as the basis for additional training.

### Requirements

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

**Communication (9 credits)** — Credits

- ENGL 111X—Methods of Written Communication ..... 3
- ENGL 211X—Intermediate Exposition with Modes of Literature OR *ENGL 212—Business, Grant and Report Writing OR ENGL 213X—Intermediate Exposition ..... 3
- SPC 131X—Fundamentals of Oral Communication: Group Context OR SPC 141X—Fundamentals of Oral Communication: Public Context ..... 3

**Mathematics or natural science (3 credits)**

- A math or natural science course at the 100-level or above ..... 3

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

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

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

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

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

**Majors Available for A.A.S. Degree:** Airframe and Powerplant, Applied Accounting, Applied Small Business, Aviation Technology, Community Health Practitioner, Culinary Arts, Early Childhood Development, Early Childhood Education, Financial Institutions Management, Fire Science, Human Services Technology, Interdisciplinary, Native Language Education, Office Management and Technology, Paralegal Studies and Renewable Resources.

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

## Baccalaureate Degrees

### THE BACCALAUREATE EXPERIENCE: THE CORE CURRICULUM

Undergraduate baccalaureate study at the University of Alaska Fairbanks is characterized by a common set of learning experiences known as the Core Curriculum. The core provides students with a shared foundation of skills and knowledge which, when combined with specialized study in the major and

other specific degree requirements, is designed to prepare students to better meet the demands of life in the 21st century.

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

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

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

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

### Requirements

**Communication (9 credits)** Credits

ENGL 111X—Methods of Written Communication* ..... 3
ENGL 211X—Intermediate Exposition with Modes of Literature
OR
ENGL 213X—Intermediate Exposition ..... 3
SPC 131X—Fundamentals of Oral Communication: Group Context OR
SPC 141X—Fundamentals of Oral Communication: Public Context ..... 3
*ENGL 190H may be substituted.

**Perspectives on the Human Condition (18 credits)**

(Humanities and social sciences)
Complete the following six courses:
ANTH 100X/SOC 100X—Individual, Society and Culture ..... 3
ECON 100X or PS 100X—Political Economy ..... 3
HIST 100X—Modern World History ..... 3
ART/MUS/THR 200X—Aesthetic Appreciation: Interrelationship of Art, Drama and Music ..... 3
ENGL/FL 200X—World Literatures ..... 3
PS 300X—The Foundations of Justice OR
PHIL 322X—Ethics (Values and Choice) ..... 3
OR complete 12 credits from the above courses plus two semester length courses in a single Alaska Native language or other non-English language taken at the university level.

**Mathematics (3 credits)**

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

**Natural Sciences (8 credits)**

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

Breadth emphasis: The two courses must be in different natural sciences or must be interdisciplinary in nature.
Select two courses from the following:
BIOL 103X—Biology and Society OR
BIOL 104X—Natural History of Alaska ..... 4
GEOS 100X—Introduction to Earth Science ..... 4
CHEM 100X—Chemistry and the Modern World ..... 4
GEOS 120X—Glaciers, Earthquakes, Volcanoes ..... 4
MSL 111X—The Oceans ..... 4
Depth emphasis: The two courses must be sequential courses or a two-semester survey in the basic natural sciences (biology, chemistry, earth science, physics). Select one sequence from the following:
BIOL 105X-106X—Fundamentals of Biology I and II ..... 8
BIOL 111X-112X—Human Anatomy & Physiology I and II .. 8
CHEM 103X-104X—Basic General Chemistry/ Beginnings in Biochemistry ..... 8
CHEM 105X-106X—General Chemistry ..... 8
GEOS 101X—The Dynamic Earth and
GEOS 102X—Environmental Geology ..... 8
OR
GEOS 101X—The Dynamic Earth and
GEOS 112X—History of Earth and Life ..... 8
PHYS 103X-104X—College Physics ..... 8
PHYS 211X-212X—General Physics ..... 8

**Library and Information Skills (0-1 credit)**

Successful completion of library skills competency test or LS 100X or 101X prior to junior standing ..... 0-1

**Two designated writing intensive courses (w) and one oral communication intensive course (o) at the upper division level** (see degree and/or major requirements) ..... 0 additional

**Total Credits Required ..... 38-39**

**BACHELOR OF ARTS REQUIREMENTS** Credits

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

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

**Humanities and social sciences ..... 18**

Any combination of courses at the 100-level or above, with a minimum of 6 credits from the humanities and a minimum of 6 credits in the social sciences OR up to 12 credits in a single non-English language taken at the university level and a minimum of 6 credits in social science

**Mathematics ..... 3**

One course at the 100-level or above in mathematical sciences (math, computer science, statistics)

**Minor complex* ..... at least 15**

OR

**Foreign/Alaska Native language option ..... 12-18**

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

**Major complex* ..... at least 30**

**Electives ..... 12-19**

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

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

Courses beyond 30 credits in a major complex and 15 credits in a minor complex which are not in the primary discipline of that major or minor may be used to fulfill the humanities, social sciences, mathematics or natural science requirements.

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

**Majors Available for B.A. Degree:** Alaska Native Studies, Anthropology, Art, Biological Sciences, Chemistry, Earth Sciences, Economics, English, Eskimo, Foreign Language, Geography, History, Humanities, Human Services, Interdisciplinary Studies, Journalism, Justice, Linguistics, Mathematics, Music, Northern Studies, Philosophy, Physical Education, Physics, Political Science, Psychology, Rural Development, Russian Studies, Social Work, Sociology, Speech Communication, Theater.

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

**Minors Available for B.A. Degree:** Accounting, Alaska Native Languages, Alaska Native Studies, Anthropology, Art, Asian Studies, Athletic Coaching, Aviation, Biological Sciences, Business Administration, Chemistry, Computer Information Systems, Computer Science, Economics, Elementary Education, English, Eskimo, French, General Education, Geography, Geology, German, History, Humanities, Human Service Technology, Human Services, Japanese, Journalism, Justice, Law and Society, Linguistics, Mathematics, Military Science, Music, Natural Resources Management, Philosophy, Physical Education, Physics, Political Science, Psychology, Rural Development, Russian, Russian Studies, Sociology, Spanish, Speech Communication, Statistics, Theater, Travel Industry Management, Wildlife Management and Women's Studies.

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

**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're admitted and/or through the change of major procedure. You'll need to follow the degree requirements in a single catalog for both majors.

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

## BACHELOR OF SCIENCE REQUIREMENTS

**Requirements** Credits

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

**Complete the following B.S. requirements in addition to the core:**

**Natural sciences ..... 8**

A one-year sequence in one natural science beyond the core. The total natural science courses used to satisfy this requirement as well as the core requirement shall represent at least two different natural sciences.

**Mathematics ..... 3**

The Baccalaureate Core shall include a calculus course of at least 3 credits. In addition, a 3-credit course in mathematics, computer science or statistics is required.

**Major complex* ..... at least 30**

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

**Electives ..... 25-40**

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

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

Courses beyond 30 credits in a major complex and 15 credits in a minor complex which are not in the primary discipline of that major or minor may be used to fulfill the humanities, social sciences, mathematics or natural science requirements.

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

**Majors Available for B.S. Degree:** Anthropology, Applied Physics, Biological Sciences, Chemistry, Civil Engineering, Computer Science, Electrical Engineering, Exercise Science, Fisheries, General Science, Geography, Geological Engineering, Geology, Interdisciplinary Studies, Mathematics, Mechanical Engineering, Mining Engineering, Natural Resources Management, Petroleum Engineering, Physics, Psychology, Sociology, Statistics, Wildlife Biology.

(Requirements of majors are 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 a single catalog for both majors.

**Optional Minor** — You may elect to complete a minor with the B.S. degree under the following circumstances:

1. You must declare your minor before the beginning of your final semester in the B.S. degree program. You need to complete a "Declaration of Minor" form and file it with Admissions and Records by the end of registration.
2. Any minor approved for the B.A. degree may serve as a minor for the B.S. degree. All general and specific requirements for minors are the same as those listed for B.A. degree minors, including that courses used to meet minor requirements may not be used to meet major or general distribution requirements. The catalog used for the minor must be the same as the catalog used for the major and general degree requirements.
3. You must satisfactorily complete the requirements for the minor before your B.S. degree will be awarded. The minor will be listed on your transcript along with the B.S. degree.

## BACHELOR OF BUSINESS ADMINISTRATION REQUIREMENTS

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** Credits

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

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

### Mathematics

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

### Social Sciences and Statistics (10 credits)

STAT 200—Elementary Probability and Statistics ..... 3
ECON 200—Principles of Economics ..... 4
ECON 227—Intermediate Statistics for Economics and Business ..... 3

### Common Body of Knowledge (31-34 credits)

AIS 101—Computer Literacy OR demonstrated computer literacy ..... 0-3
ACCT 101-102—Elementary Accounting ..... 6
AIS 310—Intro to Management Information Systems OR
AIS 316—Accounting Information Systems ..... 3
BA 325—Financial Management ..... 3
BA 330—Legal Environment of Business ..... 4
BA 343—Principles of Marketing ..... 3
BA 360—Operations Management ..... 3
BA 390—Organization Theory and Behavior ..... 3
BA 462—Administrative Policy ..... 3
ECON 324—Intermediate Macroeconomics OR
ECON 350—Money and Banking ..... 3

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

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

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

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

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

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

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

**Majors Available for B.B.A. Degree:** Accounting, Business Administration (Finance, Human Resource Management, International Business, Management, Marketing, Travel Industry Management), Economics.

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

## BACHELOR OF EDUCATION REQUIREMENTS

See Education in Degrees and Programs section.

## BACHELOR OF MUSIC REQUIREMENTS

See Music in Degrees and Programs section.

## BACHELOR OF FINE ARTS REQUIREMENTS

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

Major Available for B.F.A. Degree: Art.

## BACHELOR OF TECHNOLOGY REQUIREMENTS

See Technology in Degrees and Program section.




Financial aid administrative clerk Angie Taibe talks to Steve Budd about financial aid options.

# Fees and Financial Aid

## Tuition

| Total Credit Hours | Resident Student | Non-resident Student |
|---|---|---|
| 1 | $ 64 | $ 64 |
| 2 | 128 | 128 |
| 3 | 192 | 192 |
| 4 | 256 | 768 |
| 5 | 320 | 960 |
| 6 | 384 | 1,152 |
| 7 | 448 | 1,344 |
| 8 | 512 | 1,536 |
| 9 | 576 | 1,728 |
| 10 | 640 | 1,920 |
| 11 | 704 | 2,112 |
| 12 | 768 | 2,304 |
| 13 or more | 832 | 2,496 |

Students enrolled in post-baccalaureate or graduate credit courses (those numbered 500-699) are charged $128 per credit for residents to a maximum of $1,152, and $256 per credit for non-residents to a maximum of $2,304. The maximum charge for any combination of undergraduate and graduate credits doesn't exceed $1,152 for residents and $2,304 for non-residents.

## Definition: Alaska Resident

Alaska residents, members of the United States military on active duty in Alaska 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 (excepting only vacations or other absence for periods not exceeding an aggregate of 90 days with intent to return) and who declares intention to remain in Alaska indefinitely. However, any person who, within one year, has declared himself/herself to be a resident of another state, voted in another state, or did any act inconsistent with Alaska residence shall be deemed a non-resident for purposes of non-resident tuition. An unemancipated person under the age of 18 who has a parent or guardian who qualifies as an Alaskan resident, as defined above, shall be deemed a resident, and otherwise such unemancipated persons under the age of 18 shall be deemed a non-resident for purposes of non-resident tuition. Students having non-immigrant visa status are ineligible for residency.

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) ..... $ 2 - 250
Deferred Fee Charge ..... 40
Graduate Extended Registration Fee ..... 232 or 348
Health Fees (Required for full-time students: undergraduates taking 12 or more credits, and graduate students taking 9 or more credits.)
- Health Center Fee ..... 55
- Health Insurance Fee ..... approx 180

Housing Fees:
- Housing Reservation/Deposit Fee ..... 100-250
- Residence Halls
  - Double Room/Double Occupancy ..... 780
  - Single Room ..... 950
  - Student Apartment Complex (each student) ..... 1,020
  - Married Student Apartments ..... 380-620/month
- Board Plan (three plans) ..... 800-900
- Board Net ..... 110

Late Add Fee ..... 25-65
Late Payment Fee ..... 25-65
Music Course Fees (music majors maximum: 105) ..... 20-145
Parking Fee ..... 100/year; 50/semester
Preregistration Deposit (applies toward registration fees) ..... 50
Student Activity Fee (8 credits or more)
- Fall 1993 ..... 40
- Spring 1994 ..... 115

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 $2 to $250. See the course description section of the catalog to check on fees for individual courses.

**Deferred Fee Charge** — A processing fee of $40 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 equivalent to two credits of graduate tuition for inactive extended registration or the equivalent of three credits of graduate tuition (plus mandatory student fees) for active extended registration.

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

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

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

At the time of fee payment the student will purchase the student health insurance plan through the university, or, if covered by an alternate health insurance plan, may waive the student health insurance fee. A student seeking to waiver the student health insurance fee must present the Health Insurance Waiver Form before the end of the designated fee payment period. Waiver forms are available at the Center for Health and Counseling as well as at fee payment locations. Students enrolled in 6 - 11 credits have the option of purchasing the student health insurance plan if they also pay the Health Center fee.

The student health insurance fee is approximately $180 per semester. The exact cost will be quoted at registration during fee payment time. The plan provides basic coverage for accidents and illnesses that are not pre-existing. Questions regarding the student health insurance plan can be directed to the insurance coordinator at the Center for Health and Counseling.

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

The international student health insurance plan provides the same benefits as the domestic plan. In addition, it provides coverage for medical evaluation or repatriation. International students are required to purchase annual international insurance. The cost for international student health insurance is approximately $500 for the year. The exact cost will be quoted during registration at fee payment time. In general, waivers are not available. Students seeking waivers must present evidence, in English, of equivalent coverage, to the insurance coordinator at the Center for Health and Counseling. Waivers will not be granted unless requested in advance of the fee payment period.

A brochure entitled *The Student Health Program* describes the student health insurance plan. The brochure includes information on benefits and exclusions and is available at the Center for Health and Counseling.

**Housing Fees** — When applying for housing, you need to send a $100 ($20 non-refundable processing fee, $80 refundable deposit) 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. If you don't live on campus, you may be authorized by the Housing Office 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.

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

**Music Course Fees** — Fees are charged for the following services or facilities: private instruction (per applied music course), $145 (fee for music major is $75); class instruction (class 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 $100 annual fee or a $50 semester fee is charged for on-campus automobile parking. If you park on campus, you need a decal.

**Preregistration Deposit** — A $50 deposit is required at preregistration by eligible students completing the process. This deposit will apply as a credit toward the fees for the semester for which the student is preregistering.

**Student Activity Fee** — If you're carrying eight or more credit hours (including both on- and off-campus courses), or register for "active" extended registration, you will be charged the student activity fee. The fee is $40 for the fall 1993 semester and $115 for the spring 1994 semester. The increase in the spring fee will be used to finance the new Student Recreation Center. If you live in university housing, you will be charged the fee regardless of the number of credit hours you take. You have the option of paying the fee if you're taking less than eight credits.

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

Paying the campus activity fee entitles 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)

| | |
|---|---|
| Admission Processing Fee | |
| Certificate or Associate Degree Application | $ 15 |
| Baccalaureate or Graduate Degree Application | 30 |
| Credit by Examination fee | 40/credit |
| Graduation Application | 20 or 30 |
| Late Placement and Guidance Test Fee | 5 |
| Program Plan Fee | 5 |
| Records Duplication Charge | 2-10 |
| Textbooks (approximate) | 250/semester |
| Transcript Fee | |
| Regular Service | 3/transcript |
| Immediate Service | 10/transcript |

All fees are subject to change.

### Definitions: Other General Fees

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

**Credit by examination fees** — You will be charged $40 per credit hour for credit by examination.

**Graduation Application Fee** — A non-refundable graduation application fee must be paid at the time an application for graduation is filed. The fee is $20 if the application is filed by the published deadline and $30 if the application is filed after that date.

**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 includes 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 fees and deposits. In addition, any charges unpaid at the end of the previous semester are due and must be paid before you can re-enroll at the university. If you have a past due debt with the university and submit an enrollment form and payment for the current semester, you will not be enrolled into your classes and the payment will be applied toward your past due debt.

**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 Services and the Financial Aid Office provide applications. Approval is based on your expected receipt of financial aid, your credit history at UAF and your academic background including your GPA and the number of credits you've completed at UAF.

Provisions of the deferred fee payment plan are as follows:

1. You must pay the entire amount due for your housing and food costs during fee payment.
2. You must pay a minimum of 50 percent (50%) of all assessed fees at fee payment unless payment is guaranteed by financial aid. Guaranteed financial aid is defined as aid: a) which you applied for at least two months prior to the start of the semester, and b) which you are eligible to receive when it arrives, i.e., your student status and/or grades will not prohibit distribution of the aid to you.
3. The balance is due in a maximum of two equal payments. The dates these payments are due will be determined by the Office of Student Services and you will be informed of these due dates when the deferred payment is approved.
4. A $40 processing fee is added to the total amount due.
5. Proceeds of any financial aid will be used to pay all outstanding deferred fees when the financial aid is disbursed to you, regardless of the deferred fee payment due dates.
6. You must complete an application to defer fee payment and give it to the cashier during fee payment at registration. You will be charged a late fee if you fail to do this.
7. Each delinquent payment is subject to a $35 late fee. You are responsible for meeting this obligation; no bills are mailed.

### 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, meal plan and housing contract 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

## Housing and Meals

If you move off campus or withdraw from the university, room refunds will be given according to the following schedule:

| Withdrawal Period | Refund Amount |
|---|---|
| Class days 1-5 | 75% of the semester housing charge |
| Class days 6-15 | 50% of the semester housing charge |
| Class days 16-30 | 25% of the semester housing charge |
| Beyond 30 days | No refund will be issued. |

Any refund of board charges will be calculated based upon the days remaining in the semester. A service charge of $75 will be subtracted from each refund of board changes, regardless of the date of withdrawal from the board plan. No refunds will be available after the twelfth week of the semester.

If you are withdrawing from courses or canceling enrollment, you must complete an official withdrawal form and turn it in at the

## Refunds — General University Tuition and Fees

| Course Length | 100% Refund Tuition and Fees | 50% Refund Tuition Only | No Refund |
|---|---|---|---|
| Semester length courses | Prior to and during the first 5 days of instruction for the semester | 6th through 10th days of instruction for the semester** | On or after the 11th day of instruction for the semester** |
| Courses meeting more than one week but less than a semester | Prior to and during the first 7 calendar cays of the course*** | 8th through 14th calendar day of the course*** | On or after the 15th calendar day of the course*** |
| Courses meeting less than one week in length | On or before the first day of the course | None | After the first day of the course |

* 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 semester registration class schedule.
*** 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.

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.
      4. For the purpose of the refund policy in A. 1., 2., and 3., the first day of instruction is the date as indicated in the official semester registration class schedule.
   B. For courses meeting more than one week but less than a semester:
      1. 0 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.
      4. For the purpose of the refund policy in B. 1., 2., and 3., the first day of instruction is the course start date as indicated in the semester registration 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.
   C. For courses meeting less than one week:
      1. 0 percent refund of tuition and fees — withdrawal on or before the first day of the course.
      2. No refund — withdrawal after the first day of the course.
      3. For the purpose of the refund policy in C. 1. and 2., the first day of the course is the course start date as indicated in the semester registration class schedule.
3. 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.
4. 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.
5. Vocational/technical course fees are subject to this refund schedule.
6. 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.

# 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. Financial aid provides choice, access and persistence. Choice means students can choose to pursue a college education without first looking at the price tag. Access means students will be able to pay costs of getting into college. Persistence means students will be able to stay in college long enough to complete their educational objectives.

## Who Can Apply?

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

## Who Receives Financial Aid?

Most 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 9 a.m. to noon and 1 p.m. to 5 p.m. Monday through Friday. The telephone number is (907) 474-7256 and the fax number is (907) 474-7900.

## How Do Students Apply?

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

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

You may apply for the federal Pell Grant, federal Stafford Loans and the federal 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 110505, 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:

| | Married Couple or Single Parent | Single Student Lives Alone | Single Student Lives in UAF Residence Hall |
|---|---|---|---|
| Tuition, fees* | $ 2,210 | $ 2,210 | $ 2,210 |
| Books, supplies | 650 | 650 | 650 |
| Food, housing | 10,170 | 7,830 | 3,570 |
| Transportation | 1,710 | 1,710 | 324 |
| Misc./personal | 2,700 | 1,890 | 1,980 |
| **TOTAL** | **$17,440** | **$14,290** | **$8,734** |

*Tuition for non-Alaska residents, add $3,380.

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 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 federal **Pell Grant** is a 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 federal Pell Grant. Send the SAR to the Financial Aid Office. Federal Pell Grants range up to $2,400 for the 1992-93 school year.

The federal **Supplemental Educational Opportunity Grant** (SEOG) is a grant for exceptionally needy undergraduate students. SEOGs at UAF could range from $100 to $600 each year.

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

The **Bureau of Indian Affairs** (BIA) offers federal grants to undergraduate full-time students. You must be at least one-quarter American Indian or Alaskan Native to apply. These grants are based on financial need and supplement other financial aid. Grants range from $50 to $3,000 or more each year. The average grant at UAF is $1,600. Further information on BIA grants can be obtained from the BIA Regional Office, 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 or call UAF Rural Student Services at (907) 474-7871.

UAF scholarships are administered by the **Financial Aid Office**. You can apply for most UAF Financial Aid scholarships by submitting a single application by Feb. 15. Scholarship amounts depend on the funding source and vary greatly among scholarships.

**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 the Office of Admissions Counseling, located in Signers' Hall, UAF, Fairbanks, Alaska 99775, telephone (907) 474-7822.

### Work

UAF employs student workers for various tasks throughout the year. Employment is administered by individual departments and restricted to full-time students. Students generally work no more than 20 hours each week. Pay rates are based on the job classifications and average pay can vary from $150 to $400 each month. Further information on student employment can be obtained from Personnel Services, 108 Administrative Services Center, UAF, Fairbanks, Alaska 99775, telephone (907) 474-7700.

Federal 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 low 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. Students attending part time (6 to 11 credits each semester) may borrow for the cost of tuition fees, books and supplies up to $2,000 as an undergraduate and up to $2,500 as a graduate student. Full-time students enrolled in 12 or more credits each semester may borrow for food and housing

costs as well as tuition, fees, books and supplies up to $5,500 as an undergraduate and up to $6,500 as a graduate student. 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 8 percent interest a year on the outstanding balance. The state of Alaska will pay the interest for students during the qualifying period.

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 110505, Juneau, Alaska 99811, telephone (907) 465-2962.

The following table outlines what your monthly payments would be over a 10-year repayment cycle for various loan amounts borrowed.

| Total Loan | Monthly Payments | 8 Percent Interest | Total |
|---|---|---|---|
| $ 3,000.00 | $ 38.40 | $ 1,608.00 | $ 4,608.00 |
| 4,000.00 | 51.20 | 2,143.60 | 6,143.60 |
| 5,000.00 | 63.99 | 2,679.20 | 7,679.20 |
| 6,000.00 | 76.80 | 3,216.00 | 9,216.00 |
| 7,000.00 | 89.60 | 3,751.60 | 10,751.60 |
| 8,000.00 | 102.39 | 4,287.20 | 12,287.20 |
| 9,000.00 | 115.19 | 4,822.80 | 13,822.60 |
| 10,000.00 | 128.00 | 5,389.60 | 15,359.60 |
| 20,000.00 | 255.99 | 10,719.20 | 30,719.20 |

The federal **Stafford Student Loan Program** provides subsidized student loans from a participating lender, such as a bank, credit union or savings and loan association. Yearly loan limits are $2,625 for first-year students, $3,500 for second year students and $5,500 for upper level undergraduates, with a cumulative maximum of $23,000. Graduate students may borrow $8,500 each year up to a total, including all prior federal Stafford Loans, of $65,000. Since this loan is based on financial need, students must apply for the federal Pell Grant before the loan application can be approved 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.

**Federal Supplemental Loans for Students** (SLS) is a loan program which allows undergraduate first and second year students to borrow up to $4,000; other undergraduates can borrow $5,000 each year, up to a maximum of $23,000. Graduate students can borrow up to $10,000 annually, up to a maximum of $73,000, including undergraduate and graduate loans.

A variable interest rate or finance charge, not to exceed 11 percent, is determined each year for the federal SLS program.

The federal **Parent Loan for Undergraduate Students** (PLUS) is a program for parents of dependent students. The cost of attending UAF determines the annual and aggregate loan limits.

A variable interest rate or finance charge, not to exceed 10 percent, is determined each year for the federal 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 percent. The student must be claimed as an exemption on the parents' federal tax return.

**Emergency Loans** are administered by UAF for enrolled students who have unexpected financial demands. These short-term loans allow students to borrow up to $500. Information about these loans can be obtained at the Financial Aid Office.

To apply for an emergency 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 Nov. 1 for the fall semester and April 1 for the spring semester. A service charge of $10 will be charged for each loan.

To be eligible for the federal Title IV student aid programs; Pell Grant, SEOG, College Work Study, GSL, SLS and PLUS, you cannot owe a refund on any federal grant nor can you be in default on any federal loan for attendance at any institution. Some financial aid is based on the expected receipt of aid from other programs. To receive as much aid as possible, you should apply for the Pell Grant Program. More information about the federal programs is given in the "Student Guide." The Federal Student Aid Information Center has a toll free number, 1-800-4-FEDAID, 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 when aid 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?

| Applications | Priority deadlines |
|---|---|
| UAF scholarships | February 15 |
| Alaska Student Loan | May 15 |
| Federal Pell Grant | Anytime during the school year |

## 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. If eligible, you can receive aid for a maximum of 10 semesters or 156 semester credits for an undergraduate degree or 36 semester credits for a master's degree. Doctoral candidates must follow the time frames determined by their departments and institutional committees.

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

## How is Payment Made to the Student?

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

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

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

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

When a student withdraws from classes, a refund of university charges may be due. Any refund due will first be applied to the federal, state and institutional financial aid programs from which the student received aid during the school year. The part of the refund applied to federal programs is equal to the proportionate amount received from the federal programs other than federal 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.

## Financial Aid in Brief

| Eligibility Requirements | Federal Pell Grants | BIA Grants | Federal Supplemental Educational Opportunity Grants (SEOG) | Federal Work Study (CWS) | UAF Scholar-ships | Federal Stafford Loans | Alaska Student Loans |
|---|---|---|---|---|---|---|---|
| **Undergraduate** | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Graduate** | No | Yes | No | Yes | Yes | Yes | Yes |
| **Must be admitted to degree or certificate program at UAF** | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Must be U.S. citizen or eligible non-citizen** | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Must have financial need** | Yes | Yes | Yes | Yes | No | Yes | No |
| **Must be making satisfactory academic progress** | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| **Must apply by May 15** | No* | No | Yes | Yes | No: Feb. 15 | No* | No** |
| **Must be a full-time student** | No | Yes | Yes | Yes | Yes | No | Yes |
| **Must be repaid** | No | No | No | No | No | Yes | Yes |

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

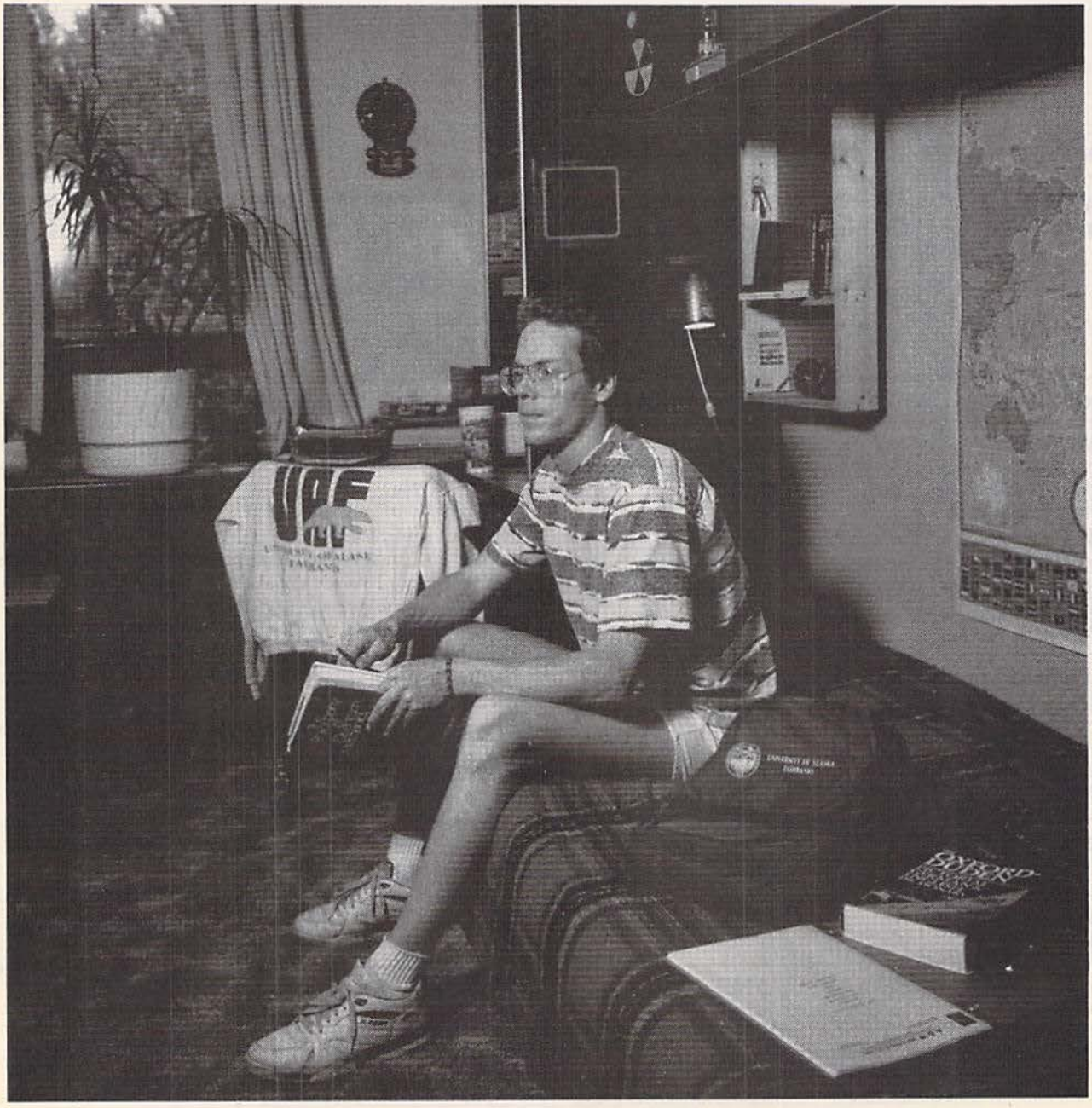
B. Know how to apply, how eligibility is determined and what terms and conditions are related to your aid.
C. Know how the university determines whether you are making satisfactory academic progress toward your degree and what happens if you are not.
D. Request an explanation of your financial aid package, 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.



Philosophy major Ken Elzey studies in his room in Skarland Hall.

# Housing

## Residence Halls

Each hall has staff assigned to the building from the Department of Residence Life. Senior hall staff are responsible for the administration and programming within the building. Resident assistants are full-time students who work with senior staff 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 application request forms are mailed to students from the Office of Admissions and Records, you should plan to complete your enrollment application well in advance.

### How do Students Apply?

If you request housing information on your application for admission you will receive a housing brochure. If you wish to apply for housing, you need to fill out the Housing Application Information Sheet and send it to: Housing Office, University of Alaska Fairbanks, Fairbanks, Alaska 99775-0880. In order to speed up the process, you may call the Housing Office at (907) 474-7247 and the staff will facilitate requests for housing applications once you have been officially accepted for admission to the university.

### What Does it Cost?

**Room Rent** — Along with all other fees, room rent is due in full at registration. Current semester room charges are $780 per person in double rooms; $950 for single rooms; and $1,020 per person in apartments. These rates are subject to change prior to July 1. Room fees permit the use of hall services such as lounge and recreation rooms, laundry areas and campus telephone service.

**Refunds** — If you move off campus or withdraw from the university, room refunds will be given according to the following schedule:

| Withdrawal Period | Refund Amount |
|---|---|
| Class days 1-5 | 75% of the semester housing charge |
| Class days 6-15 | 50% of the semester housing charge |
| Class days 16-30 | 25% of the semester housing charge |
| Beyond 30 days | No refund will be issued. |

Any refund of board charges will be calculated based upon the weeks remaining in the semester. A service charge of $75 will be subtracted from each refund of board charges, regardless of the date of withdrawal from the board plan. No refunds will be available after the twelfth week of the semester.

**Refund of Deposits** — A $100 room reservation/damage deposit/application is due when you return your completed housing contract. This deposit (minus the $20 application fee) will be refunded to you if you withdraw your housing contract by sending a written statement to 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.

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.

### 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 100 male students in double rooms on four floors.

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

**Nerland Hall** houses 100 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 100 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 upper class single students. A board plan is not required for apartment residents. This complex includes six apartments which were designed to accommodate mobility/hearing 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 cloths. 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. Students approved to stay anytime during the break between the end of the fall semester and the beginning of the spring semester will be charged $50 and may be consolidated into other areas.

## What about Room Assignments?

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

Current resident graduate and upper class 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 November 15 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. Student assistants reside in family housing and are available to help.

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 non-refundable $20 processing fee is due with the completed application. An additional $250 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, from current wait lists.

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

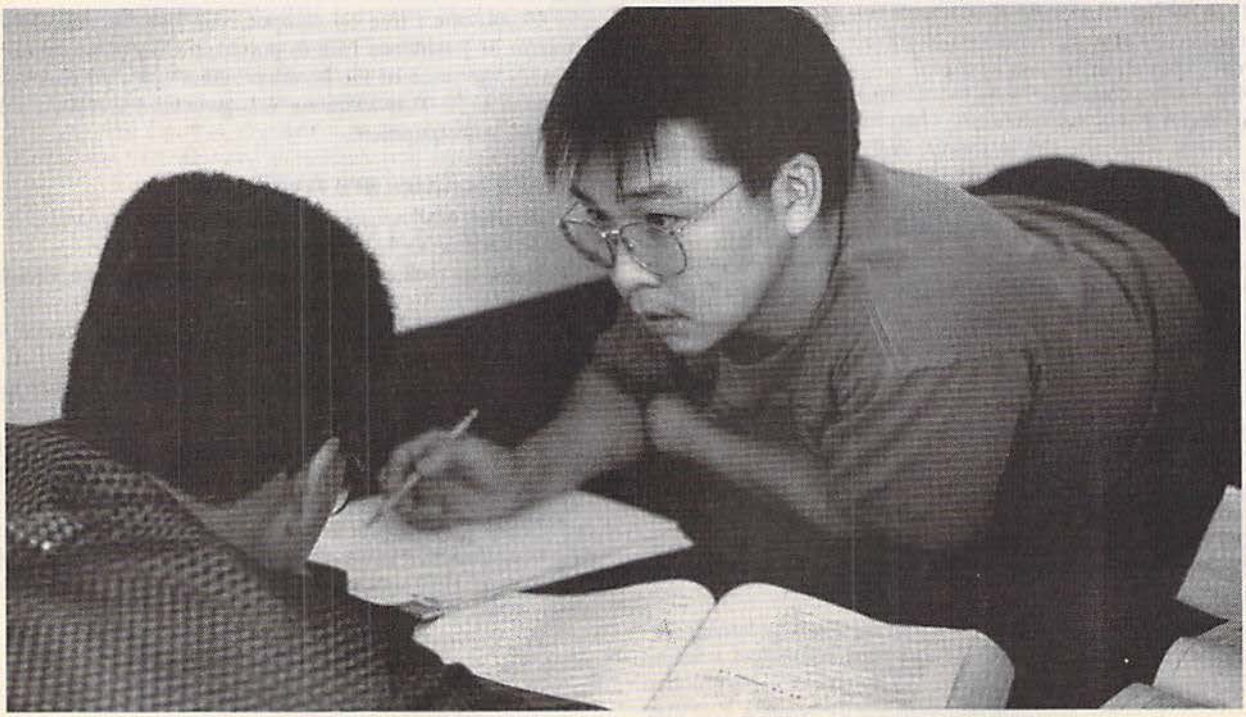
## What Facilities are Available?

**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 12 one-bedroom furnished apartments occupied by married couples without children.



Ringo Jimmy tutors a Rural Alaska Honors Institute student during study hall in a residence hall on the main campus.

# 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. You should contact the department for specific assignment of a faculty adviser.

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. It also serves as a clearinghouse for general university information. The Advising Center has general advisers and faculty members from various disciplines throughout campus. You have access to all members of the advising team and department advisers.

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

The Advising Center assists students with non-traditional credit options, interdisciplinary undergraduate degrees and the Bachelor of Technology degree program. 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.

Job announcements received at ATP are sent to qualified registrants who may be from Alaska, the Lower 48, or other countries. To facilitate the interviewing process, ATP hosts a Spring Job Fair in Anchorage, and two or three summer Job Fairs in Fairbanks. Forty to 50 school districts participate in these 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 Tanana Valley Campus Student Development and Learning Center. It is located at the Downtown Center, (907) 451-7223.

### Career Services

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

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

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

### Developmental Studies

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

The need for developmental studies is determined by high school transcripts, test scores, other achievement data and 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 American higher education system. 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.

All international students may participate in the Host Family Program. The program is designed to help international students make the transition from their own cultures into the Fairbanks community and the University of Alaska Fairbanks. Visits with a volunteer host family, occasional meals and other activities arranged by the host family and the student are encouraged through this program; we do not arrange live-in situations. Applications and information may be obtained from the international student adviser.

The international student adviser is located on the fifth floor of the Gruening Building, (907) 474-7317.

### Rural Student Services

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

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

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

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

### Student Development and Learning Center

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

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

### Tutoring Services

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

The **Learning Resource Center** is located at the UAF Downtown Center, with outreach tutoring and labs for developmental students on the main campus. LRC staff help students improve and expand skills needed to be successful in university classes. Individualized instruction and tutoring in mathematics, writing, reading, grammar, spelling and study skills are provided.

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 students. For more information contact the math department, (907) 474-7332.

The **Writing Center** is staffed by English graduate students and upper class honors students. It is open Monday through Friday and Sunday; it is available to all enrolled students. The staff will review student writing projects during the successive draft process. They also can help you improve your grammar and usage. 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.

## Admissions and Records

The Office of Admissions and Records provides services to students including pre-admissions counseling, admissions, evaluation of transfer credit, registration, official records support, academic policy interpretation, veterans' certification, degree audits, graduation certification and transcript processing. Using a sophisticated computerized student information system, registration is enhanced by the use of touchtone telephone registration. Timely grade processing and academic record accuracy and maintenance are greatly enhanced by the student information system.

The Admissions and Records Office is located on the first floor of Signers' Hall, (907) 474-7521 or 474-6708 (TTY).

## Bookstore

The bookstore is operated by the university as a non-profit self-support auxiliary enterprise and is administered by the student service division. Its mission is to support the academic programs of the university by providing books and supplies required for course work. The bookstore 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 experience offered by the university.

The bookstore is located in Constitution Hall, (907) 474-7348.

## Center for Health and Counseling

The Center for Health and Counseling offers services in five areas: medical, counseling, disabilities, health education and health insurance. These services are available weekdays to students who pay the health center fee.

Primary health care and some continued care is provided by a physician, nurse practitioners and a medical technologist. Visits are free. Medications, laboratory services and medical supplies are available at reduced costs. Students are encouraged to make appointments, but walk-in services are also available.

The counseling staff offers individual, group and crisis

intervention counseling. Counselors, all with graduate training, provide assistance with a variety of issues from adjustment to college to personal and interpersonal problems. Students are encouraged to schedule appointments. In an emergency, however, every effort is made to see a student as soon as possible.

The center also provides coordination of services for students experiencing disabilities. Services are free of charge, and available to all students with disabilities, regardless of the number of hours taken. See Services for Students with Disabilities.

Staff provide information and referral for individuals and groups seeking to maintain or improve upon physical and mental health. The ADARE program endeavors to prevent abuse of alcohol and other drugs, and to prevent the negative impact of such abuse.

The Student Health Insurance Program is administered through the center. An insurance coordinator is available to answer questions and assist with claims.

The Center for Health and Counseling is located in the Health, Safety and Security Building, (907) 474-7043 or 474-7045 (TTY).

## Orientation Programs

A variety of orientation programs are offered to students new to UAF. If you are a first-time freshman, a transfer, graduate, international or exchange student, or an adult returning to college, there is a program for you.

These programs will provide you with specific information about UAF as well as general education requirements, advising and scheduling your classes, services available to you, and activities and events you may be interested in.

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

## Services for Students with Disabilities

The University of Alaska Fairbanks is committed to equal opportunity for students with disabilities. Students with disabilities are encouraged to contact the coordinator for Services for Students with Disabilities at the Center for Health and Counseling (907) 474-7043 or 474-7045 (TTY). To accommodate students' disabilities, early contact with the coordinator is extremely important.

Services provided include coordination of services for students experiencing disabilities, including advocacy and assistance with arrangements for special services such as readers, scribes and interpreters. Services are free of charge, and available to all students with disabilities, regardless of the number of hours taken.

Curb cuts and ramps have been installed at UAF. 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. Accessible living accommodations are available.

UAF works with students with disabilities to ensure a positive educational experience. If students aren't 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 coordinator for Services for Students with Disabilities, or the section 504 coordinator at Personnel Services, 108 Administrative Services Center, (907) 474-7700.

## Wood Center

As a UAF student, you'll become very familiar with 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.



Students enjoy the temperate weather that is common during the beginning of the fall semester at UAF.

# 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 several hundred terminals and microcomputers installed on the UAF main 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 7620 (Aurora). Aurora is currently configured with 256 megabytes of main memory, 16 gigabytes of disk storage 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. Aurora is also connected to both BITNET and NorthWestNet (Internet), facilitating data transfer with several thousand other academic and research computers worldwide.

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

Academic Computing is located in the Rasmuson Library all hours study area in the office in the rear of the terminal lab; the phone number is (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

For information on athletics, intramurals or campus recreational activities, call (907) 474-7205.

### 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.

The groundbreaking for a new 40,000-square-foot Student Recreation Center was held in September 1992. With a projected completion date of January 1994, the new facility will add an elevated jogging track, a climbing wall, a state-of-the-art weight training area and three additional multi-use courts for basketball, volleyball, tennis, badminton, indoor soccer and softball.

### Intercollegiate Athletics

The UAF Nanooks intercollegiate athletic program is a Division II member of the National Collegiate Athletic Association (NCAA), with ice hockey classified as Division I. UAF is a member of the Pacific West Conference (PWC) and has an affiliate membership with the Central Collegiate Hockey Association (CCHA). The Division II sports sponsored include men's and women's basketball, cross-country running, cross-country skiing, co-ed rifle and women's volleyball.

To be eligible to participate in intercollegiate athletics:

If you are an entering freshman, you must:

1. Have graduated from high school with a GPA of 2.0 in core courses and a 2.0 accumulative GPA as specified by the NCAA;
2. Provide evidence of a score of 700 on the SAT or 17 on the ACT; and
3. Provide transcripts for any college courses taken.

If you are a transferring student you must:

1. Provide high school graduation records including SAT or ACT scores;
2. Provide transcripts or other official records of previous college experience(s); and
3. Meet all UAF and NCAA regulations relating to transferring credits and eligibility.

As a UAF student/athlete, to remain eligible for participation you must have:

1. Earned 24 credit hours each year while at UAF;
2. Earned at least a 2.0 GPA during the preceding semester while at UAF;
3. Earned at least an accumulative 2.0 GPA while at UAF; and
4. Declared a major at the beginning of the third academic year.

It is the responsibility of each student/athlete to fulfill the academic requirements of the University of Alaska Fairbanks and the National Collegiate Athletics Association. These requirements may vary depending on the sport being considered. The coach of that sport or the intercollegiate athletics department will assist you.

### 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 Tanana Valley Campus, a component of the College of Rural Alaska, 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. TVC provides in-service training for teachers, supervisory skill seminars for local businesses and agencies, and general programs for cultural enrichment.

The Tanana Valley Campus, 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. TVC also serves the non-degree seeking student with evening courses for general interest.

For information, contact the Tanana Valley Campus at the UAF Downtown Center, (907) 451-7223 or 451-1985 (TTY and voice).

## Exchange Programs in the U.S. and Abroad

### National Student Exchange

UAF is one of 110 public colleges and universities throughout the United States with membership in the National Student Exchange (NSE). Through this program, qualified students at member institutions may apply for exchange enrollment at another participating school. NSE enables students to study in different geographical areas of the country and take advantage of specialized courses on unique programs that may not be available on their home campuses. Participation in the program is limited to one year.

Exchanges take place during your sophomore or junior year. To apply, you must be a full-time student in good standing; in general, you should apply during the fall semester. Tuition is assessed by the host institution at the in-state tuition rate; however, in some situations tuition may be paid at UAF. For more information, contact the Office of Admissions and Records, (907) 474-7822.

### Study Abroad Programs

Study abroad programs can broaden your view of the world while contributing academic credit toward your degree at UAF. In a study abroad experience you can master a foreign language, explore new lands and learn about other cultures. Study abroad has an important role to play in the larger process of educating citizens with global awareness, as well as preparing graduates of the university for many career opportunities that involve international affairs. We encourage students to begin planning for a study abroad experience early in their UAF careers, particularly since prior study of a foreign language is often required.

In study abroad programs students enroll at UAF and earn UAF credits while attending school abroad; thus, you may use your Alaska Student Loan and many other forms of financial aid to study abroad. Students are responsible for their transportation to the site, housing, food and incidental expenses at the host institution. UAF study abroad programs are extremely economical compared to other such programs.

Study abroad programs are administered by the UAF International Programs Council. The International Programs Office (202 Eielson Building, (907) 474-5327) exists to encourage and assist you in arranging a study abroad experience.

**Nagoya Gakuin University, Japan** — NGU is a small, private university located on the main Japanese island of Honshu, near Nagoya, the third largest city in Japan. NGU has emphasized business education. They also offer a well-structured course of study of Japanese language and culture for foreign students. One year of Japanese is prerequisite, and two years is highly recommended. Exchange students reside in a new international students' dormitory.

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

**Yakutsk State University** — The city of Yakutsk, capital of the Sakha Republic (Yakutia), is located on the Lena River in eastern Siberia. Yakutia is part of the Russian Federation of the new Commonwealth of Independent States (formerly the U.S.S.R.). It has much in common with Alaska: vast undeveloped and lightly populated lands from tundra to northern forest, an economy based on natural resources and a diversity of cultures. Russian language students will be able to practice and develop their language skills in a Russian-speaking environment and to experience both the indigenous and the Russian cultures of the area. Both semester and summer programs are available. Prior study of the Russian language and a sense of adventure are required.

**Magadan University, C.I.S.** — The International Pedagogical University of Magadan is located in the city of Magadan, in eastern Siberia. Once built around prison camps, Magadan is the capital city and business hub of the Magadan region. It is also home to Chukchi Eskimos and Siberian Yup'iks who live a subsistence lifestyle. The School of Education sponsors a student exchange program in which UAF students can earn UAF credit while studying at Magadan. For more information, call (907) 474-6133.

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

**University of the Andes - VENUSA CPSA, Venezuela** — Universidad de Los Andes is in Merida, a city of 300,000 on the eastern slope of the Andes in a beautiful tropical setting. They offer courses in Spanish language and the history and culture of Hispanoamerica, taught in Spanish, for more advanced students.

**University of Guadalajara, Mexico** — The Center for Foreign Student Studies of the University of Guadalajara offers a well-established program of instruction in the Spanish language and Mexican history, culture and society. Students must attend at least two

six-week terms to earn full-time semester status. Guadalajara, Mexico's second largest city, is a bustling metropolis that retains touches of Mexico's colonial past. This program features home stays, with students living in the homes of Mexican host families.

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

**The Agricultural University of Norway** — This program offers special opportunities for students interested in agriculture, natural resource management, biology, wildlife management and related fields. The Agricultural University is located in Aas, at the base of Oslo Fjord. Some prior student of a Scandinavian language (Danish is taught at UAF), is required.

**Luleå University Sweden** — Luleå University is a technical university located at the top of the Gulf of Bothnia, near the border with Finland. They offer strong programs in engineering, mining and business management, as well as a program in church music. Many courses are taught in English, so prior knowledge of Swedish is not required.

**Study in Europe** — UAF belongs to NICSA (the Northwest Inter-institutional Council on Study Abroad), a consortium of colleges and universities in the Pacific Northwest that pool their resources to provide study abroad programs in Europe at modest cost. NICSA programs offer three terms per year (September through December, January through March, and April through June); students may elect to attend successive terms at the same or different sites. A comprehensive fee of approximately $4,200 per term covers tuition, room and board with a host family, textbooks, and excursions integrated with the courses. Intensive language study is offered (except in London), as well as content courses, primarily in the social sciences and humanities, taught in English. Home stays offer a chance to practice the language, develop close personal ties and experience the everyday culture of the country.

**London, England** — The vibrant metropolitan center of England, London offers a ceaseless banquet of cultural events and performances. Classes are held in central London, near the British Museum.

**Cologne, Germany** — One of the great cities of the Rhineland, in western Germany, Cologne dates back to 50 B.C., when it was established as a Roman colony. The Cologne program operates for the spring term only (April through June). One semester of college German is prerequisite. Language classes are offered at several levels to accommodate more advanced students.

**Avignon, France** — Avignon is a very old city in the Provence region of southern France. Classes are taught within the walls of the old city. Students must have completed two semesters of college French. The winter term offers an intensive immersion in French, with all classes taught in French; three semesters prior study is prerequisite.

**Siena, Italy** — Siena is located in the Tuscany Hills, 40 miles from Florence. Language instruction in included, and no prior study of Italian is required. Content courses often stress art and architecture, both of which are in abundance in and around Siena. Students share apartments with American and Italian students.

### 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 applicable 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.

## 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)

## Honors Program

The Honors Program at UAF provides superior undergraduate 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 allows students to strike out on their own in intellectual pursuits.

The Honors Program is based on the conviction that genuine excellence in college-level studies means broad competence in areas outside a student's major field of specialization as well as excellence within it.

### Eligibility

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

Admission to the Honors Program is generally in the fall semester, 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 three sciences, a mathematics course, English composition, one or more courses from the core Perspectives on the Human Condition, and four or more courses from speech, business, humanities and social science.

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

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

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

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

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

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

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

The Bio-Sciences Library, located in the Arctic Health Research Building on the West Ridge, is a branch of the Rasmuson Library. Collections in the Bio-Sciences Library number approximately 6,000 volumes, the majority of which are periodicals.

For further information, contact the Rasmuson Library director's office at (907) 474-7224 or 474-6744 (TTY).

## Museum

While some 140,000 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, archaeological, art, ethnographic, geology, herbarium, mammal and ornithology collections, the Alaska Native Heritage Film Project and the Alaska Quaternary Center.

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

## Student Support Services Project

The Student Support Services Project is a federally funded grant program under the Cross-Cultural Communications Program whose goal is to retain and graduate students who meet eligibility guidelines. The project strives to meet the special academic needs of students through a variety of services. Academic support is provided through credit and non-credit courses in math, English and study skills, as well as tutoring in general subject areas. Personal support is offered with an emphasis on a cross-cultural perspective. The project works closely with Alaska Native programs on campus, assisting students in achieving their goals and making the most of their opportunities at college.

For more information, and to determine eligibility, contact the Student Support Services Project, 508 Gruening Building, (907) 474-6887.

## 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.

# Graduate School

## Programs of Study

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

UAF is the only doctoral-granting institution in the state, and doctoral programs are offered in the areas of anthropology, atmospheric sciences, biochemistry/molecular biology, biological sciences (options in botany, wildlife biology and zoology), geology, geophysics, mathematics, oceanography, physics and space physics. Master's degrees are offered in over 50 fields: in the humanities, social sciences, northern studies, 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 $8,360 to $9,200 for the school year are available through departments, and assistantships are sometimes available for summer. Full tuition is waived for graduate assistants. The Financial Aid office oversees student loans and work-study programs, and the University of Alaska Foundation administers scholarship programs. The application deadline for financial aid is February 15 for the fall semester, and many departments make assistantship decisions early in the spring. Contact the department or program in which you are interested, for deadline dates and required application information.

## Cost of Living

Campus housing available to graduate students includes residence hall accommodations ($780 to $1,020 per semester) and family housing apartments ($380 to $620 per month). There is limited availability of on-campus housing, so please apply as early as possible. The cost of living in the Fairbanks area is generally higher than the national average.

## Student Group

There are about 700 graduate students at UAF. Forty-one percent of the graduate students at UAF are women, and about 53 percent attend part time. Graduate students from 35 states and more than 28 foreign countries are enrolled.

## Admission to Graduate Study

Admission to graduate degree programs is open to people 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.

Scores from the Graduate Record Examination (GRE) or other standardized tests (GMAT or Miller Analogy Test) are required for all applicants to graduate programs at UAF. All applicants must submit (or arrange to have sent) to the Office of Admissions and Records: graduate application for admission, cover letter indicating area of interest, nonrefundable $30 application fee, three letters of reference, official transcripts from each college or university attended, and official test scores. Interdisciplinary applicants should contact the Graduate School office for information on application requirements.

Students should apply for graduate admission at least six to nine months before the beginning of the semester in which they plan to enroll. Applications for housing may not be made until after the student has been accepted to a degree program.

Qualified applicants can be accepted for admission while enrolled in their last semester of college. However, the acceptance may be conditional upon receipt of official transcripts indicating satisfactory completion of the work in progress at the time of acceptance and completion of graduation requirements. Final acceptance to the university for the purpose of earning 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 arctic, circumpolar and cold regions studies as part of the unique or specialized graduate programs it coordinates in the western states as the Western Regional Graduate Programs. Residents of Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington and Wyoming, who major in one of these programs, pay resident tuition at UAF. The programs included are: anthropology, atmospheric sciences, biology, botany, fisheries, 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 program application procedures:
Graduate School (907) 474-7464
305 Signers' Hall
University of Alaska Fairbanks
Fairbanks, AK 99775-0820

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

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

## Graduate Degree Programs

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

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

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

**Biology and Wildlife**
M.S. Biology
M.S. Botany
M.S. Wildlife Biology
M.S. Zoology
M.A.T. Biology
Ph.D. Biological Sciences
Emphases in:
Biology
Botany
Wildlife Biology
Zoology

**Business Administration**
M.B.A.*

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

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

**Economics**
M.S. Resource Economics

**Education**
Ed.S. Educational Leadership
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

**Fisheries**
M.S. Fisheries
Ph.D. Fisheries

**General Science**
M.S.

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

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

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

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

**Mechanical Engineering**
M.S. Mechanical Engineering

**Mining and Geological Engineering**
M.S. Geological Engineering
M.S. Mining Engineering
M.S. Mineral Preparation Engineering
E.M. 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:

- Institute of Arctic Biology scientists 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.
- A UAF agricultural researcher has isolated and tested a natural agent to help fight plant disease without chemicals.
- 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.
- Agricultural and Forestry Experiment Station faculty have a leadership role in the Long-Term Ecological Research (LTER) program funded by the National Science Foundation. The Bonanza Creek Experimental Forest, near Fairbanks, is the principal LTER field research site for work in the northern boreal forest of North America. Results from this work are determining the structure and function of these forest ecosystems which are the basis for sustainable forest management practices.
- With $25 million in federal support, UAF has established a supercomputing center.
- The Polar Ice Coring Office (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 Alaska Synthetic Aperture Radar (SAR) Facility at the Geophysical Institute makes possible image analysis from day-and-night all-weather satellites. In August 1991, a French vessel safely made it through the ice of the East Siberian and Chukchi seas and the Bering Strait, aided by some of the first ice images received by UAF's SAR Facility from the ERS-1 satellite.
- UAF's Mineral Industry Research Laboratory is investigating a process that has the potential to reduce the cost of recovering 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.

**Consortium for Research in Rural Alaska**

CRRA encourages and promotes research to develop human and economics resources, benefiting Alaska's multicultural rural 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.

# Colleges and Schools

UAF's academic units 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.

**Agriculture and Land Resources Management, School of**
James V. Drew, Dean

Graduates of the School of Agriculture and Land Resources Management use their academic training to facilitate the wise management of Alaska's land-based renewable resources. The undergraduate programs at the school lead to a Bachelor of Science degree in natural resources management with options in resources; plant, animal and soil sciences; and forestry. 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, local, state and federal agencies and private industry. Through these cooperative arrangements, students are provided with 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, geographic information systems and research planning and administration.

**Education, School of**
College of Liberal Arts
Allan A. Glatthorn, Acting Director

The School of Education in the College of Liberal Arts offers both undergraduate and graduate courses in education culminating in three degrees: Bachelor of Education, Master of Education and Education Specialist, as well as teacher certification. It has been approved by the Alaska Department of Education to recommend its graduates for Alaska certification as elementary teachers, secondary teachers and school administrators; it is also accredited by the National Council of Accreditation for Teacher Education. Its off-campus programs are delivered through a special program designated as the Cross-Cultural Education Development Program (XCED); the XCED program is a teacher education program delivered through the university's rural campuses to serve the unique educational needs of Alaska's village residents. Research and development activities involving issues associated with rural Alaska are supported and administered through the school's Center for Cross-Cultural Studies.

**Engineering, School of**
Frank Williams, 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 through the Division of Fisheries. Graduate degrees including the M.S. and Ph.D. are offered in various marine and fisheries areas. Created in 1987, the school is responsible for coordinating the university's statewide programs in marine education, research, technology and extension relating to Alaska's vast fisheries and marine environment. Undergraduate 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 during their undergraduate studies through cooperating state and federal agencies. The school operates coastal facilities at Juneau, Kodiak, Seward and Kasitsna Bay and also the 133-foot oceanographic vessel *R/V Alpha Helix* for seagoing research and education.

**Liberal Arts, College of**
Gorden Hedahl, 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, behavioral sciences and human services, education, English, foreign languages and literatures, geography, history, journalism and broadcasting, library science, linguistics, mathematical sciences, military science, music, northern studies, philosophy and humanities, physical education, political science/justice, speech communication, theater and the UAF Honors Program. The College of Liberal Arts also includes the School of Education as one of its units. (See under Education, School of.)

### Management, School of

John Lehman, Acting 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

Scott Huang, 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.

### Natural Sciences, College of

Paul Reichardt, 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 Alaska, College of

Ralph Gabrielli, Acting Executive Dean

The College of Rural Alaska is committed to education through which all Alaskans, particularly Alaska Natives and rural residents, may make social and economic changes in their communities while protecting and enriching the quality of their lives and cultures. Particular consideration is given to the needs of permanent residents and students in non-traditional settings who seek skills and degrees suited to the rural economy and the well being of rural communities. The college offers a wide range of academic and programmatic options which respond to the changing conditions of Alaska. Short-term courses, workshops, vocational/technical and in-service training, developmental studies, credit for prior learning and other non-degree-oriented services provide community and continuing education. CRA provides general education at the certificate and associate degree levels, as well as vocational/technical training and developmental courses. The college offers degrees in rural development and, in cooperation with the College of Liberal Arts, education and social work. The college geographically serves nearly two-thirds of the state, representing more than 160 primarily Native Alaska communities in the arctic, subarctic and coastal environments. Included are more than 16 indigenous language groups and an economic base which spans subsistence hunting and fishing, small-scale village development and cooperatives and large-scale international corporate development. Extended campuses include Northwest (Nome), Kuskokwim (Bethel), Bristol Bay (Dillingham) and Chukchi (Kotzebue). Also included is the Interior Campus which is headquartered in Fairbanks and which administers a number of education centers throughout the Interior and the Aleutians. Also, in downtown Fairbanks, the Tanana Valley Campus provides developmental and general education and is a center for vocational and technical education as well. The college is a center for the support and development of distance delivery of education and field-based degree and non-degree course work throughout the university.



Students take advantage of the new PCIS Macintosh computer laboratory in the Gruening Building. The laboratory accommodates 25 new Macintosh machines.

# Degrees and Programs

**Cert.** — Certificate
**A.A.** — Associate of Arts
**A.A.S.** — Associate of Applied Science
**B.A.** — Bachelor of Arts
**B.B.A.** — Bachelor of Business Administration
**B.Ed.** — Bachelor of Education
**B.F.A.** — Bachelor of Fine Arts
**B.M.** — Bachelor of Music
**B.S.** — Bachelor of Science
**B.T.** — Bachelor of Technology
**E.M.** — Engineer of Mines
**M.A.** — Master of Arts
**M.F.A.** — Master of Fine Arts
**M.S.** — Master of Science
**M.A.T.** — Master of Arts in Teaching
**M.B.A.** — Master of Business Administration
**M.C.E.** — Master of Civil Engineering
**M.Ed.** — Master of Education
**M.E.E.** — Master of Electrical Engineering
**Ph.D.** — Doctor of Philosophy

Accounting, B.B.A. (see also Applied Accounting)
Airframe and Powerplant, Cert., A.A.S.
Alaska Native Languages (minor only)
Alaska Native Studies, B.A.
Anthropology, B.A., B.S., M.A., Ph.D.
Applied Accounting, A.A.S.
Applied Mining Technology, Cert.
Applied Physics, B.S.
Applied Small Business, A.A.S.
Arctic Engineering, M.S.
Art, B.A., B.F.A.
Asian Studies (minor only)
Associate of Arts, A.A.
Athletic Coaching (minor only)
Atmospheric Sciences, M.S., Ph.D.
Aviation Technology, A.A.S.
Biochemistry and Molecular Biology, M.S., Ph.D.
Biological Sciences, B.A., B.S.
Biological Sciences, Ph.D.
- Biology
- Botany
- Wildlife Biology
- Zoology

Biology, M.S., M.A.T.
Botany, M.S.
Business Administration, B.B.A. (see also Applied Small Business)
- Finance
- Human Resource Management
- International Business
- Management
- Marketing
- Travel Industry Management

Business Administration, M.B.A.
Chemistry, B.A., B.S., M.A., M.S., M.A.T.
Civil Engineering, B.S., M.C.E., M.S.
Community Health Practitioner, Cert., A.A.S.
Community Psychology, M.A.
Computer Information Systems (minor only)
Computer Science, B.S., M.S.
Culinary Arts, Cert., A.A.S.
Dentistry (Pre-Professional)
Diesel/Heavy Equipment Mechanics, Cert.
Drafting Technology, Cert.
Early Childhood Development, Cert., A.A.S.
Early Childhood Education, A.A.S.
Earth Science, B.A.
Economics, B.A., B.B.A.
Education, Elementary, B.Ed.
Education, M.Ed.
- Cross-Cultural
- Curriculum and Instruction
- Distance Education
- Educational Leadership (Type B Cert.)
- Language and Literacy
- Leadership Development

Education, Ed.S.
Electrical Engineering, B.S., M.S., M.E.E.
Engineering Management, M.S.
English, B.A.
- Forms and Techniques of Writing
- Literature
- Teaching

English, M.A., M.F.A.
- Creative Writing, M.F.A.
- English, M.A.
- Professional Writing, M.A.

Environmental Quality Engineering, M.S.
Environmental Quality Science, M.S.
Eskimo, B.A.
- Inupiaq Eskimo
- Yupik Eskimo

Exercise Science, B.S.
Film Studies (minor only)
Financial Institutions Management, A.A.S.
Fire Science, Cert., A.A.S.
Fisheries, B.S.
- Research
- Management

Fisheries, M.S., Ph.D.
Food Science and Nutrition (Cooperative)
Foreign Languages, B.A.
- French
- German
- Russian
- Spanish

Forestry (Cooperative)
General Science, B.S., M.S.
Geography, B.A., B.S.
Geological Engineering, B.S., M.S.
Geology, B.S.
- Economic Geology
- General Geology
- Petroleum Geology
- Solid Earth Geophysics

Geology, M.A.T., Ph.D.
Geology, M.S.
- Economic Geology
- General Geology
- Petroleum Geology

Geophysics, M.S.
- Snow, Ice and Permafrost Geophysics
- Solid Earth Geophysics

Geophysics, Ph.D.
Guidance and Counseling, M.Ed.
- Elementary
- Secondary

History, B.A.
Humanities, B.A.
Human Services, B.A.
Human Services Technology, A.A.S.
Interdisciplinary Studies Option, A.A.S., B.A., B.S., B.T., M.A., M.S., Ph.D.
Journalism, B.A.
- Broadcast
- News-Editorial

Justice, B.A.
Law (Pre-Professional)
Law and Society (minor only)
Library Science (Pre-Professional)
Linguistics, B.A.
Marine Biology, M.S.
Mathematics, B.A., B.S., M.S., M.A.T., Ph.D.
Mechanical Engineering, B.S., M.S.
Medical Technology (Cooperative)
Medicine (Pre-Professional)
Military Science/Army ROTC (minor only)
Mineral Preparation Engineering, M.S.
Mining Engineering, B.S., M.S., E.M. (see also Applied Mining Technology)
Music, B.A.
Music, B.M.
- Music Education
- Performance

Music, M.A.
- Alaska Ethnomusicology
- Music Education
- Music History
- Performance
- Theory/Composition

Music, M.A.T.
Native Language Education, Cert., A.A.S.
Natural Resources Management, B.S.
- Agriculture
- Forestry

Natural Resources Management, M.S.
Northern Studies, B.A., M.A.
Oceanography, M.S., Ph.D.
- Biological
- Chemical
- Fisheries
- Geological
- Physical

Office Management and Technology, Cert., A.A.S.
Paralegal Studies, A.A.S.
Petroleum Engineering, B.S., M.S.
Philosophy, B.A.
Physical Education, B.A.
Physics, B.A., B.S., M.S., M.A.T., Ph.D.
Political Science, B.A.
Psychology, B.A., B.S.
Renewable Resources, A.A.S.
Resource Economics, M.S.
Rural Development, B.A.
- Community Organizations and Services
- Community Research and Cultural Documentation
- Land/Renewable Resources
- Local Government Administration
- Small Business Management

Russian Studies, B.A.
Science Management, M.S.
Social Work, B.A.
Sociology, B.A., B.S.
Space Physics, M.S., Ph.D.
Speech Communication, B.A.
Statistics, B.S.
Technology, B.T.
Theater, B.A.
Veterinary Medicine (Pre-Professional)
Wildlife Biology, B.S., M.S.
Women's Studies (minor only)
Zoology, M.S.

# Accounting

**School of Management**
**Department of Accounting**
**and Information Systems** (907) 474-7121

**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.

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

**Accounting — B.B.A. Degree**

1. Complete general university requirements and B.B.A. degree requirements. (As part of core, complete PHIL 322-Ethics.)
2. Complete the following requirements:
   - ENGL 314 — Technical Writing ..... 3
   - Upper division Economics elective (Other than ECON 324 or ECON 350) ..... 3
3. Complete the Common Body of Knowledge (CBK) (34 credits):
   - ACCT 101, 102 — Elementary Accounting ..... 6
   - AIS 101 — Computer Literacy or demonstrated computer literacy ..... 0-3
   - AIS 316 — Acct. Information Systems ..... 3
   - BA 325 — Financial Management ..... 3
   - BA 330 — Legal Environment of Business ..... 4
   - BA 343 — Principles of Marketing ..... 3
   - BA 360 — Production/Operations Management ..... 3
   - BA 390 — Organizational Theory and Behavior ..... 3
   - BA 462 — Corporate Strategy ..... 3
   - ECON 324 — Intermediate Macroeconomics or ECON 350 — Money & Banking ..... 3
4. Complete the following major complex requirements:
   - ACCT 303 — Governmental Accounting ..... 3
   - ACCT 310 — Income Tax ..... 3
   - ACCT 342 — Managerial Cost Accounting ..... 3
   - ACCT 361, 362 — Intermediate Accounting ..... 6
   - ACCT 401 — Advanced and International Accounting ..... 3
   - ACCT 452 — Auditing ..... 3
   - Complete two of the following:
   - ACCT 403 — Advanced Taxes ..... 3
   - ACCT 404 — Advanced Cost Accounting and Controllership ..... 3
   - ACCT 405 — Contemp. Issues in Accounting ..... 3
   - ACCT 472 — Computer Control and Adv. Auditing ..... 3
   - AIS 473 — Applied Systems Design ..... 3
5. Complete a minor complex (optional) or free electives 12-15
   (At least 11 credits must be outside the School of Management with the exception of introductory computer literacy credits. The minor may not be from the School of Management.)
6. Minimum credits required 130

**MINOR in Accounting** Credits
- ACCT 101 — Elementary Accounting ..... 3
- ACCT 102 — Elementary Accounting ..... 3
- ACCT 310 — Income Tax ..... 3
- ACCT 361 — Intermediate Accounting ..... 3
- ACCT 342 — Managerial Cost Accounting ..... 3
- Another 300- or 400-level accounting course ..... 3

# Airframe and Powerplant

**College of Rural Alaska**
**Tanana Valley Campus** (907) 474-5081

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

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

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 university and A.A.S. requirements: Credits
   - Communications:
   - ENGL 111X and ENGL 211X, 212*, or 213X ..... 6
   - SPC 131X or 141X ..... 3
   - Mathematics or Natural Science:
   - A math or natural science course at the 100 level or above ..... 3
   - Humanities, social sciences, mathematics, natural science or Perspective on the Human Condition ..... 3
2. Complete the following major degree requirements: Same as Airframe and Powerplant Certificate Program ..... 49
3. Degree Total 64

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

**Airframe and Powerplant — Certificate**

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

While this program covers many major subject areas, special emphasis is placed on those skills most sought after in the Alaska job market. This intensive curriculum uses classroom and "hands on" laboratory instruction to prepare students for entry into the aviation field. After completing the program, students are eligible to take the Federal Aviation Administration examinations for the airframe and powerplant ratings. This qualifies program graduates for entry level positions in the maintenance, repair, overhaul and modification of aircraft. A student may request credit by examination for and 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** | **Credits** |
|---|---|
| AFPM 145 — Basic Mathematics | 1.0 |
| AFPM 146 — Basic Electricity | 2.0 |
| AFPM 147 — Physics for Mechanics | 0.5 |
| AFPM 148 — Aircraft Drawing | 1.0 |
| AFPM 149 — Fluid Lines and Fitting | 0.5 |
| AFPM 150 — Materials and Processes | 2.0 |
| AFPM 151 — Cleaning and Corrosion Control | 1.0 |
| AFPM 152 — Federal Aviation Regulations | 1.0 |
| AFPM 153 — Weight and Balance | 1.0 |
| AFPM 154 — Aircraft Ground Operations and Servicing | 0.5 |
| AFPM 251 — Fuel Systems | 1.5 |
| AFPM 255 — Fire Protection Systems | 0.5 |
| AFPM 257 — Instrument Systems | 0.5 |
| Total | 13.0 |

| **Fall Semester** | **Credits** |
|---|---|
| AFPM 231 — Powerplant Electrical Systems | 1.5 |
| AFPM 235 — Aircraft Reciprocating Engines | 5.0 |
| AFPM 240 — Turbine Engines | 1.5 |
| AFPM 250 — Powerplant Exhaust Systems | 0.5 |
| AFPM 254 — Ice and Rain Control Systems | 0.5 |
| AFPM 256 — Communication/Navigation Systems | 0.5 |
| AFPM 258 — Cabin Atmosphere Control Systems | 1.0 |
| AFPM 259 — Hydraulic and Pneumatic Systems | 1.5 |
| AFPM 261 — Wood Structures | 0.5 |
| AFPM 264 — Sheet Metal Structures | 3.5 |
| AFPM 265 — Aircraft Welding | 1.5 |
| Total | 17.5 |

| **Spring Semester** | **Credits** |
|---|---|
| AFPM 230 — Aircraft Electrical Systems | 2.5 |
| AFPM 244 — Lubrication Systems | 1.5 |

AFPM 245 — Ignition Systems ..... 2.5
AFPM 246 — Fuel Metering Systems ..... 1.5
AFPM 248 — Induction Systems ..... 0.5
AFPM 249 — Powerplant Cooling Systems ..... 0.5
AFPM 252 — Propellers ..... 2.0
AFPM 253 — Position and Warning Systems ..... 0.5
AFPM 260 — Aircraft Landing Gear Systems ..... 2.0
AFPM 262 — Aircraft Coverings ..... 1.0
AFPM 263 — Aircraft Finishes ..... 0.5
AFPM 266 — Assembly and Rigging ..... 1.5
AFPM 267 — Airframe Inspections ..... 0.5
AFPM 270 — Airframe Testing ..... 0.5
AFPM 271 — Powerplant Inspections ..... 0.5
AFPM 272 — Powerplant Testing ..... 0.5
Total ..... 18.5
Certificate Total ..... 49.0

**Airframe — Certificate**

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

**Airframe Certificate and Suggested Course Sequence**

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

**Fall Semester**
AFPM 254 — Ice and Rain Control Systems ..... 0.5
AFPM 256 — Communication/Navigation Systems ..... 0.5
AFPM 258 — Cabin Atmosphere Control Systems ..... 1.0
AFPM 259 — Hydraulic and Pneumatic Systems ..... 1.5
AFPM 261 — Wood Structures ..... 0.5
AFPM 264 — Sheet Metal Structures ..... 3.5
AFPM 265 — Aircraft Welding ..... 1.5
Total ..... 9.0

**Spring Semester**
AFPM 230 — Aircraft Electrical Systems ..... 2.5
AFPM 253 — Position and Warning Systems ..... 0.5
AFPM 260 — Aircraft Landing Gear Systems ..... 2.0
AFPM 262 — Aircraft Coverings ..... 1.0
AFPM 263 — Aircraft Finishes ..... 0.5
AFPM 266 — Assembly and Rigging ..... 1.5
AFPM 267 — Aircraft Inspections ..... 0.5
AFPM 270 — Airframe Testing ..... 0.5
Total ..... 9.0
Certificate Total ..... 31.0

**Powerplant — Certificate**

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

**Powerplant Certificate and Suggested Course Sequence**

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

Fall Semester
AFPM 231 — Powerplant Electrical Systems ..... 1.5
AFPM 235 — Aircraft Reciprocating Engines ..... 5.0
AFPM 240 — Turbine Engines ..... 1.5
AFPM 250 — Powerplant Exhaust Systems ..... 0.5
Total ..... 8.5
Spring Semester
AFPM 244 — Lubrication Systems ..... 1.5
AFPM 245 — Ignition Systems ..... 2.5
AFPM 246 — Fuel Metering Systems ..... 1.5
AFPM 248 — Induction Systems ..... 0.5
AFPM 249 — Powerplant Cooling Systems ..... 0.5
AFPM 252 — Propellers ..... 2.0
AFPM 271 — Powerplant Inspections ..... 0.5
AFPM 272 — Powerplant Testing ..... 0.5
Total 9.5
Certificate Total ..... 31.0

**Evening Airframe and Powerplant Program**

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

To enroll, students must receive authorization from the Federal Aviation Administration to take the airframe and/or powerplant 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.

**Alternate Fall Semester** **Credits**
AFPM 111 — Basic Airframe and Powerplant ..... 4
AFPM 205 — Fundamentals of Airframe Structures ..... 5
AFPM 206 — Fundamentals of Airframe Systems and Components ..... 3
Total ..... 12

**Alternate Spring Semester**
AFPM 215 — Powerplant Theory and Maintenance ..... 6
AFPM 216 — Powerplant Structures and Systems ..... 6
Total ..... 12
Evening Program Total ..... 24

# Alaska Native Languages

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

(907) 474-7874

**Minor only**

There are 20 different Alaska Native languages: Aleut, Alutiiq (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 Kutchin Athabaskan. For work in all other languages, individual or small-group instruction is offered under special topics. Thus there have frequently been instruction, seminars, and workshops also in 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 (907) 474-7181

**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 is 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

### 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

(Select 4 courses from the following group:
ANL 215 — Eskimo-Aleut Languages ..... 3
ANL 216 — Indian Languages of Alaska ..... 3
ANTH 242 — Native Cultures of Alaska ..... 3
HIST 110 — History of Alaska Natives ..... 3
PS 263 — Alaska Native Politics ..... 3

**Core Courses:** **24 Credits**

A. Complete the following required courses (15 credits):
ANS 310 — The Alaska Native Lands Settlement ..... 3
ANS 320 — Language and Culture: Applications to Alaska ..... 3
ANS/ENGL 340 — Contemporary Native American Literature
or ANS/ENGL 349 — Narrative Art of Alaska Native Peoples (in translation) ..... 3
ANS 401 — Cultural Knowledge of Native Elders ..... 3
ANS/PS 425 — Federal Indian Law and Alaska Natives
or ANS/PS 450 — Comparative Aboriginal Rights and Policies .... 3

B. Complete 9 credits of the following:

| | Credits |
|---|---|
| ANS 160 — Alaska Native Dance | 1 |
| ANS/THR 161 — Introduction to Tuma Theater | 3 |
| MUS 223 — Native Alaskan Music | 3 |
| ANS 220 — Cultural Differences in Institutional Settings | 3 |
| ANS 250 — Current Alaska Native Leadership Perspectives | 3 |
| ANS 251 — Practicum in Native Cultural Expression | 1-3 |
| ANS 300 — Rhetorical Expression of the Alaska Native Experience | 3 |
| ANS/RD 315 — Tribal People and Development | 3 |
| ANS/PS 325 — Alaska Native Self Government | 3 |
| ANS 351 — Practicum in Native Cultural Expression | 1-3 |
| ANS 360 — Advanced Alaska Native Dance | 1 |
| ANS 361 — Advanced Alaska Native Performance | 3 |
| ANS/ART 365 — Native Arts of Alaska | 3 |
| ANS 375 — Native American Religion and Philosophy | 3 |
| SOC 408 — American Minority Groups | 3 |
| ANS/ED 420 — Alaska Native Education | 3 |
| ANS 475 — Alaska Native Social Change | 3 |

**MINOR in Alaska Native Studies**

A minor requires a minimum of 15 credits in Alaska Native Studies, including ANS 401 and an additional 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 (907) 474-7288

**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. Archaeological and human ecological research carried out in the field and library provides information about past and present modes of living and of origins and distribution of peoples and cultures in the Arctic and subarctic.

### Requirements

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

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

**Required Anthropology Courses:** **Credits**
ANTH 103 — Human Evolution and World Prehistory ..... 3
ANTH 104 — Social/Cultural Anthropology ..... 3

**Historical Science:**
(Select 6 credits from the following group)
ANTH 211 — Fundamentals of Archeology ..... 3
ANTH 315 — Human Biology ..... 3
ANTH 414 — Environmental Archaeology ..... 3
ANTH 423 — Paleoanthropology ..... 3

**Social Science:**
(Select 6 credits from the following group)
ANTH 306 — Economic Anthropology ..... 3
ANTH 320 — Language and Culture ..... 3
ANTH 407 - Kinship and Social Organization ..... 3
ANTH 409 - Religion ..... 3
ANTH 410 — History of Social/Cultural Anthropology ..... 3

**Area Courses**
(Select one 3 credit ethnographic area course and one 3 credit prehistory area course)
ANTH 301 — World Ethnography: region* ..... 3
ANTH 210 — New World Prehistory ..... 3
ANTH 212 — Old World Prehistory ..... 3
Open program electives at 200 level or above ..... 12
*Different geographic regions will be covered each year; e.g. North America, Northern Eurasia, Oceania, etc.

**MINOR in Anthropology:**

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

**Anthropology — M.A. Degree**

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

## College of Rural Alaska
## Tanana Valley Campus

(907) 451-7223

**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 university and A.A.S. requirements

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| ACCT 101 — Elementary Accounting I | 3 |
| ACCT 102 — Elementary Accounting II | 3 |
| ABUS 141 — Payroll Accounting | 2 |
| ABUS 211 — Tax for Business Entities | 2 |
| ABUS 216 — Analyzing Financial Statements | 3 |
| ABUS 221 — Microcomputer Accounting | 3 |
| ABUS 230 — Applied Intermediate Accounting | 3 |
| ABUS 243 — Applied Cost Accounting | 3 |
| BA 151 — Introduction to Business | 3 |
| ABUS 179 — Fundamentals of Supervision | 3 |
| ABUS 241 — Business Law | 3 |
| ABUS 155 — Business Math | 2 |
| CAPS 150 — Computer Business Applications | 3 |
| Economics Elective | 3 |
| OMT 203 — Calculating Machines | 2 |
| Subtotal | 41 |

3. Complete a total of 4 general electives credits 4

Degree Total 60

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

## Applied Mining Technology

### School of Mineral Engineering (907) 474-7366

**Certificate**

**Minimum Requirements for Certificate:** 30 credits

The primary objective of the program is to prepare students for employment in the mining technology industry. Possible career paths for certificate graduates include entry level positions with exploration, mining, environmental and consulting companies. A secondary objective is to provide career development and personal enrichment for experienced miners and workers within the mineral industry.

UAF is unique in offering a one-year mining technology job training program. Certificate graduates will be trained to meet the anticipated demand for workers trained in open pit mining, surface coal mining, underground metal mining, sand and gravel, and placer mining.

### Requirements

**Applied Mining Technology — Certificate**

1. Complete the following major specialty courses:

| | |
|---|---|
| MIN 101 — Minerals, Man and the Environment | 3 |
| AMIT 101 — General Mining Technology or | |
| GEOS 101 — The Dynamic Earth | 4 |
| AMIT 109 — Underground Mine Safety | 2 |
| AMIT 110 — New Underground Miner Training | 2 |
| AMIT 120 — Explosives I | 2 |
| AMIT 125 — Mineral Exploration Techniques | 3 |
| AMIT 129 — Surface Mining Safety | 1 |
| AMIT 130 — Surface Mining Operations | 3 |
| AMIT 140 — Environmental Permitting | 1 |
| AMIT 170 — Fundamentals of Coal Mining | 3 |
| Subtotal | 24 |

2. Select 4 credits from the following major specialty electives

| | |
|---|---|
| AMIT 151 — Settling Pond Technology | 1 |
| AMIT 152 — Techniques of Fire Assay | 1 |
| AMIT 153 — Laboratory Analysis | 1 |
| AMIT 154 — Water Quality and Flocculents | 1 |
| AMIT 155 — Drilling Technology | 1 |
| AMIT 156 — Applied Cartography | 1 |
| AMIT 161 — Alaskan Ore Deposits | 1 |
| AMIT 162 — Geochemical Sampling | 1 |
| AMIT 180 — Colored Stone Evaluation I | 3 |
| AMIT 185 — Diamond Grading and Evaluation | 3 |
| AMIT 193 — Special Topics | 1-3 |
| AMIT 205 — Geomagnetic Surveying | 1 |
| AMIT 206 — Electromagnetic Surveying | 1 |
| AMIT 210 — Advanced Underground Mining | 2 |
| AMIT 220 — Explosives II | 1 |
| AMIT 230 — Field Methods | 2 |
| AMIT 231 — Heap Leaching | 1 |
| AMIT 280 — Colored Stone Evaluation II | 3 |
| AMIT 282 — Cooperative Work Experience | 2 |
| AVTY 231 — Arctic Survival | 3 |
| HLTH 120 — Industrial First Aid and CPR | 1 |
| Subtotal | 4 |

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

Certificate total 30

## Applied Physics

### College of Natural Sciences
### Department of Physics (907) 474-7339

**Degree: B.S.**

**Minimum Requirements for Degree:** 130 credits

### Requirements

**Applied Physics** — B.S. Degree

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:
   Complete MATH 200-201-202, 302 and 9 additional credits in mathematics at the 200-level or above.
   *Complete PHYS 213, 311, and 331 and 12 additional credits in physics at the 300-level or above.
   Complete 20 approved credits** in a chosen subject area of applied physics.
3. Minimum credits required 130

* Implicit in this requirement are 8 credits of lower-division physics courses which are prerequisites for these courses.

** These credits must be approved before the beginning of the student's final semester by the head of the Physics Department.

## Applied Small Business

### College of Rural Alaska
### Tanana Valley Campus (907) 451-7223

**Degree:** A.A.S.

**Minimum Requirements for Degree:** 60 credits

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

### Requirements

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

1. Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| Written Communications: | |
| ENGL 111X and ENGL 212X* | 6 |

SPC 131X or 141X ..... 3
Mathematics:
MATH 107, 131X or 161 ..... 3
Elective selected from Humanities, Social Science, Mathematics, Natural Science or Perspectives on the Human Condition ..... 3

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

**A. Managing Small Corporations:**
ABUS 232 — Fundamentals of Management
or BA 301 — Processes of Management ..... 3
ABUS 233 — Financial Management ..... 3
6 credits selected from:
ABUS 179 — Fundamentals of Supervision ..... 3
ABUS 211 — Taxes for Business Entities ..... 3
ABUS 223 — Real Estate Law ..... 3
ABUS 231 — Introduction to Personnel ..... 3
BA 307 — Personnel Management ..... 3
ABUS 250 — Introduction to Managerial Accounting ..... 3
ABUS 299 — Practicum in Applied Business ..... 3
CAPS 150 — Computer Business Applications
or AIS 310 — Introduction to Management Information Systems .. 3
Other electives may be used with program approval.

**B. Tourism:**
BA 160 — Tourism Principles and Practices ..... 3
ABUS 255 — Marketing in Tourism ..... 3
6 credits selected from:
ABUS 179 — Fundamentals of Supervision ..... 3
ABUS 211 — Taxes for Business Entities ..... 3
ABUS 231 — Introduction to Personnel ..... 3
BA 307 — Personnel Management ..... 3
ABUS 232 — Fundamentals of Management
or BA 301 — Processes of Management ..... 3
ABUS 233 — Financial Management ..... 3
ABUS 250 — Introduction to Managerial Accounting ..... 3
ABUS 256 — Small Hotel, Bed and Breakfast and Lodge Operations ..... 3
ABUS 299 — Practicum in Applied Business ..... 3
CAPS 150 — Computer Business Applications
or AIS 310 — Introduction to Management Information Systems .. 3
Other electives may be used with program approval.

**C. Retail Merchandising:**
ABUS 253 — Principles of Retail ..... 3
ABUS 254 — Principles of Selling ..... 3
6 credits selected from:
ABUS 179 — Fundamentals of Supervision ..... 3
ABUS 211 — Taxes for Business Entities ..... 3
ABUS 231 — Introduction to Personnel ..... 3
BA 307 — Personnel Management ..... 3
ABUS 232 — Fundamentals of Management
or BA 301 — Processes of Management ..... 3
ABUS 250 — Introduction to Managerial Accounting ..... 3
ABUS 299 — Practicum in Applied Business ..... 3
CAPS 150 — Computer Business Applications
or AIS 310 — Introduction to Management Information Systems .. 3
Other electives may be used with program approval.

Electives ..... 6

3. Minimum credits required 60

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

# Arctic Engineering

### School of Engineering
### Department of Civil Engineering (907) 474-7241

**Degree:** M.S.

**Minimum Requirements for Degree:** 30 credits (beyond Bachelor's 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 accentuated the demand for engineers trained in northern operations, both from the private industries that are involved in the development and from government agencies that must plan for or regulate this activity.

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

# Art

### College of Liberal Arts
### Department of Art (907) 474-7530

**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 studies in art. Enrollment in the B.F.A. program is recommended only for those students willing to make the considerable commitment of time and energy necessary to strive for professional competence in their major areas. Admission to the B.F.A. program requires a portfolio review by the art faculty and is generally done in the junior year.

## 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)** **Credits**
ART 105 — Beginning Drawing ..... 3
ART 205 — Intermediate Drawing ..... 3
ART 261-262 — History of World Art ..... 6
ART 211 — Beginning Sculpture ..... 3
ART 213 — Beginning Oil Painting ..... 3
Take two of the following: ..... 6
ART 161 — Two-Dimensional Design (3)
ART 162 — Color and Design (3)
ART 163 — Three-Dimensional Design (3)
One elective chosen from: ..... 3
ART 201 — Beginning Ceramics (3)
ART 207 — Beginning Printmaking (3)
ART 209 — Beginning Metalsmithing (3)

**B. Upper Division (12 credits)**
Nine (9) credits in upper division courses in one subject area, selected from one of these major concentrations:

| | |
|---|---|
| Drawing | Sculpture |
| Painting | Ceramics |
| Printmaking | Metalsmithing |

Upper division Art History
or HUM 332 ..... 3
Minimum credits required for major ..... 39
Minimum credits required for degree ..... 130

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

**Art — B.F.A. Degree**

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

| A. **Lower Division (27 credits)** | **Credits** |
|---|---|
| ART 105 — Beginning Drawing | 3 |
| ART 205 — Intermediate Drawing | 3 |
| ART 261-262 — History of World Art | 6 |
| ART 211 — Beginning Sculpture | 3 |
| ART 213 — Beginning Oil Painting | 3 |
| Take two of the following: | 6 |
| ART 161 — Two-Dimensional Design (3) | |
| ART 162 — Color and Design (3) | |
| ART 163 — Three-Dimensional Design (3) | |
| One of the following: | |
| ART 201 — Beginning Ceramics (3) | |
| or ART 207 — Beginning Printmaking (3) | |
| or ART 209 — Beginning Metalsmithing (3) | |
| or ART 268 — Beginning Native Art Studio (3) | |
| **B. Upper Division (45 credits)** | |
| *Upper division Art History | 6 |
| Two areas of specialization in Art: | |
| Major specialization | 21 |
| Minor specialization | 9 |
| Art electives | 6 |
| Thesis Project | 3 |
| Minimum credits required for degree | 130 |

A thesis show is required in the senior year. The student must present a solo exhibition which demonstrates artistic competence.

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

9 credit minor or specialization for the B.F.A. are painting, drawing, printmaking, sculpture, ceramics, metalsmithing, and Native Art.

*HUM 332 or ART 363 may apply toward this requirement.

**MINOR in Art**

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

**Art Program for Teachers**

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

# Asian Studies

### Interdisciplinary (907) 474-6516

**Minor only**

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

## Requirements

**MINOR in Asian Studies**

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

Asian Studies courses: ANTH 323, HIST 121-122, 330, 331; GEOG 311; JPN 101-102; 201-202; PHIL 202.

# Associate of Arts

### College of Rural Alaska

| | |
|---|---|
| **Bristol Bay Campus** | (907) 842-5109 |
| **Chukchi Campus** | (907) 442-3400 |
| **Interior Campus** | (907) 474-5439 |
| **Kuskokwim Campus** | (907) 543-4500 |
| **Northwest Campus** | (907) 443-2201 |
| **Tanana Valley Campus** | (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

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

| | |
|---|---|
| **Communication** (9 credits) | |
| ENGL 111X—Methods of Written Communication | 3 |
| ENGL 211X—Intermediate Exposition with Modes of Literature | |
| or *ENGL 212—Business, Grant and Report Writing | |
| or ENGL 213X—Intermediate Exposition | 3 |
| SPC 131X—Fundamentals of Oral Communication: Small Group Emphasis | |
| or SPC 141X—Fundamentals of Oral Communication: Public Speaking | 3 |
| **Mathematics or Natural Science** (10 credits) | |
| MATH 131X—Concepts and Contemporary Applications of Mathematics | 3 |
| or MATH 262, 200, 201, 202, 272 or any math course having one of these as a prerequisite) | |
| One natural science course, with lab, selected from the baccalaureate core | 4 |
| Mathematics or natural science elective | 3 |
| **Humanities and Social Science** (18 Credits) | |
| ANTH/SOC 100X—Individual, Society and Culture | 3 |
| ECON/PS 100X—Political Economy | 3 |
| HIST 100X—Modern World History | 3 |
| ART/MUS/THR 200X—Aesthetic Appreciation: Interrelationship of Art, Drama and Music | 3 |
| ENGL/FL 200X—World Literatures | 3 |
| Humanities or social science elective | 3 |
| Two semester-length courses in a single non-English language taken at the university level may substitute for one of the required courses above and the three-credit humanities or social science elective. | |
| **Library and Information Skills** (0-1 Credit) | |
| Successful completion of library skills competency test or LS 100X or LS 101X substitute for | 0-1 |
| (It is strongly recommended that this requirement be completed before enrolling in the 200-level English course requirement or that it be completed concurrently with enrollment in the 200-level English course requirement.) | |
| **General Electives** (22-23 Credits) | |
| Any combination of courses. | |
| (Students planning to go on to the baccalaureate degree are advised to select courses meeting remaining core requirements and courses designated within baccalaureate majors and minors.) | |
| **Electives to total** | 60 |

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

# Athletic Coaching

### College of Liberal Arts

### Department of Physical Education (907) 474-7382

**Minor only**

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

## Requirements

**MINOR in Athletic Coaching**

1. Complete the following required courses:

| | Credits |
|---|---|
| PE 411—History and Philosophy of Sport and Physical Activity | 3 |
| PE 412—Principles and Problems in Athletic Coaching | 3 |
| PE 421—Physiology of Exercise | 3 |
| PE 432—Biomechanics of Human Performance | 3 |

PE 440—Prevention and Care of Athletic Injuries ..... 3
2. Complete the remaining credits in approved courses which will develop competency in the area selected for coaching 3

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

# Atmospheric Sciences

### College of Natural Sciences
### Department of Physics (907) 474-7339

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

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

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

(See also "Space Physics.")

# Aviation Technology

### College of Rural Alaska
### Tanana Valley Campus (907) 474-5081

**Degree: A.A.S.**

**Minimum Requirements for Degree:** 60 credits

The aviation technology curriculum leads to an associate of applied science degree for individuals aspiring to a career as a professional pilot. Courses are also offered for currently rated flight crew members who desire to refresh or upgrade their aeronautical knowledge in order to maintain and enhance their 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 university and A.A.S. requirements: Credits

   Communications:
   ENGL 111X and ENGL 211X, 212*, or 213X ..... 6
   SPC 131X or 141X ..... 3
   Mathematics or Natural Science:
   A math or natural science course at the 100 level or above ..... 3
   Humanities, social sciences, mathematics, natural science or Perspective on the Human Condition ..... 3
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 ..... 3
   AVTY 103 — Commercial Flying ..... 2
   AVTY 155 — Preventive Maintenance for Pilots ..... 3
   AVTY 200 — Instrument Ground School ..... 4
   AVTY 201 — Instrument Flight Training ..... 2
   AVTY 231 — Arctic Survival ..... 3
   AVTY 235 — Elements of Weather ..... 3
   Subtotal ..... 26
3. Complete the following major specialty electives:
   Select 15 credits from the following:
   AVTY 105 — Seaplane Flight Training ..... 1
   AVTY 107 — Multi-Engine Flight Training ..... 1
   AVTY 108 — Introduction to Skis ..... 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 ..... 2
   AVTY 205 — Instrument Instructor Flying ..... 3
   AVTY 206 — Transport Pilot Ground School ..... 4
   AVTY 207 — Transport Pilot Flight Instruction ..... 2
   AVTY 208 — Flight Simulator Operations ..... 3
   AVTY 226 — Flight Engineer Ground School ..... 4
   AVTY 232 — Aviation Astronomy and Navigation ..... 3
   AVTY 233 — Loran C and GPS Navigation ..... 1
   AVTY 239 — Aircraft Dispatcher ..... 4
   Subtotal ..... 15
4. General Electives 4

   Degree Total ..... 60

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

**MINOR in Aviation Technology**

A minor in aviation technology is available to students pursuing a Bachelor of Science or Bachelor of Arts degree. This program will give students an opportunity to become familiar with the field of aviation, with particular emphasis on the use of aviation as a tool and economic process within the Alaskan environment.

**Foundation Courses (7 credits)**
AVTY 100 — Private Pilot Ground School
or AVTY 111 — Fundamentals of Aviation ..... 3-4
AVTY 117 — Aviation Weather ..... 3

**Core Courses (6 credits)**
AVTY 231 — Arctic Survival ..... 3
AVTY 305 — Aviation Law ..... 3

**Elective Courses**
Choose three credits from the following courses:
AVTY 301 — Air worker Strategies ..... 3
AVTY 302 — Aerial Data Collection ..... 2
AVTY 302L — Aerial Data Collection Lab ..... 1
AVTY 402 — Aircraft Management ..... 3
AVTY 405 — Advanced Aircraft Operations ..... 3

# Biochemistry and Molecular Biology

### College of Natural Sciences
### Department of Chemistry (907) 474-7525

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

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

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

# Biological Sciences

### College of Natural Sciences
### Department of Biology and Wildlife (907) 474-7542

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

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

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

## Requirements

**Biological Sciences — B.A. Degree**

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

**Biological Sciences — B.S. Degree**

1. Complete the general university requirements and the B.S. degree requirements in communications and social sciences/humanities.
2. Complete the following program (major) requirements:
   Biology Core Requirements: BIOL 105-106, 239, 271, 342, 362, MATH 200 or 272, STAT 200, CHEM 105-106, 321-322, and at least two courses in addition to those listed above, chosen from Statistics, Chemistry (200 level or above), Geosciences, Mathematics (200 level or above), Physics, Marine Science, and/or Space Physics and Atmospheric Sciences. At least 21 credits in Biology must be upper division (300-400) level courses. A maximum of 6 credits of independent study (-97) may be applied to this requirement. Foreign Language is encouraged.
   a. For Biology Option complete the following requirements in addition to the biology core requirements: At least one course in physiology (BIOL 210 or 334) and 17 additional credits, including one course in zoology (BIOL 222,305, 317, or 406).*
   b. For Botany Option complete the following requirements in addition to the biology core requirements: At least one course in: plant structure/function (BIOL 334), zoology (BIOL 222, 305, 317, or 406), plant systematics, evolution and diversity (BIOL 331 or 333), and plant ecology (BIOL 474). Two additional upper division (300-400) level courses in biology, including but not restricted to BIOL 308, BIOL 331, 333, 475, NRM 313, 380,411, or 451).*
   c. For Cell and Molecular Option complete the following requirements in addition to the biology core requirements: Two of the following three courses (BIOL 361, 418, 442); one of the following two courses (BIOL 445, 452); plus one other 4 unit upper division Biology elective; complete CHEM 324 and 451; complete a sequence of two introductory Physics courses (either PHYS 103X and 104X or 211X and 212X).
3. Minimum credits required 130

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

**MINOR in Biological Sciences**

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

**Students from Other Departments**

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

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

# Biology

### College of Natural Sciences
### Department of Biology and Wildlife (907) 474-7542

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

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

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

# Botany

### College of Natural Sciences
### Department of Biology and Wildlife (907) 474-7542

**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 (907) 474-7253

**Degrees:** B.B.A., M.B.A.

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

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

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

## Requirements

**Business Administration — B.B.A. Degree**

1. Complete general university requirements and B.B.A. degree requirements. (As part of the core, complete PHIL 322-Ethics.)
2. Complete the following requirement:
   ENGL 314 — Technical Writing ..... 3
3. Complete the Common Body of Knowledge (CBK) (34 credits):

| | Credits |
|---|---|
| ACCT 101 and 102 — Elementary Accounting | 6 |
| AIS 101 — Computer Literacy or demonstrated computer literacy | 0-3 |
| AIS 310 — Intro. to Management Information Systems or AIS 316 — Accounting Information Systems | 3 |
| BA 325 — Financial Management | 3 |
| BA 330 — The Legal Environment of Business | 4 |
| BA 343 — Principles of Marketing | 3 |
| BA 360 — Production/Operations Management | 3 |
| BA 390 — Organizational Theory and Behavior | 3 |
| BA 462 — Corporate Strategy | 3 |
| ECON 324 — Inter. Macroeconomics or ECON 350 — Money & Banking | 3 |

4. Complete the following major complex requirements:

| | Credits |
|---|---|
| ACCT 352 — Management Accounting | 3 |
| BA 307 — Personnel of Management | 3 |
| ECON 321 or 322 — Intermediate Microeconomics/Managerial Economics | 3 |
| Option (selected from below) | 15 |

5. Complete a minor complex (optional) or free electives 20-21
   (All must be outside the School of Management with the exception of introductory computer literacy credits. The minor may not be from the School of Management.)
   **OPTIONS:** (An option is required for the BBA degree in Business Administration.) Students are expected to have completed 300 level coursework before enrolling in 400 level option courses.

**Option in Finance:**

| | |
|---|---|
| BA 423 — Investment Management | 3 |
| BA 425 — Adv. Corp. Financial Problems | 3 |
| BA 430 — Current Topics in Finance | 3 |
| BA 461 — International Finance | 3 |
| Upper-division electives approved in writing by an option advisor | 3 |

**Option in Human Resource Management:**

| | |
|---|---|
| BA 317 — Employment Law | 3 |
| BA 327 — Collective Bargaining and Labor Relations | 3 |
| BA 447 — Compensation Management | 3 |
| BA 456 — Small Business Management | 3 |
| BA 457 — Training and Management Development | 3 |

**Option in International Business:**

| | |
|---|---|
| ECON 463 — International Economics | 3 |

Two academic years of one foreign language* ..... 12-18
(German, Japanese, Russian, Spanish, French)
PS 321 or 322 — International Politics ..... 3
Complete one of the following (appropriate to language concentration):
GEOG 305 — Geography of Europe (Except USSR) or
GEOG 306 — Geography of Russia or
GEOG 311 — Geography of Asia or
GEOG 405 — Political Geography ..... 3
Approved upper division electives ..... 6
(*Note: Foreign language credit may also meet 6 hours of core degree requirements.)

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

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

**Option in Travel Industry Management:**
BA 372 — Hotel Administration ..... 3
BA 375 — Marketing of Hospitality Service ..... 3
BA 377 — Food and Beverage Mgt. ..... 3
BA 378 — Passenger Transportation Mgt. ..... 3
BA 471 — Tourism Seminar ..... 3

6. Minimum credits required 130

**MINOR in Business Administration*:**
ACCT 102 — Elementary Accounting ..... 3
BA 307 — Personnel Management ..... 3
BA 325 — Financial Management ..... 3
BA 330 - The Legal Environment of Business ..... 4
BA 343 — Principles of Marketing ..... 3
Note: Required Prerequisites: Computer Literacy or AIS 101, ACCT 101, BA 151, ECON 200, MATH 161, STAT 201.
Total 16

**MINOR in Travel Industry Management*:**
ACCT 102 — Elementary Accounting ..... 3
BA 307 — Personnel Management ..... 3
BA 372 — Hotel Administration ..... 3
BA 375 — Marketing of Hospitality Service ..... 3
BA 377 — Food and Beverage Management ..... 3
Note: Required Prerequisites: Computer Literacy or AIS 101, BA 151, BA 343, ACCT 101, ECON 200, MATH 161.
Total 15

*For a Bachelor of Arts or Bachelor of Science Degree.

**Business Administration — M.B.A. Degree**

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

# Chemistry

## College of Natural Sciences
## Department of Chemistry (907) 474-7525

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

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

Graduates in chemistry qualify in many fields as teachers of chemistry; supervisors in industry; technical sales personnel; research chemists in federal, state, municipal, academic, or industrial laboratories; in premedicine; or as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce and the creation of the many synthetic products has caused substantial growth in the profession. In addition to the traditional employment opportunities in chemistry, well-qualified graduates find positions in the fields of environmental science, oceanography, and related interdisciplinary fields.

The curriculum in chemistry offers an opportunity for broad scientific study. All students specializing in chemistry will meet basic requirements in general inorganic, analytical, organic, and physical chemistry, as well as mathematics and physics. These may be supplemented by courses in biology, education, engineering, geophysics, geology, and advanced courses in biology, chemistry, mathematics, and physics according to the interest of the individual student.

Faculty from many departments and research institutes in the university participate in the department's Program in Biochemistry and Molecular Biology. This program, which emphasizes an understanding of the molecular principles involved in life processes, provides academic and research experience for both undergraduate and graduate students who are interested in careers in the growing area of biotechnology. This program may be especially attractive to students interested in premedicine.

The department offers the student well-equipped laboratories housing instrumentation for nuclear magnetic resonance spectrometry, infrared, ultraviolet/visible, laser Raman, and atomic absorption spectrophotometry, mass spectrometry, gas chromatography, and carbon-hydrogen-nitrogen analysis. Additional equipment such as gas chromatograph/mass spectrometer, x-ray diffractometer, electron microscope, and liquid scintillating counters are available in cooperation with other departments and institutes at UAF.

The chemistry department's four-year B.S. curriculum is accredited by the American Chemical Society.

## Requirements

**Chemistry — B.A. Degree**

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

Credits
CHEM 105-106 — General Chemistry ..... 8
CHEM 202 — Basic Inorganic ..... 3
CHEM 212 — Chemical Equilibrium & Analysis ..... 3
CHEM 213 — Quantitative Analysis Laboratory ..... 1
CHEM 321-322 — Organic Chemistry ..... 6
CHEM 324 — Organic Laboratory ..... 3
CHEM 331-332 — Physical Chemistry ..... 6
CHEM 412 — Instrumental Analytical Methods ..... 3
CHEM 413 — Analytical Instrumental Lab ..... 3
CHEM 434 — Physical Instrumental Lab ..... 3
CHEM 492 — Seminar (seniors) ..... 2
CS 103 - Introduction to Computer Programming
or ES 201 — Computer Techniques ..... 3
MATH 200-201-202 — Calculus ..... 12
PHYS 103-104 or 211-212 — General Physics ..... 8

3. Total Credits Required 130

**Chemistry — B.S. Degree**

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following program (major) requirements:
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 ..... 3
*CHEM 498 — Research ..... 4
*One additional 400 or 600 level chemistry course ..... 3
3. Total Credits Required ..... 130

Upon completing the recommended curriculum and fulfilling all general university requirements, the student will receive a baccalaureate degree certified by the American Chemical Society.

The electives must include at least 6 credits at the upper division level (to satisfy the UAF general degree requirements for 39 upper division credits).

Chemistry foundation courses may be used toward partial fulfillment of the natural science requirement for the B.S. degree with a major in Chemistry.

* Advanced courses in the physical or biological sciences or mathematics maybe substituted with permission of the head of the Chemistry Department. However, the student will not receive an ACS-certified degree.

**Chemistry — B.S. Degree with Biochemistry/Molecular Biology Option**

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

Credits
BIOL 105-106 — Fundamentals of Biology ..... 8
BIOL 342 — Microbiology ..... 4

BIOL 361 — Cell Biology
or BIOL 418 - Developmental Biology ..... 4
BIOL 362 — Principles of Genetics ..... 4
CHEM 105-106 — General Chemistry ..... 8
CHEM 212 — Chemical Equilibrium & Analysis ..... 3
CHEM 213 — Quantitative Analysis Laboratory ..... 1
CHEM 321-322 — Organic Chemistry ..... 6
CHEM 324 — Organic Laboratory ..... 3
CHEM 331-332 — Physical Chemistry ..... 6
CHEM 413 — Analytical Instrumental Laboratory*
or CHEM 434 — Physical Instrumental Laboratory ..... 3
CHEM 451 — General Biochemistry ..... 3
CHEM 452 — Biochemistry Laboratory ..... 3
CHEM 492 — Seminar ..... 2
MATH 200-201-202 — Calculus ..... 12
PHYS 103-104 or 211-212 — General Physics ..... 8
Major elective (approved by department head) ..... 6

3. Total Credits Required 130

**MINOR in Chemistry**

A minor in chemistry requires 12 credits above the foundation courses (CHEM105-106) approved by the head of the Chemistry Department.

**Biochemistry and Molecular Biology — M.S., Ph.D.**
**Chemistry — M.A. or M.S. Degree**

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

# Civil Engineering

### School of Engineering
### Department of Civil Engineering (907) 474-7241

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

**Minimum Requirements for Degrees: B.S.** — 135 credits; M.C.E. or M.S. — 30 additional credits

Civil engineers plan, design and supervise the construction of facilities essential to modern life in both the public and private sectors — facilities that vary widely in nature, size and scope: space 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 1931 and since has graduated more than 500 men and women. Many of these graduates work in Alaska's cities, towns and villages in a wide range of responsible positions. More than 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 111X — Methods of Comm ..... 3
MATH 200 — Calculus ..... 4
ES 101 — Introduction to Engineering ..... 2
CHEM 105 — General Chemistry ..... 4
Perspectives on the Human Condition ..... 3
Spring Semester ..... 17 credits
SPC 131X or SPC 141X ..... 3
MATH 201 — Calculus ..... 4
CE 112 — Elementary Surveying ..... 3
CHEM 106 — General Chemistry ..... 4
ES 201 — Computer Techniques ..... 3

**Second Year**
Fall Semester ..... 17 Credits
MATH 202 — Calculus ..... 4
PHYS 211 — General Physics ..... 4
ENGL 211X or 213X ..... 3
ES 209 — Statics ..... 3
Perspectives on the Human Condition ..... 3
Spring Semester ..... 16 credits
MATH 302 — Differential Equations ..... 3
PHYS 212 — General Physics ..... 4
ES 210 — Dynamics ..... 3
GEOS 261 — General Geology for Engineers ..... 3
Perspectives on the Human Condition ..... 3

**Third Year**
Fall Semester ..... 16 credits
CE 334 — Properties of Materials ..... 3
ES 301 — Engineering Analysis ..... 3
ES 331 — Mechanics of Materials ..... 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 ..... 4
CE 431 — Structural Engineering I ..... 3
Perspectives on the Human Condition ..... 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
Perspectives on the Human Condition ..... 3
CE 400 — EIT Exam (Fall or Spring) ..... 0
Spring Semester ..... 15 credits
ESM 450 — Economic Analysis and Operations ..... 3
CE 438 — Design of Engr. Systems ..... 3
Perspectives on the Human Condition ..... 3
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 count toward graduation as a technical elective and the student must be within 30 credits of graduation and have at least a 3.0 gpa to enroll.

The ability to utilize computers for normal class work is expected in all engineering classes above the 100 level.

**Civil Engineering — M.S. or M.C.E. Degree**

For complete information on the graduate programs in civil engineering, seethe UAF Graduate Catalog.

# Community Health Aide/Practitioner

### College of Rural Alaska
### Kuskokwim Campus (907) 543-4541

**Certificate; Degree:** A.A.S
**Minimum Requirements for Degree** — 60 credits; for Certificate — 34 credits

**CHA/P Training Centers**
Anchorage CHA Training Program, ANMC ..... (907) 257-1302
Chugachmiut Health Corporation, Seward ..... (907) 224-3076
Norton Sound Health Corporation, Nome ..... (907) 443-3404
Southeast Alaska Regional Health Corp., Sitka ..... (907) 966-2451
Yukon-Kuskokwim Health Corp., Bethel ..... (907) 543-4471

The Community Health Aide/Practitioner (CHA/P) Training Program prepares residents to provide primary health care services in villages, under the supervision of a referral physician. CHA/P employment by a regional health corporation is a prerequisite for entering this unique training program.

The educational program consists of four basic training sessions. Each training session is approximately four weeks long and is followed by a field component in the CHA's village clinic. The curriculum includes the knowledge and skills necessary to provide acute care for common medical problems, emergency care, follow-up care for patients with chronic illnesses and preventive services including prenatal and well child care. The training also includes a state-approved emergency care course, completion of a skills checklist, a supervised clinical preceptorship and passing the CHP statewide examination.

Upon successful completion of all certification requirements, a certificate as a Community Health Practitioner (CHP) is awarded by the training center.

Students completing the training program also meet the requirements for a university certificate, recognizing the credits earned. These credits may be used to satisfy requirements for the Associate of Applied Science degree.

The curriculum and certification process is kept uniform throughout the state by a CHAP Academic Review Committee (ARC). This committee has representation from the regional health corporations, training centers and university. ARC reports to the Association of CHAP Program Directors and serves in an advisory role to the Dean of the College of Rural Alaska.

NOTE: For more information about the CHA/P basic training program, please contact one of the CHA/P training centers. For more information about the A.A.S. degree, contact the Kuskokwim Campus.

### Requirements

**Community Health Practitioner — Certificate**

| Basic CHA/P courses are: | Credits |
|---|---|
| CHP 131 — Community Health Aide, Session I | 8 |
| CHP 132 — Community Health Aide, Session II | 8 |
| CHP 133 — Community Health Aide, Session III | 8 |
| CHP 134 — Community Health Aide, Session IV | 8 |
| CHP 135 — Community Health Aide, Preceptorship | 2 |
| Total | 34 |

The above course sequence replaces the CHP 120 series listed in the UAF 1992-93 catalog. The course designator changes represents the addition of a Session IV and the integration of the field experience within each eight-credit session.

Prior to Session I the CHA may have an optional course when regionally available.

| | |
|---|---|
| CHP 082 — Community Health Aide, Presession I | 2 |

**Community Health Aide Practitioner — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| ENGL 111X and ENGL 211X, 212 or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition | 3 |
| Total | 15 |

2. Major Specialty Requirements:

| | |
|---|---|
| CHP 131 — Community Health Aide, Session I | 8 |
| CHP 132 — Community Health Aide, Session II | 8 |
| CHP 133 — Community Health Aide, Session III | 8 |
| CHP 134 — Community Health Aide, Session IV | 8 |
| CHP 135 — Community Health Aide, Preceptorship | 2 |
| Total | 34 |
| Five or more credits at the CHP 200 level: | |
| CHP 202 — Emergency Care for CHPs | 1-3 |
| CHP 203 — Clinical Update for CHPs | 1-3 |
| CHP 206 — Mental Health/Substance Abuse | 1-3 |
| CHP 207 — Maternal and Infant Health | 1-3 |
| CHP 208 — Communicable Disease | 1-3 |
| CHP 211 — Health Education | 1-3 |
| CHP 212 — Diabetes: Primary Prevention and Village Care | 1-3 |
| CHP 293 — Special topic courses | 1-3 |

3. Electives

| | |
|---|---|
| EMS 103* — Emergency Trauma Training: First Responder | 3 |
| or EMS 119* — Emergency Medical Technician I | 4 |
| Total credits | 60 |

* EMS 103 or EMS 119 will fulfill the emergency care course requirement for CHP certification.

## Community Psychology

**College of Liberal Arts**
**Department of Behavioral Sciences and Human Services** (907) 474-7240

**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

**College of Rural Alaska**
**Tanana Valley Campus**

(907) 451-7223

**Special training programs**

A wide array of computer courses are offered by TVC. Computer application courses, programming courses and special user seminars are offered regularly. Special emphasis is placed on popular business application programs for both the Apple and IBM-compatible Compac computers. There are computer labs equipped with Compac, Apple IIe and Apple Macintosh computers at the UAF Downtown Center.

Computers are used in nearly all major industries and in large and small businesses. Mastery of one or more computer systems or software applications can greatly enhance career opportunities in many fields. In addition, computer programming is 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 Accounting and Information Systems** (907) 474-7121

**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**

| | Credits |
|---|---|
| ACCT 101 — Elementary Accounting I | 3 |
| ACCT 102 — Elementary Accounting II | 3 |
| AIS 101 - Computer Literacy | 3 |
| AIS 312 - Information Systems Technology | 3 |
| AIS 316 — Accounting Information System | 3 |
| Total | 15 |

## Computer Science

**College of Liberal Arts**
**Department of Mathematical Sciences** (907) 474-7332

**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**

No student will be allowed to declare a major in Computer Science unless she/he is ready to matriculate into MATH 200, Calculus I. Upon satisfying the above condition the student must satisfy the following requirements in order to graduate with a degree in Computer Science.

1. Complete the general university requirements and B.S. degree requirements. A portion of the science requirement for the B.S. should be met with a one year physics sequence, PHYS 103X-104X or PHYS 211X-212X.
2. Complete the following mathematics requirement: Credits
   - MATH 200 — Calculus I ..... 4
   - MATH 201 — Calculus II ..... 4
   - MATH 307 — Discrete Mathematical Structures ..... 3
   - STAT 300 — Statistics ..... 3
   - One of the following:
   - MATH 302 — Differential Equations ..... 3
   - MATH 308 — Abstract Algebra ..... 3
   - MATH 310 — Numerical Analysis ..... 3
   - MATH 314 — Linear Algebra ..... 3
   - MATH 371 — Probability ..... 3
   - MATH 408 — Mathematical Statistics ..... 3
   - MATH 460 — Mathematical Modeling ..... 3
3. Complete the following major requirements:
   - CS 201 — Computer Programming I ..... 3
   - CS 202 — Computer Programming II ..... 3
   - CS 301 — Assembly Language Programming ..... 3
   - CS 311 — Data Structures and Algorithms ..... 3
   - CS 321 — Operating Systems ..... 3
   - CS 331 — Programming Languages ..... 3
   - CS 402 — Senior Project and Professional Practice ..... 3
   - CS 411 — Analysis of Algorithms
   - or CS 451 — Automata and Formal Languages ..... 3
   - EE 341 — Computer Organization I ..... 4
   - EE 342 — Computer Organization II ..... 4
   - Upper Division electives: either CS courses
   - or approved electives such as BA 310, EE 443, EE 454 ..... 9
4. Total Credits Required 120

**MINOR in Computer Science**

- CS 201 — Computer Programming I ..... 3
- CS 202 — Computer Programming II ..... 3
- Three upper division elective courses from CS, EE 341, BA 310, MATH 310, MATH 460 or approved by CS advisor ..... 9

**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 unifying project. 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, seethe UAF Graduate Catalog.

# Cross-Cultural Communications

### College of Liberal Arts
### Cross-Cultural Communications Program

(907) 474-7623

Cross-cultural Communications is an innovative program designed to serve the needs of Alaska Native and rural students at UAF. Recognizing that the transition to university communication patterns presents challenges which vary in type as well as degree, depending on a student's cultural background, CCC offers several courses designed to capitalize on the similarities of experience brought to the University of Alaska Native and rural students. It enables 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 -CC# and -CCC section "numbers."

# Culinary Arts

### College of Rural Alaska
### Tanana Valley Campus

(907) 474-5074

**Certificate; Degree:** A.A.S.

**Minimum Requirements for Certificate** — 31 credits; for Degree — 67 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.

### Requirements

**Culinary Arts — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements (all credits must be at the 100-level or above): Credits
   - Communication (9 credits):
   - ENGL 111X — Methods of Written Communication ..... 3
   - ENGL 211X — Intermediate Exposition with Modes of Lit ..... 3
   - or
   - ENGL 212* — Business, Grant and Report Writing ..... 3
   - or
   - ENGL 213X — Intermediate Exposition ..... 3
   - SPC 131X — Fund. of Oral Commun: Group Context ..... 3
   - or
   - SPC 141X — Fund. of Oral Commun: Public Context ..... 3
   - Mathematics or Natural Science:
   - A math or natural science course at the 100 level or above ..... 3
   - Humanities, social sciences, mathematics, natural science or Perspective on the Human Condition ..... 3
2. Complete the following major degree requirements: Credits
   - CAH 105 — Principles of Food Service ..... 3
   - CAH 140 — Food Production I ..... 5
   - CAH 141 — Food Production II ..... 5
   - CAH 145 — Bakery Production I ..... 5
   - CAH 146 — Bakery Production II ..... 5
   - CAH 150 — Food Service Sanitation ..... 1
   - CAH 152 — Supervisory Skills ..... 2
   - CAH 242 — Food Production III ..... 5
   - CAH 243 — Food Production IV ..... 5
   - CAH 247 — Bakery Production III ..... 5
   - CAH 248 — Bakery Production IV ..... 5
   - CAH 250 — Garde Manger ..... 2
   - CAH 253 — Storeroom Purchasing and Receiving ..... 2
   - CAH 255 — Food Service Management ..... 2
   - Subtotal ..... 52

Degree Total 67

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

**Culinary Arts Certificate —**

Suggested Course Sequence:

- First Semester ..... 15 Credits
- CAH 105 — Principles of Food Service ..... 3
- CAH 140 — Food Production I ..... 5
- CAH 145 — Bakery Production I ..... 5
- CAH 150 — Food Service Sanitation ..... 1
- CAH 161 — Pastry Tube Art ..... 1
- Second Semester ..... 16 Credits
- CAH 141 — Food Production II ..... 5
- CAH 146 — Bakery Production II ..... 5
- CAH 152 — Supervisory Skills ..... 2
- CAH 256 — Food Service Accounting ..... 2
- Culinary Specialty Electives ..... 2
- Certificate Total ..... 31

**Culinary Arts Certificate — Baking**

Suggested Course Sequence:

| First Semester | 15 Credits |
|---|---|
| CAH 105 — Principles of Food Service | 3 |
| CAH 140 — Food Production I | 5 |
| CAH 145 — Bakery Production I | 5 |
| CAH 150 — Food Service Sanitation | 1 |
| CAH 161 — Pastry Tube Art | 1 |
| Second Semester | 16 Credits |
| CAH 146 — Bakery Production II | 5 |
| CAH 152 — Supervisory Skills | 2 |
| CAH 247 — Bakery Production III | 5 |
| CAH 256 — Food Service Accounting | 2 |
| Culinary Specialty Electives | 2 |
| Certificate Total | 31 |

**Culinary Arts Certificate — Cooking**

Suggested Course Sequence:

| First Semester | 15 Credits |
|---|---|
| CAH 105 — Principles of Food Service | 3 |
| CAH 140 — Food Production I | 5 |
| CAH 145 — Bakery Production I | 5 |
| CAH 150 — Food Service Sanitation | 1 |
| CAH 161 — Pastry Tube Art | 1 |
| Second Semester | 16 Credits |
| CAH 141 — Food Production II | 5 |
| CAH 152 — Supervisory Skills | 2 |
| CAH 242 — Food Production III | 5 |
| CAH 256 — Food Service Accounting | 2 |
| Culinary Specialty Electives | 2 |
| Certificate Total | 31 |

**Major Specialty Electives for Certificate Programs**

| | |
|---|---|
| CAH 116 — Beginning Cake Decorating | 1 |
| CAH 117 — Intermediate Cake Decorating | 1 |
| CAH 154 — Dining Room Service | 2 |
| CAH 160 — Principles of Nutrition | 2 |
| CAH 161 — Pastry Tube Art | 1 |
| CAH 170 — Gourmet Cooking | 2 |
| CAH 171 — Gourmet Baking | 2 |
| CAH 172 — Gourmet Asian/Oriental Cooking | 2 |
| CAH 175 — Introduction to Meat Cutting | 2 |
| CAH 257 — Oenology Hospitality I | 1 |
| CAH 258 — Oenology Hospitality II | 1 |

# Dentistry

## Pre-Professional Program (907) 474-6396

Dentistry concerns itself with the prevention, diagnosis and treatment of oral disease and disorders. Professional dental study typically involves a four-year program of graduate study combining classroom instruction, lab work, and hands-on patient treatment. Students can also go on to specialize within the dental field by pursuing advanced training at the post-doctoral level. Both specialists and general dentists are required to be state licensed before practicing.

While a definitive pre-dentistry curriculum is not required for admission into dental school, it is recommended that students include specific courses as part of their undergraduate studies. At UAF, these courses are chemistry (CHEM 103X and 104X or 105X and 106X), organic chemistry (CHEM 321 and 322), biology (BIOL 105X and 106X), anatomy and physiology (BIOL 111 and 112), and physics (PHYS 103X and 104X). Dental schools also expect students to have abroad general background in the social sciences and humanities. While some dental schools will accept students after they have completed three years of undergraduate work, the majority of students entering dental school have already completed a bachelor's degree. A strong academic record at the undergraduate level, as well as high scores on the Dental Admission Test (DAT), are desirable for admission.

Students whose career goal is dentistry, or who are considering this career choice, should contact the Academic Advising Center to be assigned an academic advisor. Program advisement, exploration of professional schools and licensing requirements, and financial planning are available to meet the needs of students in fulfilling their career aspirations.

# Diesel / Heavy Equipment Mechanics

## College of Rural Alaska
## Tanana Valley Campus (907) 474-5082

**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 crawler tractor undercarriages, steering and final drives. Class size is limited to 16 students to encourage instructor-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 | Credits |
|---|---|
| DSLT 150 — Diesel Mechanics I | 7 |
| DSLT 152 — Diesel Mechanics II | 7 |
| WMT 103 — Welding I | 3 |
| Subtotal | 17 |
| Spring Semester | |
| MECN 101 — Heavy Equipment/Mechanics I | 7 |
| MECN 102 — Heavy Equipment/Mechanics II | 7 |
| WMT 105 — Welding II | 3 |
| Subtotal | 17 |
| Certificate Total | 34 |

# Drafting Technology

## College of Rural Alaska
## Tanana Valley Campus (907) 474-5264

**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 I | 4 |
| DRT 121 — Building Trades Blueprint Reading | 3 |
| MATH 107 — Elementary Functions | 3 |
| Approved electives* | 4 |
| Subtotal | 15 |
| Spring Semester | |
| DRT 102 — Beginning Drafting II | 2 |
| DRT 140 — Architectural Drafting | 4 |
| DRT 151 — Civil Concepts | 2 |
| MATH 108 — Trigonometry | 2 |
| Approved electives* | 5 |
| Subtotal | 15 |
| Certificate Total | 30 |

**Civil Drafting**

| Fall Semester | Credits |
|---|---|
| DRT 100 — Introduction to Drafting | 1 |
| DRT 101 — Beginning Drafting I | 4 |
| DRT 121 — Building Trades Blueprint Reading | 3 |
| MATH 107 — Elementary Functions | 3 |
| Approved electives* | 4 |
| Subtotal | 15 |
| Spring Semester | |
| DRT 102 — Beginning Drafting II | 2 |
| DRT 150 — Civil Drafting | 4 |
| DRT 141 — Principles of Architectural Drafting | 2 |
| MATH 108 — Trigonometry | 2 |
| Approved electives* | 5 |
| Subtotal | 15 |
| Certificate Total | 30 |

*Must be approved in advance (in writing) by the drafting program adviser.

# Early Childhood Development

### College of Rural Alaska
### Tanana Valley Campus (907) 474-5240

**Certificate; Degree:** A.A.S.

**Minimum Requirements for Degree —** 60 credits; for Certificate — 30 credits

The A.A.S. degree in early childhood development prepares students to find employment or to improve present job skills in early childhood and child care programs. Positions in child care centers, head start programs, early childhood education programs, child welfare service agencies and public school aid programs are potential career directions for program graduates. The A.A.S. degree in early childhood development also leads to state certification as an Early Childhood Education Associate 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 university and A.A.S. requirements:

| | Credits |
|---|---|
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Math at the 100 level or above | 3 |
| Natural science** | |
| Humanities** | |
| PSY 101 — Introduction to Psychology | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| ECHD/PSY 245 — Child Development | 3 |
| ECHD 100 — Introduction to Early Childhood | 3 |
| ECHD 110 — Practical Paths to Discipline and Guidance | 1 |
| ECHD 120 — Child Nutrition, Health and Safety | 3 |
| ECHD 131 — Group Management | 1 |
| ECHD 135 — Infant/Toddler Care | 2 |
| ECHD 250 — Practicum I | 3 |
| ECHD 251 — Practicum II | 3 |
| ECHD 255 — Activities for Young Children | 3 |
| ECHD 260 — Introduction to the Exceptional Child or ECHD 261 — Mainstreaming Exceptional Children | 3 |
| ECHD 265 — Culture Learning and the Young Child | 2 |
| SOC 242 — The Family | 3 |

3. Complete 9 credits of general electives 9

Degree Total 60

Recommended Electives: Any ECHD catalog or special topics (ECHD 193 or 293) courses and others which have been approved by the ECHD adviser.

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

**Courses should be selected that meet general degree requirements for baccalaureate degrees.

**Early Childhood Development — Certificate**

1. Complete the following required courses

| | Credits |
|---|---|
| ENGL 111X — Methods of Written Communication | 3 |
| PSY 101 — Introduction to Psychology | 3 |
| ECHD/PSY 245 — Child Development | 3 |
| ECHD 100 — Introduction to Early Childhood Development | 3 |
| ECHD 110 — Practical Paths to Discipline and Guidance | 1 |
| ECHD 120 — Child Nutrition, Health and Safety | 3 |
| ECHD 131 — Group Management | 1 |
| ECHD 135 — Infant/Toddler Care | 2 |
| ECHD 250 — Practicum I | 3 |
| ECHD 255 — Activities for Young Children | 3 |
| Subtotal | 25 |

2. Math competency: Student must demonstrate a level of competence in math equivalent to DEVM 050. Requirement may be satisfied by math placement exam score above DEVM 050 level or by earning a grade of "B" or above in DEVM 050 class.
3. Complete 5 credits of general electives.

Certificate Total 30

# Early Childhood Education

### College of Rural Alaska
### Interior Campus (907) 474-5207
### Kuskokwim Campus (907) 543-4500

**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 university and A.A.S. requirements:

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics: | |
| A math course at the 100 level or above | 3 |
| Humanities, social sciences, mathematics, natural science or Perspective on the Human Condition | 6 |

2. Complete the following major specialty requirements:

| | |
|---|---|
| ECDD 111 — A Safe Environment | 1 |
| ECDD 112 — A Healthy Learning Environment | 1 |
| ECDD 113 — Learning Environment | 1 |
| ECDD 121 — Physical Activities for Young Children | 1 |
| ECDD 122 — Cognitive Activities for Young Children | 1 |
| ECDD 123 — Communication Activities | 1 |
| ECDD 124 — Creative Activities for Young Children | 1 |
| ECDD 131 — Guidance and Discipline | 1 |
| ECDD 132 — Social Development for the Young Child | 1 |
| ECDD 145 — Nutrition | 1 |
| ECDD 211 — Developing Positive Self-Concepts in Children | 1 |
| ECDD 212 — Developing Individual Strengths in Children | 1 |
| ECDD 221 — Positive Home-Center Relationships | 1 |
| ECDD 222 — Program Management | 1 |
| ECDD 223 — Professionalism | 1 |
| ECDD 289 — Final Assessment for Child Development Associate Credential | 1 |
| ECDD 299 — Practicum in Early Childhood Education | 2-3 |
| SOC 242 — The Family: A Cross-Cultural Perspective | 3 |
| Any HMSV/HST course approved by advisor | 3 |
| ECDD 100 — Introduction to Early Childhood Education | 3 |
| ECDD or ED electives by permission of instructors | 7 |

3. Complete 11 credits of general electives.

Total 60

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 (907) 474-7565

**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 heads. Students wishing to enroll in this degree program should contact the head of the Department of Geology and Geophysics.

## Requirements

**Earth Science — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following fundamental courses:
   - A. Complete one year of college-level mathematics
   - B. Complete CHEM 103X and 104X or PHYS 103X and 104X
   - C. Complete one semester of computer science approved by major 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 core and B.A. degree requirements.)
3. For the major complex, complete 19 credits in the following courses (labs are optional but it is strongly recommended they be taken if offered): GEOG 205, 309 or 339, and 402; GEOS 101 or 261, and 112; MIN 101 and 103. In addition, complete an additional approved 10 credits at the 300 level or above with emphasis in either geography, geology and geophysics, or mineral engineering. Approval will be by the appropriate program head in the field of emphasis.
4. Complete an additional 12 credits of the following or approved alternative courses (can also be used to meet basic degree requirements and to apply toward minor requirements): NRM 101, 204, 310, 380, 430; BIOL 103 or 105-106, 271; GEOG 301, 492; GEOS 213, 214, 304, 401, 408, 422; MIN 202; PETE 103; GE 471. If these 12 credits are listed for the minor, they must be in a different field than the major.
5. Complete approved electives including minor requirements to bring total credits to 130.

# Economics

### School of Management
### Department of Economics (907) 474-7119

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

**Minimum Requirements for Degrees:** B.A. — 120 Credits; B.B.A — 130 Credits

Economics is the study of those social activities which are concerned with the production, distribution, and consumption of goods and services. In today's complex world, nearly all social phenomena and problems have economic aspects. Organized knowledge of the functioning of our economy and its relations with other economic systems is therefore essential to an understanding of the world in which we live.

The department considers the goal of its undergraduate instruction to be threefold: (1) to provide students with basic tools of analysis, and factual, statistical, and descriptive materials which will assist them in discharging their duties as citizens; (2) to introduce students majoring in this department to the various fields of economics in order to prepare them for positions in business, government, and graduate study; and (3) to offer a course of study suitable for a minor in economics.

The Department of Economics offers work leading to the master of science degree in resource economics. The graduate program in economics is designed to develop economists for research and administrative positions in business, governmental agencies and other organizations. Graduate courses and seminars are offered in economic theory, econometrics, mathematical economics and resource economics.

## Requirements

**Economics — B.A. Degree**

1. Complete general university requirements and B.A. degree requirements. (Complete MATH 262 to meet the mathematics requirement for the core.)
2. Complete the following program requirements:
   Foundation courses that meet B.A. degree requirements:

| | Credits |
|---|---|
| ECON 200 — Principles of Economics | 4 |
| MATH 161 — Algebra for Business and Economics | 3 |
| Political Science elective | 3 |
| Other foundation courses: | |
| ACCT 101 — Elementary Accounting | 3 |
| STAT 200 — Elementary Statistics | 3 |
| Complete 30 additional credits in Economics including: ECON 227 — Intermediate Statistics for Economics and Business | 3 |
| ECON 321 — Intermediate Microeconomics | 3 |
| ECON 324 — Intermediate Macroeconomics | 3 |
| ECON 463 — International Economics | 3 |
| Economics electives | 18 |
| (Must be 300-level or higher. 6 credits of the following courses may be included: BA 325, 343, 360, 423, 461. At least 6 credits of electives must be in courses designated as writing intensive (W) courses.) | |
| Minimum credits required | 120 |

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.

**Economics — B.B.A. Degree**

1. Complete the general university and B.B.A degree requirements.
2. Complete the following Common Body of Knowledge (CBK) (31-34 credits):

| | |
|---|---|
| ACCT 101 and 102 — Elementary Accounting | 6 |
| AIS 101 — Computer Literacy or demonstrated computer literacy | 0-3 |
| AIS 310 — Intro. to Management Information Systems or AIS 316 — Accounting Information Systems | 3 |
| BA 325 — Financial Management | 3 |
| BA 330 — Legal Environment of Business | 3 |
| BA 343 — Principles of Marketing | 3 |
| BA 360 — Operations Management | 3 |
| BA 390 — Organizational Behavior | 3 |
| BA 462 — Corporate Strategy | 3 |
| ECON 324 — Intermediate Macroeconomics or ECON 350 — Money and Banking | 3 |

3. Complete the following major complex requirements:

| | |
|---|---|
| Political Science elective | 3 |
| ECON 321 — Intermediate Microeconomics | 3 |
| ECON 324 — Intermediate Macroeconomics (if not taken in CBK) | 3 |
| ECON 463 — International Economics | 3 |
| Economics electives | 15-18 |
| (Only 15 credits of economics electives are required if ECON 350 is taken as part of the CBK. At least 6 credits must be taken in courses designated as writing intensive courses.) | |

4. Complete a minor complex (optional) or 20-21 free electives.
   (At least 10 credits must be outside the School of Management with the exception of introductory computer literacy credits. The minor may not be from the School of Management.)
   Minimum credits required ..... 130

**MINOR in Economics:**

All minor programs must be approved by the head of the Economics Department. A minor in Economics requires:

| | |
|---|---|
| ECON 200 — Principles of Economics | 4 |
| 12 credits in approved economics courses at the 300 level or above | 12 |
| Total | 16 |

# Education

### College of Liberal Arts
### School of Education (907) 474-7341

**Degrees:** B.Ed., M.Ed., Ed.S.

**Minimum Requirements for Degrees:** B.Ed. — minimum of 130 credits; M.Ed. — minimum of 36 additional credits, Ed.S. — 36 credits beyond master's degree and 60 credits beyond baccalaureate; Post Baccalaureate: Elementary certification — minimum of 45 credits; Secondary certification and K-12 certification — minimum of 33 credits.

### I. CERTIFICATION AND ACCREDITATION INFORMATION

Teaching certificates are issued by the Alaska Department of Education. Students who successfully complete a UAF Education program including student teaching will meet the current academic requirements for Alaska certification. Students interested in teaching in a state other than Alaska should consult the certification department for that state to obtain specific certification requirements.

All UAF education programs are accredited by the National Council for Accreditation of Teacher Education (NCATE), and follow the standards for NCATE review. These programs are also approved by the State of Alaska Department of Education.

Students may contact the Office of Certification and Advising in the UAF School of Education or the X-CED faculty at the nearest campus for additional information and support.

### II. ADMISSION TO TEACHER EDUCATION

In addition to being accepted by the University, all students wishing to be certified must also formally apply for admission to the Fairbanks elementary education program or secondary Teachers for Alaska program offered on the Fairbanks campus, or the Cross Cultural Education Development (X-CED) elementary or secondary education program offered on the rural campuses. Admission requirements for these programs may be found on the following pages.

Continuation in these programs is based upon the maintenance of satisfactory performance in all areas of the program. A student who fails student teaching will be exited from the program, and further involvement is dependent upon a re-application process. See the Coordinator of the Office of Clinical Practices regarding this procedure.

### III. EDUCATION PROGRAMS

Education programs at the University of Alaska Fairbanks have there responsibility for preparing highly qualified professionals in education who are prepared to teach in both urban and rural Alaska, and to work with multicultural and minority students, especially Alaska Native students.

These education programs are offered through two delivery systems: resident programs at the Fairbanks campus, and distance education programs through the Cross Cultural Education Development Program (X-CED) at the following rural campus areas: Barrow (Arctic Sivunmun Ilisagvik), Bethel (Kuskokwim), Dillingham (Bristol Bay), Interior Campus, Kotzebue (Chukchi), and Nome (Northwest).

#### A. Fairbanks Campus Resident Program:

Offered at the Fairbanks campus are resident programs leading to both elementary and secondary teaching certificates. These programs are designed for full-time students, although part-time students are accommodated when possible. The professional year, the last year in the program, is an intensive compressed integrated curriculum that incorporates university classwork with practicum experiences and culminates in student teaching. It requires a full-time commitment since students are placed in the school for methods' practicum experiences and student teaching.

Available at the Fairbanks campus are a Bachelor of Education degree program in elementary education, an elementary education minor with certification, an elementary education minor without certification, a general education minor, a post-baccalaureate elementary education program (a minimum of the elementary minor), and a secondary and K-12 certification program (the Teachers for Alaska Program). A Bachelors of Education degree in secondary education is no longer available at the Fairbanks campus. **A student wishing to be certified for secondary teaching must complete the bachelor's degree requirements, including all requirements for a certifiable major, before entering the Teachers for Alaska program.**

#### B. Rural Campuses Cross-Cultural Education Development Program (X-CED)

The X-CED program is the teacher education program offered through the University of Alaska Fairbanks' rural campuses to serve the unique educational needs of Alaska's village residents. Full-time education faculty members are responsible for coordinating program activities within each region through the regional campuses. The X-CED program offers full-time undergraduate coursework in education for students seeking a B.Ed. degree in either elementary or secondary education. Available degree majors, minors and concentration areas are limited by faculty resources. Priority for enrollment in field-based courses is given to students formally admitted to the program, but are available to other students on a space-available basis and with permission of the instructor. Applicants for admission to the program are reviewed and recommended by regional panels.

In addition, the X-CED program provides supplemental services including workshops, technical assistance and other support services as time and resources permit. All inquiries should be addressed to the program coordinator's office at each campus, or the Program Head, X-CED, School of Education, Fairbanks campus.

### IV. ELEMENTARY EDUCATION PROGRAMS

To be recommended for an elementary teaching certificate, a student must complete the requirements of one of the following three options: A) B.Ed. in Elementary Education, B) Minor in Elementary Education with certification, or C) Post-Baccalaureate Certification in Elementary Education. *All three options are available both at the Fairbanks campus and through the X-CED program.*

Students admitted to either the Fairbanks Teacher Education program or the X-CED program may transfer between programs without re-applying for admission. However, it is important to note that the programs have different requirements, placement procedures, and timetables. The Office of Certification and Advising will assist transferring students.

Students graduating under earlier catalog requirements will substitute ED 410, 411, 412, and 413 for the past required courses Ed 381, 419 and 421.

## Program Requirements - Elementary

**A. B.Ed. Degree (Minimum Credits — 130)**

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

| | | Credits |
|---|---|---|
| **A.** | **Humanities (9 credits)** | |
| | LING 101 — Nature of Language | 3 |
| | Electives | 6 |
| **B.** | **Social Sciences (9 credits)** | |
| | ANTH 242 — Native Cultures of Alaska | 3 |
| | PSY 101 — Introduction to Psychology | 3 |
| | PSY 240 — Devel. Psychology in Cultural Perspective | 3 |
| **C.** | **Mathematics (6 credits)** | |
| | MATH 205 — Math. for Elementary School Teachers I | 3 |
| | MATH 206 — Math. for Elementary School Teachers II | 3 |

**D. Complete <u>one</u> of the concentrations listed below:**

Each concentration must have a minimum of 12 upper division credits. Core requirements (except Communication requirements) may be counted toward these concentrations.

1. Humanities (30 credits)

At least 12 credits concentrated in Art, or English, or Music

2. Social Science (30 credits)

At least 12 credits concentrated in one discipline

3. Mathematics and/or Science (29 credits)

At least 12 credits concentrated in one discipline

4. ESL/Applied Linguistics (21 credits)

| | |
|---|---|
| ENGL 318 — Modern English Grammar | 3 |
| ENGL 462 — Applied English Linguistics | 3 |
| ANS 320 — Language and Ethnicity | 3 |
| Credits in a language | 6 |
| Approved linguistics courses | 6 |

5. Alaska Native Language/Bilingual (25-27 credits)

| | |
|---|---|
| Credits in one Alaska Native language | 16-18 |
| ANL 287-288 — Teaching Methods/Curriculum and Materials Development | 6 |
| ANL 215 or 216 — Alaska Native Languages | 3 |

6. Early Childhood Development (18 credits)

12 credits of approved Early Childhood Development courses plus 6 upper division credits from one of the following:

| | |
|---|---|
| Art | Physical Education |
| English | Speech |
| Music | Theater |

**E. Education - complete the following:**

**Foundation/Theory Courses**

| | |
|---|---|
| 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 (ED 345, 346, 380, 440, 450, 422, or ANS 420) | 3 |
| Physical Education Elective (PE 316, 317 or 327) | 2 or 3 |
| ED 304 — Literature for Children | 3 |
| Art Education Elective (ED 309, 310) | 3 |

**Methods Block Courses**

| | |
|---|---|
| ED 410 — Foundations of Literacy Development | 3 |
| ED 411 — Strat. for Reading/Writing Instr. in Multicult. Classrooms | 3 |
| ED 412 — Lang. Arts and Social Studies: Methods and Curric. Dev | 3 |
| ED 413 — Math. and Science: Methods and Curric. Dev | 3 |

**Student Teaching**
ED 452 — Elementary Student Teaching ..... 12
(Candidates who have successfully taught full-time in self-contained elementary classrooms may request a reduced student teaching experience. Contact the Office of Clinical Practices for further information.)
Minimum credits required ..... 130

**B. MINOR in Education — With or Without Teacher Credential Endorsement**

Majors in other departments who wish to obtain an Elementary Certificate should contact the UAF School of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. Students must have completed the necessary prerequisites and have been admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching. Students may have a minor in education without student teaching, but they must complete student teaching if they wish to meet certification requirements for teaching.

**MINOR in Elementary Education (WITH credential endorsement):**

Credits

**Foundation/Theory Courses**
PSY 240 — Developmental Psychology in Cross-Cultural Perspective ..... 3
ED 201 — Introduction to Education ..... 3
ED 304 — Literature for Children ..... 3
ED 330 — Diagnosis and Evaluation of Learning ..... 3
ED 375 — The Exceptional Learner ..... 3
Education Foundation Elective (ED 345, 346, 350, 380, 422, 440, or ANS 420) ..... 3
**Methods Block Courses**
(A minimum of 6 credits of math, including MATH 205, is required for admission to methods.)
ED 410 — Foundations of Literacy Development ..... 3
ED 411 — Strat. for Reading/Writing Instr. in Multicultural Classrooms ..... 3
ED 412 — Lang. Arts and Social Studies: Methods and Curriculum Development ..... 3
ED 413 — Math. and Science: Methods and Curric. Dev ..... 3
**Student Teaching**
ED 452 — Elementary Student Teaching ..... 12

**MINOR in Elementary Education (WITHOUT credential endorsement):**

Complete the Elementary Education minor requirements excluding ED 452 — Elementary Student Teaching.

**C. Post-Baccalaureate Elementary Certification Program:**

Post-baccalaureate students who wish to obtain an Elementary Certificate should contact the UAF School of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. Students must have completed the necessary prerequisites and have been admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching.

Course requirements are the same as those for Elementary Education Minor with Certification.

**ADMISSION REQUIREMENTS - ELEMENTARY**

The Elementary Education Program is a selective teacher education program. In order to obtain an elementary teaching certificate, all students (B.Ed. majors, elementary education minors, and post-baccalaureate) must not only complete one of the three above options, they also must apply and be admitted to the Elementary Teacher Education Program. Admission to UAF as a degree student majoring in education does not automatically qualify a student for admission to the Elementary Teacher Education Program. Admission to the program is based on a comprehensive system that includes more than one measure and is used by the education faculty to assess the personal characteristics, communications, and basic skills proficiency of candidates preparing to teach.

Once in the program, there is ongoing professional assessment with two formal reviews which monitor the progress of elementary education students from admission through completion of their professional education program. One review is prior to entry to the professional year (which begins with the methods block), and one prior to entry to student teaching. These reviews include an evaluation of grades, observations, faculty recommendations, demonstrated competence in academic work, and recommendations from the appropriate professionals in the schools. Consistent procedures and relevant criteria are used to determine eligibility for student teaching. Systematic approaches are used to assist education students who are making unsatisfactory progress in this program. Specific admission procedures and criteria for each of these three steps for the Fairbanks and X-CED programs are described in the following sections.

**Fairbanks Campus Program - Elementary**

1. Admission to elementary education program (B.Ed. major, elementary education minor, and certification)
   In order to be considered for admission to the elementary education program, students must:
   A. Submit a complete application, including all required transcripts and references, in accordance with deadlines.
   B. Complete a minimum of 45 semester credits, (up to 30 transfer credits may be used).
   C. Students will be chosen for the program based on the following multiple measures which will be weighed and assessed by various means, including but not limited to faculty rating forms, letters of reference, university transcripts, writing samples, and evaluations from University-sponsored practicum placements. The range and balance in these four areas will be considered in a review by the faculty. Questions faculty will ask in this review include: does the student have:
      1) a solid academic background (a minimum cumulative GPA of 2.7),
      2) interpersonal, intercultural, and communication skills,
      3) successful experience in one or more of the following contexts:
         a. pre-school or public school classrooms,
         b. other settings with children,
         c. rural Alaska,
         d. culturally diverse settings, and
      4) practical skills and life experiences
2. Review criteria for entry to elementary education professional year (methods block and student teaching)
   A. Acceptance to the elementary education program.
   B. Placement information form on file with Elementary Education Office by October 1 to begin the professional year during the spring semester or by February 15 to begin the professional year during the fall semester. Students are admitted for a specific semester, and must reapply if their schedule changes.
   C. Completion of 90 credits leading to a bachelor's degree.
   D. Completion of all required education courses (except ED 410, 411, 412, and 413) and all required math courses, with a minimum grade of "C" in education and math courses and a minimum cumulative GPA of 2.7.
   E. Approval of Elementary Education Committee to enter the professional year.
   A maximum of 15 credits per semester is recommended while enrolled in the professional year.
3. Review criteria for entry to elementary education student teaching
   A. Successful completion of Methods Block.
   B. Placement information for student teaching on file with the Office of Clinical Practices by October 1 for student teaching in the spring semester or by February 15 for student teaching in the fall semester.
   C. A completed physical examination.
   D. Approval of faculty to enter student teaching.
   Students who feel they have experience comparable to student teaching may petition to have the requirement reduced or waived. See the Coordinator of the Office of Clinical Practices regarding this procedure.
   Rural placements for student teaching are also available. Contact the Office of Clinical Practices for further information.

**X-CED Program - Elementary**

Students outside the Fairbanks area should contact the X-CED Program faculty at the nearest UAF rural campus for specific admission and degree requirements.

**V. SECONDARY EDUCATION PROGRAMS**

To be recommended for a secondary teaching certificate, a student must complete the requirements of one of the following three options: A) Secondary Certification: Teachers for Alaska Program (Fairbanks Campus only), B) B.Ed in Secondary Education (X-CED Program, distance delivery only), or C) Secondary Certification: X-CED Program (distance delivery only).

Admission procedures and criteria for admission to the X-CED secondary education program are the same as those for the X-CED elementary education program. Admission procedures and criteria for admission to Fairbanks' Teachers for Alaska Program are discussed below.

## Program Requirements - Secondary

**A. Fairbanks Campus Secondary Certification Program: Teachers for Alaska (TFA) Program**

The Teachers for Alaska Program (TFA) is a professional certification program which prepares highly qualified teachers for secondary (7-12) school positions. The program is especially designed for students who want to teach at the secondary school level either in small rural schools or in Alaska' urban multicultural secondary schools. It is an intensive, extended two-semester program which students begin before the start of one academic semester, and complete after the end of the following academic semester. For further information on the program, please contact the Coordinator of the UAF Office of Certification and Advising in the School of Education.

**Admission Requirements - Secondary TFA**

1. Applicants for the TFA program must meet credit requirements for certification in a specific subject area as approved by the Alaska Department of Education. Eligible applicants include 1) UAF undergraduates **who will have completed bachelor's degree requirements** for an Alaska State Department of education certifiable subject area by the start of the first semester of the TFA program; and 2) postbaccalaureate students who already possess a bachelor degree in a certifiable subject area. Certifiable subject areas are: Alaska Native Languages, Anthropology, Art, Biological Science, Chemistry, English, Foreign Languages, General Science, Geography, History, Journalism and Broadcasting, Mathematics, Music, Physical Education, Physics, Political Science, Speech Communication, Theatre Arts, Language Arts/Humanities (interdisciplinary), Social Science (interdisciplinary), or Math/Science (interdisciplinary). The Office of Certification and Advising will evaluate past degrees to determine eligibility.
2. Acceptance to TFA is contingent upon acceptance into the University of Alaska Fairbanks and completion of a TFA application form obtained from the School of Education.
3. For the 1993-94 academic year, all application materials, including transcripts and letters of reference, must be received by February 15 in order to be reviewed for admission in the following fall semester, and by October 1 in order to be reviewed for admission in the following spring semester.
4. Teachers for Alaska is a selective teacher education program. A comprehensive system that includes more than one measure is used to assess the personal characteristics, communication, and basic skills proficiency of candidates preparing to teach. This system includes, but is not limited to, the following multiple measures which will be weighed and assessed by various means, including a review of transcripts, essays and/or writing proficiency exams, and letters of reference. Faculty may also require interviews. The range and balance of these four areas will be considered in a review by the faculty. Questions the faculty will ask in making admissions decisions include: Does the student have
   A. a diverse, solid academic background (GPA of 2.7 or higher),
   B. interpersonal, intercultural, and communication skills,
   C. successful experience in one or more of the following contexts:
      1) public school classrooms,
      2) other settings with students,
      3) rural students,
      4) culturally diverse settings, and
   D. practical skills and life experiences to contribute to educational programs
5. Once accepted into the program, TFA has a systematic procedure for monitoring the progress of education students from admission through completion of their professional education program to determine if they should continue in the program, be advanced to student teaching, or be recommended for a teaching certificate. In assessing student progress, faculty review grades, observations, faculty recommendations, demonstrated academic competence, and recommendations from the appropriate professionals in the schools. Systematic approaches are used to assist education students who are making unsatisfactory progress in their programs.
6. Reciprocity will be maintained with rural campus programs. Specific criteria for entry to secondary education student teaching are as follows:
   A. Successful completion of the first block in TFA.
   B. Placement information for student teaching on file with the Office of Clinical Practices by October 1 for student teaching in the spring semester, or by February 15 for student teaching in the fall semester.
   C. A completed physical examination.
   D. Approval of faculty to enter student teaching.
   Students who feel they have experience comparable to student teaching may petition to have the requirement reduced or waived. See the Coordinator of the Office of Clinical Practices regarding eligibility and procedure.

   X-CED students wishing to complete their professional year on the Fairbanks campus must send intent to enroll information to the Office of Certification and Advising. Please contact your advisor and the Coordinator for the Office of Certification and Advising for further information.
7. Secondary teacher candidates seeking initial certification who are interested in an additional elementary endorsement should contact the Office of Certification and Advising for details during the application process for TFA. Two options are available; 1) separate Elementary certification in conjunction with TFA and 2) K-12 Small Schools certification in an approved subject matter endorsement area. TFA students interested in separate Elementary certification must meet admission requirements for the elementary program.

**Course Requirements: TFA Secondary Subject Area Endorsement**

Credits

1. First Block (15 credits):
   ED 582 — Teaching as Reflective Inquiry ..... 4
   ED 583 — Teaching as Decision Making and Invention ..... 8
   ED 584 — Practicum: Teaching in Small and Large Schools ..... 3
2. Second Block (18 credits):
   ED 585 — Reflective Inquiry into Multicultural Classrooms and Communities ..... 3
   (Formerly ED 619)
   ED 586 — Designing Learning Environments ..... 3
   (Formerly ED 692)
   ED 453 — Student Teaching ..... 12

**Additional Requirements for TFA K-12 Small Schools Certificate:**

1. Same as above except ED 453, plus:
2. ED 454 — Student Teaching K-12 12
   (This is an 18 week student teaching experience.)
3. Complete the following 6 credits:
   ED 411 (language arts), ED 412 (social studies) or ED 413 (math/science), depending on your area of specialization ..... 3
   ED 410 — Foundations of Literacy Development ..... 3

**Secondary Education Transition Policy**

Students graduating under the requirements in any catalog before the 1991-92 catalog year will substitute ED 582, 583, 584 and 453 for the following past required courses:

| Secondary B.Ed. | Secondary Education minor | B.T. |
|---|---|---|
| ED 201 | ED 201 | ED 201 |
| ED 330 | ED 330 | ED 330 |
| ED 350 | ED 375 | ED 375 |
| ED 375 | Education foundation elective | Education foundation elective |
| Education foundation elective | PSY 240 | PSY 240 |
| Health/nutrition elective | ED 402 | ED 402 |
| ED 402 | ED 407 | ED 407 |
| ED 407 | ED 424 or 425 | ED 424 or 425 |
| ED 430 | ED 453 | ED 453 |
| ED 490 | | |
| ED 453 | | |

In order to be eligible for certification, students must also complete ED 585 and ED 586.

**B. Rural Secondary Education Degree - B.Ed. Degree (Minimum Credits — 130) (X-CED Program)**

Students outside the Fairbanks area should contact the X-CED program faculty at the nearest UAF rural campus for specific admissions and degree requirements.

1. Complete the general university core requirements, including the baccalaureate core.
2. Complete the following degree and program (major) requirements:

Credits

**A. Humanities (9 credits)**
LING 101 — Nature of Language ..... 3
Humanities Electives ..... 6

**B. Social Sciences (9 credits)**
ANTH 242 — Native Cultures of Alaska ..... 3
PSY 101 — Introduction to Psychology ..... 3
PSY 240 — Devel. Psychology in Cultural Perspective ..... 3
**C. Mathematics (6 credits)**
Math Electives ..... 6
**D. Complete one of the 3 interdisciplinary major/minors listed below:**
Each major/minor must have a minimum of 12 upper division credits.
**1. Language Arts/Humanities (48 credits)**
Core English requirements ..... 6
Core Humanities requirements ..... 6
English Electives ..... 9
Journalism, Speech Communication and Theater ..... 6
Alaska Native Languages, Foreign Languages and Literature, Linguistics ..... 6
Alaska Native Studies (courses classified as humanities only), Art, Humanities, Music, Philosophy ..... 9
Electives from above areas ..... 3
**2. Social Sciences (48 credits)**
Core Social Science requirements ..... 9
History Electives ..... 3
(Recommended: HIST 101-102 — Western Civilization, HIST 131-132 — History of the U.S.)
Anthropology Electives ..... 6
(Recommended: ANTH 200 — Social/Cultural Anth., ANTH 242 — Native Cultures of Alaska)
Political Science Electives ..... 6
(Recommended: PS 101 — Intro. to Amer. Govt. and Politics, PS 263 — Alaska Native Politics)
Geography Electives ..... 6
(Recommended: GEOG 101 — Intro. Geography or GEOG 103 — World Economic Geog.
Economics Electives ..... 6
(Recommended: ECON 202 — Princ. of Econ. I, ECON 201 — Princ. of Econ. II, or ECON 137 — The Alaskan Economy, or ECON 235 — Intro. to Natural Resources Economics
Upper Division Social Science Electives ..... 12
Selected from the following areas (minimum of 9 credits in one area): History, Anthropology, Sociology, Geography, Political Science, Economics.
3. Math/Science (45 credits)
Core Math requirements ..... 3
HUM 202 — Unity in the Sciences ..... 3
Math Electives (minimum 6 credits upper division) ..... 12
Core Science requirements ..... 8
Science Electives (minimum 6 credits upper division) ..... 19
Included in the 8 credit core science requirement and 19 credit science electives must be a minimum of 6 credits from each of the following fields: Biology, Chemistry, Physics, Geoscience.
E. Education - Complete the following:
**Foundation/Theory Courses**
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 (ED 345, 346, 380, 450, 422, or ANS 420) ..... 3
Approved Health/Nutrition Elective (HMSV 205, EMS 103, PE 246, ECHD 120, HLTH 203) ..... 3
**Methods Block Courses**
ED 407 — Reading Strategies 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 the Secondary School
or approved substitute ..... 3
ED 430 — Multicultural Teaching Techniques ..... 3
**Student Teaching**
ED 453 — Secondary Student Teaching ..... 12
(Candidates who have successfully taught full-time in secondary schools may request a reduced student teaching experience. Contact the Office of Clinical Practices for further information.)
Minimum credits required ..... 130

**C. X-CED Secondary Certification Program**

Credits

(For non-Fairbanks campus students who already hold a baccalaureate degree in a certifiable teaching subject area.)
**Foundation/Theory Courses**
PSY 240 — Developmental Psychology in Cross-Cultural Perspective ..... 3
ED 201 — Introduction to Education ..... 3
ED 330 — Diagnosis and Evaluation of Learning ..... 3
ED 375 — The Exceptional Learner ..... 3
Education Foundation Elective (ED 345, 346, 350, 380, 450, or ANS 420) ..... 3
**Methods Courses**
ED 402 — Methods of Teaching in the Secondary School ..... 3
ED 407 — Reading Strategies for Secondary Teachers ..... 3
ED 424 — Small High School Programs
or ED 425 — Community as an Educational Resource ..... 3
ED 430 — Multicultural Teaching Techniques ..... 3
**Student Teaching**
ED 453 — Secondary Student Teaching ..... 12
(Candidates who have successfully taught full-time in secondary schools may request a reduced student teaching experience. Contact the Office of Clinical Practices for further information.)
Minimum credits required ..... 130

**VI. OTHER PROGRAMS**

**MINOR in General Education**

For those students interested in exploring the possibility of a career in education before beginning the elementary education professional year or the TFA program, and for those students who are interested in education but who may not wish to pursue certification, there is the option of completing a minor in general education that is not linked to certification or admission to either education program. Students may also elect to take one or more of the following courses according to their own personal interests. The minor consists of the following courses:

Credits

ED 201 — Introduction to Education ..... 3
ED 299 — Practicum in Education ..... 3
ED 350 — Communication in Cross-Cultural Classrooms ..... 3
Two approved education electives ..... 6
PSY 240 — Devel. Psych. in Cross Cultural Perspective ..... 3

**International Exchange Programs**

The College of Rural Alaska offers two international exchange programs, one with the Soviet Union and one with Japan. Both programs offer students an excellent opportunity to study and teach abroad. The Soviet Exchange Program is with Magadan State Pedagogical Institute, and allows a short term exchange (3 to 4 weeks) and a long term exchange (one semester or one academic year). The Japan Exchange Program is with Hokkaido University of Education in Sapporo, Japan. During the one month exchange, UAF students who have completed student teaching will complete a three-week teaching internship in Japanese schools and participate in an orientation and program debriefing at Hokkaido University. Students interested in these programs are encouraged to begin language study in the appropriate language as undergraduates. Please contact the School of Education for further information on these programs.

**M.Ed. Degree**

This program offers several options from which a person selects an area of specialization. Inquiries concerning options and the specific requirements of each option should be directed to the School of Education, Coordinator of Graduate Programs.

**Ed.S. Degree**

This is a post-master's degree for school administrators who desire advanced study in educational leadership. It requires 36 semester hours beyond the master's degree or 60 beyond the bachelor's degree. Educators interested in pursuing this degree should confer with the Coordinator of Graduate Studies.

# Electrical Engineering

## School of Engineering
## Department of Electrical Engineering (907) 474-7137

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

**Minimum Requirements for Degrees: B.S. — 135 credits; M.S. — 30 additional credits; M.E.E. — 32 additional credits**

Electrical engineering encompasses the areas of computer applications and design, electrical power transmission and distribution, telecommunications and electronics. The electrical engineer designs and oversees the construction, installa-

tion 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, plasmas, magneto hydrodynamics, 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.

**First Year**
Fall Semester ..... 16 credits
ENGL 111X — Methods of Written Comm. ..... 3
MATH 200 — Calculus ..... 4
ES 101 — Introduction to Engineering ..... 2
Perspectives on the Human Condition ..... 3
CHEM 105 — General Chemistry ..... 4
Spring Semester ..... 17 credits
SPC 131X or 141X ..... 3
MATH 201 — Calculus ..... 4
EE 102 — Intro. to Electrical Engineering ..... 3
CHEM 106 — General Chemistry ..... 4
Perspectives on the Human Condition ..... 3

**Second Year**
Fall Semester ..... 18 credits
MATH 202 — Calculus ..... 4
PHYS 211 — General Physics ..... 4
ES 201 — Computer Techniques ..... 3
EE 203 — Fund. of Elec. Engineering ..... 4
ENGL 211X — Intermediate Exposition with Modes of Lit or ENGL 213X — Intermediate Exposition ..... 3
Spring Semester ..... 16 credits
MATH 302 — Differential Equations ..... 3
PHYS 212 — General Physics ..... 4
ES 208 — Mechanics ..... 4
EE 204 — Fund. of Elec. Engineering ..... 4
LS 101 — Library Information and Research ..... 1

**Third Year**
Fall Semester ..... 17 credits
EE 333 — Physical Electronics ..... 4
EE 353 — Circuit Theory I ..... 3
Approved Math Elective** ..... 3
Perspectives on the Human Condition ..... 3
Option I: Communications
EE 311 — Applied Engineering Electromagnetics ..... 3
EE 331 — High Frequency Lab ..... 1
Option II: Power and Control
EE 303 — Electrical Machinery ..... 4
Option III: Computer Engineering
EE 442 — Digital Syst. Anal. & Design I ..... 4
Spring Semester ..... 18 credits
EE 334 — Electronic Circuit Design ..... 4
EE 354 — Engineering Signal Analysis ..... 3
Perspectives on the Human Condition ..... 3
EE 471 — Fundamentals of Automatic Control ..... 4
Option I: Communications
EE 312 — Electromagnetic Waves and Devices ..... 3
EE 332 — Electromagnetics Laboratory ..... 1
Option II: Power and Control
EE 404 — Electric Power Systems ..... 4
Option III: Computer Engineering
EE 443 — Digital Systems Analysis and Design II ..... 4

**Fourth Year**
Fall Semester ..... 18 credits
Perspectives on the Human Condition ..... 3
Option I: Communications
Approved Engineering Science Elective*** ..... 3
EE 303 — Electrical Machinery ..... 4
EE 442 — Digital Systems Analysis and Design I ..... 4
EE 461 — Communications Systems ..... 4
Option II: Power and Control
Approved Engineering Science Elective*** ..... 3
EE 311 — Applied Engineering Electromagnetics ..... 3
EE 331 — High Frequency Lab ..... 1
EE 406 — Electrical Power Engineering ..... 4
EE 442 — Digital Systems Analysis and Design I ..... 4
Option III: Computer Engineering
EE 303 — Electrical Machinery ..... 4
EE 311 — Applied Engineering Electromagnetics ..... 3
EE 331 — High Frequency Lab ..... 1
EE 451 — Digital Signal Processing ..... 4
EE 461 — Communications Systems ..... 4
Spring Semester ..... 15 credits
ESM 450 — Economic Analysis and Operation ..... 3
Perspectives on the Human Condition ..... 3
Approved Engineering Science Elective*** ..... 3
Approved EE Elective ..... 3-4
Approved EE Design Elective ..... 3-4
Must take State of Alaska Engineer-in-Training Examination

* Perspectives on the Human Condition and ES 201 may be interchanged if student's mathematics preparation allows.

** Mathematics elective to be chosen from the following advanced topics: linear algebra and matrices, probability and statistics, partial differential equations, numerical analysis, advanced calculus or complex variables.

*** Engineering science elective to be chosen from ES 331, ME 334, ES 341 and ES 346.

**Electrical Engineering** — M.S. or M.E.E. Degree

Graduate degree programs in electrical engineering are closely connected with research activities of the faculty. Research areas in electrical engineering emphasize high latitude problems. They include data communications, telecommunications, electromagnetic wave propagation, satellite communications, digital and physical electronics, computer and microcomputer applications including remote biomedical and environmental instrumentation, electric energy system analyses, electric power quality improvement, geomagnetic storm interaction with electric energy systems, system identification and simulation and digital signal processing.

Graduate students whose goal is broad professional practice will ordinarily choose the M.E.E. program; those who wish to emphasize research and advanced specialized study usually elect the M.S. degree program, which includes a thesis.

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

# Engineering Management

**School of Engineering**
**Department of Engineering and Science Management** (907) 474-6121

**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 (907) 474-7193

**Degrees:** B.A., M.A., M.F.A.

**Minimum Requirements for Degrees:** B.A. — 120 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 111X and English 211X or 213X, including:

Credits

   a. ENGL 301 — Continental Literature in Translation: From the Ancient World through the Renaissance ..... 3
      ENGL 310 — Literary Criticism ..... 3
   b. Complete the following surveys of British and American Literature:
      American Literature:
      ENGL 306 — Survey of American Literature ..... 3
      British Literature:
      ENGL 308 — Survey of British Literature: Beowulf to the Romantic Period ..... 3
      ENGL 309 — Survey of British Literature: Romantic Period to the Present ..... 3
   c. One course from the following:
      ENGL 403 — American Renaissance
      ENGL 404 — American Realism
      ENGL 405 — British Writers of the 19th Century: Romantic Period
      ENGL 406 — British Writers of the 19th Century: Victorian Period
      ENGL 407 — English Writers of the 18th Century: Restoration and Neo-Classical Period
      ENGL 408 — American Origins ..... 3
   d. ENGL 422 or 425 — Shakespeare ..... 3
   e. One course from the following:
      ENGL 318 — Modern English Grammar
      ENGL 462 — Applied English Linguistics
      ENGL 472 — History of the English Language ..... 3
   f. Four courses chosen from 300-400 levels in English with at least two courses on 400 level ..... 12

3. Minimum Credits Required ..... 130

**B. Emphasis: Writing**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements: 36 credits in English besides English 111X and English 211X or 213X including:

Credits

   a, b, c, and d as listed in the requirements for a major with emphasis on literature ..... 21
   e. Two courses from the following:
      ENGL 444 — Fiction in Translation
      ENGL 445 — 20th Century Drama: From Chekhov to Ionesco
      ENGL 446 — Major Modern and Contemporary Poetry
      ENGL 447 — 20th Century British Prose
      ENGL 448 — 20th Century American Prose
      ENGL 452 — The British Novel to 1900 ..... 6
   f. ENGL 313 — Writing Non-Fiction Prose ..... 3
      ENGL 371 — Intermediate Creative Writing ..... 3
   g. One course chosen from 300-400 English Department Courses ..... 3

3. Minimum Credits Required ..... 130

**C. Emphasis: Teaching**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements: 36 credits in English besides English 111X and English 211X or 213X, including:

Credits

   a. Same as listed under a, b, and d for literature emphasis 18
   b. ENGL 318 — Modern English Grammar ..... 3
      ENGL 472 — History of the English Language ..... 3
   c. ENGL 313 — Writing Non-Fiction Prose ..... 3
      ENGL 485 — Teaching Composition in the Schools ..... 3
   d. Two elective courses from the following ..... 6
      All 300-level English, ENGL 444, 445, 446, 447, 448, or 462

3. Minimum Credits Required ..... 130

**MINOR in English:**

A minor in English requires 18 credits distributed as follows:

   a. Two courses from the following:
      ENGL 301 - Continental Literature in Translation ..... 3
      ENGL 306 - Survey of American Literature ..... 3
      ENGL 308 - Survey of British Literature: Beowulf to the Romantic Period ..... 3
      ENGL 309 - Survey of British Literature: Romantic Period to the Present ..... 3
   b. ENGL 422 or 425 - Shakespeare ..... 3
   c. Any 300- or 400-level English electives ..... 9

**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. Each degree program requires 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. Any 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.

# Environmental Quality Engineering and Science

### School of Engineering
### Department of Civil Engineering (907) 474-6129

**Degrees:** M.S.

**Minimum Requirements for Degree:** 30 credits (beyond a bachelor's degree)

The environmental quality engineering curriculum is administered through the civil engineering department and is designed for graduate engineers and science majors who will pursue careers in the areas of water supply,

treatment, and distribution; waste treatment, stream pollution, air pollution, solid- waste disposal, hazardous and toxic waste management, and environmental impact evaluation. Consideration is given for broad study of the environment, prevention and abatement of quality deterioration, and solutions to environmental problems. Graduates will be prepared to hold positions in federal, state, and municipal organizations as well as in consulting engineering offices. For students having non-engineering degrees, an interdisciplinary program is available leading to the master of science in environmental quality science.

For complete information on the graduate program in environmental quality engineering and science, see the UAF Graduate Catalog.

# Eskimo

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

(907) 474-7874

**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:

| | Credits |
|---|---|
| ESK 111-112 — Elementary Inupiaq Eskimo | 10 |
| ESK 211-212 — Intermediate Inupiaq Eskimo | 6 |
| ANL 215 — Eskimo-Aleut Languages | 3 |
| ESK 417 — Advanced Inupiaq Eskimo | 3 |
| LING 101 — The Nature of Language or ANS 320 — Language and Culture | 3 |
| Complete three of the following: | |
| ESK 417 — (Additional) Adv. Inupiaq Eskimo | 3 |
| ANL 287 — Teaching Methods for Alaska Native Languages | 3 |
| ANTH 242 — Native Cultures of Alaska | 3 |
| ANTH 380 — Peoples of Alaska Southwest | 3 |
| ANTH 381 — Inupiaq and Yup'ik People | 3 |
| HIST 110 — History of Alaska Natives | 3 |
| PS 263 — Alaska Native Politics | 3 |
| ENGL 349 — Narrative Art of Alaska Native Peoples (in English translation) | 3 |
| LING 318 — Phonology | 3 |
| LING 320 — Syntax | 3 |
| LING 410 — Second Language Teaching | 3 |
| LING/ED 303 — Language and Literacy Development | 3 |
| LING 350 — Historical Linguistics | 3 |
| LING 450 — Language Policy and Planning | 3 |
| ANL 216 — Indian Languages of Alaska | 3 |
| A course in Yupik Eskimo or other approved subject | 3 |
| MUS 223 — Native Alaskan Music | 3 |

3. Minimum Credits Required 130

**Yupik Eskimo — B.A. Degree**

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

| | Credits |
|---|---|
| ESK 101-102 — Elementary Central Yupik Eskimo | 10 |
| ESK 201-202 — Intermediate Central Yupik Eskimo | 6 |
| ESK 301 — Advanced Central Yupik Eskimo | 3 |
| ESK 415 — Additional Topics in Advanced Yupik Eskimo | 3 |
| ANL 215 — Alaska Native Languages | 3 |
| LING 101 — Nature of Language or ANS 320 — Language and Culture | 3 |
| Complete two of the following: | |
| ANL 287 — Teaching Methods for Alaska Native Languages | 3 |
| ANTH 242 — Native Cultures of Alaska | 3 |
| ANTH 380 — Peoples of Alaska Southwest | 3 |
| ANTH 381 — Inupiaq and Yup'ik People | 3 |
| HIST 110 — History of Alaska Natives | 3 |
| PS 263 — Alaska Native Politics | 3 |
| ENGL 349 — Narrative Art of Alaska Native Peoples (in English translation) | 3 |
| LING/ED 303 — Language and Literacy Development | 3 |
| LING 318 — Intermediate Phonetics and Phonology | 3 |
| LING 320 — Introductory Syntactic Theory | 3 |
| LING 350 — Historical Linguistics | 3 |
| LING 450 — Language Policy and Planning | 3 |
| ANL 216 — Indian Languages of Alaska | 3 |
| A course in Inupiaq Eskimo or other approved subject | 3 |
| MUS 223 — Native Alaskan Music | 3 |

3. Minimum Credits Required 130

**MINOR in Eskimo**

A minor in Eskimo requires 15 credits in Eskimo.

# Film Studies

**College of Liberal Arts**
**Department of Theater** (907) 474-7751

**MINOR in Film Studies**

15 credits: ENGL 217, JB 308, THR 380 and JB 105 required plus 3 credits from approved electives.

# Financial Institutions Management

**College of Rural Alaska**
**Tanana Valley Campus**

(907) 451-7223

**Degree:** A.A.S.

**Minimum Requirements for Degree:** 60 credits

The financial institutions management program is designed to meet the specific training needs of local financial institutions. This program was developed with the assistance of local industry leaders and representatives from the American Institute of Banking. Therefore, 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 university and A.A.S. requirements:

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| ABUS 142 — Office Accounting I | 2 |
| ABUS 160 — Principles of Banking or | |
| ABUS 161 — Foundations and Structures of Credit Unions | 3 |
| ABUS 165 — Consumer Lending | 3 |
| ABUS 179 — Fundamentals of Supervision | 3 |
| ABUS 181 — Law and Banking Applications | 3 |
| ABUS 224 — Money and Banking | 3 |
| ABUS 241 — Business Law | 3 |
| CAPS 150 — Computer Business Applications | 3 |
| Economics electives (100 level or above) | 3 |
| OMT 231 — Business Communications | 3 |
| Subtotal | 29 |

3. Complete the following major specialty electives:

| | |
|---|---|
| Select 12 credits from the following: | |
| ABUS 166 — Residential Mortgage Lending | 3 |
| ABUS 167 — Branch Management | 3 |
| ABUS 223 — Real Estate Finance | 3 |
| ABUS 234 — Financial Counseling | 3 |
| ABUS 244 — Loan Officer Development | 3 |
| ABUS 261 — Analyzing Financial Statements | 3 |
| Subtotal | 12 |
| 4. General Elective Credits | 4 |
| Degree Total | 60 |

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

# Fire Science

**College of Rural Alaska**
**Tanana Valley Campus** (907) 474-5264

**Certificate; Degree:** A.A.S.

**Minimum Requirements for Degree**— 60-61 credits; for Certificate— 30 credits

The UAF Fire Science Program provides a unique learning environment where students can obtain classroom education, hands-on training and practical vocational experience through 10 local fire and rescue organizations. The program offers students a fundamental working knowledge of the various aspects of municipal fire, wildland fire, emergency medical services and hazardous materials control. A large pool of instructors provides a high level of technical expertise on a variety of specialty emergency services. The primary goal of this program is to make our students the most attractive candidates for job openings and promotions within the fire service and related fields. Associate degrees and certificate programs in municipal fire control, wildland fire control and hazardous materials fire control are offered.

## Requirements

**Hazardous Materials Control - A.A.S. Degree**

1. Complete the following general university and A.A. S. requirements: Credits
   - Communications:
   - ENGL 111X and ENGL 211X, 212*, or 213X ..... 6
   - SPC 131X or 141X ..... 3
   - Mathematics or Natural Science:
   - A math or natural science course at the 100 level or above ..... 3
   - Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition ..... 3
2. Complete the following major degree requirements:
   - EMS 103 - Emergency Trauma Training (ETT) ..... 3
   - or EMS 119 - Emergency Medical Technician I ..... 6
   - FIRE 110 - Introduction to Hazardous Waste Operations and Emergency Response ..... 3
   - FIRE 111 - Management and Supervision for Emergency Services 3
   - FIRE 120 - Introduction to Fire Chemistry and Physics ..... 3
   - FIRE 203 - Hazardous Materials I ..... 3
   - FIRE 205 - Hazardous Materials II ..... 3
   - FIRE 207 - Hazardous Materials III ..... 3
   - FIRE 209 - Hazardous Materials IV ..... 3
   - Subtotal ..... 24-27
3. Complete 6 credits from the following major elective courses:
   - FIRE 221 - Hazardous Materials Contingency Planning ..... 3
   - FIRE 231 - Hazardous Materials Tactical Operations ..... 3
   - FIRE 241 - Hazardous Substance Specialist ..... 3
   - FIRE 249 - Computer Aided Management of Emergency Operations ..... 3
   - Subtotal ..... 6
4. Complete 15 general electives credits.
   - Degree Total ..... 60-63

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

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

**Hazardous Materials Control - Certificate**

**Suggested Course Sequence**

**Fall Semester:**
- FIRE 110 - Introduction to Hazardous Waste Operations and Emergency Response ..... 3
- FIRE 111 - Management and Supervision for Emergency Services 3
- FIRE 120 - Introduction to Fire Chemistry and Physics ..... 3
- FIRE 203 - Hazardous Materials I ..... 3
- FIRE 207 - Hazardous Materials III ..... 3
- Subtotal ..... 15

**Spring Semester:**
- FIRE 206 - Hazardous Materials II ..... 3
- FIRE 209 - Hazardous Materials IV ..... 3
- EMS 103 - Emergency Trauma Training (ETT) First Responder
- or EMS 119 - Emergency Medical Technician I ..... 6
- Major electives ..... 4-6
- Certificate Total ..... 30

**Municipal Fire Control — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements: Credits
   - Communications:
   - ENGL 111X and ENGL 211X, 212*, or 213X ..... 6
   - SPC 131X or 141X ..... 3
   - Mathematics or Natural Science:
   - A math or natural science course at the 100 level or above ..... 3
   - Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition ..... 3
2. Complete the following major degree requirements:
   - EMS 103 — Emergency Trauma Training (ETT)
   - First Responder ..... 3
   - or EMS 119 — Emergency Medical Technician I ..... 6
   - FIRE 101 — Introduction to Fire Science ..... 3
   - FIRE 105 — Fundamentals of Fire Prevention ..... 3
   - FIRE 107 — Municipal Fire Tactics and Strategy ..... 3
   - FIRE 111 — Supervision and Management for Emergency Services ..... 3
   - FIRE 117 — Rescue Practices I ..... 3
   - FIRE 202 — Fire Hydraulics ..... 3
   - FIRE 203 — Hazardous Materials I ..... 3
   - Subtotal ..... 24-27
3. Complete 6 credits from the following major specialty electives:
   - EMS 124 — Emergency Medical Technician Refresher ..... 1
   - EMS 230— Emergency Medical Technician II ..... 3
   - FIRE 115 — Fire Apparatus and Equipment ..... 3
   - FIRE 120 — Introduction to Fire Chemistry and Physics ..... 3
   - FIRE 123 — Fire Investigation ..... 3
   - FIRE 151 — Wildland Fire Control I ..... 3
   - FIRE 205 — Hazardous Materials II ..... 3
   - FIRE 206 — Building Construction for Fire Protection ..... 3
   - FIRE 208 — Fire Service Records and Reports ..... 3
   - FIRE 212 — Building and Fire Codes ..... 3
   - FIRE 214 — Fire Protection Equipment and Systems ..... 3
   - FIRE 216 — Methods of Instruct for Fire Service Training ..... 3
   - Subtotal ..... 6
4. Complete 15 general electives credits.
   - Degree Total ..... 60-61

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

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

**Municipal Fire Control — Certificate**

**Suggested Course Sequence**

**Fall Semester**
- FIRE 101 — Introduction to Fire Science ..... 3
- FIRE 111 — Supervision and Management for Emergency Services ..... 3
- FIRE 202 — Fire Hydraulics ..... 3
- FIRE 203 — Hazardous Materials I ..... 3
- Major specialty electives ..... 3
- Subtotal ..... 15

**Spring Semester**
- FIRE 105 — Fundamentals of Fire Prevention ..... 3
- FIRE 107 — Fire Tactics and Strategy ..... 3
- FIRE 117 — Rescue Practices I ..... 3
- EMS 103 — Emergency Trauma Training (ETT)
- First Responder ..... 3
- or EMS 119 — Emergency Medical Technician I ..... 6
- Major specialty electives ..... 3
- Subtotal ..... 15-18
- Certificate Total ..... 30-33

**Wildlands Fire Control — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements: Credits
   - Communications:
   - ENGL 111X and ENGL 211X, 212*, or 213X ..... 6
   - SPC 131X or 141X ..... 3
   - Mathematics or Natural Science:
   - A math or natural science course at the 100 level or above ..... 3
   - Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition ..... 3
2. Complete the following major degree requirements:
   - EMS 103 — Emergency Trauma Training (ETT)
   - First Responder ..... 3
   - or EMS 119 — Emergency Medical Technician I ..... 6

FIRE 151 — Wildland Fire Control I ..... 3
FIRE 155 — Wildland Fire Behavior ..... 3
FIRE 157 — Wildland Air Operations and Safety ..... 3
FIRE 159 — Wildland Fire Operations Function ..... 3
FIRE 252 — Wildland Fire Prevention ..... 3
FIRE 254 — Wildland Fire Business Management ..... 3
FIRE 262 — Wildland Fire Control II ..... 3
Subtotal ..... 24-27

3. Complete 6 credits from the following major elective courses:
EMS 124 — Emergency Medical Technician Refresher ..... 1
EMS 230 — Emergency Medical Technician II ..... 3
FIRE 161 — Wildland Fire Logistics Function ..... 3
FIRE 165 — Wildland Fire Planning Function ..... 3
FIRE 203 — Hazardous Materials I ..... 3
FIRE 216 — Methods of Instruct for Fire Service Training ..... 3
FIRE 256 — Fire Planning and Multiple Use Management ..... 3
FIRE 258 — Prescribed Burning and Fuels Management ..... 3
FIRE 260 — Fire Research and Development ..... 3
FIRE 270 — Wildland Fire Command Function ..... 3
Subtotal ..... 6

4. Complete 15 general electives credits.
Degree Total ..... 60-63

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

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

**Wildlands Fire Control — Certificate**

**Suggested Course Sequence**

**Fall Semester**
FIRE 157 — Wildland Air Operations Safety ..... 3
FIRE 159 — Fire Operations Functions ..... 3
FIRE 254 — Wildland Fire Business Management ..... 3
Major electives ..... 6
Subtotal ..... 15

**Spring Semester**
EMS 103 — Emergency Trauma Training (ETT) First Responder ..... 3
or EMS 119 — Emergency Medical Technician I ..... 6
FIRE 151 — Wildfire Control I ..... 3
FIRE 155 — Wildland Fire Behavior ..... 3
FIRE 252 — Wildland Fire Prevention ..... 3
Major electives ..... 2-3
Subtotal ..... 15-18
Certificate Total ..... 30-33

# Fisheries

## School of Fisheries and Ocean Sciences

## Program in Fisheries (907) 474-7289

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

**Minimum Requirements for Degrees:** B.S. — 130 credits; M.S. — 30 additional credits, Ph.D. - open

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, School of Fisheries and Ocean Sciences (JCSFOS) houses the UAF Fisheries Science Program in southeast Alaska.* JCSFOS has well-equipped labs and a 42-foot research vessel. It is located near the Auke Bay National Marine Fisheries Laboratory. Faculty with JCSFOS were associated with the University of Alaska Juneau (now the University of Alaska Southeast) prior to 1987. 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 and B.S. degree requirements.
2. Complete the following degree and program (major) requirements:

**A. Fisheries Core Courses:**

General (32 credits)
NRM 101 — Conservation of Natural Resources ..... 3
ENGL 414 — Research Writing ..... 3
STAT 200 — Elementary Prob. and Stat. ..... 3
CHEM 105, 106 — General Chemistry ..... 8
*MATH 272, 273 — Intro. to Calculus for Life. Sci. ..... 6
ECON 235 — Natural Resource Econ ..... 3
CS 201 — Computer Science I ..... 3
GEOG 205 — Elements of Physical Geography ..... 3

Biology (27 credits)
BIOL 105, 106 — Fundamentals in Biol. I and II ..... 8
BIOL 271 — Principles of Ecology ..... 4
BIOL 210 — Animal Physiology ..... 4
BIOL 362 — Principles of Genetics ..... 4
BIOL/FISH 384 — Biol. of Freshwater Fish of Alaska ..... 3
BIOL 427 — Ichthyology ..... 4

Fisheries (9 credits)
BIOL 473 — Limnology
or BIOL 328 — Biology of Marine Organisms ..... 3
FISH/NRM 400 — Fisheries Science ..... 3
FISH/NRM 401 — Fisheries Management ..... 3
*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 and Immunology ..... 5

Group 2 (3-5 credits)
BIOL 222 — Biology of the Vertebrates ..... 4
BIOL 205 — Vertebrate Anatomy ..... 3
BIOL 317 — Comparative Anatomy of Vertebrates ..... 5

Group 3 (3 credits)
BIOL 472 — Communities and Ecosystems ..... 3
BIOL 471 — Population Ecology ..... 3
BIOL 328 — Biology of Marine Organisms (if used here, cannot satisfy fisheries core course requirements) ..... 3
BIOL 477 — Ecology of Streams and Rivers ..... 3

Group 4 (3-4 credits)
BIOL 305 — Invertebrate Zoology ..... 4
BIOL 406 — Entomology ..... 4
BIOL 407 — Aquatic Entomology ..... 3

Group 5 (3 credits)
BIOL 480 — Water Pollution Biology ..... 3
NRM 370 — Introduction Watershed Management ..... 3

**C. Option — Complete the requirements for one of the following options:**

**Research Option:**

Choose 6-8 credits from the courses listed below:
STAT 401 — Regression and Analysis of Variance (4 credits)
STAT 402 — Scientific Sampling (3 credits)
CHEM 212 — Intro. Quant. Analysis (4 credits)
CHEM 321-322 — Organic Chem. (3/3 credits)
CHEM 324 — Organic Lab. (3 credits)
CS 202 — Computer Science II (3 credits)
GEOS 304 — Geomorphology (3 credits)
PHYS 103-104 — College Physics (4/4 credits)
In addition, any electives needed to bring total credits to 130.

**Management Option:**

1. Take one of the following: (3 credits)
NRM 400 — Natural Resources Policies ..... 3
NRM 401 — Natural Resources Legislation ..... 3
2. Take four courses from the following: (12 credits)
GEOG 302 — Geography of Alaska ..... 3
GEOG 402 — Culture and Environment ..... 3
**JB 101 — Intro. to Mass Communication ..... 3
**JB 311 — Magazine Article Writing ..... 3
ANTH 242 — Native Cultures of Alaska ..... 3
PS 201 — Comp. Politics: Methods of Political Analysis ..... 3
PS 263 — Alaska Native Politics ..... 3
PS 211 — State and Local Government ..... 3
PS 212 — Intro. to Public Administration ..... 3
PS 302 — Congress and Public Policy ..... 3

SOC 309 — Urban Sociology ..... 3
BA 307 — Personnel Management ..... 3
*ECON 438 — The Economics of Fisheries Management ..... 3

3. Take one of the following: (2-3 credits)
WLF 303 — Wildlife Management Techniques ..... 3
WLF 417 — Wildlife Management — Forest and Tundra ..... 2
WLF 419 — Waterfowl and Wetlands Ecology and Management ..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 undergraduate students will be asked each fall to describe their work experience of the previous year.

**Fisheries — M.S. and Ph.D. Degrees**

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

# Food Science and Nutrition

### School of Fisheries and Ocean Sciences/ School of Agriculture and Land Resources Management Cross-School Program

(907) 474-7289/(907) 474-5550

Food Science is the study of the chemical, biological, and engineering aspects of food and its components. Knowledge from diverse scientific disciplines is integrated to develop new methods for the processing and fabrication of foods while assuring safe, nutritious, and acceptable products. From a chemical, microbiological and physical standpoint, food is the most complex of all natural products. Whereas food science is a high-technology field, the results of research and development reach people and animals daily, as safe, nutritious and acceptable foods.

The Food Science and Nutrition (FSN) program at UAF emphasizes the food uses of fisheries, game, and other traditional foods. The program provides UAF students majoring in a natural science, engineering, northern agriculture, or management with a strong emphasis area in food science and nutrition. The food industry is the largest employer in the United States and job openings are available for people trained as food technologists.

The following undergraduate courses are currently offered as part of the FSN program. See the UAF Graduate Catalog for information on the FSN graduate offerings.

NRM 122 - Food Facts, Fads and Consumer Choices
FISH 261 - Introduction to Seafood Science and Nutrition
NRM 305 - Nutrition for Children, Adolescents and Adults
NRM 310 - Agriculture Concepts
NRM 321 - Applied Animal Nutrition
NRM 420 - Animal Nutrition and Metabolism
NRM 445 - Managing Food Production Systems
FSN 460-K (FISH 460-K) - Food Science and Technology Internship

### University of Alaska Fairbanks/ Oregon State University Cooperative Program

(907) 474-7289

For students interested in a Bachelor of Science degree in food science and technology, UAF offers a program in cooperation with Oregon State University (OSU). Students enrolled in this program complete their freshman and sophomore years at UAF, then transfer to Corvallis, Oregon to complete their junior and senior years and earn a B.S. degree in Food Science and Technology from OSU under the Western Undergraduate Exchange (WUE) program. The academic program combines principles and concepts acquired in the life sciences, chemistry, physics, and engineering. The core curriculum at OSU is approved by the Education Committee of the Institute of Food Technologists, the professional society of international food scientists.

# Foreign Languages

### College of Liberal Arts
### Department of Foreign Languages and Literatures

(907) 474-7396

**Admissions to the German and Korean sequences are presently suspended.**

**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 and B.A. degree requirements.
2. Complete the following program (major) requirements: Credits

I. Background-related Requirements ..... 24

**Option A (Liberal Arts Option)**

a. LING 101 — Nature of Language
or LING 216 — Languages of the World ..... 3
ENGL 310 — Literary Criticism ..... 3
ENGL 318 — Modern English Grammar ..... 3
HUM 411 — Dimensions of Literature ..... 3

b. 6 credits in literature courses other than those of the field of specialization ..... 6

c. 6 credits from among the following:
PHIL 201 — Introduction to Philosophy ..... 3
History: One or two courses in student's language area; if two, one course must be upper division ..... 6
ART 261 or 262 — History of World Art ..... 3
One course from the following as related to student's language focus:
GEOG 305 — Geography of Europe (except U.S.S.R.) ..... 3
GEOG 306 — Geography of Russia ..... 3
GEOG 311 — Geography of Asia ..... 3
GEOG 402 — Culture and Environment ..... 3

**Option B (Career-oriented Option)**

a. LING 101 — Nature of Language
or LING 216 — Languages of the World ..... 3

b. 21 credits in major-related courses in other disciplines, such as business, education, journalism, political science, etc. (to be agreed upon with the advisor according to the student's career preferences) ..... 21

II. Major Requirements (two languages required) First Language (French, German, Russian or Spanish) (above 100 level) 24-26

**Complete the following courses:**

201/202 — 6-8 credits
301/302 — 6 credits
431/432 — 6 credits
487/488 — 6 credits
Second Language (Danish, French, German, Japanese, Russian or Spanish) 201/202; 301/302 ..... 12-14

Where appropriate, courses listed under I and II may be counted toward fulfillment of B.A. requirements listed under 1.
Foreign language majors may not substitute a language for any of the six CORE courses in Perspectives on the Human Condition.
Foreign language majors are encouraged to spend one or both semesters of their junior year in an exchange program appropriate to their language focus.
Minimum credits required ..... 130

**MINOR in Foreign Languages**

A minor in foreign languages requires 15 credits, 12 of which must be at the 200 level or above.

# Forestry

### University of Alaska Fairbanks/ Northern Arizona University Cooperative Program

(907) 474-5276

Accredited degree programs in forestry provide students with a foundation in the biological, social and physical sciences and professional education in forest sciences. The academic program is a blend of classroom, laboratory, and field work to develop skills for a professional career in forestry.

For students interested in pursuing an accredited degree in forestry, UAF's School of Agriculture and Land Resources Management offers a program in cooperation with Northern Arizona University. Students enrolled in this program complete the first two years of their program at UAF, then transfer to Northern Arizona University's forestry program to complete their junior and senior years. The forestry program at Northern Arizona University is accredited by the Society of American Foresters.

The pre-forestry program at UAF introduces students to land resources management and provides lower level courses common to most forestry curricula. Students desiring to transfer to a forestry degree program elsewhere should consult their faculty advisor before registering for classes. This will ensure a schedule that provides for the expeditious transfer of credit.

Students who are considering forestry as a career choice should contact the curriculum coordinator within the School of Agriculture and Land Resources Management at (907) 474-5276 for further information.

# General Science

### College of Natural Sciences Department of Physics

(907) 474-6108

**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 | 17 credits |
| ENGL 111X — Methods of Written Comm. | 3 |
| MATH 107-108 — Functions for Calculus/Trigonometry | 6 |
| CHEM 105X* — General Chemistry or PHYS 103X* — College Physics | 4 |
| BIOL 105X — Fundamentals of Biology | 4 |
| Spring Semester | 15 credits |
| SPC 131X or 141X | 3 |
| MATH 200 — Calculus | 4 |
| CHEM 106X* — General Chemistry or PHYS 104X* — College Physics | 4 |
| BIOL 106X — Fundamentals of Biology | 4 |

**Second Year**

| | |
|---|---|
| Fall Semester | 18 credits |
| PHYS 103X* — College Physics or CHEM 105X* — General Chemistry | 4 |
| GEOS 101X — The Dynamic Earth | 4 |
| Perspectives on the Human Condition | 6 |
| ENGL 211X — Intermediate Exposition with Modes of Literature or ENGL 213X — Intermediate Exposition | 3 |
| Spring Semester | 16 credits |
| PHYS 104X* — College Physics or CHEM 106X* — General Chemistry | 4 |
| GEOS 112X — Historical Geology | 4 |
| Perspectives on the Human Condition | 3 |
| Electives | 5 |

*PHYS 211-213 may substitute for PHYS 103-104 and CHEM 212 may substitute for CHEM 105-106.

**Third and Fourth Years**

By at least the beginning of his/her junior year, a student in General Science should decide upon his/her major and minor fields of interest. A B.S. in General Science requires the student to choose two majors or one major and two minors in selected fields of interest.

A major requires the completion of at least 20 credits in addition to the foundation courses in the discipline. The first major must be selected from Biological Sciences, Chemistry, Geosciences, or Physics.

A student then has the option of selecting: (1) a second major in biological sciences, chemistry, geosciences, physics, or mathematics or (2) two minors, one of which must be in the natural sciences or mathematics, while the other may be selected from the following disciplines: anthropology, English, French, German, Spanish, Russian, history, political science, economics, or education (minimum course work required for certification). The minor must include 12 or more credits in addition to the foundation courses in that discipline.

A General Science student, after meeting with his/her General Science advisor, should contact the head of the major/minor department as early as possible to determine course requirements in that discipline. These courses will be determined by the department head of the discipline and will reflect the student's needs as well as the intent of the General Science program.

**Additional Information:**

1. All prerequisites of courses elected must be met.
2. A grade of "C" or better must be attained in all courses for the major or minor.
3. One year of German or Russian is recommended.
4. Courses selected to complete the remaining general degree requirements must be the remaining required courses from Perspectives on the Human Condition section of the baccalaureate core.
5. A student does not need to take MATH 107-108 if he/she successfully completes MATH 200 with a grade of "C" or better.

**General Science — M.S. Degree**

1. Complete the general University and Master's Degree requirements.
2. Complete a minimum of 30 credits of approved courses. At least 24 credits, including thesis and/or research, must be at the 600 level.

The Department of General Science offers a M.S. in Biological Sciences, Chemistry, Geosciences, and Physics. This degree may be described as a "breadth" rather than a "depth" degree, and a candidate is ordinarily pursuing a course of study in which one of these disciplines is cooperating with at least one other discipline within the University. A prospective candidate must meet the general requirements for admission and for the awarding of the degree. At least 21 credits must be earned in science and mathematics. At least 12 credits must be earned in the major discipline selected. A thesis (maximum of three credits) or project (no credit) must be completed in the major discipline. It is not intended that the individual courses comprising the program merely satisfy the credit requirements; each course should contribute to the specific aim of the candidate, and the thesis or project should reflect this aim.

For complete information on the graduate program in general science, seethe UAF Graduate Catalog.

# Geography

### College of Liberal Arts Department of Geography

(907) 474-7494

**Degrees:** B.A., B.S.

**Minimum Requirements for Degrees:** B.A. — 120 credits; B.S. — 120 credits

The department offers undergraduate courses and degrees in geography and in geography and regional development. Geography provides an organized picture of the earth as a whole and of its interrelated regions and activities. It deals both with the natural resources of the earth and with man's use of them. Its methodology includes the observation, measurement, description, and analysis of places or areas — their likenesses, differences, interdependence and significance. Geography serves as a bridge between the physical sciences and the social sciences. At UAF, geography is offered as: (a) part of a broad cultural background in a liberal arts curriculum; (b) part of a comprehensive program in biological and earth sciences; (c) background for studies in economics, history, political science, and other social sciences; (d) preparation for teaching geography, earth science, or social science in elementary or secondary schools; (e) technical training for professional geographic

work in government, business or industry; (f) preparation for further graduate study in geography, regional planning and related disciplines. Students majoring in geography may elect such advanced work in this and other departments as will provide a concentration either in physical science or in social science.

### Requirements

**Geography — B.A. Degree**

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

A. Complete 33 or 34 credits in geography as follows:

GEOG 101 — Introductory Geography or
GEOG 203 — World Economic Geography ..... 3
GEOG 205 — Elements of Physical Geography ..... 3
GEOG 339 — Maps and Landscape Analysis
or GEOG 401 — Weather and Climate ..... 3
GEOG 482 — Geography Seminar ..... 3
Select three of the following regional courses:
GEOG 302 — Geography of Alaska (3)
GEOG 303 — Geography of the U.S. and Canada (3)
GEOG 305 — Geography of Europe (Except U.S.S.R.) (3)
GEOG 306 — Geography of Russia (3)
GEOG 311 — Geography of Asia (3)
GEOG 327 — Cold Lands (3) ..... 9
Select two of the following cultural courses:
GEOG 402 — Culture and Environment (3)
GEOG 404 — Urban Geography (3)
GEOG 405 — Political Geography (3) ..... 6
Select one of the following technique courses:
GEOG 309 — Cartography (4)
GEOG 408 — Quantitative Research Techniques (3) ..... 3-4
Geography elective ..... 3

B. Approved electives to complete 120 credits.

**Geography — B.S. Degree**

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

A. Complete 34 credits in geography as follows:

GEOG 101 — Introductory Geography or
GEOG 203 — World Economic Geography ..... 3
GEOG 205 — Elements of Physical Geography ..... 3
GEOG 309 — Cartography ..... 4
GEOG 339 — Maps and Landscape Analysis ..... 3
GEOG 401 — Weather and Climate ..... 3
GEOG 402 — Culture and Environment ..... 3
GEOG 408 — Quantitative Research Techniques ..... 3
GEOG 482 — Geography Seminar ..... 3
Select two of the following regional courses:
GEOG 302 — Geography of Alaska (3)
GEOG 303 — Geography of the U.S. and Canada (3)
GEOG 305 — Geography of Europe (Except U.S.S.R.) (3)
GEOG 306 — Geography of Russia (3)
GEOG 311 — Geography of Asia (3)
GEOG 327 — Cold Lands (3) ..... 6
Geography elective ..... 3

B. Approved electives to complete 120 credits.

**MINOR in Geography**

A minor in geography requires 15 credits in geography including GEOG 101 or 203 and 205.

## Geological Engineering

### School of Mineral Engineering
### Department of Mining and Geological Engineering

(907) 474-7388

**Degrees:** B.S., M.S.

**Minimum Requirements for Degree:** B.S. — 133 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 Engineer-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**

**Fall Semester ..... 17 Credits**
GE 101 — Introduction to Geological Engineering ..... 1
ENGL 111X — Methods of Written Communications ..... 3
MATH 200 — Calculus ..... 4
CHEM 105X — General Chemistry ..... 4
ES 101 — Introduction to Engineering ..... 2
Perspectives on the Human Condition ..... 3
**Spring Semester ..... 18 Credits**
SPC 131X or 141X ..... 3
MATH 201 — Calculus ..... 4
GE 261 — General Geology for Engineers ..... 3
CHEM 106X — General Chemistry ..... 4
Perspectives on the Human Condition ..... 3
LS 101 — Library Information and Research ..... 1

**Second Year**

**Fall Semester ..... 18 Credits**
MATH 202 — Calculus ..... 4
GEOS 213 — Mineralogy ..... 4
PHYS 211X — General Physics ..... 4
ENGL 211X or 213X — Intermediate Exposition ..... 3
MIN 202 — Mine Surveying ..... 3
**Spring Semester ..... 16 Credits**
ES 201 — Computer Techniques ..... 3
PHYS 212X — General Physics ..... 4
ES 209 — Statics ..... 3
GEOS 214 — Petrology and Petrography ..... 3
Perspectives on the Human Condition ..... 3

**Third Year**

**Fall Semester ..... 16 Credits**
ES 331 — Mechanics of Materials ..... 3
ES 341 — Fluid Mechanics ..... 4
GE 365 — Geological Engineering I ..... 3
GE 375 — Terrain Analysis ..... 3
GEOS 321 — Sedimentology ..... 3
**Spring Semester ..... 18 Credits**
GEOS 332 — Ore Deposits and Structure ..... 3
GE 372 — Rock Engineering ..... 3
MIN 370 — Rock Mechanics or
STAT 200 — Elementary Probability & Statistics ..... 3
ES 210 — Dynamics ..... 3
Perspectives on the Human Condition ..... 3
**Summer ..... 6 Credits**
GE 381 — Field Methods and Applied Design I ..... 3
GE 382 — Field Methods and Applied Design II ..... 3

**Fourth Year**

**Fall Semester ..... 15 Credits**
GE 471 — Remote Sensing for Engineering ..... 3
MATH 302 — Differential Equations ..... 3
Perspectives on the Human Condition ..... 9
Technical Elective ..... 3
**Spring Semester ..... 16 Credits**
GE 405 — Exploration Geophysics ..... 4
GE 420 — Subsurface Hydrology ..... 3
MIN 408 — Mineral Valuation and Economics ..... 3
GE 480 — Geological Engineering II ..... 3
Technical Elective ..... 3

* At least three out of the six technical elective credits must contain engineering design and be selected by the student in conference with his or her advisor and approved by the department. Technical electives are selected from a list of approved technical electives from the Geological Engineering and other programs.

**Geological Engineering — M.S. Degree**

The graduate program allows for awarding the master of science degree in geological engineering. The degree consists of a core program and electives in either geotechnical engineering or exploration engineering. University policy pertaining to graduate study leading to a master's degree apply as approved by the student's adviser 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

(907) 474-7565

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

**Minimum Requirements for Degrees:** B.S. — 126-136 credits including summer field courses; M.S. — 30 additional credits, including thesis; Ph.D. (open)

Graduates in geology will have broad backgrounds in the earth sciences with firm foundations in mathematics, physics, and chemistry. There are many options available in the geological sciences, and the suggested curricula are intended to be flexible enough to allow the students to pursue their own emphases in the junior and senior years. The bachelor's degree should prepare one for positions with industry or government or for graduate studies. Graduate programs are tailored around minimal core course requirements (M.S. only) to the special research and study interest of the student. In addition to courses listed under the geology and geophysics program, students should check the course listings under the School of Mineral Engineering and the Marine Science program.

All serious students of the geological sciences at UAF should note that in addition to the facilities available directly through the instructional program, there are active research laboratories in the fields of seismology, volcanology, 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:

| | Credits |
|---|---|
| ENGL 111X — Methods of Written Communication | 3 |
| ENGL 211X — Intermed. Expos. with Modes of Literature or ENGL 213X — Intermed. Exposition | 3 |
| SPC 131X or 141X | 3 |
| Perspectives on the Human Condition | 18 |
| Mathematics (Select appropriate series) | 11 or 15 |
| For Geology options: MATH 200-201-Calculus (8), and STAT 300-Statistics(3) | |
| For Geophysics Option: MATH 200, 201, 202-Calculus (11), MATH 302-Differential Equations (3) | |
| PHYS 211X-212X — General Physics (PHYS 103X-104X may be taken for General Geology Option) | 8 |
| CHEM 105X-106X — General Chemistry | 8 |
| Computer literacy equivalent to BA 100 or CS 201 | 0-3 |

3. **For General Geology, Economic Geology and Petroleum Geology options, complete the following requirements:**

| | |
|---|---|
| Geology Core Courses: | |
| GEOS 101X — The Dynamic Earth | 4 |
| GEOS 112X — Historical Geology | 4 |
| GEOS 213 — Mineralogy | 4 |
| GEOS 214 — Petrology and Petrography | 4 |
| GEOS 215 — Paleobiology and Paleontology | 3 |
| GEOS 304 — Geomorphology | 3 |
| GEOS 314 — Structural Geology | 3 |
| GEOS 322 — Stratigraphy and Sedimentation | 4 |
| GEOS 351 — Field Geology* | 6 |
| GEOS 430 — Statistics and Data Analysis | 3 |
| **General Geology Option:** | |
| Complete at least 5 credits from the courses listed below: | |
| GEOS 401 — Invertebrate Paleontology (3) | |
| GEOS 408 — Photogeology (2) | |
| GEOS 417 — Introduction to Geochemistry (3) | |
| GEOS 418 — Basic Geophysics (3) | 5 or 6 |
| Electives (professional and general) to bring total to | 126 |
| **Economic Geology Option:** | |
| GEOS 304 — Geomorphology | 3 |
| GEOS 432 — Geology of Mineral Resources Lecture or | |
| GEOS 432L — Geology of Mineral Resources Laboratory | 2 or 3 |
| One of the following | 2 or 3 |
| MIN 202 — Mine Surveying (3 credits) | |
| MPR 304 — Intro. to Metallurgy (3 credits) | |
| MPR 313 — Intro. to Mineral Preparation (3 credits) | |
| MIN 407 — Mineral Industry and the Environment (2 credits) | |
| MIN 408 — Mineral Valuation and Economics (3 credits) | |
| GE 365 — Geological Engineering I (3 credits) | |
| One of the following: | 3 or 4 |
| GEOS 418 — Basic Geophysics (3 credits) | |
| GEOS 410 — Potential Methods in Geophysics (2 credits) | |
| GEOS 412 — Electrical Methods in Geophysics (2 credits) | |
| Electives (professional and general) to bring total to | 136 |
| **Petroleum Geology Option:** | |
| PETE 205 — Intro. to Petroleum Drilling and Production | 3 |
| PETE 302 — Well Logging | 3 |
| GEOS 411 — Seismic Exploration | 3 |
| GEOS 410 — Potential Methods in Geophysics or | |
| GEOS 412 — Electrical Methods in Geophysics | 2 |
| GEOS 470 — Petroleum Geology | 3 |
| Electives (professional & general) to bring total to | 130 |

4. **For the Geophysics Option, complete the following requirements:**

| | |
|---|---|
| GEOS 101X — The Dynamic Earth | 4 |
| GEOS 213 — Mineralogy | 4 |
| GEOS 418 — Basic Geophysics | 3 |
| GEOS 419 — Continuum Mechanics | 4 |
| MATH 421 — Applied Analysis I | 4 |
| MATH 422 — Applied Analysis II | 4 |
| PHYS 213 — 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 112X — Historical Geology | 4 |
| GEOS 214 — Petrology and Petrography* | 3 |
| GEOS 304 — Geomorphology | 4 |
| GEOS 314 — Structural Geology** | 4 |
| GEOS 321 — Sedimentology | 3 |
| GEOS 322 — Stratigraphic Principles | 4 |
| Choose a minimum of 6 credits from the following from the following courses: | |
| GEOS 417 — Geochemistry | 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 451 — Field Geophysics | 2 |
| Complete at least 6 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 | 3 |
| 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
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 ..... 4
PHYS 313 — Thermodynamics ..... 4
EE 341 — Computer Organization ..... 4
ME 441 — Heat and Mass Transfer ..... 3
MPR 418 — Emission Spectroscopy, X-ray Spectroscopy, Atomic Absorption ..... 3
Electives (professional or general) to bring total to ..... 130

*GEOS 351 is offered at UAF when there is sufficient demand. In years when GEOS 351 is not offered (decision made early in fall semester), students are required to take a 6-credit field geology class at another institution. The Department of Geology and Geophysics will offer financial assistance to geology majors when GEOS 351 is not offered to attend an approved field camp at another institution. Amount of the assistance is dependent on the number of students involved, but will typically be about $500. The Geology and Geophysics undergraduate advisor will assist students in placement in a field geology class and will inform the department head about students requiring financial aid.
**Strongly recommended for students interested in exploration geophysics.

**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) 474-7565

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

**Minimum Requirements for Degrees:** M.S. — 36 credits (beyond a bachelor's degree), Ph.D. (open)
For complete information on the graduate programs in geophysics, see the UAF Graduate Catalog.

# Guidance and Counseling

### College of Liberal Arts
### School of Education (907) 474-7341

**Degree:** M.Ed.

**Minimum Requirements for Degree:** M.Ed. 42 additional credits
For complete information on the graduate program in Guidance and Counseling, see the UAF Graduate Catalog.

# History

### College of Liberal Arts
### Department of History (907) 474-7126

**Degrees:** B.A.

**Minimum Requirements for Degrees:** B.A. — 120 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: ..... Credits
*HIST 100X — Modern World History ..... 3
HIST 101 — Western Civilization ..... 3
HIST 102 — Western Civilization ..... 3
HIST 121 — East Asian Civilization ..... 3
HIST 122 — East Asian Civilization ..... 3
HIST 131 — History of the U.S ..... 3
HIST 132 — History of the U.S ..... 3
HIST 141 — Africa to 1800 ..... 3
HIST 142 — Africa Since 1800 ..... 3
Complete the following: HIST 475 — Historiography ..... 3
HIST 476 — Historical Method ..... 3
*If used to fulfill core requirements, HIST 100X may not also count towards a History major.
Complete 15 upper division elective credits in history, including courses from at least two of the following fields: European History, U.S. History, Northern History, Asian History ..... 15
**European History**
HIST 305 — Europe 1789-1850 ..... 3
HIST 306 — Europe 1850-1900 ..... 3
HIST 315 — Europe 1900-1945 ..... 3
HIST 316 — Europe Since 1945 ..... 3
HIST 320 — Modern Scandinavia ..... 3
HIST 321 — English History ..... 3
HIST 322 — English History ..... 3
HIST 344 — Modern Russia ..... 3
HIST 401 — Renaissance & Reformation ..... 3
HIST 402 — 17th & 18th Century Europe ..... 3
HIST 405 — Modern Germany ..... 3
**U.S. History**
HIST 430 — American Colonial History ..... 3
HIST 435 — Civil War & Reconstruction ..... 3
HIST 440 — Westward Expansion 1763-1867 ..... 3
HIST 441 — American & Canadian West 1867-Present ..... 3
HIST 450 — 20th Century America ..... 3
HIST 451 — U.S. Foreign Policy (Independent Learning only) ..... 3
**Northern History**
HIST 320 — Modern Scandinavia ..... 3
HIST 340 — Russian Eastward Expansion ..... 3
HIST 341 — History of Alaska ..... 3
HIST 345 — Maritime History of Alaska (Independent Learning only) ..... 3
HIST 354 — Canadian History to 1867 ..... 3
HIST 355 — Canadian History: 1867 to the Present ..... 3
HIST 375 — History of the Northern Pacific ..... 3
HIST 380 — Polar Exploration & its Literature ..... 3
HIST 382 — Circumpolar Research ..... 3
HIST 384 — 20th Century Circumpolar History ..... 3
HIST 460 — Russian America ..... 3
HIST 470 — Researching & Writing Alaskan History ..... 3
**Asian History**
HIST 330 — Modern China ..... 3
HIST 331 — Modern Japan ..... 3
HIST 350 — People's Republic of China ..... 3

3. Minimum credits required 120
Students who intend to pursue a career in secondary education are strongly encouraged to complete HIST 341 — History of Alaska, plus at least one upper division course in each of the following areas: European History, U.S. History.
Students are strongly urged to consult with the History Department regarding the selection of a minor.

**MINOR in History:**

A minor in history requires the completion of 18 credits in history, six of which must be at the 300 level or above.

# Humanities

### College of Liberal Arts
### Department of Philosophy and Humanities

(907) 474-7398

**Admission to this program is presently suspended.**

**Degree:** B.A.

**Minimum Requirements for Degree:** 130 credits

One main objective of the humanities program is to enable the student to go beyond specialization and achieve integration of knowledge. Others are to deepen an appreciation of all the arts, to develop critical thinking, and to heighten an awareness of self and role in society.

The humanities program is set up in such a way as to offer a solid second major for many bachelor of arts and bachelor of science degree candidates. It aims at students from virtually all fields of specialization.

## Requirements

**Humanities — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete two years at the college level in a non-English language.
3. Complete the following program (major) requirements:

| Prerequisites: | Credits |
|---|---|
| HIST 101-102 — Western Civilization | 6 |
| LING 101 — The Nature of Language or LING 216 — Languages of the World | 3 |
| PHIL 201 — Introduction of 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: | Credits |
|---|---|
| HIST 101-102 — Western Civilization | 6 |
| Core Courses: | |
| HUM 201 — Unity in the Arts | 3 |
| HUM 202 — Unity in the Sciences | 3 |
| Upper-division Humanities electives | 12 |

# Human Services

### College of Liberal Arts
### Department of Behavioral Sciences and Human Services

(907) 474-7240

**Degree:** B.A.*

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

The B.A. in human services was developed in response to a need for a program at the bachelor's level which prepares students to function as counselors and social service workers in rural areas. Agencies seeking middle-level, baccalaureate professionals will provide career placements. Students in this program gain knowledge about various agencies in the state that address social service needs and are trained in generic skills such as agency administration, counseling, and the usual content areas which are customarily addressed by such agencies (e.g., alcoholism and drug abuse, child and youth care, and health problems). Students will become familiar with cross-cultural issues 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, Chukchi and Northwest campuses.

* At the present time, no students are being accepted into the Human Services program.

## Requirements

**Human Services — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following integrated major-minor requirements:

| Behavioral sciences core (24 credits) | |
|---|---|
| HMSV 201 — Introduction to Human Services | 3 |
| PSY/SOC 250 — Introductory Statistics for Behavioral Sciences | 3 |
| SOC 301 — Rural Sociology | 3 |
| PSY/SOC 473 — Social Science Research Methods | 3 |
| PSY 210 — Cross-Cultural Psychology | 3 |
| PSY 345 — Abnormal Psychology or SOC 335 — Sociology of Deviant Behavior | 3 |
| SOC 408 — American Minority Groups | 3 |
| PSY 101 — Introduction to Psychology | 3 |
| Departmental core (15 credits) | |
| (These courses also may be applied to fill general distribution requirements.) | |
| SOC 101 — Introduction to Sociology | 3 |
| PSY 240 — Developmental Psychology in Cross-Cultural Perspective | 3 |
| PSY 304 — Personality | 3 |
| PSY 380 — Human Behavior in the Arctic | 3 |
| ANTH 242 — Native Cultures of Alaska | 3 |
| Human Services | 18 |
| Select 18 credits from the following: | |
| HMSV 210 — Crisis Intervention | 3 |
| HMSV 255 — Foundations of Counseling I | 3 |
| HMSV 356 — Foundations of Counseling II | 3 |
| HMSV 230 — Alcoholism: Theories of Etiology | 3 |
| HMSV 330 — Alcoholism: Treatment and Prevention | 3 |
| HMSV 360 — The Helping Role in Child Abuse and Neglect | 3 |
| HMSV 410 — Management of Human Services Programs | 3 |
| HMSV 415 — Group Counseling | 3 |
| HMSV 488 — Practicum in Human Services | 6 |
| *HMSV/PSY 445 — Community Psychology | 3 |
| *PSY/SOC 370 — Drugs and Drug Dependence | 3 |
| *SOC 310 — Sociology of Later Life | 3 |
| *SOC 242 — The Family: A Cross-Cultural Perspective | 3 |
| RD 325 — Community Organization and Development Strategies | 3 |
| Minimum Credits Required for Degree | 121 |

* 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 HMSV 201 and 210.

# Human Service Technology

### College of Rural Alaska
### Tanana Valley Campus

(907) 474-6658

**Degree:** A.A.S.

**Minimum Requirements for Degree:** 60 credits

The Human Service Technology program provides training and knowledge in basic helping skills needed for entry level employment in public, private and volunteer human service agencies. The Human Service Technician may provide case management, needs assessment, advocacy, crisis intervention and stabiliza-

tion, and supportive task-centered short term counseling under the supervision of a specialist worker and usually within a multi-disciplinary team. Human Service Technicians are employed in a wide variety of human service settings such as: mental health, Native corporations, developmental disabilities, public assistance, corrections and substance abuse treatment. Persons seeking a career in human service should recognize that in order to be successful they must be emotionally stable, creative and flexible. Human Service Technicians will have to be able to work with diverse groups of people and individuals with a wide variety of ages, social and cultural backgrounds and life situations. Upon completion of the Human Service Technology major, students are eligible toe certified as a Substance Abuse Counselor Level I Advanced in the State of Alaska.

### Requirements

**Human Service Technology — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| PSY 101 — Introduction to Psychology | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| HST 101 — Introduction to Human Service | 3 |
| HST 105 — Personal Awareness and Growth | 3 |
| HST 120 — Cultural Diversity and Human Service | 3 |
| HST 125 — Introduction to Addictive Processes | 3 |
| HST 205 — Basic Principles of Group Counseling | 3 |
| HST 210 — Crisis and Grief Counseling | 3 |
| HST 215 — Individual Interviewing and Assessment | 3 |
| HST 230 — Human Service Practicum I (8 hour/week) | 2 |
| HST 231 — Human Service Practicum II (8 hour/week) | 2 |
| HST 240 — Human Service Seminar I | 1 |
| HST 241 — Human Service Seminar II | 1 |
| HST 301 — Ethics in Human Service | 3 |
| HST 305 — Substance Abuse Counseling | 3 |
| PSY 240 — Developmental Psych. in Cross-Cult. Perspec. | 3 |
| SOC 242 — The Family: A Cross-Cultural Perspective | 3 |
| Subtotal | 39 |

3. Complete 6 credits from the following:

| | |
|---|---|
| HST 250 — Current Issues in Human Service and/or General Electives | 6 |
| Degree Total | 60 |

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

**MINOR in Human Service Technology:**

A minor in Human Service Technology is available to students pursuing a Bachelor of Science or a Bachelor of Arts degree. This minor will give students the opportunity to gain knowledge and skills applicable to careers in the helping professions. Upon completion of the Human Service Technology minor students are eligible to be certified as a Substance Abuse Counselor Level I in the State of Alaska.

| | Credits |
|---|---|
| HST 125 — Introduction to Addictive Processes | 3 |
| HST 210 — Crisis and Grief Counseling | 3 |
| HST 215 — Individual Interviewing and Assessment | 3 |
| HST 250 — Current Issues in Human Services | 3 |
| HST 301 — Ethics in Human Service | 3 |
| HST 305 — Substance Abuse Counseling | 3 |
| Minor total | 18 |

**Substance Abuse Counselor Certification:**

The Alcohol and Drug Abuse Certification Review Board has approved the following courses for 45 training hours each toward certification of recertification of Substance Abuse Counselors in the State of Alaska:

HST 125 — Introduction to Addictive Processes
HST 205 — Basic Principles of Group Counseling
HST 210 — Crisis and Grief Counseling
HST 215 — Individual Interviewing and Assessment
HST 301 — Ethics in Human Service
HST 305 — Substance Abuse Counseling

Currently certified Substance Abuse Counselors are eligible for transfer credit toward the Human Service Technology degree. Please contact the Human Service Technology Program Coordinator at 474-6658 for more information.

## Interdisciplinary Studies

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

**Minimum Requirements for Degrees:** A.A.S. — 60 credits; B.A., B.S. or B.T. — 130 credits; M.A. and M.S. — 30 or more credits; Ph.D. — open

**Associate or Baccalaureate Degree —**

Interdisciplinary Studies is a program available to UAF students within the associate of applied science, bachelor of arts, bachelor of science, and bachelor of technology degree options. The interdisciplinary program option provides flexibility to students with well-defined goals who do not fit into one of the established majors offered by the university.

Students may submit their proposal for an interdisciplinary program upon completion of 15 credits at UAF and preferably 30 credits (for the associate's degree), or 60 credits (for the bachelor's degree), prior to graduation. The proposed curriculum must differ significantly from established degree programs at UAF and will require evidence that the necessary facilities and faculty are available to ensure an approximation of a normal undergraduate degree. All general requirements for the A.A.S., B.A., B.S., or B.T. degree must be met.

In developing an interdisciplinary proposal, the student should specify the degree (A.A.S., B.A., B.S., or B.T.), include an explanation of how the proposed program differs substantially from established UAF programs, and a discussion that current UAF resources are adequate to meet the requirement of the proposed program. The student then obtains an advisory committee of at least three faculty members from the appropriate disciplines. The committee will appoint a chair, review the proposed program, select a degree title in concert with the student and make its recommendation. Applicants then submit to the Provost (Vice Chancellor for Academic Affairs and Research) their proposal for the program they wish to pursue, specifying the degree, proposed curriculum and rationale.

Students interested in pursing an interdisciplinary A.A.S., B.A., B.S., or B.T. degree, or who want to explore this as a degree option, can contact the Academic Advising Center to receive assistance in finding faculty advisors and developing their curriculum proposal.

**Graduate —**

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

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

## Journalism and Broadcasting

### College of Liberal Arts
### Department of Journalism and Broadcasting

(907) 474-7761

**Degree:** B.A.

**Minimum Requirements for Degree:** 124 credits

The curriculum in Journalism and Broadcasting offers a balance of professional and theory courses for majors and non-majors. Majors are able to take a variety of skills and theory courses while acquiring a strong liberal arts background. Non-majors, including those 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 newswriting lab, typography lab, audio production lab, video editing lab and two photography labs.

The department and its two sequences, News-Editorial and Broadcast, are fully accredited by the Accrediting Council on Education in Journalism and Mass Communications.

### Requirements

**Journalism — B.A. Degree**

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

A. Complete the following courses in journalism (16 Credits):
JB 101 — Introduction to Mass Communications
or JB 102 — Introduction to Broadcasting ..... 3
JB 301 — Basic Newsgathering and Processing ..... 4
JB 320 — Journalism in Perspective ..... 3
JB 400 — Media Practicum ..... 3
JB 413 — Mass Media Law and Regulations ..... 3

B. Complete one of the following sequences:
News-Editorial (18 Credits)
JB 444 — Advanced Newsgathering and Processing ..... 3
One of the following:
JB 203 — Basic Photography ..... 3
JB 215 — Audio Production ..... 3
JB 316 — Television Production ..... 3
Four of the following:
JB 204 — Basic Photojournalism ..... 3
JB 240 — International Communications ..... 3
JB 303 — Intermediate Photography ..... 3
JB 311 — Magazine Article Writing ..... 3
JB 323 — Publication Editing ..... 3
JB 324 — Typography and Publication Design ..... 3
JB 340 — Approaches to the Study of Mass Communication ..... 3
*JB 326 — Principles of Advertising ..... 3
JB 402 — Advanced Photography ..... 3
JB 411 — Advanced Writing for Publication ..... 3
JB 424 — Magazine Production ..... 3
JB 433 — Public Relations ..... 3
JB 492 — Seminar ..... 2 or 3
**Broadcast (18 Credits)
JB 215 — Audio Production ..... 3
JB 316 — Television Production ..... 3
Four of the following:
JB 203 — Basic Photography ..... 3
JB 204 — Photojournalism ..... 3
JB 217 — Introduction to the Study of Film ..... 3
JB 240 — International Communications ..... 3
JB 308 — Film and TV Criticism ..... 3
JB 317 — Broadcast Journalism ..... 3
*JB 326 — Principles of Advertising ..... 3
JB 340 — Mass Media and Society ..... 3
JB 407 — Broadcast Programming ..... 3
JB 408 — Broadcast Station Management ..... 3
JB 415 — Electronic Newsgathering ..... 3
JB 416 — Advanced TV News Production ..... 3
JB 433 — Public Relations ..... 3
JB 444 — Advanced News Reporting ..... 3
JB 492 — Seminar ..... 2 or 3

C. Although not required, it is strongly recommended that every journalism student study another language, both to help gain a better perspective of and to better comprehend the changing world.

D. To assure the journalist of a broad liberal arts education, 90 credits must be outside of Journalism-Broadcasting, 65 of which should be from traditional liberal arts courses, i.e., those courses which fall under the humanities, social sciences, math and natural sciences classifications within the general university requirements. which meet general distribution requirements,

3. Minimum credits required 124

* Cross-listed with BA 326, Principles of Advertising.
**Note: The broadcast option is primarily a news and production curriculum and is not intended as a dramatic or performing arts option.

**MINOR in Journalism and Broadcasting:**
Complete at least 16 credits of approved journalism and/or broadcasting courses, including the following:

Credits
JB 101 — Introduction to Mass Communications
or JB 102 — Introduction to Broadcasting ..... 3
JB 301 — Basic Newsgathering and Processing ..... 4

# Justice

**College of Liberal Arts**
**Department of Political Science** (907) 474-7609

**Degree:** B.A.

**Minimum Requirements for Degree:** B.A. — 120 credits

It has been said that the quality of a nation's civilization can be largely measured by the methods it uses to enforce its criminal law.

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 professions 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.
Electives chosen to fulfill the general requirements for the B.A. degree must be approved in advance by the director of the justice program.
2. Complete the following program (major) requirements:

Credits
Justice Core Course Requirements (18 credits)
JUST 110 — Introduction to Justice ..... 3
JUST 222 — Research Methods ..... 3
JUST 251 — Criminology ..... 3
JUST 258 — Juveniles and the Law ..... 3
JUST 330 — Justice and Society ..... 3
JUST 460 — Justice Processes ..... 3
Justice Electives: 15 credits in justice courses of which 12 credits must be upper division.
3. Minimum credits required 120

**MINOR in Justice:**
Complete 15 credits in justice, including JUST 110.

**Justice - A.A.S.**
This degree program is presently suspended.

# Law

## Pre-Professional Program (907) 474-6396

Law education prepares students to become attorneys. Attorneys are concerned with the interpretation of law and its application to specific situations. This involves doing in-depth research, writing reports and briefs, advising clients and representing parties in reports and briefs, advising clients and representing parties in courts. Often law school graduates go onto hold government office, or to serve as judges, public servants, teachers or administrators.

Law school consists of three years of graduate level study. Instruction includes classroom lecture and discussion, considerable outside research, and practice of courtroom procedures. Upon graduation, students must pass a state bar exam in order to practice.

Completion of a bachelor's degree is required for admission into most law schools. While law schools do not prescribe a specific major for admission, students should have a strong academic record and high scores on the Law School Admission Test (LSAT).

A liberal education is the best preparation for law school. Students planning a legal career should select courses which are designed to enhanced communication skills, both oral and written, to expand understanding of human values and institutions, and to develop analytical reasoning and logical thinking. Areas of study which are valuable for pre-law majors are English, philosophy, history, literature and the social sciences. Additionally, courses in accounting and economics are recommended. Recent trends indicate that students with an undergraduate degree in the natural sciences are gaining in favor for law school admission.

Students interested in a legal career are assigned a special pre-law advisor, through the Academic Advising Center, to discuss program planning, professional schools and financial planning.

# Law and Society

### College of Liberal Arts
### Department of Political Science (907) 474-7609

**Minor Only**

The Law and Society minor aims to understand law in relationship to the larger society of which it is part. It is based firmly on the view that the law is a rich humanistic tradition and study of legal ideas and institution will promote sustained reflection on such fundamental concepts and values as equality, freedom, privacy, justice and rights. While the program is of special interest to students who plan graduate studies in law or careers in government service, many students will simply share a desire to understand the role of law in society. The program provides students with tools for reasoned appraisal of how the law works, the ideas and policies that underlie it, and the ability to think clearly and analyze arguments critically.

## Requirements

**MINOR in Law and Society**

Complete the following courses (12 credits):

| | Credits |
|---|---|
| PS 303 — Judicial Process and Policy making | 3 |
| PS 330 — Law and Society | 3 |
| PS 350 — Justice and the Philosophy of Law | 3 |
| PS 435 — Constitutional Law: Institutions and Governmental Powers or PS 436 — Constitutional Law: Civil Rights and Civil Liberties | 3 |

Elective Courses: (9 credits)

Complete at least 9 credits from the following (or other approved law related course):

| | |
|---|---|
| AKNP 230 — Federal Indian Law | 3 |
| ANS 425 — Federal Indian Law and Alaska Natives | 3 |
| BA 317 — Employment Law | 3 |
| BA 327 — Collective Bargaining and Labor Relations | 3 |
| BA 330 — Legal Environment of Business | 3 |
| JB 413 — Mass Media Law and Regulation | 3 |
| JUST 352 — Criminal Law | 3 |
| JUST 354 — Procedural Law | 3 |
| PS 450 — Comparative Aboriginal Rights and Policies | 3 |
| PS 651 — Comparative Legal Systems in the Circumpolar North | 3 |
| | Total 21 |

# Library Science

### Pre-Professional Program (907) 474-6692

The field of library and information science engages students in professional positions concerned with the management of information in libraries and other environments. One graduate program states that the "contemporary librarian has become an essential part of the complex communication/information network that now encircles the globe. Today's

information professional must understand how information is created and disseminated in society; must be familiar with print, nonprint and electronic media; and must be adept in the use of computers, automated techniques, and information networks."

For a professional career in library science, a one-to-two year program of graduate study is generally required. Course work in the graduate program may include attention to planning and evaluation related to acquiring, organizing and accessing information in library settings; management tools; and design and provision of information services. Special emphasis on topics such as law or medicine may also be available with some programs.

The caliber of one's undergraduate work, as well as test results on the Graduate Record Exam (GRE), are of particular importance when applying for admission to a program of professional library studies. While librarians have traditionally come from a humanities background, a broader scope of preparation is expected by schools of library science.

At UAF, pre-library science students pursue a broad, general background, rather than a prescribed curriculum. Students are advised to include courses in computer applications and programming, statistics and foreign languages so as to satisfy the demands of the library science field and the admission requirements of some graduate programs. Concentrations in the social and physical sciences are valuable as the number of special libraries increases.

Advisement for students interested in a career in library science is available through the Academic Advising Center.

# Linguistics

### College of Liberal Arts
### Department of Linguistics (907) 474-6886

**Degree:** B.A.

**Minimum Requirements for Degree:** B.A. — 120 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:

| | | Credits |
|---|---|---|
| A | Background-related Requirements (15-18 credits) | |
| | Four semesters (or equivalent) of one foreign or Native language and two semesters of a second. | |
| | (It is recommended that at least one of the languages be other than an Indo-European language.) | 12-16 |
| | LING 101 — Nature of Language | 3 |
| B. | Major requirements (30 credits) | |
| | Complete the following Linguistics courses: | |
| | LING 318 — Intro. to Phonetics and Phonology | 3 |
| | LING 320 — Intro. to Syntactic Theory | 3 |
| | LING 350 — Historical Linguistics | 3 |
| | Complete 7 of the following courses: | |
| | LING 216 — Languages of the World | 3 |
| | LING/ED 303 — Language Acquisition | 3 |
| | LING 340 — Aspects of Bilingualism | 3 |
| | LING 410 — Second Language Teaching | 3 |
| | LING 420 — Semantics | 3 |
| | LING 450 — Language Policy and Planning | 3 |
| | LING 482 — Topics in Linguistics | 3 |
| | (may be taken twice) | |
| | ANL 215 — Alaska Native Languages | 3 |
| | ANL 216 — Alaska Native Languages | 3 |
| | ANS 320 — Language and Cultures | 3 |
| | ENGL 318 — Modern English Grammar | 3 |
| | 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 | 120 |

**MINOR in Linguistics:**

A minor in linguistics requires 15 credits in linguistics. Three of these credits may be from related courses in other departments as listed under B. above.

# Marine Biology

### School of Fisheries and Ocean Sciences
### Graduate Program in Marine Sciences and Limnology
(907) 474-7531

**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 marine organisms, while biological oceanography focuses on how biological processes influence and are influenced by the ocean environment. Although the School of Fisheries and Ocean Sciences does not yet offer the Ph.D. in Marine Biology, students completing studies in Marine Biology can receive a Ph.D. in Oceanography.

Graduate students are afforded excellent opportunities for laboratory and field research through the Institute of Marine Science. Laboratory facilities are available at Fairbanks, the Seward Marine Center, the Juneau Center for Fisheries and Ocean Science, the Fishery Industrial Technology Center at Kodiak, and at a number of coastal field sites. Opportunities for field work are available on the *R/V Alpha Helix*, which operates along the Alaskan Coast and in the Bering Sea, on the *R/V Little Dipper*, which operates in Resurrection Bay, and on the *R/V Maybe so*, which operates in Southeast Alaska.

Students are admitted to the Graduate Program in Marine Sciences and Limnology on the basis of their ability and the capability of the program to meet their particular interests and needs. Requests for admission are considered continuously and each application is reviewed by the department faculty. Stipends for financial support are awarded competitively. Limited fellowship support is available. Most students are supported on research projects that relate directly to their degree research.

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

# Mathematics

### College of Liberal Arts
### Department of Mathematics (907) 474-7332

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

**Minimum Requirements for Degrees:** B.A. — 120 credits; B.S. — 120 credits; M.A.T. — 36 additional credits; M.S. — 30-35 additional credits.

The number of new fields in which professional mathematicians find employment grows continually. A variety of programs are offered by the Department of Mathematical Sciences for students majoring in mathematics, computer science, or statistics. (See the separate listing elsewhere in this catalog for information concerning the Department of Mathematical Sciences programs in Computer Science and Statistics.) Options exist for those who are planning careers in industry, government, or education. The Department of Mathematical Sciences also offers degree programs in statistics and computer science which are described elsewhere in this catalog.

In addition to the major programs, the department provides a number of service courses in support of other programs within the university. Current and detailed information on mathematics degrees and course offerings is available from the department.

The Department of Mathematical Sciences maintains a math lab which is available for assistance to all students studying mathematics at the baccalaureate level.

## Requirements

All students planning to major in one of the mathematical sciences must be ready to matriculate into MATH 200, Calculus I, before they will be allowed to declare mathematics as their major.

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 betaken while in residence on the Fairbanks campus.) All electives must be approved by the department. (All mathematics majors — including double majors — must have an adviser from the Department of Mathematical Sciences.) Students preparing to teach mathematics in secondary schools should contact the Department of Education for a list of mathematics and education courses necessary to obtain an Alaskan teaching certificate.

**Mathematics — B.A. or B.S. Degree**

1. Complete the general university requirements and requirements for a B.A. or B.S. degree. A portion of the science requirement for the B.S. should be met with a one year physics sequence, PHYS 103X-104X or PHYS 211X-212X.
2. Complete the following program (major) requirements:

Complete the following courses:

| | |
|---|---|
| MATH 200, 201, 202 — Calculus sequence | 12 |
| MATH 215 — Intro. to Mathematical Proofs | 2 |
| MATH 314 — Linear Algebra | 3 |
| MATH 308 — Abstract Algebra | 3 |
| MATH 401 — Advanced Calculus | 3 |
| MATH 490 — Senior Seminar | 1 |
| TOTAL | 24 |

Complete an elective package in the Mathematical Sciences consisting of at least 21 credits. This package must be approved by a Mathematical Sciences advisor and must include at least 12 credits at the 300-level or above. Students who are obtaining a single B.S. or B.A. with mathematics as a second major may substitute up to 9 credits of approved courses with strong mathematical content for Mathematical Sciences electives.

3. Minimum credits required 120

The following sample elective packages are suggested for students with interests in the indicated areas of emphasis.

A. Pure Math

| | |
|---|---|
| MATH 305 — Geometry | 3 |
| MATH 307 — Discrete Mathematical Structures | 3 |
| MATH 402 — Advanced Calculus | 3 |
| MATH 404 — Topology | 3 |
| Approved Math elective | 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 300 | 6 |
| TOTAL | 20 |

C. Secondary Education

| | |
|---|---|
| STAT 300 — Statistics | 3 |
| MATH 305 — Geometry | 3 |
| CS 201 — Computer Programming I | 3 |
| MATH 306 — History and Philosophy of Mathematics | 3 |
| Approved Math elective | 6 |
| TOTAL | 18 |

D. Statistics Emphasis

| | |
|---|---|
| MATH 371 — Probability | 3 |
| MATH 408 — Mathematical Statistics | 3 |
| MATH 460 — Mathematical Modeling | 3 |
| STAT 300 — Statistics | 3 |
| STAT 401 — Experimental Design & Regression | 3 |
| Approved elective | 3 |
| TOTAL | 18 |

**MINOR in Mathematics:**

A minor in Mathematics requires completion of Math 200-201-202, in addition to nine departmentally approved credits.

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

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

# Mechanical Engineering

### School of Engineering
### Department of Mechanical Engineering (907) 474-7209

**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 or aerospace engineering each 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.

**First Year**

| | |
|---|---|
| Fall Semester | 16 credits |
| ENGL 111X — Methods of Written Comm | 3 |
| MATH 200 — Calculus | 4 |
| ES 101 — Introduction to Engineering | 2 |
| CHEM 105 — General Chemistry | 4 |
| Perspectives on the Human Condition | 3 |
| Spring Semester | 17 credits |
| SPC 131X or 141X | 3 |
| MATH 201 — Calculus | 4 |
| ES 201 — Computer Techniques | 3 |
| CHEM 106 — General Chemistry | 4 |
| Perspectives on the Human Condition | 3 |

**Second Year**

| | |
|---|---|
| Fall Semester | 17 credits |
| PHYS 211X — General Physics | 4 |
| MATH 202 — Calculus | 4 |
| ES 209 — Statics | 3 |
| ME 321 — Industrial Processes | 3 |
| ENGL 213X — Intermediate Exposition | 3 |
| Spring Semester | 16 credits |
| PHYS 212X — General Physics | 4 |
| MATH 302 — Differen. Equations | 3 |
| ES 210 — Dynamics | 3 |
| ES 346 — Thermodynamics | 3 |
| Perspectives on the Human Condition | 3 |

**Third Year**

| | |
|---|---|
| Fall Semester | 16 credits |
| ES 301 — Engineering Analysis | 3 |
| ES 307 — Elements of Electrical Engr. | 3 |
| ES 331 — Mechanics of Materials | 3 |
| ES 341 — Fluid Mechanics | 4 |
| Perspectives on the Human Condition | 3 |
| Spring Semester | 16 credits |
| ME 302 — Mechanical Design I | 4 |
| ME 313 — Mech. Engr. Thermodyn. | 3 |
| ME 441 — Heat and Mass Transfer | 3 |
| ES 308 — Instrumentation and Measurement | 3 |
| Perspectives on the Human Condition | 3 |

**Fourth Year**

| | |
|---|---|
| Fall Semester | 15 credits |
| ME 408 — Dynamics of Systems | 3 |
| ME 415 — Thermal Systems Lab | 2 |
| ME Elective** | 3 |
| ME 334 — Elements Material Science Engr | 3 |
| Technical Elective* | 3 |
| Perspectives on the Human Condition | 3 |
| Spring Semester | 15 credits |
| ME 403 — Mechanical Design II | 4 |
| ME 487 — Design Project | 3 |
| ME Elective** | 3 |
| ESM 450 — Econ. Analysis and Operations | 3 |
| Approved Elective | 2 |

* 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

For students interested in pursuing a Bachelor of Science degree in Medical Technology, UAF offers a program in cooperation with University of Washington. Students enrolled in this program complete the first four semesters of their program at UAF, then apply for acceptance into the professional phase of the medical technology program at the University of Washington for an additional seven semesters. Up to four bona fide Alaska resident students will be accepted into the professional phase each year, if they qualify for admittance to the program. A Bachelor of Science degree is granted from University of Washington at the completion of the program.

While at UAF, students are required to complete 60 semester credits with a GPA of 3.0, to include the following courses: biology (BIOL 105, 106), chemistry (CHEM 105, 106), and math (MATH 271, 272).

For further information on the baccalaureate medical technology program, please contact the Academic Advising Center at the University of Alaska Fairbanks at (907) 474-6396.

## Medicine

**Pre-Professional Program** (907) 474-6396

Physicians serve a broad range of functions within the field of medicine; diagnosing disease, prescribing treatment, supervising patient care and participating in the improved delivery of health. As an alternative to direct patient care, physicians often branch off into other arenas of medicine, such as basic and applied research, teaching or administration.

Professional medical education consists of four years of graduate level study. Typically, the first two years of medical school are comprised of classroom instruction and laboratory work; the second two years consist of clinical rotations. Following graduation from medical school, students may elect to continue their training by doing a one year internship and/or a one-to-three year residency. The residency option is required in order to specialize in medicine.

Upon application to medical school, a student's overall academic achievement will be evaluated together with results of the Medical College Admission Test (MCAT). While medical schools do not require that students pursue a specific major at the undergraduate level, applicants are generally expected to have a foundation in biology, chemistry, and physics. AT UAF the courses which satisfy this are: chemistry (CHEM 103X and 104X or 105X and 106X), organic chemistry (CHEM 321 and 322), anatomy and physiology (BIOL 111 and 112), biology (BIOL 105X and 106X), and physics (PHYS 103X and 104X). In addition, medical schools recommend students have a background in the social sciences and humanities. While medical schools will consider applicants who have completed three years of undergraduate work, most entering medical students have completed a bachelor's degree.

Students who are considering medicine as a career choice should contact the Academic Advising Center to be assigned an academic advisor. Program advisement, exploration of professional schools and licensing requirements, and financial planning are available to meet the needs of students in fulfilling their career aspirations.

## Military Science

**College of Liberal Arts**
**Department of Military Science** (907) 474-7501

**Minor only**

The Army Reserve Officers' Training Program is a cooperative effort agreed to by the Army and UAF as a means of providing junior officer leadership in the interest of national security. The goal of the program is to assist young men and women with leadership potential in obtaining commissions in the Army Reserve, National Guard or Regular Army.

The program of instruction is designed to complement the student's goal of obtaining a bachelor's degree in a course of study of his/her own choosing. Through academic instruction and practical experience laboratories, the student becomes familiar with the leadership, management and decision-making qualities necessary for the Army officer and civilian executive.

ROTC is divided into the basic course for freshmen and sophomores and the advanced course for juniors and seniors. Programs and courses can be adjusted to meet specific needs of individual students who desire to enroll but are past their freshman year. Military science courses are open to all students regardless of whether or not they intend to seek an Army commission.

**Basic Course** — All UAF students are eligible to enroll. There is no military obligation incurred by enrolling in any of the basic courses.

**Advanced Course** — 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.

**Uniforms and Equipment** — Students enrolled in military science are furnished uniforms and texts by the department.

**Awards** — Awards are made annually at the UAF awards ceremony. Awards, such as the governor's and chancellor's medals, are presented for outstanding achievement in the ROTC program, academic achievement, and leadership.

**ROTC Rifle Team** — Competition is scheduled with civilian and military teams in the state. Postal matches with other schools are fired throughout the year. All necessary equipment is furnished by the Department of Military Science at no cost to the student.

**Two-Year Program** — A special Basic Camp program is available for transfer students and others who were unable to take 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. — 136 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 Engineering-in-Training is a first step toward registration as professional engineers.

Students may initiate their mining engineering program in Anchorage and transfer to Fairbanks upon completion of their freshman or sophomore year. Such students should be in communication with faculty of the Mining Engineering Department, UAF.

## Requirements

**Mining Engineering — B.S. Degree**

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

**First Year**

| | |
|---|---|
| Fall Semester | 17 Credits |
| ENGL 111X — Methods of Written Communications | 3 |
| MATH 200 — Calculus | 4 |
| CHEM 105X — General Chemistry | 4 |
| MIN 103 — Introduction to Mining Engineering | 2 |
| MIN 104 — Mining Safety and Operations Lab | 1 |
| Perspectives on the Human Condition | 3 |
| Spring Semester | 17 Credits |
| CHEM 106X — General Chemistry | 4 |
| SPC 131X or 141X | 3 |
| MATH 201 — Calculus | 4 |
| ES 101 — Introduction to Engineering | 2 |
| GE 261 — General Geology for Engineers | 3 |
| LS 101 — Library Information and Research | 1 |

**Second Year**

| | |
|---|---|
| Fall Semester | 17 Credits |
| MATH 202 — Calculus | 4 |
| GEOS 262 — Rocks and Minerals* | 3 |
| PHYS 211 — General Physics | 4 |
| MIN 202 — Mine Surveying | 3 |
| MIN 313 — Introduction to Mineral Preparation | 3 |
| Spring Semester | 16 Credits |
| PHYS 212 — General Physics | 4 |
| ES 209 — Statics | 3 |
| ES 201 — Computer Techniques | 3 |
| ENGL 211X or 213X — Intermediate Exposition | 3 |
| MATH 302 — Differential Equations | 3 |

**Third Year**

| | |
|---|---|
| Fall Semester | 16 Credits |
| ES 331 — Mechanics of Materials | 3 |
| ES 341 — Fluid Mechanics | 4 |
| ES 210 — Dynamics | 3 |
| ES 307 — Elements of Electrical Engineering | 3 |
| Perspectives on the Human Condition** | 3 |
| Spring Semester | 18 Credits |
| ES 346 — Basic Thermodynamics | 3 |
| MIN 370 — Rock Mechanics | 3 |
| MIN 301 — Mine Plant Design | 3 |
| MIN 302 — Underground Mine Environmental Engineering | 3 |
| GEOS 332 — Ore Deposits and Structure | 3 |
| Perspectives on the Human Condition | 3 |

**Fourth Year**

| | |
|---|---|
| Fall Semester | 18 Credits |
| MIN 443 — Rock Fragmentation | 3 |
| MIN 445 — Design of Surface Mines for Conv. & Arctic Cond. | 3 |
| MIN 446 — Underground Mining Meth. & Their Design | 3 |
| MIN 447 — Mining Methods for Placer and Offshore Deposits | 3 |
| Perspectives on the Human Condition | 6 |
| Spring Semester | 18 Credits |
| MIN 408 — Mineral Valuation and Economics | 3 |
| MIN 409 — Operations Research & Computer Appl. in Min. Ind. | 3 |
| MIN 490 — Mine Design Project | 3 |
| Technical Electives[1] | 6 |
| Perspectives on the Human Condition | 3 |

Notes:

[1] Students must plan their elective courses in consultation with their mining engineering faculty advisor. Technical electives are selected from the list of the approved technical electives for mining engineering program and other programs course listing. All elective

courses must be approved by the department head.
* On alternate years, Perspectives on the Human Condition requirement should be taken.
** On alternate years, GEOS 262 should be substituted.

**Recommended Technical Electives for B.S. in Mining Engineering**
1. MIN 472 — Ground Control
2. GE 405 — Exploration Geophysics
3. GE 440 — Slope Stability
4. MIN 410 — Surface Materials Handling Systems

At least three out of the six technical elective credits must be taken from the above list of the approved technical electives. The other three credits should be chosen in consultation with the advisor and subject to approval by the department head.

**Mining Engineering — M.S. Degree**

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

# Museum Studies

## College of Natural Sciences (907) 474-7505

The Museum Studies courses provide students with an understanding of the functions and roles of museums in contemporary society, with academic instruction as well as practical hands-on experience. Emphasizing a broad natural history focus, Museum Studies courses present a comprehensive perspective of education, research and public service in museums and cover a variety of subjects.

# Music

## College of Liberal Arts
## Department of Music (907) 474-7555

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

**Minimum Requirements for Degrees:** B.A. — 130 credits; B.Mus. — 127 credits, M.A. — 30 additional credits; M.A.T. — 36 additional credits.

The curriculum is designed to satisfy cultural and professional objectives. The bachelor of arts degree in music is a curriculum planned for those desiring a broad, liberal education with a concentration in music. The bachelor of music degree in music education offers thorough preparation in teacher training with sufficient time to develop excellence in performance areas. The bachelor of music in performance degree offers intensive specialization for those desiring professional training in music performance.

The various music organizations maintained by the department offer participation for students in all academic divisions of the university. Music majors will be required to participate in at least one ensemble (band, choir, orchestra, chorus) each semester they are enrolled. In addition, participation in chamber music opportunities is offered. Piano majors may receive ensemble credit by performing as accompanists.

Attendance at recitals and concerts provides students with a variety of musical experiences which expand their regular curriculum; therefore, attendance is mandatory for all majors. All applied music students are expected to perform in student recitals during each semester of study.

At the end of the sophomore year, all music majors must demonstrate a satisfactory level of proficiency of performance in their applied major in order to advance to upper-division courses in music. A student may elect to continue study at the 200 level in attempting to pass requirements for admission to upper-division study.

A piano proficiency jury examination must be successfully completed by the end of the student's second year in the program. This examination will consist of (1) performance of a recital composition equivalent in difficulty to a Bach two-part invention, or Clementi or Kuhlau sonatina; (2) sight reading of Bach Chorales; (3) improvisation of a chordal accompaniment to a simple melody; and (4) transposition and harmonization of the same song to another key.

Students who desire to enroll in music theory courses will complete a placement examination and be allowed to enter at their appropriate level.

Current and prospective music majors may obtain a copy of the music department's handbook for further information about current degree requirements.

The music department of UAF is a full member of the National Association of Schools of Music, the national accrediting organization.

### Requirements

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

| | Credits |
|---|---|
| MUS 131-132 — Basic Theory | 4 |
| MUS 133-134 — Basic Ear Training | 4 |
| MUS 221-222 — History of Music | 6 |
| MUS 231-232 — Advanced Theory | 4 |
| MUS 233-234 — Advanced Ear Training | 2 |
| MUS 331 — Form and Analysis | 3 |
| **MUS 190 — Recital Attendance | 0 |
| Six credits to be selected from: | |
| MUS 421 — Music before 1620 | 3 |
| MUS 422 — Music in the 17th and 18th Century | 3 |
| MUS 423 — Music in the 19th Century | 3 |
| MUS 424 — Music in the 20th Century | 3 |
| *MUS 161-462 — Applied Music (major area) | 8 |
| Ensembles (may include up to 2 credits of | |
| MUS 307 — Chamber Music) | 6 |
| MUS 253 — Piano Proficiency | 0 |
| Minimum credits required | 130 |

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

| | Credits |
|---|---|
| Required Music Courses: | |
| *MUS 161-462 — Applied Music (major) | 24 |
| MUS 131-132 — Basic Theory | 4 |
| MUS 133-134 — Basic Ear Training | 4 |
| MUS 221-222 — History of Music | 6 |
| MUS 231-232 — Advanced Theory | 4 |
| MUS 233-234 — Advanced Ear Training | 2 |
| MUS 351 — Conducting | 3 |
| Ensembles (1 per semester) | 8 |
| Secondary Area: | |
| Twenty-seven credits to be selected from the following: | |
| MUS 124 — Music in World Cultures | 3 |
| [1] MUS 153 — Functional Piano | 1 |
| [2] MUS 161-162, 261-262, 361-362, 461-462 — Applied Music (Secondary Performance Area) | 2 or 4 |
| MUS 223 — Alaskan Native Musics | 3 |
| [1] MUS 307 — Chamber Music | 1 |
| [1] MUS 313 — Opera Workshop | 1-3 |
| [1] MUS 317 — Arctic Chamber Orchestra | 1 |
| [5] MUS 331 — Form and Analysis | 3 |
| [4] MUS 421-424 — Period History | 6 |
| [5] MUS 431 — Counterpoint | 3 |
| [5] MUS 432 — Orchestration | 3 |
| [5] MUS 433 — Composition | 3 |
| [3] MUS 493 — Special Topics | Arr. |
| **MUS 190 — Recital Attendance | 0 |
| MUS 253 — Piano Proficiency | 0 |
| Minimum credits required for degree | 120-121 |

[1] Repeatable for credit — MUS 153, 307, 313, 317
[2] Any level repeatable for credit — MUS 161-162, 261-262, 361-362, 461-462. Maximum total of 6 credits.
[3] Repeatable for credit — MUS 493. ..... Maximum total of 6 credits.
[4] Minimum of 6 credits to be selected from MUS 421, 422, 423, 424.
[5] Minimum of 6 credits to be selected from MUS 331, 431, 432, 433.
* The applied music credit minimums defined for the major area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.

** A half recital will be required in the junior year and a full recital in the senior year. The student, in his graduation recital, must demonstrate ability to perform satisfactorily in public a program of artistic merit. See music department's handbook for details.

**Music — B.M. Degree**

**(Music Education — Secondary)**

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

| | Credits |
|---|---|
| Required Music Courses: | |
| *MUS 161-461 — Applied Music (major) | 14 |
| MUS 131-132 — Basic Theory | 4 |
| MUS 133-134 — Basic Ear Training | 4 |
| MUS 221-222 — History of Music | 6 |
| MUS 231-232 — Advanced Theory | 4 |
| MUS 233-234 — Advanced Ear Training | 2 |
| MUS 315 — Music Methods and Techniques | 10 |
| MUS 331 — Form and Analysis | 3 |
| MUS 351 — Conducting | 3 |
| MUS 432 — Orchestration | 3 |
| Ensembles (1 per semester) | 8 |
| **MUS 190 — Recital Attendance | 0 |
| MUS 253 — Piano Proficiency | 0 |
| Courses required for Secondary Certification (Contact the School of Education before beginning education courses): | |
| MUS 405 — Secondary School Music Methods | 3 |
| PSY 101 - Introduction to Psychology | 3 |
| PSY 240 — Developmental Psychology | 3 |
| ED 201 — Introduction to Education | 3 |
| ED 330 — Diagnosis and Evaluation of Learning | 3 |
| ED 407 — Reading Strategies for Secondary Students | 3 |
| ED 424 — Small School Programs | |
| or | |
| ED 425 — Community as Education Resource | 3 |
| ED 430 — Multicultural Teaching Techniques | 3 |
| ED 453 — Secondary Student Teaching | 12 |
| 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 Influence in Education | 3 |
| ED 450 — Education and Cultural Transmission | 3 |
| Minimum credits required | 138 |

* 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 — Elementary)**

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

| | Credits |
|---|---|
| Required Music Courses: | |
| *MUS 161-461 — Applied Music (major) | 14 |
| MUS 131-132 — Basic Theory | 4 |
| MUS 133-134 — Basic Ear Training | 4 |
| MUS 221-222 — History of Music | 6 |
| MUS 231-232 — Advanced Theory | 4 |
| MUS 233-234 — Advanced Ear Training | 2 |
| MUS 309 — Elementary School Music Methods (same as ED 309) | 3 |
| MUS 315 — Music Methods and Techniques | 10 |
| MUS 331 — Form and Analysis | 3 |
| MUS 351 — Conducting | 3 |
| MUS 432 — Orchestration and Arranging | 3 |
| Ensembles (1 per semester) | 8 |
| **MUS 190 — Recital Attendance | 0 |
| MUS 253 — Piano Proficiency | 0 |
| Required education courses (Contact School of Education before beginning education courses): | |
| PSY 101 - Introduction to Psychology | 3 |
| PSY 240 — Developmental Psychology | 3 |
| ED 201 — Introduction to Education | 3 |
| ED 304 — Literature for Children | 3 |
| ED 330 — Diagnosis and Evaluation of Learning | 3 |
| ED 381 — Foundations of Literacy Development | 3 |
| ED 419 — Integrated Methods and Curriculum Development | 6 |
| ED 421 — Multi-cultural Classrooms | 3 |
| ED 452 — Elementary Student Teaching | 12 |
| 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 |
| Minimum credits required | 144 |

* 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 |
|---|---|
| Required Music Courses: | |
| MUS 131-132 — Basic Theory | 4 |
| MUS 133-134 — Basic Ear Training | 4 |
| **MUS 190 — Recital Attendance | 0 |
| MUS 221-222 — History of Music | 6 |
| MUS 231-232 — Advanced Theory | 4 |
| MUS 233-234 — Advanced Ear Training | 2 |
| MUS 253 — Piano Proficiency | 0 |
| MUS 331 — Form and Analysis | 3 |
| MUS 351 — Conducting | 3 |
| MUS 432 — Orchestration and Arranging | 3 |
| *MUS 161-362 — Private Lessons | 12 |
| MUS 315 — Music Methods and Techniques | 10 |
| MUS 405 — Secondary School Music Methods | 3 |
| MUS 309 — Elementary School Music Methods | 3 |
| MUS 101, 203, 205, 211 — Large Ensembles | 7 |
| Required Education Courses (Contact School of Education before beginning education courses): | |
| PSY 101 - Introduction to Psychology | 3 |
| PSY 240 — Developmental Psychology | 3 |
| ED 201 — Introduction to Education | 3 |
| ED 330 — Diagnosis and Evaluation of Learning | 3 |
| ED 407 — Reading Strategies for Secondary Teachers | 3 |
| ED 454 — Student Teaching | 12 |
| 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 |
| Minimum credits required | 132 |

* 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.

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

**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 151, 153, 161-462 | 4 |
| MUS 101, 203, 205, 211 | 2 |

**Music — M.A. or M.A.T. Degree**

Each graduate student's program is individually tailored and designed to meet the student's professional interests and aspirations, consistent with university principles and procedures.

Students may select from the following areas of specialization for the M.A. degree: performance, music education, music theory/composition, music history, and Alaskan ethnomusicology.

The master of arts in teaching is designed primarily as a functional program for the public school music teacher. Areas of specialization are instrumental, vocal, music supervision, and elementary specialist. The program is determined by the student and his/her committee.

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

# Native Language Education

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

**Certificate; Degree:** A.A.S.

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

## Requirements

**Native Language Education — A.A.S. Degree**

Students will be admitted to the program after consultation with a faculty member who will determine that they have suitable backgrounds in an Athabaskan language.

1. Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| ANL 108 — Beginning Athabaskan Literacy | 3 |
| ANL 208 - Advanced Athabaskan Literacy | 3 |
| ANL 287 - Teaching Methods for Alaska Native Languages | 3 |
| ANL 288 - Curriculum and Materials Development for Alaska | 3 |
| ANL 251 - Introduction to Athabaskan Linguistics | 3 |
| ANL 216 - Alaska Native Languages: Indian Languages | 3 |
| ED 199 - Practicum in Education | 6 |
| ED 299 - Practicum in Education | 6 |

3. Complete 15 credits of general electives.

Degree Total 60

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

**Native Language Education — Certificate**

Students will be admitted to the program after consultation with a faculty member who will determine that they have suitable backgrounds in an Athabaskan language.

Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| ANL 108 — Beginning Athabaskan Literacy | 3 |
| ANL 208 - Advanced Athabaskan Literacy | 3 |
| ANL 287 - Teaching Methods for Alaska Native Languages | 3 |
| ANL 288 - Curriculum and Materials Development for Alaska | 3 |
| ANL 251 - Introduction to Athabaskan Linguistics | 3 |
| ANL 216 - Alaska Native Languages: Indian Languages | 3 |
| ED 199 - Practicum in Education | 6 |
| ED 299 - Practicum in Education | 6 |
| Certificate Total | 30 |

# Natural Resources Management

### School of Agriculture
### and Land Resources Management (907) 474-5550

**Degrees:** B.S., M.S.

**Minimum Requirements for Degree:** B.S. — 130 credits; M.S. — 30-35 credits

Natural Resources Management consists of making and implementing decisions to develop, maintain or protect ecosystems to meet human needs and values. The core 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 enhance a student's depth or breadth in a given field of interest. The program is designed for students desiring careers in resources management or in other fields requiring knowledge of resources management, students planning advanced study, as well as those wishing to be better informed citizens.

The forestry option offers students the opportunity to focus on the multi-resource management of forests and associated ecosystems for the sustained production of goods and services and to prepare for forestry related employment. The Plant, Animal, and Soil Science option offers opportunities for scientific study and education in areas such as: field and greenhouse plant production, domestication and propagation of native plants, revegetation, domestic and native animal production, and agricultural and ecological aspects of soil science. The Resources option emphasizes responsible stewardship in the management of multiple resources that occur in natural systems.

Field and laboratory activities and applications of knowledge gained are stressed throughout the program. Internships and work-study arrangements are often available 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 (major) requirements (39 credits):

| | Credits |
|---|---|
| BIOL 105X — Fundamentals of Biology I | 4 |
| BIOL 106X — Fundamentals of Biology II | 4 |
| BIOL 271 — Principles of Ecology | 4 |
| CHEM 105X — General Chemistry I | 4 |
| CHEM 106X — General Chemistry II | 4 |
| ECON 235 — Intro. to Nat. Resource Econ. | 3 |
| NRM 101 — Natural Resources Conservation and Policy | 3 |
| NRM 304 — Perspectives in Natural Resources Management | 3 |
| NRM 380 — Soils | 3 |
| NRM 405 — Senior Thesis in Natural Resources Management | 4 |
| STAT 200 — Elementary Probability and Statistics | 3 |

3. Complete the requirements for one of the following options:

**A. Forestry Option**
**Department of Forest Sciences**

1. Complete the following (54 credits):

| | |
|---|---|
| AIS 101 — Computer Literacy (or approved alternative) | 3 |
| BIOL 239 — Introduction to Plant Biology | 4 |
| CE 112 — Elementary Surveying | 3 |
| ECON 335 — Intermediate Natural Resource Economics | 3 |
| GEOS 101X — The Dynamic Earth | 4 |
| NRM 204 — Natural Resources Legislation and Policy | 3 |
| NRM 241 — Introduction to Geographic Information Systems | 3 |
| NRM 251 — Silvics and Dendrology | 4 |
| NRM 340 — Natural Resources Measurement and Inventory | 3 |
| NRM 365 — Principles of Outdoor Recreation Management | 3 |
| NRM 370 — Introduction to Watershed Management | 3 |
| NRM 430 — Land-Use Planning | 3 |
| NRM 450 — Forest Management | 3 |
| NRM 451 — Silviculture | 3 |
| NRM 452 — Forest Protection | 3 |
| NRM 453 — Harvesting and Utilization of Forest Products | 3 |
| WLF 201 — Wildlife Management Principles or FISH 401 — Fisheries Management | 3 |

2. Complete three courses that total at least 8 credits from the following list of restricted electives (courses other than those listed must be approved by student's advisor):

| | |
|---|---|
| AVTY 302 — Aerial Data Collection | 2 |
| BA 350 — Introduction to Real Estate and Land Economics | 3 |
| BIOL 331 — Systematic Botany | 44 |
| FIRE — Any course on wildland fire control/management | 3 |
| GEOS 408 — Photogeology | 2 |
| GEOS 422 — Geoscience Applications of Remote Sensing | 3 |
| NRM 260 — Elements of Information Transfer for Natural Resources Management | 3 |
| NRM 277 — Introduction to Conservation Biology | 3 |
| NRM 300 — Internship in Natural Resources Management (must be | |

forestry related) ..... 1-6
NRM 303 — Environmental Ethics and Actions ..... 3
NRM 312 — Introduction to Range Management ..... 3
NRM 341 — Techniques in Geographic Information Systems ..... 4
STAT 401 — Regression and Analysis of Variance ..... 3
STAT 402 — Scientific Sampling ..... 3
WLF 201 — Wildlife Management Principles
or FISH 401 — Fisheries Management ..... 3
WLF 417 — Forest and Tundra ..... 2
Minimum credits required ..... 130

**B. Plant, Animal and Soil Sciences Option**
**Department of Plant, Animal and Soil Sciences**

1. Complete the following (12 credits):
NRM 211 — Introduction to Applied Plant Science ..... 3
NRM 310 — Agricultural Concepts ..... 3
NRM 320 — Introduction to Animal Science ..... 3
NRM 480 — Soil Conservation ..... 3
2. Complete a minimum of 12 credits in biology, botany, physics, chemistry, geosciences ant/or mathematics, in addition to the above basic courses. Courses must be approved for science majors.
3. Complete a minimum of 12 credits in the following Natural Resources Management electives:

Credits

NRM 102 — Practicum in Natural Resources Management
and/or NRM 300 — Internship in Natural Resources Management 3
NRM 230 — Natural Resources Legislation and Policy ..... 3
NRM 241 — Introduction to Geographic Information Systems ..... 3
NRM 251 — Silvics and Dendrology ..... 4
NRM 260 — Elements of Information Transfer for Natural
Resources Management ..... 3
NRM 312 — Introduction to Range Management ..... 3
NRM 313 — Introduction to Plant Pathology ..... 4
NRM 321 — Applied Animal Nutrition ..... 3
NRM 340 — Natural Resources Measurement and Inventory ..... 3
NRM 341 — Techniques in Geographic Information Systems ..... 4
NRM 370 — Introduction to Watershed Management ..... 3
NRM 404 — Processes of Natural Resources Management ..... 3
NRM 411 — Plant Propagation ..... 3
NRM 412 — Field Crop Production ..... 3
NRM 420 — Animal Nutrition and Metabolism ..... 3
NRM 425 — Ungulate Management and Production Systems ..... 3
NRM 445 — Managing Food Production Systems ..... 4
NRM 485 — Soil Biology ..... 3

4. Complete a minimum of 12 credits beyond those taken to fulfill categories above in a support field which is a group of courses selected for its clear pertinence to a cohesive program. Support fields may include but are not limited to: animal science, chemistry, communications, education, engineering, forestry, geography, marketing, natural resources management, nutrition, plant science, rural development and soils. The courses must be approved by the student's academic advisor prior to attaining senior standing.
Minimum credits required ..... 130

**C. Resources Option**
**Department of Resources Management**

1. Complete the following (32 credits):
ECON 335 — Intermediate Natural Resource Economics ..... 3
GEOS 101X — The Dynamic Earth ..... 4
NRM 204 — Natural Resources Legislation and Policy ..... 3
NRM 251 — Silvics and Dendrology ..... 4
NRM 312 — Introduction to Range Management
or NRM 480 — Soil Conservation ..... 3
NRM 340 — Natural Resources Measurements and Inventory ..... 3
NRM 365 — Principles of Outdoor Recreation Management ..... 3
NRM 370 — Introduction to Watershed Science ..... 3
NRM 430 — Land Use Planning ..... 3
WLF 201 — Wildlife Management Principles
or FISH 401 — Fisheries Management ..... 3
2. Complete a minimum of 9 credits from the Humans and the Environmental electives category. Courses involve human effects on the environment and its products through management. Substitutions may be made only with the permission of the student's academic advisor and the department head.
ANTH 428 — Ecological Anthropology ..... 3
ECON 437 — Regional Economic Development ..... 3
EQS 201 — Environmental Management ..... 3
FISH 261 — Introduction to Seafood Science and Nutrition ..... 3
FISH 401 — Fisheries Management ..... 3
FIRE 256 — Wildland Fire Planning and Multiple Use
Management ..... 3
GEOG 327 — Cold Lands ..... 3
GEOS 102X — Environmental Geology ..... 4
MIN 101 — Minerals, Man and the Environment ..... 3
MIN 400 — Practical Engineering Report ..... 1
MIN 407 — Mineral Industry and the Environment ..... 2
NRM 277 — Introduction to Conservation Biology ..... 3
NRM 300 — Internship in Natural Resources Management ..... 3
NRM 310 — Agricultural Concepts ..... 3
NRM 312 — Introduction to Range Management ..... 3
NRM 404 — Processes of Natural Resources Management ..... 3
NRM/WLF 431 - Wildlife Policy and Administration ..... 3
NRM 450 — Forest Management ..... 3
NRM 465 — Outdoor Recreation Planning ..... 3
NRM 480 — Soil Conservation ..... 3
PS 420 — Environmental Policies ..... 3
RD 255 — Rural Alaska Land Issues ..... 3
RD 265 — Perspectives on Subsistence in Alaska ..... 3
RD 350 — Community Research and Planning Techniques ..... 3
WLF 201 — Wildlife Management Principles ..... 3
WLF 417 — Wildlife Management: Forest and Tundra ..... 3
WLF 419 — Waterfowl and Wetlands Ecology and Management .. 3
3. Select a minimum of 12 credit in an approved support field. Selections may include courses listed within the Humans and the Environment elective category, and need not be limited to those with NRM designators. Courses are selected for their clear pertinence to a cohesive program and must be approved by the student's academic advisor prior to attaining senior standing. Examples include but are not limited to: communications, data management, economics, marketing, recreation, or resources policy. Support fields may also include subject areas in forest and plant, animal, and soil sciences.
4. Minimum credits required 130

**MINOR in Natural Resources Management**

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

**Natural Resources Management — M.S. Degree**

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

# Northern Studies

## Interdisciplinary

**Degrees:** B.A., M.A.

**Minimum Requirements for Degree:** B.A. — 130 credits; M.A. — 30 or more credits

The purpose of the northern studies program is to give interested students a broader study of the northern region — its environment, peoples, and problems. The major in northern studies is interdisciplinary.

The northern studies curriculum is centered around an interdisciplinary seminar, the Northern Studies Seminar, NORS 484, which is taken in the senior year. Students also must complete 10 courses, constituting a core program and select an additional two courses of their choice from the disciplines represented in the core curriculum.

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the former U.S.S.R., see Study Abroad.

## Requirements

**Northern Studies — B.A. Degree**

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

Credits

**Northern Studies Core:**
BIOL 104X — Natural History of Alaska ..... 3
PS 210 — Alaska Government and Politics or
PS 263 — Alaska Native Politics ..... 3
ANL 215 — Alaska Native Languages ..... 3
ANTH 242 — Native Cultures of Alaska ..... 3
GEOG 327 — Cold Lands ..... 3
HIST 384 — History of the Circumpolar North ..... 3
NORS 484 — Northern Studies Seminar ..... 3

Select 15 credits from two of the following groups:*

**Anthropology:**
ANTH 309 — Arctic Prehistory ..... 3
ANS/ANTH 320 — Lang and Culture: Appl to Alaska ..... 3
ANTH 321 — Physical Anthropology of the Americans ..... 3
ANTH 380 — The People of Alaska Southwest ..... 3
ANTH 381 — The Inupiaq and Yup'ik Peoples ..... 3
ANTH 382 — The People of Alaska Southeast ..... 3
ANTH 383 — Athabaskan Peoples of Alaska & Adjacent Canada . 3

**Geography:**
GEOG 202 — Geography of United States and Canada ..... 3
GEOG 302 — Geography of Alaska ..... 3
GEOG 306 — Geography of Russia ..... 3

**History:**
HIST 320 — Modern Scandinavia ..... 3
HIST 340 — Russian Eastward Expansion ..... 3
HIST 341 — History of Alaska ..... 3
HIST 344 — Modern Russian ..... 3
HIST 354 — Canadian History to 1867 ..... 3
HIST 355 — Canadian History 1867 to Present ..... 3
HIST 375 — History of the Northern Pacific
HIST 380 — Polar Exploration and Its Literature ..... 3
HIST 382 — History of Circumpolar Research ..... 3
HIST 460 — Russian American ..... 3

**Political Science:**
PS 310 — The Politics of Post-Industrial States ..... 3
PS 311 — Government and Politics of the Soviet Union ..... 3
PS 321 — International Politics ..... 3
PS 322 — International Law and Organizations ..... 3
PS/ANS 325 — Native Self Government ..... 3
PS/ANS 450 — Comparative Aboriginal Rights and Policies ..... 3
PS 481 — Geopolitics and International Environ ..... 3

**Humanities:**
ANS 301 — Native Cultural Heritage Documentation ..... 3
ART 364 — Native Art of Alaska ..... 3
ENGL 349 — Narrative Art of Alaska Native Peoples ..... 3
ENGL 350 — Literature of Alaska and the Yukon Territory ..... 3
MUS 441 — Alaska Native Music and Social Change ..... 3
Two semesters of a northern language, such as Eskimo, Russian, or Danish ..... 10
Minimum credits required ..... 130

*Students are encouraged to use the major in conjunction with a discipline-based major. Double majors linking Northern Studies with, for example, Alaska Native studies, anthropology, geography, history or political science majors may double count a maximum of 9 credits from the above groupings toward the second major. Other majors may double count a maximum of 9 credits toward their university distribution requirements.

**Minor in Northern Studies**

A minor in Northern Studies requires the completion of the core courses, excluding NORS 484, for a total of 18 credits.

**Northern Studies — M.A. Degree**

The M.A. in northern studies provides graduate academic study of northern policy issues and the cultural, historical, economic, and political context of the circumpolar north.

For complete information on the graduate program in northern studies, seethe UAF Graduate Catalog.

# Oceanography

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

(907) 474-7289

**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 Marine 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 Bering Sea, the *R/V Little Dipper*, which operates on day trips in Resurrection Bay, and the *R/V Maybeso*, which operates in southeast Alaskan waters. Laboratory facilities include a seawater system at Seward and a variety of modern and analytical instrumentation, including mass spectrometers, alpha, gamma and beta counting equipment, a flow cytometer facility, and 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 Management and Technology

## College of Rural Alaska
## Tanana Valley Campus

(907) 451-7223

**Certificate; Degree:** A.A.S.

**Minimum Requirements for Degree** — 60 credits; for Certificate — 30 credits

The Office Management and Technology 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 Management and Technology — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| Humanities, social sciences, mathematics, natural science or Perspectives on the Human Condition | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| ACCT 101 — Elementary Accounting | 3 |
| or ABUS 142 — Office Accounting I | 2 |
| OMT 105 — Keyboarding II/Intermediate Typewriting | 3 |
| OMT 106 — Keyboarding III/Advanced Typewriting | 3 |
| OMT 131 — Business English | 3 |
| OMT 151 — Microcomputer Word Processing/WordPerfect | |
| or OMT 153 — Microsoft Word | 2 |
| OMT 203 — Calculating Machines | 2 |
| OMT 207 — Machine Transcription | 2 |
| OMT 221 — Filing/Records Management | 3 |
| OMT 231 — Business Communications | 3 |
| OMT 244 — Office Management | 3 |
| Subtotal | (minimum of) 26-27 |

3. Complete 13 (minimum) credits from the following major specialty electives:

| | |
|---|---|
| ACCT 102 — Elementary Accounting | 3 |
| ABUS 155 — Business Math | 2 |
| OMT 100 — Alphabetic Shorthand | 3 |
| OMT 210 — Legal Typewriting | 3 |
| OMT 211 — Medical Typewriting | 2 |
| OMT 214 — Medical Machine Transcription | 1 |
| OMT 219 — Legal Machine Transcription | 1 |
| Any other CAPS, ABUS or OMT course | 1-6 |

4. Complete 6 general electives credits.

| | |
|---|---|
| Degree Total | 60-61 |

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

**Office Management and Technology — Certificate**

1. Complete the following major specialty requirements:

| | Credits |
|---|---|
| ACCT 101 — Elementary Accounting | 3 |
| or ABUS 142 — Office Accounting I | 2 |
| OMT 105 — Keyboarding II/Intermediate Typewriting | 3 |
| OMT 106 — Keyboarding III/Advanced Typewriting | 3 |
| OMT 131 — Business English | 3 |
| OMT 151 — Microcomputer Word Processing/Word Perfect | |
| or OMT 153 — Microsoft Word | 2 |
| OMT 203 — Calculating Machines | 2 |
| OMT 221 — Filing/Records Management | 3 |

2. Complete 10 credits from the following major specialty electives:

| | |
|---|---|
| ACCT 102 — Elementary Accounting II | 3 |
| ABUS 154 — Human Relations | 3 |
| ABUS 155 — Business Math | 2 |
| OMT 100 — Alphabetic Shorthand | 3 |
| OMT 210 — Legal Typewriting | 2 |
| OMT 211 — Medical Typewriting | 2 |
| OMT 214 — Medical Machine Transcription | 1 |
| OMT 219 — Legal Machine Transcription | 1 |
| OMT 231 — Business Communications | 3 |
| OMT 244 — Office Procedures | 3 |

3. Any other CAPS, ABUS or OMT course for a total of 3 credits.

Certificate Total ..... 31-32

# Paralegal Studies

### College of Rural Alaska
### Tanana Valley Campus (907) 451-7223

**Degree:** A.A.S.

**Minimum Requirements for Degree:** 60 credits

The paralegal studies curriculum leads to an associate of applied science degree for individuals aspiring to enter the legal community, state and federal agencies, insurance companies, banks and title companies as paralegal personnel. The core curriculum of 33 credits is based on model curricula published by the American Bar Association and designed to assure that students receive fundamental education in the vocabulary and process of the paralegal profession.

## Requirements

**Paralegal Studies — A.A.S. Degree**

Students must complete ENGL 111X with a grade of "C" or above prior to admission to the program.

1. Complete the following general university and A.A.S. requirements:

| | Credits |
|---|---|
| Communications: | |
| ENGL 111X and ENGL 211X, 212*, or 213X | 6 |
| SPC 131X or 141X | 3 |
| Mathematics or Natural Science: | |
| A math or natural science course at the 100 level or above | 3 |
| PS 101 - Introduction to American Government and Politics | 3 |

2. Complete the following major degree requirements:

| | |
|---|---|
| CAPS 150 - Computer Applications | 3 |
| PLS 101 - Introduction to Paralegal Studies | 3 |
| PLS 203 - Personal Injury and Property Damage | 3 |
| PLS 210 - Civil Procedure | 3 |
| PLS 215 - Contracts/Real Property | 3 |
| PLS 240 - Family Law | 3 |
| PLS 299 - Practicum | 3 |
| PS 303 - Introduction to Legal Processes | 3 |
| PS 404 - Introduction to Legal Research and Writing | 3 |
| PS 435 - The Supreme Court and Judicial Process | 3 |
| PS 436 - The Courts and Civil Liberties | 3 |

3. Complete 12 credits of general electives 12

Recommended electives: CAPS 160, CAPS 260, BA 317, BA 330, ANS 425, ABUS 241, or coursework fulfilling UAF core requirements.

Degree Total ..... 60

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

# Petroleum Engineering

### School of Mineral Engineering
### Department of Petroleum Engineering (907) 474-7734

**Degrees:** B.S., M.S.

**Minimum Requirements for Degrees:** B.S. — 134 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** | **16 Credits** |
| PETE 103 — Survey of the Energy Industry | 1 |
| MATH 200 — Calculus I | 4 |
| CHEM 105X — General Chemistry | 4 |
| ENGL 111X — Methods of Written Communication | 3 |
| Perspectives on the Human Condition | 3 |
| LS 101X — Library Information and Research | 1 |
| **Spring Semester** | **17 Credits** |
| ES 201 — Computer Techniques | 3 |
| MATH 201 — Calculus II | 4 |
| GE/GEOS 261 — Geology for Engineers [CAD 146] | 3 |
| CHEM 106X — General Chemistry II | 4 |
| SPC 131X or 141X — Fundamentals of Oral Communication | 3 |
| **Second Year** | |
| **Fall Semester** | **17 Credits** |
| PETE 205 — Introduction to Petroleum Drilling and Production | 3 |
| MATH 202 — Calculus III | 4 |
| PHYS 211X — General Physics I | 4 |
| ENGL 211X/213X — Intermediate Exposition | 3 |
| Perspectives on the Human Condition | 3 |
| **Spring Semester** | **17 Credits** |
| ES 208 — Mechanics | 4 |
| MATH 302 — Differential Equations | 3 |
| PHYS 212X — General Physics II | 4 |
| ES 346 — Basic Thermodynamics | 3 |
| Perspectives on the Human Condition | 3 |
| **Third Year** | |
| **Fall Semester** | **16 Credits** |
| PETE 301 — Reservoir Rock and Fluid Properties | 4 |
| MATH 310 — Numerical Analysis | 3 |
| ES 331 — Mechanics of Materials | 3 |
| ES 341 — Fluid Mechanics | 4 |
| Perspectives on the Human Condition | 3 |
| **Spring Semester** | **18 Credits** |
| PETE 302 — Well Logging | 3 |
| PETE 303 — Reservoir Rock and Fluid Properties Lab | 1 |
| PETE 426 — Drilling Engineering | 3 |
| PETE 411 — Drilling Fluids Laboratory | 3 |
| PETE 476 — Reservoir Engineering | 3 |
| GEOS 370 — Struct. Geol. for Petr. Engr | 4 |
| Perspectives on the Human Condition | 3 |
| **Fourth Year** | |
| **Fall Semester** | **17 Credits** |
| PETE 407 — Production Engineering | 3 |
| PETE 431 — Natural Gas Engineering | 2 |

PETE 466 — Petroleum Recovery Methods ..... 3
PETE 481 — Well Completions/Stimulation Design ..... 3
*Engineering Elective ..... 3
Perspectives on the Human Condition ..... 3
**Spring Semester ..... 15 Credits**
PETE 456 — Pet. Eval. and Econ. Dec ..... 3
PETE 421 — Reservoir Characterization ..... 3
PETE 478 — Well Test Analysis ..... 2
PETE 489 — Reservoir Simulation ..... 2
**Technical Elective ..... 3
PETE 487 — Petroleum Project Design ..... 2

[1] GEOS 101 may be taken in a fall semester in place of GE 261.
* As approved by advisor (e.g. ME 416 or ES 307).
** As approved by advisor (e.g. CE 603).
[2] All courses in humanities and social sciences must be approved by Petroleum Engineering faulty advisor.
[3] As approved by the Board of Architects, Engineers and Land Surveyors, students are required to take the EIT Exam.

**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 (907) 474-7398

**Degree:** B.A.

**Minimum Requirements for Degree:** 130 credits

The courses in philosophy are designed to confront the student with the fundamental problems of Western philosophical heritage and introduce him/her to independent reflection on them, thus broadening his/her perspectives for the various areas of specialization in science, the social sciences and humanities.

### Requirements

**Philosophy — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following foundation requirements:
   (May be used to meet general degree requirements.)
   6 credits of mathematics at the 100 level or above.
   Two years at the college level in a non-English language.
3. Complete the following program (major) requirements:
   36 credits in philosophy, including:

| | Credits |
|---|---|
| PHIL 201 — Introduction to Philosophy | 3 |
| PHIL 202 — Introduction to Eastern Philosophy | 3 |
| PHIL 204 — Introduction to Logic | 3 |
| PHIL 351-352 — History of Philosophy and Science | 6 |
| PHIL 471 — Contemp. Philosophical Problems | 3 |
| PHIL 486 — B.A. Thesis in Philosophy | 3 |
| PHIL 493 — Special Topics | 3 |

Choose two of the following:

| | |
|---|---|
| PHIL 321 — Aesthetics | 3 |
| PHIL 322 — Ethics | 3 |
| PHIL 341 — Epistemology | 3 |
| PHIL 342 — Metaphysics | 3 |
| PHIL 381 — Topics in Logics | 3 |

Choose two of the following:

| | |
|---|---|
| PHIL 481 — Philosophy of Science | 3 |
| PHIL 482 — Comparative Religion | 3 |
| PHIL 483 — Philosophy of Social Science | 3 |
| PHIL 485 — Topics in Comparative Philosophies | 3 |

4. Successfully complete a comprehensive oral examination conducted by the staff of the Department of Philosophy covering all course work in philosophy. The student is to arrange for the examination at the beginning of the last semester of his major study.
   Minimum credits required ..... 130

**MINOR in Philosophy:**

A minor in philosophy requires 18 credits of approved philosophy courses including:

| | Credits |
|---|---|
| PHIL 201 — Introduction to Philosophy | 3 |
| PHIL 351-352 — History of Philosophy and Science | 6 |
| PHIL 471 — Contemp. Philosophical Problems | 3 |

Choose six credits from the following:

| | |
|---|---|
| PHIL 202 — Intro. to Eastern Philosophy | 3 |
| PHIL 204 — Introduction to Logic | 3 |
| PHIL 321 — Aesthetics | 3 |
| PHIL 322 — Ethics | 3 |
| PHIL 341 — Epistemology | 3 |
| PHIL 342 — Metaphysics | 3 |
| PHIL 481 — Philosophy of Science | 3 |
| PHIL 482 — Comparative Religion | 3 |
| PHIL 483 — Philosophy of Social Science | 3 |
| PHIL 485 — Topics in Comparative Philosophies | 3 |

# Physical Education and Exercise Science

## College of Liberal Arts
## Department of Physical Education and Exercise Science (907) 474-7382

**Degrees:** B.A., B.S.

**Minimum Requirements for Degrees:** B.A. — 130 credits; B.S. — 120 credits

The curriculum in physical education and exercise science takes a common core of study of how humans move and exercise (Exercise Science) and adds to it studies of professional application such as the pedagogy of teaching (Physical Education) or further study to prepare the student for graduate study or professional fitness delivery in the private setting. Additionally, the department offers courses directed to individual fitness and skill enhancement for those not pursuing a degree within the department.

### Requirements

**Physical Education — B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following background requirements as part of the baccalaureate core:

| | Credits |
|---|---|
| BIOL 111X-112X — Human Anatomy and Physiology I and II | 8 |
| SPC 141X — Fund. of Oral Communication: Public Context | 3 |

3. Complete the following:
   Any 100 level Chemistry course ..... 4
4. Complete the following program (major) requirements:
   Required Courses (24 Credits)

| | |
|---|---|
| PE 205 — Introduction to the Human Movement Sciences | 2 |
| PE 232 — Analysis of Human Movement | 3 |
| PE 246 — Advanced First Aid | 3 |
| PE 316 — Motor Development or PE 317 — Motor Learning | 3 |
| PE 405 — Concepts and Design of Physical Fitness Activities | 2 |
| PE 421 — Physiology of Exercise | 4 |
| PE 432 — Biomechanics of Physical Performance | 4 |
| PE 437 — Adapted Programs of Physical Activity | 3 |
| Elective Credits (select a minimum of 8 courses) | 8 |

Included in these must be one winter sport, one individual sport, and one team sport.

| | |
|---|---|
| PE 211 — Fundamentals of Softball | 1 |
| PE 212 — Fundamentals of Basketball | 1 |
| PE 213 — Fundamentals of Ice Sports | 1 |
| PE 214 — Fundamentals of Snow Sports | 1 |
| PE 215 — Fundamentals of Volleyball | 1 |
| PE 216 — Fundamentals of Rhythms | 1 |
| PE 217 — Fundamentals of Recreational Activities | 1 |
| PE 218 — Fundamentals of Soccer | 1 |
| PE 219 — Fundamentals of Aquatics | 1 |
| PE 220 — Fundamentals of Wrestling | 1 |
| PE 221 — Fundamentals of Gymnastics | 1 |

PE 222 — Fundamentals of Track and Field ..... 1
Elective Credits (select a minimum of 4 courses) ..... 4-5
PE 300 — Advanced Techniques of Gymnastics ..... 1
PE 302 — Advanced Techniques of Basketball ..... 1
PE 303 — Advanced Techniques in Ice Sports ..... 1
PE 304 — Advanced Techniques in Snow Sports ..... 1
PE 305 — Techniques in Volleyball ..... 1
PE 306 — Techniques in Teaching Creative Dance ..... 1
PE 307 — Techniques in Camping and Outdoor Recreation ..... 1
PE 308 — Techniques in Track and Field ..... 1
PE 309 — Aquatics Instructor ..... 2
PE 310 — Techniques in Teaching Folk and Square Dance ..... 1
Elective Credits (select a minimum of 7 credits)
PE 317* — Motor Learning ..... 3
PE 321 — Practicum in Physical Education ..... 1
PE 327 — Physical Education for Children ..... 2
PE 401 — Theory of Basketball ..... 2
PE 406 — Instructional Methodologies for Physical Activity ..... 3
PE 411 — Sports & Physical Activity in Today's World ..... 3
PE 412 — Principles and Problems in Athletic Coaching ..... 3
PE 425 — Administration of P.E. and Athletics ..... 3
PE 440 — Prevention and Care of Athletic Injuries ..... 3
PE 442 — Evaluation in Physical Activity ..... 3
Minimum credits required ..... 130

* If not used as a required PE course.

**K-12 Teaching Certification:**

In order to receive a K-12 teaching certification in Physical Education a student must 1) complete a General Education minor (minus ED 299), 2) take ED 454 K-12 Student Teaching, and 3) complete the above requirements, including the following courses::

PE 216 — Fundamentals of Rhythms ..... 1
PE 217 — Fundamentals of Recreational Activities ..... 1
PE 221 — Fundamentals of Gymnastics ..... 1
PE 222 — Fundamentals of Track and Field ..... 1
PE 306 — Techniques in Teaching Creative Dance ..... 1
PE 307 — Techniques in Camping and Outdoor Recreation ..... 1
PE 321 — Practicum in Physical Education (twice) ..... 2
PE 327 — Physical Education for Children ..... 2
PE 406 — Instructional Methodologies for Physical Activity ..... 3
PE 411 — Sports & Physical Activity in Today's World ..... 3
PE 425 — Administration of P.E. and Athletics ..... 3
PE 442 — Measurement and Evaluation in Physical Activity ..... 3

### Requirements

**Exercise Science — B.S. Degree**

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following background requirements as part of the baccalaureate core and B.S. degree requirements:

| | Credits |
|---|---|
| BIOL 111X-112X — Human Anatomy and Physiology I and II | 8 |
| CHEM 103X-104X or CHEM 105X-106X | 8 |
| SPC 141X — Fund. of Oral Communication: Public Context | 3 |
| STAT 200 — Elementary Probability and Statistics | 3 |

3. Complete the following program (major) requirements:

Required Courses (47 Credits)
PE 205 — Introduction to the Human Movement Sciences ..... 2
PE 224 — Fundamentals of Resistive Training ..... 1
PE 225 — Fundamentals of Cardiovascular Training ..... 1
PE 226 — Fundamentals of Movement Mechanics ..... 1
PE 232 — Analysis of Human Movement ..... 3
PE 246 — Advanced First Aid ..... 3
PE 316 — Motor Development
or PE 317 — Motor Learning ..... 3
PE 321 — Practicum in Physical Education ..... 1
PE 337 — Psychology of Physical Activity ..... 3
PE 405 — Concepts and Design of Physical Fitness Programs ..... 2
PE 406 — Instructional Methodologies for Physical Activity ..... 3
PE 411 — Sports & Physical Activity in Today's World ..... 3
PE 421 — Physiology of Exercise ..... 4
PE 432 — Biomechanics of Physical Performance ..... 4
PE 437 — Adapted Programs of Physical Activity ..... 3
PE 442— Measurement and Evaluation in Physical Activity ..... 3
PE 475 — Internship in Exercise Science ..... 6

**MINOR in Physical Education:**

For a minor in P.E. for a B.A. degree, complete 18 approved credits in Physical Education at the 200-level or above.

# Physical Therapy

### Pre-Professional Program (907) 474-6396

Physical therapy is a health profession dedicated to the promotion of health, the prevention of disease, and to providing the assessment, evaluation and rehabilitation of the muscular, skeletal, and nervous systems after injury or disease. Typically, physical therapists work in rehabilitation units in hospitals, in conjunction with orthopedic practices, in private rehabilitation practices, and in sports medicine clinics. Along with delivering physical rehabilitation, many also serve as administrators, researchers and educators.

Physical therapy education typically consists of a program two years in length. Some programs lead to a bachelor's degree, others offer a certificate, while still others lead to a master's degree. The trend across the nation is towards the latter and requires completion of a bachelor's degree prior to admission. As with most health care professions, the first half of the training consists of classroom instruction, with the second emphasizing clinical practice. After completion of programs accredited by the American Physical Therapy Program, students are eligible to test for licensure in all 50 states.

Acceptance to physical therapy programs is very competitive and is based upon several factors. Included are overall academic achievement (most requiring a 3.0 gpa minimum), achievement in foundational sciences, and work experience in health-care situations. Graduate programs usually require the Graduate Record Examination and/or the Miller Analogies Test. UAF does not prescribe a specific major for pre-physical therapy students. Rather, students complete a series of courses which are required for admission to most programs: physics (PHYS 103X, 104X), anatomy and physiology (BIOL 111, 112), and statistics (STAT 300). Careful planning is necessary as course requirements over and above these differ between schools.

Students considering a career in physical therapy should contact the Academic Advising Center. There, students will be assigned an advisor to assist with program planning, exploration of professional schools and licensing requirements.

# Physics

### College of Natural Sciences
### Department of Physics (907) 474-7339

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

**Minimum Requirements for Degrees:** B.A. — 130 credits; B.S. — 130 credits; M.S. — 30 additional credits; M.A.T. — 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 physical science and engineering, and contributes to other fields such as biology and medicine.

The undergraduate curriculum provides a solid foundation in general physics with emphasis on its experimental aspects. Furthermore, 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 | 1 |
| PHYS 211X-212X — General Physics | 8 |
| PHYS 213 — Elementary Modern Physics | 3 |

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.
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.
PHYS 113, 211-212, 213, 311-312-313, 331-332, 411-412, 381, 382, 445 and 462.
Minimum credits required ..... 130

**Suggested Curriculum for B.S. Degree**

**First Year**

Fall Semester ..... 16 credits
ENGL 111X — Methods of Written Communication ..... 3
MATH 200 — Calculus ..... 4
CHEM 105 — General Chemistry ..... 4
BIOL 105X or GEOL 101X ..... 4
PHYS 113 — Concepts of Physics ..... 1

Spring Semester ..... 18 credits
SPC 131X or 141X — Fundamentals of Oral Communication ..... 3
PHYS 211 — General Physics ..... 4
MATH 201 — 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 211X — Intermediate Exposition with Modes of Literature or ENGL 213X — Intermediate Exposition ..... 3
GEOL 101X or BIOL 105X ..... 4
Perspectives on the Human Condition ..... 3

Spring Semester ..... 16 credits
MATH 302 — Differential Equations ..... 3
PHYS 213 — Elementary Modern Physics ..... 3
Perspectives on the Human Condition ..... 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
Perspectives on the Human Condition ..... 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
Perspectives on the Human Condition ..... 3

**Fourth Year**

Fall Semester ..... 16 credits
PHYS 411 — Modern Physics ..... 4
PHYS 313 — Thermodynamics ..... 4
PHYS 462 — Optics ..... 4
ES 307 — Elements of Electrical Engineering ..... 3
Free elective ..... 1

Spring Semester ..... 17 credits
PHYS 412 — Modern Physics ..... 4
PHYS 445 — Solid State Physics ..... 4
ES 308 — Instrumentation and Measurement ..... 3

**MINOR in Physics:**

A minor in Physics requires 20 credits: PHYS 103X-104X or PHYS 211-212 and 12 credits selected from PHYS 213 and any 300-400 level course.

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

Graduate work is offered in various areas of physics and applied physics including many of the research areas found at the UAF Geophysical Institute. The research program of the Geophysical Institute currently emphasizes investigation of auroral, ionospheric, magnetospheric and space plasma physics, the physics and chemistry of the upper and middle atmosphere, radiowave propagation and scattering, solar-terrestrial relations, and polarmeteorology.

A graduate student may designate his/her major field as physics, space physics or atmospheric sciences. He/she will pursue his/her studies under the supervision of an advisory committee which will advise on the course of study to be followed.

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

# Political Science

## College of Liberal Arts
## Department of Political Science (907) 474-7609

**Degree:** B.A.

**Minimum Requirements for Degree:** 130 credits

The study of political science is the study of human 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 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 including PS 100X, PS 300X, HIST 100X.
2. Complete the following foundation requirements (7 credits):
Credits
ECON 200 — Principles of Economics (or equivalent economics course) ..... 4
HIST 131 or 132 — History of the U.S. ..... 3
3. Complete the following major degree requirements (36 credits):
PS 101 — Introduction to American Government and Politics ..... 3
PS 222 — Research Methods ..... 3
PS 492 — Senior Seminar in Political Science ..... 3
Complete 27 additional credits in political science including at least three credits from each of the following subdisciplinary groups:

**American Government and Politics**

PS 210 — Alaska Government and Politics ..... 3
PS 212 — Introduction to Public Administration ..... 3
PS 301 — American Presidency ..... 3
PS 302 — Congress and Public Policy ..... 3
PS 401 — Political Behavior ..... 3
PS 403 — Public Policy ..... 3

**Public Law**

PS 303 — Politics and the Judicial Process ..... 3
PS 330 — Law, Justice and Society ..... 3
PS 350 — Justice and the Philosophy of Law ..... 3
PS 435 — Constitutional Law I: Institutions and Governmental Power ..... 3
PS 436 — Constitutional Law II: Civil Rights and Civil Liberties ..... 3

**Comparative Politics**

PS 201 — Comparative Politics: Western Political Systems ..... 3
PS 202 — Comparative Politics: Non-Western Political Systems and Structures ..... 3
PS 311 — Government and Politics of the Soviet Union and Eastern Europe ..... 3
PS 312 — Government and Politics of China and East Asia ..... 3

**International Politics**

PS 321 — International Politics ..... 3
PS 322 — International Relations ..... 3
PS 323 — International Political Economy ..... 3
PS 437 — American Foreign Policy ..... 3
PS 438 — Peace and National Security ..... 3

**Political Theory**

PS 315 — American Political Thought ..... 3
PS 316 — State in Democratic Society ..... 3
PS 411 — Classical Political Theory ..... 3
PS 412 — Modern Political Theory ..... 3
PS 415 — Contemporary Political Theory ..... 3

**MINOR in Political Science**

A minor in Political Science requires 15 credits distributed as follows:

| | Credits |
|---|---|
| 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, 437, 480 or 481 | 3 |
| Three credits in political theory from the following: PS 315, 411, 412, or 415 | 3 |

# Psychology

### College of Liberal Arts
### Department of Behavioral Sciences and Human Services

(907) 474-7240

**Degrees:** B.A., B.S.

**Minimum Requirements for Degrees:** 120 credits

Psychology seeks to guide the student in an understanding of human behavior. The field of psychology is necessary for students who are preparing for graduate study in psychology and also is helpful in preparing for other career fields.

## Requirements

**Psychology — B.A. or B.S. Degree**

1. Complete the general university requirements and B.A. or B.S. degree requirements.
2. Complete the following departmental core requirements:

| | |
|---|---|
| PSY 101 — Introduction to Psychology | 3 |
| *SOC 101 — Introduction to Sociology | 3 |
| PSY/SOC 250 — Introductory Statistics for Behav. Sci | 3 |
| PSY 240 — Develop. Psychology in Cross-Cultural Persp | 3 |
| PSY/SOC 473 — Social Science Research Methods | 3 |
| *ANTH 242 — Native Cultures of Alaska | 3 |

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 | 4 |
| PSY 460 — Physiological Psychology | 4 |
| PSY 470 — Sensation and Perception | 3 |
| Minimum credits required for degree | 120 |

*May be used toward general degree requirements where applicable.
** Courses in this group not used toward the major may be applied toward appropriate general degree requirements.

**MINOR in Psychology**

Complete 15 credits of psychology courses beyond PSY 101.

# Renewable Resources

### College of Rural Alaska
### Department of Rural Development

(907) 474-6432

Degree: A.A.S.

Minimum Requirements for Degree: for A.A.S. degree — 60 Credits

## Requirements

**Renewable Resources — A.A.S. Degree**

1. Complete the following general university and A.A.S. requirements:

| Communications: | Credits |
|---|---|
| ENGL 111X — Methods of Written Communication | 3 |
| ENGL 212* — Business, Grant and Report Writing or ENGL 213X — Intermediate Exposition | 3 |
| SPC 141X — Fund. of Oral Communication: Public Cntxt | 3 |
| MATH 107 or MATH 131 or MATH 171 | 3 |
| CHEM 103X — Basic General Chemistry | 4 |

2. Complete the following major degree requirements:

| | |
|---|---|
| NRM 101 — Conservation of Natural Resources | 3 |
| NRM 102 — Practicum in Natural Resources Mgt | 1-3 |
| NRM 201 — Processes of Natural Resources Mgt | 3 |
| CAPS 100 — Intro. to Personal Computers | 1 |
| CAPS 111 — Computer Software for Beginners | 2 |
| ECON 235 — Intro. to Natural Res. Economics | 3 |
| RD 255 — Rural Alaska Land Issues | 3 |
| RD 280 — Resource Mgt. Research Tech | 3 |
| BIOL 105X and 106X — Fund. of Biology I and II (8) or BIOL 104 — Natural History of Alaska (4) and GEOS 100 — Introduction to Earth Science (4) or GEOG 205 — Elem. of Physical Geography (3-4) | 7-8 |
| FISH 101 — Introduction to Fisheries (3) and WLF 101 — Survey of Wildlife Science (1) or ABUS 223 — Real Estate Law (3) and RD 256 — Topics in Rural Land Management (3) | 4-6 |

3. Complete 9-14 elective credits from the following courses:

| | |
|---|---|
| NRM 251 — Silvics and Dendrology | 3 |
| ANS 310 — Alaska Native Corps | 3 |
| ANTH 242 — Native Cultures of Alaska | 3 |
| BIOL 271 — Principles of Ecology | 3 |
| BIOL 239 — Introduction to Plant Biology | 4 |
| CE 112 — Elementary Survey | 3 |
| EMS 103 — First Responder or PE 246 — First Aid | 3 |
| ENGL 314 — Technical Writing | 3 |
| FISH 101 — Introduction to Fisheries | 3 |
| MIN 101 — Minerals, Man and the Environment | 3 |
| RD 265 — Persp. on Subsistence in Alaska | 3 |
| RD 315 — Tribal People and Development | 3 |
| RD 325 — Comm Organization and Dev. Strat | 3 |
| WLF 101 — Survey of Wildlife Science | 1 |
| WLF 201 — Wildlife Management Principles | 3 |
| WLF 301 — Wildlife Management Techniques | 3 |
| Subtotal | 9-14 |
| Degree Total | 60 |

4. A maximum of 5 credits earned from the following list of one credit skills courses may be counted as electives for this program:

| | |
|---|---|
| ALST 103C — The Land | 1 |
| ALST 107 — Land Resource Management | 1 |
| ANL 150 — Interpretive Communication | 1 |
| SCIA 130 — Moose Biology | 1 |
| SCIA 161 — Birds of Alaska | 1 |

Note: Other electives may be accepted upon approval of student's adviser.

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

# Resource Economics

### School of Management
### Department of Economics

(907) 474-7119

**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, seethe UAF Graduate Catalog.

# Rural Development

## College of Rural Alaska
## Department of Rural Development (907) 474-6432

**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:

Credits

Rural Development Core (30 credits):
RD 300 — Rural Development in a Global Perspective ..... 3
RD 325 — Community Development Strategies ..... 3
RD 350 — Community Research Techniques ..... 3
RD 351 — Community Planning and Grant Writing Techniques ..... 3
RD 400 — Rural Development Internship ..... 3
RD 450 — Managing Community Development Projects ..... 3
RD 475 — Senior Project ..... 3
RD Elective ..... 6
RD or ED Elective ..... 3

**Applied Emphasis (24 credits):**

Complete a minimum of 24 elective credits (in addition to any required prerequisites) in one of the following groupings. (These elective credits can also be used to fulfill the humanities, social science, mathematics general requirements for the B.A. degree.)

**Land/Renewable Resources Emphasis**

Designed for individuals interested in becoming involved in the management of village corporation lands.
ABUS 223 — Real Estate Law ..... 3
ANS 310 — Alaska Native Land Settlement* ..... 3
ANS 425 — Federal Indian Law and Alaska Natives* ..... 3
BIOL 104 — Natural History of Alaska ..... 3
BIOL 150 — Introduction to Marine Biology ..... 3
BIOL 271 — Principles of Ecology* ..... 4
BIOL 277 — Introduction to Conservation Biology* ..... 3
CAPS 111 — Computer Software for Beginners ..... 2
CE 112 — Elementary Surveying* ..... 3
CS 101 — Computers and Society ..... 3
ECON 235 — Intro. to Natural Resource Economics ..... 3
ENGL 314 — Technical Writing* ..... 3
EQS 201 — Environmental Management ..... 3
FISH 101 — Introduction to Fisheries ..... 3
FISH 401 — Fisheries Management* ..... 3
GEOG 241 — Intro. to Geographic Information Systems ..... 3
GEOS 101X — The Dynamic Earth ..... 4
GEOS 102X — Environmental Geology* ..... 4
MIN 101 — Minerals, Man and the Environment ..... 3
MSL 111X — The Oceans ..... 3
NRM 101 — Conservation of Natural Resources* ..... 3
NRM 204 — Natural Resources Legislation and Policy* ..... 3
NRM 340 — Natural Resources Measurements and Inventory* ..... 3
NRM 404 — Processes of Natural Resources Decision Making* ..... 3
NRM 430 — Land Use Planning* ..... 3
PS 420 — Environmental Politics ..... 3
RD 255 — Rural Alaska Land Issues ..... 3
RD 256 — Advanced Topics in Rural Land Management* ..... 3
RD 265 — Perspectives on Subsistence in Alaska ..... 3
RD 280 — Resource Management Research Techniques* ..... 3
WLF 201 — Wildlife Management Principles* ..... 3
WLF 303 — Wildlife Management Techniques* ..... 3
Approved electives ..... 3 or more

**Local Government Administration Emphasis**

Designed for individuals interested in becoming involved in the administration of small municipal cities and/or IRA Tribal Governments.
ABUS 154 — Human Relations ..... 3
ABUS 179 — Fundamentals of Supervision ..... 3
ABUS 232 — Fundamentals of Management* ..... 3
ACCT 101 — Elementary Accounting I ..... 3
ACCT 102 — Elementary Accounting II* ..... 3
ACCT 303 — Governmental Accounting* ..... 3
ANS 120 — Cultural Differences in Institutional Settings ..... 3
ANS 310 — Alaska Native Land Settlement* ..... 3
ANS 425 — Federal Indian Law and Alaska Natives* ..... 3
ANS 450 — Comparative Aboriginal Rights and Policies* ..... 3
ANTH 305 — Comparative Political and Legal Systems* ..... 3
BA 330 — Legal Environment of Business* ..... 3
CAPS 111 — Computer Software for Beginners ..... 2
CS 101 — Computers and Society ..... 3
ECON 351 — Public Finance* ..... 3
ENGL 212 — Business, Grant and Report Writing ..... 3
ENGL 314 — Technical Writing* ..... 3
JUST 340 — Rural Justice in Alaska ..... 3
NRM 204 — Natural Resources Legislation and Policy* ..... 3
NRM 430 — Land Use Planning* ..... 3
PS 101 — Intro. to American Government and Politics ..... 3
PS 210 — Alaska Government and Politics ..... 3
PS 212 — Introduction to Public Administration ..... 3
PS 263 — Alaska Native Politics ..... 3
PS 325 — Native Self Government* ..... 3
PS 403 — Public Policy* ..... 3
SOC 250 — Introductory Statistics for Behavioral Sciences* ..... 3
SOC 407 — Formal Organizations ..... 3
SPC 330 — Intercultural Communication ..... 3
SPC 335 — Organizational Communication ..... 3
Approved electives ..... 3 or more

**Small Business Management Emphasis**

Designed for individuals interested in becoming involved in the management of ANCSA village corporations and related community-based enterprises.
ABUS 151 — Village-Based Entrepreneurship ..... 2
ABUS 179 — Fundamentals of Supervision ..... 3
ABUS 211 — Tax for Business Entities ..... 2
ABUS 232 — Fundamentals of Management* ..... 3
ABUS 233 — Financial Management* ..... 3
ABUS 241 — Applied Business Law I ..... 3
ABUS 272 — Small Business Planning* ..... 3
ABUS 273 — Managing a Small Business ..... 3
ACCT 101 — Elementary Accounting I ..... 3
ACCT 102 — Elementary Accounting II ..... 3
ANS 310 — The Alaska Native Land Settlement* ..... 3
ANS 425 — Federal Indian Law and Alaska Natives* ..... 3
BA 151 — Introduction to Business ..... 3
BA 331 — The Legal Environment of Business ..... 3
CAPS 111 — Computer Software for Beginners ..... 2
CS 101 — Computers and Society ..... 3
ECON 111 — Economics of Rural Alaska (offered only through off-campus program) ..... 3
ECON 137 — The Alaskan Economy ..... 3
ECON 200 — Principles of Economics ..... 4
ENGL 212 — Business, Grant and Report Writing ..... 3
ENGL 314 — Technical Writing* ..... 3
OMT 221 — Records Management ..... 3
SOC 407 — Formal Organizations* ..... 3
Approved electives ..... 6 or more

**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.
ANL 215 — Alaska Native Languages: Eskimo-Aleut ..... 3
ANL 216 — Alaska Native Languages: Indian Languages ..... 3
ANS 120 — Cultural Differences in Institutional Settings ..... 3
ANS 320 — Language & Culture: Application of Alaska* ..... 3
ANS 351 — Practicum in Native Cultural Expression ..... 1-3
ANS 401 — Knowledge of Native Elders* ..... 3
ANTH 230 — The Oral Tradition: Folklore and Oral History* ..... 3
ANTH 320 — Language and Culture: Applications of Alaska* ..... 3
ANTH 421 — Analytical Techniques* ..... 3
APAR 100 — Basic Video Workshop ..... 1
APAR 103 — Editing Videotape ..... 1
CAPS 111 — Computer Software for Beginners ..... 2
CS 101 — Computers and Society ..... 3
ED 311 — Intro to Instructional Techniques* ..... 3

ENGL 313 — Writing Non-Fiction Prose* ..... 3
ENGL 314 — Technical Writing* ..... 3
ENGL 349 — Narrative Art of Alaska Native Peoples* ..... 3
HIST 250 — Alaska History for Local Historians ..... 3
HIST 470 — Researching and Writing Alaska History* ..... 3
JB 204 — Photojournalism* ..... 3
JB 215 — Audio Production ..... 3
JB 311 — Magazine Article Writing* ..... 3
JB 317 — Broadcast Journalism* ..... 3
LS 309 — Information Resources* ..... 1
LS 382 — History of Circumpolar Research* ..... 3
MSM 211 — Fundamentals of Museum Studies I* ..... 3
MSM 212 — Fundamentals of Museum Studies II* ..... 3
MSM 311 — Museum Administration* ..... 3
MSM 312 — Museum Collection Management* ..... 3
RD 425 — Cultural Impact Analysis* ..... 3
SOC 250 — Intro. Statistics for Behavioral Sciences ..... 3
SOC 473 — Social Science Research Methods* ..... 3
SPC 225 — Listening and Interviewing* ..... 3
SPC 330 — Intercultural Communication* ..... 3
Approved Electives ..... 3 or More

**Community Organization and Service Emphasis**
Designed for individuals who are interested in becoming involved with community level service organizations and programs.
ABUS 154 — Human Relations ..... 3
ABUS 179 — Fundamentals of Supervision ..... 3
ABUS 231 — Introduction to Personnel ..... 3
ABUS 232 — Fundamentals of Management* ..... 3
ANS 120 — Cultural Differences in Institutional Settings ..... 3
ANS 425 — Federal Indian Law and Alaska Natives* ..... 3
ENGL 314 — Technical Writing* ..... 3
HMSV 201 — Introduction to Human Services ..... 3
HMSV 230 — Alcoholism: Causes and Consequences* ..... 3
HMSV 410 — Management of Human Services Programs* ..... 3
PSY 101 — Introduction to Psychology ..... 3
PSY 210 — Cross-Cultural Psychology* ..... 3
PSY 240 — Developmental Psychology in Cultural Perspective* ..3
PSY 255 — Foundations of Counseling* ..... 3
PSY 445 — Community Psychology* ..... 3
SOC 101 — Introduction to Sociology ..... 3
SOC 201 — Social Problems ..... 3
SOC 242 — The Family: A Cross-Cultural Perspective ..... 3
SOC 310 — Sociology of Later Life* ..... 3
SOC 370 — Drugs and Drug Dependence* ..... 3
SPC 330 — Intercultural Communication* ..... 3
SWK 103 — Social Work in the Human Services ..... 3
SWK 225 — Case Management* ..... 3
SWK 306 — Social Welfare: Policies & Issues* ..... 3
SWK 320 — Rural Social Work* ..... 3
Approved electives ..... 3 or more
Minimum credits required ..... 120

*prerequisites required

**MINOR in Rural Development:**
A minor in Rural Development requires the completion of 15 Rural Development credits at the 200 or above level, including RD 300.

# 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:
Russian Studies core courses (21-24 credits):

Credits

Approved Anthropology Elective ..... 3
GEOG 306 — Geography of Russia ..... 3
HIST 344 — Modern Russia ..... 3
RUSS 301 — Advanced Russian* ..... 3
RUSS 302 — Advanced Russian* ..... 3
RUSS 431 — Studies in Russian Culture ..... 3
RUSS 432 — Studies of Literature in Russian ..... 3
RUSS 487 — Translation (3 cr.) ..... 6
Complete at least 12 credits from the following courses or alternatives as approved by the program advisor:
BA 443 — International Marketing ..... 3
BA 460 — International Business ..... 3
BA 461 — International Finance ..... 3
ECON 463 — International Economics ..... 3
GEOG 405 — Political Geography ..... 3
HIST 315 — Europe 1900-1945 ..... 3
PHIL 471 — Contemporary Philosophical Prob. ..... 3
PS 202 — Comparative Politics: Contemporary Doctrines and Structures ..... 3
PS 311 — Government & Politics of Soviet Union and Eastern Europe ..... 3
PS 321 — International Politics ..... 3
PS 322 — International Relations ..... 3
3. Minimum credits required 130
* Students must complete two years of Russian language study (RUSS 101-102-201-202) or equivalent as a prerequisite for RUSS 301-302.

**MINOR in Russian:**
A minor in Russian studies requires 15 credits taken from the Russian Studies core courses and approved by the program adviser.

# 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, seethe UAF Graduate Catalog.

# Social Work

## College of Liberal Arts
## 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 asocial 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 sequences in social policy and services, practice methods, and field instruction. A major emphasis is the preparation of the student for beginning social work practice with rural and Alaska Native populations.

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 103X must be taken to meet natural science requirement and SOC 100X must be taken as part of the baccalaureate core.)

2. Complete the following departmental core requirements:
*PSY 101 — Introduction to Psychology ..... 3
*SOC 100X — Individual, Society, and Culture ..... 3
SOC 250 — Introductory Statistics for Behav. Sci ..... 3
*PSY 240 — Develop. Psychology in Cross-Cultural Persp ..... 3
SOC 473 — Social Science Research Methods ..... 3
*ANTH 242 — Native Cultures of Alaska ..... 3
3. Complete the following courses:
SWK 103 — Social Work in the Human Services ..... 3
SWK 306 — Social Welfare: Policy and Issues ..... 3
SWK 320 — Rural Social Work ..... 3
SWK 442 — Human Behavior and the Social Environment ..... 3
SWK 460 — Social Work Practice I ..... 3
SWK 461 — Practicum in Social Work I ..... 6
SWK 463 — Social Work Practice II ..... 3
SWK 464 — Practicum in Social Work II ..... 6
SOC 242 — The Family: A Cross-Cultural Perspective ..... 3
4. Complete 9 credits from the following Special Problems areas:
SWK 360 — Child Abuse and Neglect ..... 3
SWK 484 — Seminar in Social Work Practice ..... 3
HMSV 205 — Factors in Health and Disease ..... 3
HMSV 210 — Crisis Intervention ..... 3
HMSV 230 — Alcoholism: Theories of Etiology ..... 3
HMSV 255 — Foundations of Counseling I ..... 3
HMSV 330 — Alcoholism: Treatment and Prevention ..... 3
HMSV 356 — Foundations of Counseling II ..... 3
HMSV 410 — Management of Human Services Programs ..... 3
RD 325 — Community Organization and Development Strategies . 3
SOC 310 — Sociology of Later Life ..... 3
Other courses that deal with special problems or methods may be taken with permission of advisor to meet this requirement.
Minimum credits required for degree ..... 120

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

# Sociology

### College of Liberal Arts
### 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 ..... 3
SOC 101 — Introduction to Sociology ..... 3
*PSY 240 — Develop. Psychology in Cross-Cult. Persp ..... 3
PSY/SOC 250 — Introductory Statistics for Behav. Sci ..... 3
PSY/SOC 473 — Social Science Research Methods ..... 3
*ANTH 242 — Native Cultures of Alaska ..... 3
3. Complete the following Sociology Core requirements:
SOC 301 — Rural Sociology ..... 3
PSY/SOC 330 — Social Psychology ..... 3
SOC 363 — Social Stratification ..... 3
SOC 402 — Theories of Sociology ..... 3
4. Complete 12 credits from the following:**
SOC 102 — Social Institutions ..... 3
SOC 201 — Social Problems ..... 3
SOC 242 — The Family: A cross-cultural Perspective ..... 3
SOC 307 — Demography ..... 3
SOC 309 — Urban Sociology ..... 3
SOC 310 — Sociology of Later Life ..... 3
SOC 335 — Sociology of Deviant Behavior ..... 3
SOC 370 — Drugs and Drug Dependence ..... 3
SOC 405 — Social Change ..... 3
SOC 407 — Formal Organizations ..... 3
SOC 408 — American Minority Groups ..... 3
RD 325 — Community Org. & Devt. Strategies ..... 3
Minimum Credits required for Degree ..... 120

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

** Courses from this group not used toward the major may be applied toward B.A. general degree requirements where applicable.

**MINOR in Sociology:**

A minor in Sociology requires 18 credits in sociology including Soc. 101 and 102.

# Space Physics

### College of Natural Sciences
### Department of Physics (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) 474-6591

**Degree:** B.A.

**Minimum Requirements for Degree:** 120 credits

Course work in Speech Communication prepares an individual to handle the challenges of communicating effectively in a rapidly changing world characterized by diversity in gender, cultural background, and belief. The major and minor programs in Speech Communication provide the student with a comprehensive background in the discipline in preparation for employment or further education. Individuals majoring in a wide variety of other disciplines will also find Speech Communication electives to be valuable additions to their programs.

## Requirements

**Speech Communication — B.A. Degree**

1. Complete the general university degree requirements and B.A. degree requirements, including one of the two Fundamentals of Oral Communication courses required in the Core Curriculum.
2. Complete two of the following requirements for the major:
SPC 180 — Introduction to Human Communication ..... 3
SPC 280 - Communication and Diversity ..... 3
SPC 330 - Intercultural Communication
or SPC 351 - Communication and Women ..... 3
SPC 401 - Communication Research Methods
and SPC 343 - Rhetorical Theory
or
SPC 451 - Rhetorical Analysis
and SPC 425 - Communication Theory ..... 6
It is strongly recommended that majors take both SPC 343 and SPC 425.
3. Complete a minimum of 15 additional credits, selected from courses listed below, 9 of which must be at the 300 or 400 level. in approved Speech Communication courses

| COURSES | Credits |
|---|---|
| **200 Level** | |
| SPC 222 — Fundamentals of Interpersonal Communication | 3 |
| SPC 225 — Listening and Interviewing | 3 |
| SPC 231 — Business and Professional Communication | 3 |
| SPC 251 — Argumentation and Debate | 3 |
| **300 Level*** | |
| SPC 320 — Communication and Language | 3 |
| SPC 321 — Nonverbal Communication | 3 |
| SPC 330 — Intercultural Communication | 3 |
| SPC 331 — Advanced Group Communication | 3 |
| SPC 335 — Organizational Communication | 3 |
| SPC 342 — Advanced Public Speaking | 3 |
| SPC 352 — Family Communication | 3 |

**400 Level***
SPC 401 — Communication Research Methods ..... 3
SPC 422 — Interpersonal Communication ..... 3
SPC 441 — Persuasion ..... 3
SPC 451 — Rhetorical Analysis ..... 3
SPC 475 — Applied Communication in Training and Development 3
SPC 482 — Seminar in Speech Communication ..... 3

Minimum credits required ..... 120

* With approval of advisor, an appropriate level special topics or independent studies course in Speech Communication 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. These 15 credits must include SPC 180 and SPC 280 and at least 6 credits at the 300 level or higher. Courses designated as social science that are taken for the minor may also be used to fulfill social science distribution requirements for the B.A. degree.

# Statistics

## College of Liberal Arts
## Department of Mathematical Sciences (907) 474-7332

**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**

No student will be allowed to declare Statistics as a major unless she/he is ready to matriculate into MATH 200, Calculus I. Upon satisfying the above condition the student must satisfy the following requirements in order to graduate with a degree in Statistics.

1. Complete the general university requirements and B.S. degree requirements. The mathematics requirements should be met with MATH 200-201. ENGL 314 is recommended to fulfill one of the writing intensive course requirements.
2. Complete the following major requirements:

**A. Statistics Core (28 Credits)**
MATH 202 — Calculus ..... 4
MATH 371 — Probability ..... 3
MATH 408 — Mathematical Statistics ..... 3
CS 103 — Intro. to Computer Programming or any higher level CS course ..... 3
STAT 200 — Elementary Probability and Statistics or STAT 300 — Statistics ..... 3
STAT 351 — Statistical Computing Packages ..... 2
STAT 401 — Regression and Analysis of Variance ..... 4
STAT 402 — Scientific Sampling ..... 3
STAT 498 — Senior Project ..... 3

**B. Electives in the Major**
Choose two of the following:
STAT 461 — Applied Multivariate Statistics ..... 3
MATH 307 — Discrete Mathematics ..... 3
MATH 310 — Numerical Analysis ..... 3
MATH 314 — Linear Algebra ..... 3
MATH 401 — Advanced Calculus I ..... 3
MATH 402 — Advanced Calculus II ..... 3
MATH 460 — Mathematical Modeling ..... 3
STAT, MATH or statistical discipline oriented course approved by the statistics program chairperson ..... 3

**C. Area of Application*(24 Credits)**

Complete a minimum of 24 credits, including at least 6 upper division, in a single discipline in which a UAF Bachelor's Degree is offered. Joint approval in writing is required from the department head in the area of application and the statistics adviser.**
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.

** Examples of programs for areas of application for computer science, biology, wildlife, geology, natural resource management, and economics are available. Other areas of application are available.

A mathematics minor is completed by all statistics majors.

A Statistics/Math double major may be obtained by taking the following in addition to Items 1 and 2A above: MATH 215, 308, 314, 401, 492 and complete 12 additional credits in upper division math or statistics. A math elective package is MATH 371 and 408, STAT 351, 401, and 402 plus 6 credits upper division MATH or STAT. The statistics elective package is MATH 314 and 401. Total credit hours 60 including MATH 200-201. Other double majors are available.

**Minor in Statistics:**

Complete the following:
STAT 200 — Elementary Probability and Statistics or STAT 300 — Statistics ..... 3
STAT 401 — Regression and Analysis of Variance ..... 3
MATH 371 — Probability ..... 3
MATH 408 — Mathematical Statistics ..... 3
And complete 3 credits of approved MATH, STAT or STAT related course work (e.g., BA 360, BA 684, GEOS 430, ECON 326, ANTH 421, MATH 460, etc.) ..... 3

Fisheries majors selecting the research option need only complete MATH 371 and 408 in addition to their fisheries requirements to obtain a minor in statistics.

*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.)

# Technology

## Interdisciplinary Program

**Degree:** B.T.

**Minimum Requirements for Degree:** 120 credits

The Bachelor of Technology degree offers qualified applicants the opportunity to expand upon their technical education. With the proper academic advising the student may complete the requirements for an Associate of Applied Science degree while meeting the requirements for the baccalaureate degree. The Bachelor of Technology degree allows students to choose one of three areas of study: Education, Business, or Interdisciplinary Studies.

Education provides preparation for the certifiable fields. Business enhances managerial/entrepreneural skills. Interdisciplinary studies allows the exceptional student to tailor a baccalaureate program to his/her own unique needs.

Information and advising for this degree is through the Academic Advising Center.

## Requirements

**Technology — B.T. Degree**

1. Complete the baccalaureate core (38-39 credits).
2. Complete the following B.T. requirements in addition to the core:

| | Credits |
|---|---|
| ENGL 314 — (to count as one of the upper division writing intensive courses) | 3 |
| MATH — one course at the 100-level or above | 3 |
| Computer competency | 3 |
| Technology and Society | 3 |

3. Area of specialization
4. Complete one of the following options:
Option 1: (32 credits)
Note: For this option, no more than 25% or total course work may be taken in the School of Management.

ACCT 101/102 — Elementary Accounting ..... 6
ECON 200 — Principles of Economics ..... 4
STAT 200 — Elementary Probability and Statistics ..... 3
BA 151 — Introduction to Business ..... 3
BA 307 — Personnel Management ..... 3
BA 325 — Financial Management ..... 3
BA 330 — Legal Environment of Business ..... 4
BA 343 — Principles of Marketing ..... 3
Specialty Electives ..... 3
(Advisory approved upper division internship or advanced technical experience.)
Option 2: (38 credits)
Note: For this option students must apply and be accepted to the Teachers for Alaska Program. The area of specialization must be one that can be certified for teaching.
ED 201 — Introduction to Education ..... 3
ED 299 — Practicum in Education ..... 2
ED 582 — Teaching as Reflective Inquiry ..... 4
ED 583 — Teaching as Decision-Making and Invention ..... 8
ED 584 — Practicum: Teaching in Small and Large Schools ..... 3
ED 585 — Reflective Inquiry into Multicultural Classrooms and Communities
ED 586 — Designing Learning Environments ..... 3
ED 453 — Secondary Student Teaching ..... 12
Option 3:
Interdisciplinary (Minimum of 30 credits)
For this option see "Interdisciplinary Studies" in the Degrees and Programs section.

5. Electives (1-7 credits)

Minimum credits required for degree ..... 120

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

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

1. Having earned an Associate of Applied Science degree in one of the following active programs:
   Airframe and Powerplant
   Applied Accounting
   Applied Small Business
   Aviation Technology
   Community Health Practitioner
   Culinary Arts
   Early Childhood Development
   Early Childhood Education
   Financial Institutions Management
   Human Services Technology
   Interdisciplinary
   Office Professions
   Public Safety-Fire Science
2. Substitute one of the following as a demonstration of competency in an applied or technical field with the approval of the Curricular Affairs Committee of the Faculty Senate:
   a. an A.A.S. or similar degree earned at another institution
   b.state or federal certification deemed appropriate by the faculty
   c. journeyman status in trades and industry

# Theater

## College of Liberal Arts
## Department of Theater (907) 474-7751

**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:

Credits

THR 121 — Fundamentals of Acting ..... 3
THR 241 — Basic Stagecraft ..... 3
THR 254 — Beginning Costume Construction and Design ..... 3
THR 331 — Fundamentals of Stage Direction ..... 3
THR 411 — Theater History I
or THR 412 — Theater History II ..... 3

B. Complete the following:

1. A minimum of two courses from:
   THR 221 — Intermediate Acting (3)
   THR 225 — Movement for the Actor (3)
   THR 321 — Advanced Acting I (3)
   THR 325 — Theater Speech (3)
   THR 351 — Makeup for Theater (3)
   THR 421 — Advanced Acting II (3) ..... 6
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) ..... 6
*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) ..... 6
*4. A minimum of one course from:
   ART 261 — History of World Art (3)
   ART 262 — History of World Art (3)
   MUS 123 — Experiencing Music (3)
   MUS 124 — Music in World Cultures (3) ..... 3
*5. A minimum of one course from:
   ART 105 or 106 — Beginning Drawing (3)
   JB 215 — Audio Production (3)
   JB 316 — Television Production (3)
   ES 101 — Graphics (2)
   PER 100 — Modern Dance, Fencing, Gymnastics (1 cr. each)
   SPC 261 — Oral Interpretation (3)
   SPC 211 — Voice and Diction (3)
   FL 110 — Pronunciation of French, German, Italian and Spanish 2-3
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
   (411 or 412, which ever was not taken to
   meet the requirement in A, above)
   An individual study in theater ..... 6
   Minimum credits required ..... 130

*May be used to meet B.A. general degree requirements where applicable.

**MINOR in Theater:**

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

THR 121 — Fundamentals of Acting ..... 3
THR 211 — Theater Appreciation ..... 3
THR 241 — Basic Stagecraft ..... 3

No more than 3 credits in theater practicum may be applied to the minor. The minor program requires the approval of a member of the theater faculty in advance of formally declaring the minor, preferably no later than the first semester of the junior year.

**Production Participation Requirement**

Majors and minors in theater are expected to participate actively, extensively and continuously in the production activities of the program throughout their enrollment as majors or minors 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.

# Veterinary Medicine

### Pre-Professional Program (907) 474-6396

Veterinary medicine is concerned with two primary health areas. The first is animal health which involves diagnosis, prognosis, therapy and prevention of animal health problems. The second is public health which involves protection of the public from animal borne disease, with methods such as food safety inspection. Veterinarians can also be found in the fields of research and education.

Generally, four-years of graduate level study are required for completion of a professional program in veterinary medicine. Classroom instruction and laboratory work provide the student with a solid foundation during the first three years of study. The final year of professional study is comprised of clinical rotations. Specialization within veterinary medicine is possible after further study at the post-doctoral level.

While a bachelor's degree is not required for admission into veterinary school, most entering students have completed a four-year undergraduate degree. Veterinary schools will consider applications from students from all disciplines provided specific course requirements have been met. Since these course requirements may vary somewhat with each school, it is recommended that students check the requirements of the school they are interested in. In general, pre-veterinary students should include the following courses in their studies at UAF: inorganic chemistry (CHEM 103X, 106X), organic chemistry (CHEM 321, 322, 324), biochemistry (CHEM 451, 452), biology (BIOL 105X, 106X, 342,362, 418), mathematics (STAT 200), and physics (PHYS 103X, 104X).

Admission to veterinary school is based on the strength of one's undergraduate academic record, plus test scores on either the Veterinary College Admissions Test (VCAT) or the Graduate Record Exam (GRE). In addition, veterinary medicine exposure and experience is highly recommended.

Advisement for students considering veterinary medicine as a career choice is available through the Academic Advising Center.

# Welding

### College of Rural Alaska
### Tanana Valley Campus (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 maximum student-instructor interaction. Advanced students may work toward A.W.S. certification or pursue advanced projects. A student may request credit by examination for any WMT class. See the department for details.

# Wildlife Biology

### 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. This degree is designed for those students whose objective is to undertake research needed to provide additional information on the workings of wild animal populations, the condition of their habitat, and habitat-animal relationships. It is also designed for those students whose primary interests involve the interpretation, application, or dissemination of research findings, rather than their acquisition. A wildlife degree 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 curriculum provides a solid foundation for graduate study and meets requirement for certification by The Wildlife Society.

The geographic location of the university is particularly advantageous for the study of wildlife biology. Spruce forest, aspen-birch forest, alpine tundra, bogs and several types of aquatic habitats are within easy reach. Studies can be made in many other habitats ranging from the dense forests of Southeastern Alaska to arctic tundra.

Adequate study collections of plants and animals are available, and a 2,000-acre study area is near the campus. Undergraduates have ample opportunity for close association with the personnel of the Alaska Cooperative Fish and Wildlife Research Unit and several local offices of the federal and state conservation agencies. These agencies and program faculty 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 Biology — B.S. Degree**

1. Complete the general university requirements and B.S. degree requirements, completing SPC 141X as part of the core.
2. Complete the following program (major) requirements:

| Courses | Credits |
|---|---|
| NRM 101 — Natural Resources Cons. and Policy | 3 |
| NRM 204 — Natural Resources Legislation and Policy | 3 |
| NRM 380 — Soils | 3 |
| NRM/WLF 431 — Wildlife Policy and Administration | 3 |
| STAT 200 — Elementary Probability and Statistics or STAT 300 - Statistics | 3 |
| STAT 401 - Regression and Analysis of Variance or STAT 402 — Scientific Sampling | 3 |
| BIOL 105X-106X — Fundamentals of Biology | 8 |
| 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 — Mammalogy | 3 |
| BIOL 426 — Ornithology | 3 |
| BIOL 471 — Population Ecology | 3 |
| CHEM 105X-106X — General Chemistry | 8 |
| ENGL 314 — Technical Writing or ENGL 414 — Research Writing | 3 |
| MATH 272-273 — Introduction to Calculus for the Life Sciences | 6 |
| PHYS 103X — College Physics | 4 |
| WLF 101 — Survey of Wildlife Sciences | 1 |
| WLF 201 — Wildlife Management Principles | 3 |
| WLF 303 — Wildlife Management Techniques | 3 |
| WLF 410 — Wildlife Populations and Their Management | 3 |
| WLF 460 — Nutrition and Physiol Ecology of Wildlife | 3 |
| BIOL 473 — Limnology | 3 |
| CS 103 — Intro to Computer Programming | 3 |
| Take at least 2 of the following: | |
| WLF 305 — Concepts of Animal/Wildlife Diseases | 3 |
| WLF 419 — Waterfowl and Wetlands Ecology and Management | 4 |
| BIOL 472 — Communities and Ecosystems | 2 |
| BIOL 308 - Principals of Evolution | 3 |
| BIOL 406 - Entomology | 4 |
| BIOL 407 - Aquatic Entomology | 3 |
| BIOL 414 - Environmental Physiology | 4 |
| BIOL 427 - Icthyology | 3 |
| BIOL 441 - Animal Behavior | 3 |
| BIOL 444 - Reproductive Biology | 3 |
| BIOL 474 - Plant Ecology | 4 |
| BIOL 477 - Ecology of Streams and Rivers | 3 |
| BIOL 480 - Water Pollution Biology | 3 |
| NRM 241 - Introduction to Geographic Information Systems | 3 |
| NRM 312 - Introduction to Range Management | 3 |
| NRM 341 - Techniques in Geographic Information Systems | 4 |
| NRM 370 - Introduction to Watershed Management | 3 |
| NRM 450 - Forest Management | 3 |
| Complete sufficient electives to bring total to | 130 |

* Note prerequisite.

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 biology and wildlife program and the Alaska Cooperative Fish and Wildlife Research Unit cooperate in offering graduate work leading to the master of science degree. A doctor of philosophy degree is also offered. Persons desiring detailed information on the graduate

program in wildlife biology may obtain this from the head, biology and wildlife 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 Fish and 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 Fish and 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.

**MINOR in Wildlife Biology:**

A minor in Wildlife Biology requires at least 15 credits in Biology and Wildlife, including WLF 303, WLF 410, WLF 460, and six additional credits approved by the department, in Biology or Wildlife and that are not required for a student's major. Prerequisites for required courses include BIOL 105X-106X, BIOL 210, BIOL 271, STAT 200 or STAT 300, and WLF 201. Depending upon a student's major, some of these prerequisites may satisfy the six additional credits in Biology and Wildlife required for this minor.

**Wildlife Biology** — M.S. or Ph.D. Degree

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

# Women's Studies

## Interdisciplinary (907) 474-6509

**Minor Only**

The minor in Women's Studies is an interdisciplinary concentration that focuses on the significance of gender in human lives today, in the past, and in all cultures.

### Requirements

**MINOR in Women's Studies**

| | | Credits |
|---|---|---|
| 1. | Complete WMS 201 — Introduction to Women's Studies | 3 |
| 2. | Complete at least one of the following courses in Social Sciences: | |
| | WMS/HIST 202 — History of Women in America | 3 |
| | *WMS/ANTH 303 — Gender in a Cross Cultural Perspective | 3 |
| | *WMS/ANTH 308 — Language and Gender | 3 |
| | *WMS/JUST 335 — Women, Crime and Justice | 3 |
| | WMS/SPC 351 — Communication and Women | 3 |
| | WMS/PSY 360 — Psychology of Women | 3 |
| | *WMS/RD 375 - Women and Development | 3 |
| | WMS/HIST 424 — Topics in Women's History | 3 |
| | WMS/ED 440 - Gender and Education | 3 |
| | WMS/SPC 451 — Rhetorical Analysis | 3 |
| 3. | Complete at least one of the following courses in Humanities: | |
| | *WMS/JPN 331 — Women's Voices in Japanese Literature | 3 |
| | WMS/ENGL 333 — Women's Literature | 3 |
| | *WMS/JB 380 — Women, Minorities and the Media | 3 |
| | WMS/MUS 410 — Women in Music History | 3 |
| 4. | Complete Women's Studies elective in consultation with adviser | 9 |
| | | Total 18 |

* At least one course dealing with gender in a cross-cultural or multi-cultural context must be completed. Indicates courses which may be used to fulfill this requirement. Courses from other departments with substantial content about gender in a cross- or multi-cultural context may also be approved by the Women's Studies program head.

# 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.



Theresa Chilson gets a pie in the face during the fall 1992 Starvation Gulch.



Associate Professor of Molecular Biology Bert B. Boyer works in the molecular biology lab.



Linda Hill tries on a hat from the Theatre UAF wall-of-hats.

# 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 and material and/or laboratory fees 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 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, McGrath, Nenana, Tok and Unalaska. Information about the frequency of offerings of courses at these sites can be obtained from the local UAF representative.

**Course Numbers**

The first numeral of a course numbered in the hundreds indicates the year in which the course is normally offered in its own department. For example, ENGL 111 is given for first-year students and ENGL 318 is given for third-year students. Freshman and sophomore students are cautioned to register for upper division (300 and 400) level courses only if they have had adequate preparation and background to undertake advanced study in the field in which those courses are offered.

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; -94, approved trial courses; -95, special topics summer session courses, offered only during the summer; -97 indicates individual study; -98 individual research; and -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 Provost (Vice Chancellor for Academic Affairs and Research) (e.g., 600-level offerings in areas without approved graduate programs). These courses may be repeated for credit.

Courses with a suffix of "X" (ENGL 111X, MATH 103X, meet specific baccalaureate core requirements. Courses with suffixes of "W" or "O" meet upper-division writing intensive or oral communication intensive course requirements for the baccalaureate core.

**Course Credits**

One credit represents satisfactory completion of 800 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 each 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, Humanities Elective, etc.) are identified in the course description section of this catalog by the following designators:

h - humanities s - social science
m - mathematics n - natural science

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

**The Baccalaureate Core**

Courses that may be used to satisfy general baccalaureate core requirements have course numbers ending with "X." For example, ENGL 111X, SPC 111X and other such courses meet specific core requirements. See the baccalaureate core requirements for a listing of other specific courses.

Course meeting the upper division writing intensive and oral communication intensive requirements for the baccalaureate core are identified in the course description section of the catalog with the following designators:

O - Oral Communication Intensive Course
W - Writing Intensive Course

The emphasis of each oral communication intensive course is identified by a letter in parentheses following the "O" designator. The designators are: (p) Public speaking emphasis; (g) Group emphasis; (t) Technical speaking emphasis. Therefore, SPC 340 O(p) indicates a public speaking emphasis in the course.

**Notes**

Course designated as meeting "W" or "O" requirements for the baccalaureate core may not meet written or oral communication requirements for degree requirements in effect prior to the fall of 1991.

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.

**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.

A $50 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON). This fee is in addition to any lab/material fees.

**ACCT 101 3 Credits** **Fall, Spring**
**Elementary Accounting (3+0)**
Accounting concepts and procedures for service businesses and for merchandising businesses owned by a single proprietor. Also available via Independent Learning.

**ACCT 102 3 Credits** **Fall, Spring**
**Elementary Accounting (3+0)**
Accounting concepts and procedures for businesses organized as partnerships or corporations and performing manufacturing operations. Also available via Independent Learning. (Prerequisite: ACCT 101.)

**ACCT 303 3 Credits** **Fall, Spring**
**Governmental Accounting (3+0)**
Fund accounting; financial reporting; budgetary control for governmental, municipal and non-profit organizations. (Prerequisite: ACCT 101.)

**ACCT 310 3 Credits** **Fall**
**Income Tax (3+0)**
Federal and state income taxes primarily for Alaska residents. Introduction to corporate income taxation. Tax reporting, planning, and research. (Prerequisite: ACCT 102 or permission of instructor.)

**ACCT 323 3 Credits** **As Demand Warrants**
**Petroleum Accounting (3+0)**
Financial reporting and accounting for the petroleum industry. Emphasis on exploration, development and production phases of oil and gas operations. (Prerequisites: ACCT 101 and 102 or permission of instructor.)

**ACCT 342 3 Credits** **Spring**
**Managerial Cost Accounting (3+0)**
Cost accounting with managerial emphasis on cost-volume-profit analysis, job order and process costing, joint costs, by-products, inventory costing alternatives, systems design, responsibility accounting, profit planning, standard costs, and flexible budgeting. For accounting majors. (Prerequisite: ACCT 102.)

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

**ACCT 361 3 Credits** **Fall**
**ACCT 362 3 Credits** **Spring**
**Intermediate Accounting (3+0)**
Balance sheet accounts and procedures for analysis and correction. Working capital and fixed assets emphasized fall semester. Long-term liabilities and stockholders' equity emphasized spring semester. (Prerequisite: ACCT 102.)

**ACCT 401W 3 Credits** **Fall**
**Advanced and International Accounting (3+0)**
Accounting for parent-subsidiary relationships, partnerships, and fiduciaries. International accounting in multi-national enterprises emphasized. (Prerequisite: ACCT 362.)

**ACCT 403 3 Credits** **Spring**
**Advanced Taxes (3+0)**
Federal income tax for all entities. Gift, estate, and payroll taxes. Tax research, planning, and reporting for domestic and foreign taxpayers. (Prerequisite: ACCT 310.)

**ACCT 404 3 Credits** **Fall**
**Advanced Cost Accounting and Controllership (3+0)**
Controllership function in contemporary organizations and related reporting requirements. Managerial considerations related to contemporary organizations. (Prerequisites: AIS 316, ACCT 342, 362; BA 325, 360.)

**ACCT 405 3 Credits** **Spring**
**Contemporary Issues in Accounting (3+0)**
Current developments in financial and managerial accounting theory and research. Relevant court cases, SEC rulings, FASB and AICPA publications. Academic accounting research. (Prerequisite: ACCT 401.)

**ACCT 452 3 Credits** **Fall**
**Auditing (3+0)**
Procedures for verification of financial data. Professional standards applicable to the auditor's examination and opinion of financial statements. (Prerequisite: ACCT 362.)

**ACCT 471 3 Credits** **As Demand Warrants**
**Tax Planning and Research (3+0)**
Tax planning and research for business organizations. Tax planning for estates, trusts, and individuals. For tax practitioners and students without work experience in taxation. (Prerequisites: ACCT 310 and 403 or permission of instructor.)

**ACCT 472 3 Credits** **Spring**
**Computer Control and Advanced Auditing (3+0)**
Advanced auditing theory and practice. Audit techniques and internal control of computer systems. For auditor practitioners and students without field experience in auditing. Materials fee: $20.00. (Prerequisites: AIS 316, ACCT 452. Course assumes prior exposure to auditing and information systems.)

**ACCT 481 1 Credit** **As Demand Warrants**
**Personal Tax Planning (1+0)**
Provisions of tax law affecting the individual taxpayer. Not a tax preparation course. (Prerequisites: Upper division standing, permission of instructor.)

**ACCT 482 1 Credit** **As Demand Warrants**
**Business Tax Planning (1+0)**
Applicable tax credits, business deductions, profit sharing plans, and various state taxes. Not a tax preparation course. (Prerequisite: Upper division standing or permission of instructor.)

**ACCT 483 1 Credit** **As Demand Warrants**
**Estate Tax Planning (1+0)**
Gift, estate, and social security taxes. (Prerequisite: Upper division standing or permission of instructor.)

**ACCT 602 3 Credits** **Spring**
**Financial Accounting Concepts for Administrators (3+0)**

**ACCT 650 3 Credits** **Spring**
**Management Accounting Seminar (3+0)**

# Accounting and Information Systems

A $50 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON). This fee is in addition to any lab/material fees.

**AIS 101 3 Credits** **Fall, Spring**
**Computer Literacy (3+0)**
Concepts, skills and software required for today's business education; study of selected current business software applications. (Prerequisite: Placement in MATH 107/161 or completion of MATH 161.)

**AIS 201 3 Credits** **Alternate Spring**
**COBOL (2+2)**
Training and practice in writing problems in the COBOL language. Multiple file processing, editing and report generating routines. Materials fee: $20.00. (Prerequisite: AIS 101 or permission of instructor. Next offered: 1993-94.)

**AIS 310 3 Credits** **Fall, Spring**
**Introduction to Management Information Systems (3+0)**
The role of information technology in organizations and its impact on management and strategic issues. (Prerequisite: AIS 101.)

**AIS 312 3 Credits** **Spring**
**Information Systems Technology (3+0)**
Introduction to the hardware and systems software underlying information systems; provides background to understand computer marketing literature and to select among technology alternatives.

**AIS 316 3 Credits** **Spring**
**Accounting Information Systems (3+0)**
Accounting systems for business entities in various industries. Internal control for the business, data processing and its relationship to accounting systems. (Prerequisites: ACCT 101 and 102.)

**AIS 410 3 Credits** **Fall**
**Systems Analysis and Program Design (3+0)**
The system development lifecycle for database-oriented information systems in both mainframe and microcomputer environments. Includes programming in one or more fourth generation languages and a term project. (Prerequisites: AIS 310, 312, 316.)

**AIS 412W** 3 Credits Spring
**Planning, Administration and Control Information Systems (0+6)**
Overview of what a manager needs to know to administer an information systems department, including extensive discussions of current trends in management of IS and the IS industry. Materials fee: $10.00 (Prerequisite: AIS 410.)

**AIS 414** 3 Credits Spring
**Database Design for Management Information (3+0)**
Combines advanced systems analysis using modern techniques of data modelling with study of management and administrative problems in coordination and management of organization data resources; focusing on needs of medium- sized and large organizations. (Prerequisite: AIS 410 or CS 401.)

**AIS 473** 3 Credits Spring
**Applied System Design (3+0)**
Application of systems analysis and computer skills to build accounting oriented transaction-processing systems. (Prerequisite: AIS 410; concurrent enrollment in AIS 414 or CS 425.)

**AIS 605** 3 Credits Fall
**Management Information Systems (3+0)**

## Airframe and Powerplant

**AFPM 111** 3 Credits As Demand Warrants
**General Airframe and Powerplant (4+0)**
Shop practices, basic math, applied physics, F.A.A. regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

**AFPM 145** 1 Credit As Demand Warrants
**Basic Mathematics (1+0)**
Review of applied and technical mathematics related to the construction of aircraft and their engines. Common and decimal, fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; fundamental algebraic operations. Materials fee: $10.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 146** 2 Credits As Demand Warrants
**Basic Electricity (2+0)**
Electrical theory and concepts for the aviation mechanic. Ohm's law, electrical circuits, diagrams, batteries, and a variety of electrical components. Materials fee: $25.00. (Prerequisite: Admission to A & P Program or permission of the instructor.)

**AFPM 147** 0.5 Credits As Demand Warrants
**Physics for Mechanics (.5+0)**
Applications of mechanics; levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill Natural Science requirements for any degree.) Materials fee: $5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 148** 1 Credit As Demand Warrants
**Aircraft Drawing (1+0)**
Basic drafting. Drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts. Materials fee: $10.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 149** 0.5 Credits As Demand Warrants
**Fluid Lines and Fittings (.5+0)**
Rigid and flexible fluid lines and fittings, fabrication and installation. (Prerequisite: Admission to A & P Program or permission of instructor.) Materials fee: $5.00.

**AFPM 150** 2 Credits As Demand Warrants
**Materials and Processes (2+0)**
Basic shop practices, including selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic heat treating processes, forms of non-destructive inspections. Materials fee: $75.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 151** 1 Credit As Demand Warrants
**Cleaning and Corrosion Control (1+0)**
Basic aircraft cleaning materials, methods, and corrosion control. Materials fee: $15.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 152** 1 Credit As Demand Warrants
**Federal Aviation Regulations (1+0)**
Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics. Materials fee: $10.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 153** 1 Credit As Demand Warrants
**Weight and Balance (1+0)**
Weighing procedures, weight, arms, moments, center of gravity computations, and placarding. Aircraft loading, required forms, weighing. Materials fee: $10.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 154** 0.5 Credits As Demand Warrants
**Ground Operations and Servicing (.5+0)**
Starting, moving, servicing, securing, and fueling aircraft. Materials fee: $55.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 205** 3 Credits As Demand Warrants
**Airframe Structures (FAA Test Preparation)(3+0)**
Aircraft wood, dope, fabric finishes, welding, sheet metal, assembly and rigging and inspection. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

**AFPM 206** 2 Credits As Demand Warrants
**Airframe System & Components (FAA Test Preparation)(2+0)**
Aircraft electrical, hydraulic and pneumatic systems. Landing gear, instruments, fuel, communication and navigation, cabin atmosphere control, and fire protection systems. Inspection, checking, troubleshooting, repair and servicing. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

**AFPM 215** 2 Credits As Demand Warrants
**MOS Powerplant Theory/Maintenance (FAA Test Preparation) (2+0)**
Jet engine fundamentals, analysis, testing. Inspecting turbo jets, turbo shaft, and turbo fan engines. Overhaul, inspection, and fundamentals of reciprocating engines. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

**AFPM 216** 3 Credits As Demand Warrants
**MOS Powerplant System/Components (3+0)**
Fuel metering, induction systems, propellers, control systems, and powerplant electricity. Repair, inspection, service and troubleshooting. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: $20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

**AFPM 230** 2.5 Credits As Demand Warrants
**Aircraft Electrical Systems (2.5+0)**
Wiring, control, indication, and protection devices for AC and DC systems. Inspection, troubleshooting service and repair of these systems. Materials fee: $45.00. (Prerequisite: Admission to A&P Program or permission of instructor.)

**AFPM 231** 1.5 Credits As Demand Warrants
**Powerplant Electrical Systems (1.5+0)**
Installation, inspection, testing, servicing engine electrical system wiring, controls, indicator and protective devices. Repair and service of electrical generating systems. Materials fee: $30.00.

**AFPM 235** 5 Credits As Demand Warrants
**Aircraft Reciprocating Engines (5+0)**
History and development of the aircraft reciprocating engine. Repair, overhaul, and inspection of various types of engines. Operation and troubleshooting of engines. Materials fee: $190.00.

**AFPM 240** 1.5 Credits As Demand Warrants
**Turbine Engines (1.5+0)**
Development, theory and operation. Engine design, performance, accessories and subsystems. Engine maintenance and overhaul. Materials fee: $20.00.

**AFPM 244** 1.5 Credits As Demand Warrants
**Lubricating Systems (1.5+0)**
Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and components. Materials fee: $20.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 245** 2.5 Credits As Demand Warrants
**Ignition Systems (2.5+0)**
Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems. Repair and bench testing of components. Materials fee: $45.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 246 1.5 Credits As Demand Warrants**
**Fuel Metering Systems (1.5+0)**
Fundamental operation of systems in aircraft powerplants. Technical data to repair and overhaul carburetors and components. Inspection and service of water injection systems. Materials fee: $30.00. (Prerequisite: Admission to the A & P Program or permission of the instructor.)

**AFPM 248 0.5 Credits As Demand Warrants**
**Induction Systems (.5+0)**
Operation and service of aircraft induction, preheat, anti-ice and super charger systems. Materials fee: $5.00.

**AFPM 249 0.5 Credits As Demand Warrants**
**Powerplant Cooling Systems (.5+0)**
Inspection, service and repair of engine cooling systems - both air and liquid cooled installations. Materials fee: $5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 250 0.5 Credits As Demand Warrants**
**Powerplant Exhaust Systems (.5+0)**
Inspection, service and repair of engine exhaust systems. Includes operations of turbo compounded engines, thrust reversers, and noise suppressors. Materials fee: $5.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 251 1.5 Credits As Demand Warrants**
**Fuel Systems (1.5+0)**
Inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components. Materials fee: $15.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 252 2 Credits As Demand Warrants**
**Propellers (2+0)**
Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations. Materials fee: $30.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 253 0.5 Credits As Demand Warrants**
**Position and Warning Systems (.5+0)**
Aircraft speed and takeoff warning and anti-skid braking systems. Inspection, troubleshooting, service and repair. Materials fee: $5.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 254 0.5 Credits As Demand Warrants**
**Ice and Rain Control Systems (.5+0)**
Inspection, operation and troubleshooting of de-ice and anti-ice systems. Materials fee: $5.00.

**AFPM 255 0.5 Credits As Demand Warrants**
**Fire Protection Systems (.5+0)**
Inspection, servicing, troubleshooting and repair of aircraft and engine fire detection and extinguishing systems. Materials fee: $5.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 256 0.5 Credits As Demand Warrants**
**Communications & Navigation Systems (.5+0)**
Operation of aircraft avionics, autopilots and antennas, including inspection and installation. Materials fee: $10.00.

**AFPM 257 0.5 Credits As Demand Warrants**
**Instrument Systems (.5+0)**
Inspection, troubleshooting, removal and replacement of aircraft and engine instruments and indicating systems. Materials fee: $5.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 258 1 Credit As Demand Warrants**
**Cabin Atmosphere Control Systems (1+0)**
Aircraft pressurization, air conditioning, heating and oxygen systems. Operation, inspection, troubleshooting, service and repair. Materials fee: $10.00.

**AFPM 259 1.5 Credits As Demand Warrants**
**Hydraulic and Pneumatic Systems (1.5+0)**
Operation of systems and uses in aircraft. Identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing, and troubleshooting. Materials fee: $20.00.

**AFPM 260 2 Credits As Demand Warrants**
**Aircraft Landing Gear Systems (2+0)**
Simple and complex systems. Operation, service and repair of mechanical and hydraulic retraction mechanisms. Wheel, tire and brake service. Materials fee: $25.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 261 0.5 Credits As Demand Warrants**
**Wood Structures (.5+0)**
Inspection, service and repair. Woods, glues, patching and splicing. Materials fee: $10.00. (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: $40.00. (Prerequisite: Admissions to A & P program or permission of instructor.)

**AFPM 263 0.5 Credits As Demand Warrants**
**Aircraft Finishes (.5+0)**
Identification and selection of aircraft finishing materials. Application of paints, dopes, primers, and trim. Materials fee: $40.00. (Prerequisite: Admission to A & P program and permission of instructor.)

**AFPM 264 3.5 Credits As Demand Warrants**
**Sheet Metal Structures**
Aircraft sheet metal fabrication, inspection and repair including rivets and fasteners, repair of interiors and service of plastic, honeycomb and bonded structure. Materials fee: $130.00.

**AFPM 265 1.5 Credits As Demand Warrants**
**Aircraft Welding**
Contemporary welding methods on aircraft structures. Oxyacetylene, arc, inert gas and brazing techniques. Inspection of welded structure and safety procedures. Materials fee: $115.00.

**AFPM 266 1.5 Credits As Demand Warrants**
**Assembly and Rigging**
Aerodynamic theory and function of aircraft control surfaces. Fabrication and installation of control devices for fixed and rotary wing aircraft; jacking and control surface balance. Materials fee: $35.00. (Prerequisite: Admission to A & P program or instructor permission.)

**AFPM 267 0.5 Credits As Demand Warrants**
**Airframe Inspections**
Inspection and return of aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections. Materials fee: $5.00. (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. Materials fee: $5.00. (Prerequisite: Admission to A & P program or permission of instructor.)

**AFPM 271 0.5 Credits As Demand Warrants**
**Powerplant Inspections**
Methodology and recordkeeping for inspection of aircraft reciprocating and gas turbine engines. Materials fee: $5.00. (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. Materials fee: $5.00. (Prerequisite: Admission to A & P program or instructor permission.)

**AFPM 325 2 Credits As Demand Warrants**
**Inspection Authorization Preparation (1+2)**
Technical background training for the working airframe and powerplant mechanic in selecting, reviewing, and utilizing the appropriate Federal Regulatory and Advisory information as well as the Manufacturer's Maintenance information to inspect and return to service aircraft, engines, propellers, appliances and related parts in accordance with FAR Part 65.95. Final exam is the FAA Inspection Authorization exam administered by an FAA Airworthiness Inspector. (Prerequisite: FAA A & P Certificate, meet additional requirements of FAR 65.91.)

# Alaska Native Languages

**ANL 108 1-3 Credits As Demand Warrants**
**Beginning Athabaskan Literacy (3+0) h**
Introduction to reading and writing in one of the Athabaskan languages for native speakers. Materials fee: $7.00.

**ANL 141 3 Credits Fall**
**ANL 142 3 Credits Spring**
**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. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read, and write the language. Materials fee for each course: $10.00. (Prerequisite: ANL 141 for ANL 142 in the same language or permission of the instructor.)

**ANL 150 1 Credit As Demand Warrants**
**Interpretive Communication (1+0) s**
Communication processes in Yup'ik and English speaking cultures. Solutions to identify problem areas in cross-cultural communication. Situations such as conversations, meetings, translating and interpreting. Interpreting meaning in what is communicated between people of different socio/cultural backgrounds. Kuskokwim Campus only.

**ANL 151 3 Credits As Demand Warrants**
**Interethnic Communications (3+0) s**
Understanding differences in cross-cultural interaction. Application of cross-cultural interactions to various communication settings. Concentrates on Yup'ik ways of communication. Kuskokwim Campus only.

**ANL 208 1-3 Credits As Demand Warrants**
**Advanced Athabaskan Literacy (3+0) h**
Expository and creative writing for native speakers; reading Athabaskan literature; elicitation, transcription, and editing of cultural materials from elders. Materials fee: $7.00.

**ANL 215 3 Credits Fall**
**Alaska Native Languages: Eskimo-Aleut (3+0) h**
A survey of the Native languages of Alaska, particularly Eskimo-Aleut: history, present and future, with examples of language structure, present situation and prospects as a cultural force. Open to all students. Materials fee: $9.00.

**ANL 216 3 Credits Spring**
**Alaska Native Languages: Indian Languages (3+0) h**
A survey of all Native languages of Alaska; particularly of the Indian languages: Athabaskan-Eyak-Tlingit, Haida and Tsimshian. History, present, and future; examples of language structure, present situation and prospects as a cultural force. Open to all students.

**ANL 241 3 Credits Fall**
**ANL 242 3 Credits Spring**
**Intermediate Athabaskan | Koyukon or Kutchin (3+0) h**
Continuation of beginning Athabaskan | Koyukon or Kutchin. One of these two languages will be taught. Development of conversational ability, additional grammar and vocabulary. Materials fee for each course: $10.00. (Prerequisites: ANL 141 and 142 in the same language, or permission of instructor.)

**ANL 251 3 Credits As Demand Warrants**
**Introduction to Athabaskan Linguistics (3+0) h**
The study of Athabaskan languages through the presentation and discussion of several Athabaskan languages, focusing on writing systems, distinction between languages and dialects, problems in phonological and morphological analysis, the use of dictionaries, and reading and discussion of texts. Introduction to current research, basic terminology, practical methods for recording and analyzing the languages, and bibliographic sources. Languages emphasized dependent on composition of the class. Materials fee: $10.00.

**ANL 287 3 Credits As Demand Warrants**
**Teaching Methods for Alaska Native Languages (3+0) h**
Methodological approaches and practice in teaching Native language and literacy to both speakers and non-speakers. Materials fee: $7.00. (Prerequisite: Knowledge of a Native language.)

**ANL 288 3 Credits As Demand Warrants**
**Curriculum and Materials Development for Alaska Native Languages (3+0) h**
Preparation and evaluation of curriculum and classroom materials for teaching Native languages. Materials fee: $10.00. (Prerequisite: Knowledge of a Native language.)

## Alaska Native Politics

**AKNP 131 1 Credit As Demand Warrants**
**Introduction to the Alaska Native Claims Settlement Act (1+0)**
Basis of concern over the relation of Alaska Natives to their land, the Land Claims movement, key issues; organizations involved. Current corporation structure - regional and village; current and future problems facing these groups, and strategies to resolve them.

**AKNP 151 3 Credits As Demand Warrants**
**Alaska Native Claims Settlement Act (3+0)**
A general survey of the Alaska Claims Settlement Act of 1971. Historical overview of land claims of various tribes in the Lower 48 and in Alaska. Current status of regional, village and non-profit Native corporations. Future issues related to implementation of ANCSA. Also available via Independent Learning.

**AKNP 212 1 Credit As Demand Warrants**
**Duties and Powers of Local Government (1+0)**
Development, operation and improvement of local government in Alaska. Future of local government in bush Alaska. For citizen, practitioner and advocate.

**AKNP 230 3 Credits As Demand Warrants**
**Federal Indian Law (3+0)**
Principles of Federal Indian Law and the extent to which these principles apply to Alaska Natives. Foundation of principles that formed the bases of the relationship of the United States to the tribes and development of this relationship. Legal perspective and land issues. (Prerequisite: English placement test.)

**AKNP 232 3 Credits As Demand Warrants**
**1991 and Beyond - Implications of ANCSA (3+0)**
Specific provisions of the Alaska Native Claims Settlement Act as related to 1991. Acquisitions, takeovers of corporations, provisions in Sections 7(i), 7(j), 7(h), and 14(c), changes allowed under ANILCA and other amendments to the Act, the effect of ANCSA on the Indian Reorganization Act and the Indian Self-Determination Act, and land and stock status in the future. (Prerequisite: English Placement test.)

**AKNP 233 1 Credit As Demand Warrants**
**Tribal Government Issues (1+0)**
Tribal governments and related issues. Political status and lawmaking, judicial, and regulatory powers. Sovereignty, tribal enrollment and membership. Selected federal statutes and Indian Law affecting Alaska Native tribes. Potential role of tribal governments in planning for Alaska Natives' future defined and discussed.

## Alaska Native Studies

**ANS 101 3 Credits As Demand Warrants**
**Introduction to Alaska Native Studies (3+0)**
Introductory information on the Alaska Native Community. Overview of significant Native issues. Review of pertinent literature and resources.

**ANS 103 1 Credit As Demand Warrants**
**Beginning Eskimo Dance (1+2)**
Teaching of traditional and contemporary Yup'ik Eskimo dance through the means of singing, drumming, and motions of the stage. In-depth analysis of each song and its relation to contemporary and traditional cultural lifestyles. (Not offered on the Fairbanks campus.)

**ANS 110 1 Credit Fall, Spring**
**Parliamentary Procedures (1+0)**
**(Same as PS 110)**
Rules and principles of parliamentary procedure and application to group decision-making processes.

**ANS 160 1 Credit Fall**
**Alaska Native Dance (2+0) h**
Traditional Native Alaskan dancing, singing, and drumming of songs from Alaska's major indigenous groups taught by guest Native elders and dancers. If sufficient interest, a dance group will be assembled using class members for spring presentation primarily in the Fairbanks area, including the Festival of Native Arts.

**ANS 161 3 Credits Fall**
**Introduction to Tuma Theatre (2+3) h**
**(Same as THR 161)**
For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from the Alaska Native heritage.

**ANS 220 3 Credits Fall**
**Cultural Differences in Institutional Settings (3+0) s**
The phenomena of culturally-organized thought processes. Communication patterns resulting from the interaction of peoples from different linguistic/culture traditions in modern institutional settings. Special attention to Alaskan Native and non-Native communication patterns.

**ANS 250 3 Credits Fall, Spring**
**Current Alaska Native Leadership Perspectives (3+0) s**
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, Spring**
**Practicum in Native Cultural Expression (0+variable)**
Provides individual supervised activities in the formal organization, promotion, and expression of Alaskan Native cultural heritage. May be repeated to a maximum of 3 credits. (Prerequisite: Permission of the department head.)

**ANS 268 3 Credits Fall, Spring**
**Beginning Native Art Studio (1+4) h**
**(Same as ART 268)**
Understanding and applying the traditional designs and technologies of Native art. (Prerequisite: ART 105 or permission of instructor.)

**ANS 275 3 Credits As Demand Warrants**
**Yup'ik Practices in Spirituality and Philosophy (3+0) h**
Exploration of the processes in Yup'ik natural religion and the underlying philosophy that is the basis for Yup'ik existence in the spiritual realm. Wholeness of Yup'ik existence as it integrates into the western religion and philosophy. Only offered at Kuskokwim campus.

**ANS 300W 3 Credits Alternate Spring**
**Rhetorical Expression of the Alaska Native Experience (3+0) h**
Rhetorical methods of creative expression of the Alaska Native experience. Emphasis on the student's development of expressive abilities in a variety of Native and Western forms. Publication of student work a possibility. (Prerequisite: ENGL 111 and permission of instructor.)

**ANS 310 3 Credits Fall**
**The Alaska Native Lands Settlement (3+0) s**
Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. (Prerequisites: ANTH 242 or PS 263 or HIST 110; ECON 101, 137; or permission of instructor.)

**ANS 315 3 Credits Alternate Spring**
**Tribal People and Development (3+0) s**
**(Same as RD 315)**
Impact of socio-economic development processes on tribal peoples in third and fourth world societies. Implications of these processes for Alaska Native people. (Prerequisite: Junior standing or permission of the instructor. Next offered 1993-94.)

**ANS 320W 3 Credits Spring**
**Language and Culture: Applications of Alaska (3+0) s**
**(Same as ANTH 320)**
Language, ethnicity, and their interrelationships. Communicating ethnic identity. Patterns of language use which affect communication between ethnic groups. Applicability of these concepts to Native/non-Native communication patterns. Materials fee: $5.00.

**ANS 325 3 Credits Alternate Spring**
**Native Self Government (3+0) s**
**(Same as PS 325)**
Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance under federal Indian Law and Alaska state-chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people. (Prerequisites: HIST 110, PS 263. Next offered: 1993-94.)

**ANS 340 3 Credits Fall**
**Contemporary Native American Literature (3+0) h**
**(Same as ENGL 340)**
Contemporary Native American writing in English, including novels, short stories, poetry, and plays. Examples of Native American film when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111 or permission of instructor.)

**ANS 349 3 Credits Fall**
**Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h**
**(Same as ENGL 349)**
Traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111 or permission of instructor.)

**ANS 351 1-3 Credits Fall, Spring**
**Practicum in Native Cultural Expression (0+variable)**
Individual supervised activities in advanced organization, promotion, and expression of Alaskan Native cultural heritage projects (Festival of Native Arts leadership, Tuma Theatre, Theata magazine, etc.) Continuation of ANS 251. (Prerequisite: Permission of instructor.)

**ANS 360 1 Credit Spring**
**Advanced Native Dance (0+2) h**
Advanced techniques with emphasis on the cultural meanings of the dance performance. (Prerequisite: ANS 160 or permission of instructor.)

**ANS 361 3 Credits Spring**
**Advanced Alaska Native Performance (2+3) h**
**(Same as THR 361)**
In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester. (Prerequisite: ANS/THR 161.)

**ANS 365 3 Credits Fall**
**Native Art of Alaska (3+0) h**
**(Same as ART 365)**
Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries. (Prerequisite: Advanced standing or permission of the instructor.)

**ANS 366 3 Credits Alternate Spring**
**Northwest Coast Indian Art (3+0) h**
**(Same as ART 366)**
Arts of the Northwest Coast Indians and the place of the art in their culture. (Next offered: 1993-94.)

**ANS 367 3 Credits Alternate Spring**
**Eskimo Art (3+0) h**
**(Same as ART 367)**
Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces to the beginning of the 20th century. (Next offered: 1993-94.)

**ANS 368 3 Credits Fall, Spring**
**Intermediate Native Art Studio (1+4) h**
**(Same as ART 368)**
Understanding and applying advanced traditional designs and technologies of Native art. (Prerequisite: ART 268 or permission of instructor.)

**ANS 375 3 Credits Alternate Spring**
**Native American Religion and Philosophy (3+0) h**
Philosophical aspects of Native American world views. Systems of belief and knowledge, explanations of natural phenomena, relations of humans to natural environment through ritual and ceremonial observances. (Recommended: PHIL 201. Next offered: 1993-94.)

**ANS 401 3 Credits Fall, Spring**
**Cultural Knowledge of Native Elders (3+0) h**
Study with prominent Native tradition-bearers in Native philosophies, values, and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. (Prerequisites: HIST 110, ANTH 242 and upper division standing.)

**ANS 420 3 Credits Fall**
**Alaska Native Education (3+0) s**
**(Same as ED 420)**
School systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisite: ANTH 242 or HIST 110; or permission of instructor.)

**ANS 425 3 Credits Fall**
**(Same as PS 425)**
**Federal Indian Law and Alaska Natives (3+0) s**
The "special relationship" between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives. (Prerequisites: PS 101 and HIST 110; or permission of instructor; PS 263 is recommended.)

**ANS 450 3 Credits Alternate Spring**
**Comparative Aboriginal Rights and Policies (3+0) s**
**(Same as PS 450)**
A case-study approach in assessing Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations examined for factors promoting or limiting self-determination. (Prerequisite: Upper division standing or instructor's permission. Next offered: 1993-94.)

**ANS 468 3 Credits Fall, Spring**
**Advanced Native Art Studio (1+4) h**
**(Same as ART 468)**
Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. (Prerequisite: ART 368 or permission of instructor.)

**ANS 475 3 Credits Spring**
**Alaska Native Social Change (3+0) s**
Tradition and change in Native social institutions in contemporary society. Methods of identifying and analyzing significant Native social change processes for public understanding. (Prerequisite: ANTH 242 or permission of the instructor.)

## Alaska Studies

**ALST 103A 1 Credit As Demand Warrants**
**Creative Response (1+0)**
Samples of stories of indigenous people of Alaska. Reviews work of Native Alaskan artists. Examines music of Inupiat, Yup'ik and Koyukon cultures (songs and dances).

**ALST 103B 1 Credit As Demand Warrants**
**The People (1+0)**
Survey of social sciences in Alaska and relationships to Alaskan culture.

**ALST 103C 1 Credit As Demand Warrants**
**The Land (1+0)**
Geography and branches of earth science related to the land mass of Alaska. Current issues.

**ALST 107 1 Credit As Demand Warrants**
**Land Resource Management (1+0)**
Tools for overseeing land use and the political aspects of natural resource management.

## American Sign Language

**ASLG 101 3 Credits As Demand Warrants**
**American Sign Language I (3+0)h**
Visual-gestural language used by most deaf Americans. Acquisition of receptive and expressive conversational skills. Cultural aspects of everyday life experiences of deaf people.

**ASLG 110 1 Credit As Demand Warrants**
**American Sign Language Prac (1+0)h**
Skill development in use of American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels.

**ASLG 202 3 Credits As Demand Warrants**
**American Sign Language II (3+0)h**
Expressive and receptive conversational skills. Understanding the culture that is an integral part of the language. Continuation of American Sign Language I. (Prerequisite: ASLG 101 or permission of instructor.)

**ASLG 203 3 Credits As Demand Warrants**
**American Sign Language III (3+0)h**
Grammar, conceptual structure, and lexical items of American Sign Language. Cultural awareness and expressive and receptive signing skills for communicating and understanding American Sign Language in diverse contexts. Continuation of ASLG 101 and 202. (Prerequisite: ASLG 202 or permission of instructor.)

**ASLG 204 3 Credits As Demand Warrants**
**American Sign Language IV (3+0)h**
Spontaneous and interactive use of American Sign Language. Grammar, structure, and lexical components. Cultural aspects supporting communication in American Sign Language at an advanced level. A continuation of ASLG 203. (Prerequisite: ASLG 203 or permission of the instructor.)

## Anthropology

**ANTH 100X 3 Credits Fall**
**Individual, Society and Culture (3+0) s**
An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts. Materials fee: $5.00.

**ANTH 101 3 Credits Fall, Spring**
**Introduction to Anthropology (3+0) s**
Human societies and cultures based on the findings of the four subfields of the discipline: archaeological, biological, cultural and linguistic. Also available via Independent Learning. Materials fee: $10.00.

**ANTH 103 3 Credits Fall**
**Human Evolution and World Prehistory (3+0) n**
Human evolution and cultural development on a global basis. Methods, concepts and theories which serve as the scientific foundation for archaeology and physical anthropology. Materials fee: $5.00.

**ANTH 104 3 Credits Alternate Fall**
**Social/Cultural Anthropology (3+0) s**
Basic concepts and principles underlying anthropological study of society and culture. Emphasis on non-western ethnographic context. Open to majors and non-majors. Materials fee: $5.00. (Next offered: 1993-94.)

**ANTH 105 1 Credit As Demand Warrants**
**Introduction to the History and Culture of the Seward Peninsula (1+0)**
**(Same as HIST 105.)**
Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archeology, ecology and climatology. Eskimo and Euroamerican cultures which have existed in western Alaska. Materials fee: $5.00.

**ANTH 111 3 Credits Alternate Spring**
**Ancient Civilizations (3+0) s**
Major civilizations of the Old and New World from a comparative, anthropological perspective. Antecedents and influences of these civilizations on their neighbors. Economics, science, religion, and social organization of these civilizations. (Next offered: 1993-94.)

**ANTH 123 3 Credits Alternate Fall**
**Origins of Alaska's Native Peoples (3+0) s**
Origins and affinities of native Alaskan peoples from an archaeological perspective. Prehistory examination of Yup'ik, Inupiaq, Aleut, Tlingit, and Athabaskan groups. (Next offered: 1993-94.)

**ANTH 210 3 Credits Every Third Spring**
**New World Prehistory (3+0) s**
Culture history of native Americans from earliest times (excluding Alaska and Canada) including those in Mexican and Peruvian states. Materials fee: $5.00. (Prerequisite: ANTH 103 or 211 or permission of instructor. Next offered: 1993-94.)

**ANTH 211 3 Credits Alternate Fall**
**Fundamentals of Archaeology (2+3) s**
Methods and techniques of archaeological field and laboratory research. Materials fee: $10.00. (Prerequisite: ANTH 103. Next offered: 1993-94.)

**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. Materials fee: $5.00. (Prerequisites: ANTH 103 or 211 or permission of instructor. Next offered: 1993-94.)

**ANTH 230 3 Credits Fall**
**The Oral Tradition: Folklore and Oral History (3+0) h**
Study and collection of folklore and oral history. Importance of oral tradition in human communication and the advantages and disadvantages of recording and studying it. Sociocultural anthropology and anthropological linguistics in relation to oral traditions. Methods of folklorists, historians and academicians. Field project required. Materials fee: $5.00. (Prerequisite: ANTH 104.)

**ANTH 242 3 Credits Spring**
**Native Cultures of Alaska (3+0) s**
The traditional Aleut, Eskimo, and Indian (Athabaskan and Tlingit) cultures of Alaska. Eskimo and Indian cultures in Canada. Linguistic and cultural groupings, population changes, subsistence patterns, social organization and religion in terms of local ecology. Precontact interaction between groups. Also available via Independent Learning. Materials fee: $15.00

**ANTH 250 2 Credits Fall, Spring**
**Archaeological Laboratory Techniques (1+3)**
Archaeological laboratory procedures including lithic analysis and lithic tool typology. Examination of collections from several early man sites in Alaska. Research problems pertaining to those collections. Materials fee: $5.00. (Prerequisite: Permission of instructor.)

**ANTH 301 3 Credits Fall**
**World Ethnography (3+0) s**
Cultural heritage, social systems, modes of economic adaptation and culture change for human populations in major geographic regions of the world. Culture areas covered different semesters are contingent on available faculty expertise. Materials fee: $5.00. (Prerequisites: ANTH 104 and junior standing or permission of instructor.)

**ANTH 303 3 Credits Alternate Spring**
**Gender in a Cross-Cultural Perspective (3+0) s**
**(Same as WMS 303)**
Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding women's experiences in their cultural variety are presented. Materials fee: $5.00. (Next offered: 1993-94.)

**ANTH 306 3 Credits As Demand Warrants**
**Economic Anthropology (3+0) s**
Relationships between economic and other social relations. Preindustrial societies. Relevance of formal economics to small-scale societies and developing nations. Exchange, formal and substantive economics, market economics, rationality, political economy, and the economics of development. Materials fee: $5.00. (Prerequisite: ANTH 104 or permission of instructor.)

**ANTH 308 3 Credits Alternate Spring**
**Language and Gender (3+0) s**
**(Same as WMS 308)**
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism. Materials fee: $5.00.

**ANTH 309 3 Credits Alternate Springs**
**Arctic Prehistory (3+0) s**
Archaeological cultures of the northern regions from the first occupation to the present. 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. (Prerequisite: ANTH 103 or permission of instructor. Next offered: 1993-94.)

**ANTH 315 3 Credits Alternate Fall**
**Human Biology (2+3) n**
Biology of recent and modern human populations, including systematics, behavior, ecology and inter- and intrapopulation genetic and morphological variations. Human adaptations to heat, cold, high altitudes, and changing nutritional and disease patterns. Human skeletal biology, including metrical and nonmetrical variation, aging and sexing skeletal remains, and paleopathology. Materials fee: $10.00. (Prerequisite: ANTH 103 or BIOL 103X. Next offered: 1993-94.)

**ANTH 320W 3 Credits Spring**
**Language and Culture: Applications to Alaska (3+0) s**
**(Same as ANS 320)**
Language, ethnicity, and their interrelationships. Communicating ethnic identity. Patterns of language use which affect communication between ethnic groups. Applicability of these concepts to native/non-Native communication patterns. Materials fee: $5.00. (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) n**
Anthropology of the peoples of North and South America, including Eskimo, Aleut and Indian populations. Analysis of patterns of biological variation within and between prehistoric and modern human populations. Origins and relationships, microevolutionary processes and trends, and adaptations to climatic, nutritional, disease and demographic stress. Materials fee: $5.00. (Prerequisite: ANTH 315 or permission of instructor.)

**ANTH 380 3 Credits Alternate Fall**
**The People of Alaskan Southwest: Aleuts Kodiak Islanders and the Chugach (3+0) s**
Cultural heritage and present conditions of 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. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1993-94.)

**ANTH 381 3 Credits Alternate Spring**
**The Inupiaq and Yup'ik Peoples (3+0) s**
Contemporary conditions and traditional heritage of the Inupiaq and Yup'ik peoples including the impact of Euroamericans on these populations and cultures. Materials fee: $10.00. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1993-94.)

**ANTH 382 3 Credits Alternate Spring**
**The People of Alaskan Southeast (3+0) s**
Tlingit, Haida and Tsimshian societies in the framework of Northwest Coast culture-area. Impact of Russian penetration and of the historical factors. Materials fee: $15.00. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1993-94.)

**ANTH 383 3 Credits Alternate Fall**
**Athabaskan Peoples of Alaska and Adjacent Canada (3+0) s**
Contemporary conditions and traditional heritage of the Athabaskan populations of Alaska and Canada. Impact of Euroamericans on these populations and cultures. Materials fee: $20.00. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1993-94.)

**ANTH 402 3 Credits As Demand Warrants**
**Anthropology of Art (3+0) s**
**(Same as ANTH 602)**
Anthropological study of art in cross-cultural perspective. Social context of art production and use, cross-cultural variations in definition of an artist's role. (Prerequisites: Senior standing or permission of instructor. Next offered: 1993-94.)

**ANTH 403 3 Credits As Demand Warrants**
**Political Anthropology (3+0) s**
**(Same as ANTH 603)**
Political systems and the law. Case studies from non-industrial societies, developing nations, and parapolitical systems or encapsulated societies, such as native peoples in the U.S. Political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity. Materials fee: $5.00. (Prerequisite: ANTH 104 or permission of instructor.)

**ANTH 405 3 Credits Alternate Spring**
**Archaeological Method and Theory (2+3) s**
**(Same as ANTH 605)**
Archaeological methods and analysis as the framework for different perspectives in archaeology. Application to specific research problems. Materials fee: $10.00. (Prerequisite: A course in archaeology or permission of the instructor. Next offered: 1994-95.)

**ANTH 407 3 Credits Alternate Spring**
**Kinship and Social Organization (3+0) s**
**(Same as ANTH 607)**
Forms and function of family and household organization, kinship and marriage in diverse human socio-cultural systems. Case studies from tribal and complex societies including contemporary United States. Materials fee: $10.00. (Prerequisite: ANTH 104 or permission of instructor. Next offered: 1993-94.)

**ANTH 409 3 Credits Alternate Fall**
**Anthropology of Religion (3+0) s**
**(Same as ANTH 609)**
Religion or supernatural belief from the perspective of anthropology. Religion in the context of "primitive" society as well as its role in complex society. Religious practitioners, ritual, belief systems, and the relationship of religious behavior to other aspects of social behavior. Materials fee: $5.00. (Prerequisite: Junior standing or permission of instructor.)

**ANTH 410 3 Credits Alternate Fall**
**History of Social/Cultural Anthropology (3+0) s**
Major theoretical approaches in cultural/social anthropology chronologically from formulation of the discipline of anthropology to current theory. Nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology. Materials fee: $5.00. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**ANTH 414 3 Credits Alternate Spring**
**Environmental Archaeology (3+0) n**
Quaternary environmental reconstruction through the integration of geological, archaeological, botanical, and zoological data. Materials fee: $5.00. (Prerequisite: A course in archaeology or permission of the instructor.)

**ANTH 415 3 Credits Alternate Fall**
**Zooarchaeology and Taphonomy (2+3)**
Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains and human land use practices. Materials fee: $10.00. (Next offered: 1993-94.)

**ANTH 422 3 Credits As Demand Warrants**
**Human Osteology (2+3) n**
Human skeletal analysis: bone biology, skeletal anatomy, aging and sexing, metric and nonmetric traits of skeleton and dentition, paleopathology, and paleodemography. Inferences on genetic relationships between and patterned 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)**
Analysis of the Plio-Pleistocene hominid fossil record, including comparative primate and hominid skeletal and dental anatomy, systematics, taphonomy and long-term biobehavioral adaptations. Materials fee: $5.00. (Prerequisites: ANTH 103 and 212 or permission of instructor. Next offered: 1993-94.)

**ANTH 424 3 Credits Alternate Fall**
**Analytical Techniques (3+0)**
**(Same as ANTH 624)**
Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and analysis. Materials fee: $5.00. (Prerequisite: Any 200 level Anthropology course. Next offered: 1993-94.)

**ANTH 428 3 Credits Every Third Fall**
**Ecological Anthropology (3+0) n**
Biological, environmental and cultural factors and their interplay in defining the human condition, with examples from Arctic and other populations. Materials fee: $5.00. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**ANTH 465 3 Credits Alternate Spring**
**Geoarchaeology (3+0)**
**(Same as GEOS 465)**
Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day weekend field trip in late April or early May. Materials fee: $5.00. (Prerequisite: GEOS 101, an introductory course in archaeology, or permission of instructor. Next offered: 1993-94.)

**ANTH 601 3 Credits Alternate Fall**
**Proseminar in Social/Cultural Anthropology (3+0)**

**ANTH 602 3 Credits As Demand Warrants**
**Anthropology of Art (3+0)**
**(Same as ANTH 402)**

**ANTH 603 3 Credits As Demand Warrants**
**Political Anthropology (3+0)**
**(Same as ANTH 403)**

**ANTH 605 3 Credits Alternate Spring**
**Archaeological Method and Theory (3+0)**
**(Same as ANTH 405)**

**ANTH 606 3 Credits Alternate Spring**
**Folklore and Mythology: Anthropological Perspective (3+0)**

**ANTH 607 3 Credits Alternate Spring**
**Kinship and Social Organization (3+0)**
**(Same as ANTH 407)**

**ANTH 608 3 Credits Every Third Spring**
**Classics in Anthropology (3+0)**

**ANTH 609 3 Credits Alternate Fall**
**Anthropology of Religion (3+0)**
**(Same as ANTH 409)**

**ANTH 610 3 Credits Alternate Fall**
**Northern Indigenous Peoples and Contemporary Issues (3+0)**
**(Same as NORS 610)**

**ANTH 611 3 Credits Alternate Fall**
**Proseminar in Archaeology (3+0)**

**ANTH 612 3 Credits As Demand Warrants**
**Paleoecology (3+0)**

**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 616 3 Credits Alternate Spring**
**Classics in Archaeology (3+0)**

**ANTH 621 3 Credits Alternate Spring**
**Proseminar in Physical Anthropology (3+0)**

**ANTH 624 3 Credits Alternate Fall**
**Analytical Techniques (3+0)**
**(Same as ANTH 424)**

**ANTH 630 3 Credits Alternate Spring**
**Anthropological Field Methods (3+0)**

**ANTH 631 3 Credits Alternate Spring**
**Proseminar in Language and Culture (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)**

**ANTH 651 3 Credits As Demand Warrants**
**Quaternary Seminar (3+0)**
**(Same as GEOS 651)**

# Applied Art

**APAR 100 1 Credit As Demand Warrants**
**Basic Video Workshop (1+1)**
Basic video equipment operation and elementary equipment maintenance. Camera techniques, portable video recorders, lighting, audio, and simple video production.

**APAR 103 1 Credit As Demand Warrants**
**Editing Videotape (1+1)**
Principles and operations in electronic editing of videotape. Persons completing this course may use Media Center videotape editing facilities.

**APAR 105 1 Credit As Demand Warrants**
**Community TV Production (1+1)**
Video production for the Nome Public Access Cable Television (NPACT) channel in a ten-week "hands-on" training lab using a variety of video equipment. Each student will produce at least one 30-minute production. Offered at Northwest Campus.

**APAR 107 1 Credit As Demand Warrants**
**Beading (1+1)**
Application of beads to various materials, three kinds of stitches, and use of a bead loom.

**APAR 140 1 Credit As Demand Warrants**
**Clothing Construction (1+0)**
Techniques of clothing construction for the home sewer. Development of sewing skills necessary to create garments for the beginner as well as the more experienced seamstress.

**APAR 157 1-2 Credits As Demand Warrants**
**Skin Sewing (1+2)**
Fundamentals of skin sewing. Projects (e.g. slippers, mukluks, mittens, fur hats, vests and ruffs) dependent upon student ability and experience. Materials fee: $35.00.

# Applied Business

**ABUS 051 3 Credits As Demand Warrants**
**Bookkeeping For Business (3+0)**
Basic concepts and procedures of practical bookkeeping. Recording and reporting financial data for service and merchandising business. Covers businesses owned by one individual only (sole proprietorships.)

**ABUS 052 3 Credits As Demand Warrants**
**Bookkeeping for Business II (3+0)**
Accounting for business partnerships of corporations. Covers other materials selected by teacher, based on student interest. Continuation of ACCT 051.

**ABUS 056 1 Credit As Demand Warrants**
**Mathematics for the Office (1+0)**
Review of basic math processes with application to banking, payroll, business expense reports, commissions, and discounts.

**ABUS 070 1 Credit Fall, Spring**
**Job Readiness Skills (1+0)**
Pre-employment and human relation skills necessary for job success, including how to identify career choices and employment opportunities; how to prepare a resume, job applications, cover and follow-up letters; and how to develop human relation skills. The student will select, prepare and be interviewed for jobs which match his/her skills identified through a self- assessment inventory. Offered at Northwest Campus.

**ABUS 081 3 Credits As Demand Warrants**
**World of Business (3+0)**
Preparatory skills for business.

**ABUS 083 3 Credits As Demand Warrants**
**Introductory Accounting (3+0)**
Fundamental accounting procedures for a one-owner service and merchandising business for the student who has not had high school bookkeeping.

**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 (1-3+0)**
Personal financial planning, goal setting, and investing. Stocks, bonds, trusts, securities, options, real estate and other investment vehicles. Inflation, taxes, interest rates, retirement, and selecting financial planners. Also available via Independent Learning.

**ABUS 130 3 Credits As Demand Warrants**
**Real Estate (3+0)**
Broad social and economic impact of real estate. Buying, selling, leasing, and investing in residential and investment real estate. Contracts, deeds, mortgages, leases, title insurance, sales, brokerage and other related subjects. Fundamental preparation for the Real Estate licensing examination.

**ABUS 135 3 Credits As Demand Warrants**
**Recordkeeping for Business (3+0)**
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)**
Payroll records and laws. Methods to compile and calculate payroll information, earnings, deductions, net wages. City, state and federal tax report forms. For payroll personnel.

**ABUS 142 2 Credits As Demand Warrants**
**Office Accounting I (2+0)**
Basic accounting procedures in retail, service, and trade businesses. The complete accounting cycle including recordkeeping, posting and preparation of financial statements, bank reconciliation, payroll computations and closing books. Accounts receivable, accounts payable, purchasing, credit and other accounting requirements.

**ABUS 143 2 Credits As Demand Warrants**
**Office Accounting II (2+0)**
Financial activities of partnerships and corporations with emphasis on accrual basis of accounting. Notes payable, notes receivable, interest transactions, bad debts, partnership equity accounting, corporate stock transactions, corporate earnings, capital transactions, bonds, long term liabilities and investments.

**ABUS 145 3 Credits As Demand Warrants**
**Applied Accounting Issues for Small Businesses (3+0)**
Small business accounting issues and situations including budgeting, cash management, accounting considerations when doing business with the government or non-profits, and evaluation of the financial condition of the firm. (Prerequisite: ACCT 101. Next offered: 1993-94.)

**ABUS 151 3 Credits Fall**
**Village Based Entrepreneurship (3+0)**
Technical and personal requirements for establishing and maintaining a small business in a rural village; advantages and disadvantages of operating a small business in a rural village.

**ABUS 154 3 Credit As Demand Warrants**
**Human Relations (3+0)**
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)**
Review of basic math computation skills applied to various business areas. Emphasis on applications.

**ABUS 156 2 Credits As Demand Warrants**
**Writing for the Office (2+0)**
Writing tasks encountered in typical office situations. Successful letters, minutes, and reports which convey their intent and get desired responses. The course is offered in two modules, each for one credit.

**ABUS 160 3 Credits As Demand Warrants**
**Principles of Banking (3+0)**
Banking in today's economy. Language and documents of banking, check processing, teller functions, deposits, credit and payment functions, loans, investments, trust, the Federal Reserve System and other regulatory agencies.

**ABUS 161 3 credits As Demand Warrants**
**Foundation and Structures of Credit Unions (3+0)**
Organization and function of credit unions. 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)**
Real estate mortgage credit operations of commercial banks; mortgage markets, financing residential and income producing property, and administrative tasks of mortgage departments.

**ABUS 167 3 Credits As Demand Warrants**
**Branch Management (3+0)**
Branch functions and the manager's role in their operations. Functional aspects of the branch management position.

**ABUS 179 3 Credits As Demand Warrants**
**Fundamentals of Supervision (3+0)**
Effective supervisory concepts including planning, organizing, and staffing functions. Communicating and delegating effectively, morale, productivity, decision making, position discipline and performance goals development.

**ABUS 180 3 Credits As Demand Warrants**
**Commercial Lending (3+0)**
Overview of the commercial lending function divided into four sections: commercial lending, lending process, portfolio management, and regulation and business development.

**ABUS 181 3 Credits As Demand Warrants**
**Law and Banking Applications (3+0)**
Legal structure implicit in bank operations. Legal situations that occur in deposit, collection, dishonor and return, and payment of checks. Legal relationships of parties in bank collection channels and between a bank and its depositors. (Prerequisite: ABUS 160 or 161.)

**ABUS 185 3 Credits As Demand Warrants**
**Teller Operations Training (3+0)**
Principles of banking, banking terms, and concepts, teller operations such as balancing, cash control, handling financial instruments, detecting forgery and counterfeit money, responding to robbery, and customer relations. Entry level job skills for work as a teller in a bank, savings loan, or credit union. (Prerequisite: ABUS 070.)

**ABUS 188 2 Credits As Demand Warrants**
**Personal Income Tax (2+0)**
Taxable income, deductions, credit, exemptions, and computation. Computer use, recordkeeping methods, tax forms and new tax laws.

**ABUS 211 2 Credits As Demand Warrants**
**Tax for Business Entities (2+0)**
Business tax reports. 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. New tax laws.

**ABUS 221 1-3 Credits As Demand Warrants**
**Microcomputer Accounting (1-3+0)**
**(Same as CAPS 221)**
Computer processing of accounting transactions. Software packages, microcomputer systems and hardware. Computer terminology, system analysis, and actual computer operations in accounting. (Prerequisite: ABUS 142 or ACCT 101.)

**ABUS 222 3 Credits As Demand Warrants**
**Computer Applications in Business (3+0)**
Using a microcomputer to solve business problems. Problem solution using the LOTUS 1-2-3 spreadsheet program and a general ledger accounting program (both supplied). (Prerequisite: One accounting course or instructor's approval.)

**ABUS 223 3 Credits As Demand Warrants**
**Real Estate Law (3+0)**
Deeds and conveyances, mortgages, liens, rentals, appraisals, and other transactions in real estate and law. Also available via Independent Learning.

**ABUS 224 3 Credits As Demand Warrants**
**Money and Banking (3+0)**
Basic economic principles. The economy and how it works, the Federal Reserve System, the business of banking, monetary policy and its impact on financial markets and banks, alternative theories of money's role in the economy, fiscal policy and trends in banking. (Prerequisite: ABUS 160 or 161.)

**ABUS 229 3 Credits As Demand Warrants**
**Principles of Success (3+0)**
Goal setting, time management, attitude control, financial gain, failure principles, and success development.

**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. Current accounting pronouncements.

**ABUS 231 3 Credits As Demand Warrants**
**Introduction to Personnel (3+0)**
Company organizational structure, 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)**
Management functions including planning, organizing, staffing, directing and controlling, human aspects of management, and decision making. (Prerequisite: BA 151 or instructor permission.)

**ABUS 233 3 Credits As Demand Warrants**
**Financial Management (3+0)**
Corporate financial planning and control, asset management, capital budgeting, financial markets and instruments. (Prerequisite: BA 151, ACCT 101.)

**ABUS 234 3 Credits As Demand Warrants**
**Financial Counseling (3+0)**
Counseling processes, choosing and implementing action plans, evaluating client 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)**
Legal aspects of business problems. Principles, institutions and administration of law in contracts, agency, employment, personal sales and property ownership. Also available via Independent Learning. (Prerequisite: BA 151.)

**ABUS 243 3 Credits As Demand Warrants**
**Applied Cost Accounting (3+0)**
Principles and applications for manufacturing and non- manufacturing firms. 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 using cost accounting methods. (Prerequisite: ACCT 101 and ACCT 102 or ABUS 142 and ABUS 143.)

**ABUS 244 3 Credits As Demand Warrants**
**Loan Officer Development (3+0)**
Interpersonal skills for dealing with customers and bank personnel. 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)**
Use of accounting information for managerial decisions, planning and control. Accounting process, responsibility in accounting, performance measurement, capital budgeting and analysis of financial reports. (Prerequisites: ACCT 101, 102.)

**ABUS 253 3 Credits As Demand Warrants**
**Principles of Retailing (3+0)**
Current retail practices and technologies. Merchandising, store operation, computerized inventory control and electronic cash registers, finance and credit, personnel, sales promotions and selling. Preparation for a career in a retailing or service business.

**ABUS 254 3 Credits As Demand Warrants**
**Salesmanship (3+0)**
Explores salesmanship as a skill individuals use in selling themselves and their ideas as well as products and services. Personal selling, buyer behavior and communication, creative selling process, sales management, and time-use management. For persons with and without sales experience.

**ABUS 255 3 Credits As Demand Warrants**
**Marketing in Tourism (3+0)**
Basic principles of marketing for the tourism industry. Emphasis on Alaska as the tourist destination. (Prerequisite: BA 160.)

**ABUS 256 3 Credits As Demand Warrants**
**Small Hotel, Bed and Breakfast, and Lodge Operations (3+0)**
Introduction to hospitality industry focusing on the development and operation of small hotels, bed and breakfast accommodations, and lodge operations.

**ABUS 261 3 Credits As Demand Warrants**
**Analyzing Financial Statements (3+0)**
Statement analysis, accounting data, cash flow management ratios, comparative statements, forecasting, liquidity, solvency and capital structure related to financial conditions and performance of modern business enterprise.

**ABUS 272 3 Credits Spring**
**Small Business Planning (3+0)**
Small business planning process elements including the components of a written business plan.

**ABUS 273 3 Credits As Demand Warrants**
**Managing A Small Business (3+0)**
Entrepreneurship and management, starting a new business, buying an existing business or franchise. Managing, marketing, staffing, financing, budgeting, pricing, operational analysis and controls.

**ABUS 099, 199, 299 1-3 Credits**
**As Demand Warrants**
**Practicum in Applied Business**
Supervised training and work experience. Analysis of work experience and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning. (Prerequisite: Permission of the instructor.)

# Applied Mining Technology

**AMIT 101 3 Credits As Demand Warrants**
**Introduction To Mining (3+0)**
Fundamentals of surface and underground mining, economic planning, proper exploration designs, environmental concerns, safety factors.

**AMIT 109 1 Credits As Demand Warrants**
**Underground Mine Safety (1+0)**
Rights of miners, self rescue devices, introduction to the work environment, escapeways, roof and ground control, ventilation, health, cleanup, hard recognition, first aid, mine gasses, electrical hazards. Course fulfills the Mine Safety Health Administration requirements for new underground miner training. Students are awarded MSHA certificate upon course completion. Materials fee: $5.00.

**AMIT 110 3 Credits As Demand Warrants**
**New Underground Miner Training (3+0)**
Orientation to the mine environment, general mine inspection, scaling, staging, drilling, rock bolting, blasting, mucking, and mine rescue. Provides the inexperienced underground miner with the mandatory MSHA federal training to become employable. Materials fee: $50.00.

**AMIT 120 2 Credits As Demand Warrants**
**Explosives I (2+0)**
Theory and safe use of explosives with a focus on blasting agents used for rock excavation.

**AMIT 125 3 Credits As Demand Warrants**
**Mineral Exploration Techniques (3+0)**
Modern, scientific exploration and prospecting techniques utilized in Alaska since the 1970's. Exploration design, ore deposit models, exploration geochemistry and geophysics, drilling sampling and goestatistics. Also available via Independent Learning.

**AMIT 129 1 Credit As Demand Warrants**
**Surface Mine Safety (1+0)**
Rights of miners, introduction to the work environment, ground control, hazard recognition, first aid, and explosive safety. Course fulfills the Mine Safety Health Administration requirements for surface miner training. Students are awarded MSHA certificate upon completion of the class. Materials fee: $3.00.

**AMIT 130 3 Credits As Demand Warrants**
**Surface Mining Operations (3+0)**
Safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines.

**AMIT 140 3 Credits As Demand Warrants**
**Environmental Permitting (3+0)**
Mineral development permits required in Alaska. Students are encouraged to provide their own case histories.

**AMIT 151 1 Credit As Demand Warrants**
**Settling Pond and Recycle Techniques (1+0)**
Design of settling ponds and recycle systems. Students will work with individual case histories.

**AMIT 152 1 Credit As Demand Warrants**
**Fire Assay Techniques (1+0)**
Sampling, theory and practice of fire assaying. Fluxes, oxidation and reduction reactions, fusion of assay charges, cupellation, annealing, micro- weighing and assay charge calculation.

**AMIT 153 1 Credit As Demand Warrants**
**Laboratory Analysis (1+0)**
Production laboratory procedures for sample analysis, heap leaching and titrations. Individual projects required.

**AMIT 154 1 Credit As Demand Warrants**
**Water Quality and Flocculents (1+0)**
Water quality processes using flocculents; removal of total suspended solids from placer mining waste water.

**AMIT 155 1 Credit As Demand Warrants**
**Drilling Technology (1+0)**
Terminology and techniques used in exploration and production drilling.

**AMIT 156 1 Credit As Demand Warrants**
**Applied Cartography (1+0)**
Map and chart preparation. Drafting skills for prospecting maps, mine maps, permits and data presentation.

**AMIT 161 1 Credit As Demand Warrants**
**Alaska Ore Deposits (1+0)**
Geology, ore reserves and preliminary mining plans of significant Alaskan mineral deposits.

**AMIT 162 1 Credit As Demand Warrants**
**Geochemical Sampling (1+0)**
Hands-on scientific sampling methods for rock, soil, pan concentrates, stream sediments, air and water.

**AMIT 170 3 Credits As Demand Warrants**
**Fundamentals of Coal Mining (3+0)**
Origin and types of Alaskan and other coal deposits, exploration and planning methods, extraction processes for underground and surface mines, mining safety, coal preparation, and reclamation. Job requirements, safety, and environmental consideration. Optional field trip to an active coal mine. Materials fee: $5.00.

**AMIT 180 3 Credits As Demand Warrants**
**Colored Stone Grading and Evaluation (3+0)**
Grading, appraisals, and identification of colored stones. Formation and structure, properties, deposits and production, and descriptions of major gemstones.

**AMIT 185 1 Credit As Demand Warrants**
**Diamond Evaluation and Grading (1+0)**
Colors and clarity grading of diamonds, mining of raw material, and detection of stimulants.

**AMIT 205 1 Credit As Demand Warrants**
**Geomagnetic Surveying (1+0)**
Placer gold deposit prospecting using magnetic surveying. Student survey work and data interpretation.

**AMIT 206 1 Credit As Demand Warrants**
**Electromagnetic Surveying (1+0)**
Electromagnetic geophysical exploration methods and operations using the VLF-EM-16, an exploration tool for gold and/or massive sulfide deposits.

**AMIT 210 3 Credits As Demand Warrants**
**Advanced Underground Mining (3+0)**
Skill training conducted in safety, drilling, blasting, ground support, mucking, maintenance and utilities at the Silver Fox Mine.

**AMIT 220 1 Credit As Demand Warrants**
**Explosives II (1+0)**
Advanced techniques in safe use of explosives. Students get "hands-on" experience in blasting. Materials fee: $20.00.

**AMIT 230 1 Credit As Demand Warrants**
**Field Methods (1+0)**
Topographic map reading using a compass and basic field procedures.

**AMIT 231 1 Credit As Demand Warrants**
**Heap Leaching (1+0)**
Heap leaching covering cyanide safety, leach pad construction and placement, cyanide processing, thiourea, case histories, applications to Alaska and economics.

**AMIT 280 3 Credits As Demand Warrants**
**Colored Stone Evaluation II (3+0)**
Gemstones covered are garnet, pyroxene, organic, inorganic, and specialty stones. A continuation of Colored Stone Evaluation I. (Prerequisite: AMIT 180.)

**AMIT 282 1-2 Credits As Demand Warrants**
**Mining Coop Work Experience**
Practical work experience in a professional mining environment. For the student who has mastered basic mining techniques and terminology. Placement and work assignments depend upon student experience.

## Applied Photography

**APHO 072 1 Credit As Demand Warrants**
**Photography Fundamentals (1+0)**
Use of modern cameras to make colorful, well-exposed photographs. Elements of composition, exposure and flash techniques. Students furnish their own camera and film.

**APHO 073 1 Credit As Demand Warrants**
**Process and Print Color Slides (1+0)**
Development of color film, preparation of projection slides, color prints and enlargements, mixing color filters for special effects; and setting up a small home darkroom. Students must have a camera and obtain their own film and film processing.

**APHO 074 1 Credit AS Demand Warrants**
**Process/Print Color Negatives (1+0)**
Developing print film using the Kodak Flexicolor C-41 and Hobby-pac processes. Making proof sheets and enlargements using Extaprint 2, Hobby-pac and Ektaflex processes. Students must have a camera and two rolls of film.

## Art

**ART 100 3 Credits As Demand Warrants**
**Art Exploration (3+0)**
Exposure to design, printmaking, weaving, and sculpture. Individual studio projects, lectures, and field trips introduce areas for further study.

**ART 101 3 Credits As Demand Warrants**
**Introduction to Ceramics (3+0)**
Making and firing clay objects. Study of clay methods, forming decorations, glazing and firing. For beginning students only.

**ART 104 1-3 Credits As Demand Warrants**
**Introduction to Drawing**
Still life, portrait, interior and landscape compositions using basic drawing materials. Emphasizes self-expression by developing spontaneous artistic ideas into a more focused style. For the student with little or no training in drawing to explore his or her drawing abilities.

**ART 105 3 Credits Fall, Spring**
**Beginning Drawing (1+4) h**
Basic elements in drawing. Emphasis on a variety of techniques and media. Materials fee: $25.00.

**ART 113 1-3 Credits As Demand Warrants**
**Introduction to Painting (1+2)**
Investigation of basic materials, various media and techniques available for painting.

**ART 122 1-3 Credits As Demand Warrants**
**Introduction to Stained Glass (2+4) h**
Fundamental skills to construct stained glass pieces. Basics of glass cutting, leading and soldering. Each student completes a square foot window, a large group project and a suncatcher.

**ART 125 1 Credit As Demand Warrants**
**Aleut Basketry Practicum (0+3) h**
Introduction to techniques of Aleut basketry, including design elements and Attu, Atka, and Unalaska style lids and knobs. Historical and artistic overview of the art form. Offered at Aleutian/Regional Center only. (Next offered: Fall 1992.)

**ART 161 3 Credits Fall, Spring**
**Two-Dimensional Design (1+4) h**
Fundamentals of pictorial form; principles of composition, organization, and structure. Materials fee: $25.00.

**ART 162 3 Credits Fall, Spring**
**Color and Design (1+4) h**
Fundamentals of color principles and interactions. Emphasis on two dimensions. Materials fee: $25.00.

**ART 163 3 Credits Fall, Spring**
**Three-Dimensional Design (1+4) h**
Fundamental concepts in organization of 3-dimensional forms. Introduction to various materials and construction techniques. Materials fee: $25.00.

**ART 200X 3 Credits Fall, Spring**
**Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h**
**(Same as MUS 200X and THR 200x)**
Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends. Materials fee: $20.00.

**ART 201 3 Credits Fall, Spring**
**Beginning Ceramics (1+4) h**
Foundation experiences with clays, glazes, plaster, enamels, glass, kiln stacking and firing. Materials fee: $50.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

**ART 205 3 Credits Fall, Spring**
**Intermediate Drawing (1+4) h**
Exploration of pictorial composition and creative interpretation of subjects. Materials fee: $25.00. (Prerequisite: ART 105.)

**ART 207 3 Credits Fall, Spring**
**Beginning Printmaking (1+4) h**
Concepts and techniques of printmaking. Subject areas taken from relief, intaglio, serigraphy, lithography. Materials fee: $50.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

**ART 208 2 Credits As Demand Warrants**
**Art for the Classroom Teacher (1+2)**
**(Same as ED 208)**
Concepts in art education for persons with limited art background working with young children. Combines a philosophy of art education, art history, and "hands-on" experiences to enable the teacher to effectively integrate visual arts into the curriculum as enjoyment and enrichment.

**ART 209 3 Credits Fall, Spring**
**Beginning Metalsmithing (1+4) h**
Basic techniques of fine metalsmithing and jewelry. Materials fee: $50.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

**ART 211 3 Credits Fall, Spring**
**Beginning Sculpture (1+4) h**
Basic sculpture techniques and principles. Materials fee: $50.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

**ART 213 3 Credits Fall, Spring**
**Beginning Painting (Acrylic or Oil) (1+4) h**
Basic materials and techniques in either medium. Pictorial principles and organization of paintings. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

**ART 223 3 Credits Every Third Spring**
**Watercolor Painting (1+4) h**
Painting in various transparent and opaque media (watercolor, tempra, polymer, casein). Emphasis on techniques and subjects. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor. Next offered: 1993-94.)

**ART 261 3 Credits Fall**
**ART 262 3 Credits Spring**
**History of World Art (3+0) h**
Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. ART 261-262 may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester. (Prerequisite: Sophomore standing.)

**ART 268 3 Credits Fall, Spring**
**Beginning Native Art Studio (1+4) h**
**(Same as ANS 268)**
Understanding and applying the traditional designs and technologies of Native art. Materials fee: $25.00. (Prerequisite: ART 105 or permission of instructor.)

**ART 301 3 Credits Fall, Spring**
**Intermediate Ceramics (1+4) h**
Continuation of beginning ceramics. Emphasis on glaze calculations and advanced plaster techniques. Materials fee: $50.00. (Prerequisite: ART 201 or permission of instructor.)

**ART 305 3 Credits Spring**
**Advanced Drawing (1+4) h**
Development and refinement of individual problems in drawing. Can be repeated for credit with permission of instructor. Materials fee: $25.00. (Prerequisite: ART 205 or permission of instructor.)

**ART 307 3 Credits Fall, Spring**
**Intermediate Printmaking (1+4) h**
Continuation of ART 207 with emphasis on refinement of technique and color printing. Materials fee: $50.00. (Prerequisite: ART 207 or permission of instructor.)

**ART 309 3 Credits Fall, Spring**
**Intermediate Metalsmithing and Jewelry (1+4) h**
Further investigation of material processes and techniques; some emphasis on design. Materials fee: $50.00. (Prerequisite: ART 209 or permission of instructor.)

**ART 311 3 Credits Fall, Spring**
**Intermediate Sculpture (1+4) h**
Exploration in materials and concepts of sculpture. Emphasis on personal creativity and skill development. Materials fee: $50.00. (Prerequisite: ART 211 or permission of instructor.)

**ART 313 3 Credits Fall, Spring**
**Intermediate Painting (1+4) h**
Continued development of expressive skills in painting in any media. Emphasis on pictorial and conceptual problems. (Prerequisite: ART 213.)

**ART 324 3 Credits Every Third Spring**
**Watercolor Painting and Composition (1+4) h**
Development of individual approach to watercolor media. Can be repeated for credit with permission of the instructor. (Prerequisite: ART 223. Next offered: 1994-95.)

**ART 363 3 Credits Alternate Spring**
**History of Modern Art (3+0) h**
Development of modern art forms and theories in the visual arts from the late 19th century to the present. Concentration on the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Non-objective Art, Abstract Expressionism, Pop Art, Realism and many other "isms." (Prerequisite: ART 262 or permission of instructor. Next offered: 1993-94.)

**ART 364 3 Credits Alternate Spring**
**Italian Renaissance Art (3+0) h**
Development of the Renaissance from early Florentine to the High Renaissance of Venice. Study of art by Massacio, Michelangelo, DaVinci, Titian, etc. (Prerequisite: ART 261 or permission of instructor. Next offered: 1993-94.)

**ART 365 3 Credits Fall**
**Native Art of Alaska (3+0) h**
**(Same as ANS 365)**
Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries.

**ART 366 3 Credits Alternate Spring**
**Northwest Coast Indian Art (3+0) h**
**(Same as ANS 366)**
Arts of the Northwest Coast Indians and the place of art in their culture. (Next offered: 1993-94.)

**ART 367 3 Credits Alternate Spring**
**Eskimo Art (3+0) h**
**(Same as ANS 367)**
Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces to the beginning of the 20th century. (Next offered: 1993-94.)

**ART 368 3 Credits Fall, Spring**
**Intermediate Native Art Studio (1+4) h**
**(Same as ANS 368)**
Understanding and applying advanced traditional designs and technologies of Native art. Materials fee: $25.00. (Prerequisite: ART 268 or permission of instructor.)

**ART 371 3 Credits Fall**
**Introduction to Computer Art (1+4)**
Digital editing with an overview of the field of computer art. Materials fee: $50.00. (Prerequisites: Introductory computer course and ART 105, 161, 162, or 163.)

**ART 401 3 Credits Fall, Spring**
**Advanced Ceramics (1+4) h**
Emphasis on individual projects, plus a class project on architectural mural(s). May be repeated for credit with permission of instructor. Materials fee: $50.00. (Prerequisite: ART 301 or permission of instructor.)

**ART 407 3 Credits Fall, Spring**
**Advanced Printmaking (1+4) h**
Individual development of technical and creative processes. May be repeated for credit with permission of instructor. Materials fee: $50.00. (Prerequisite: ART 307 or permission of instructor.)

**ART 409 3 Credits Fall, Spring**
**Advanced Metalsmithing and Jewelry (1+4) h**
Materials and processes; introduction to holloware skills and forging. May be repeated for credit with permission of instructor. Materials fee: $50.00. (Prerequisite: ART 309 or permission of instructor.)

**ART 411 3 Credits Fall, Spring**
**Advanced Sculpture (1+4) h**
Principles, practices and concepts of sculpture. May be repeated for credit with permission of instructor. Materials fee: $50.00. (Prerequisite: ART 311 or permission of instructor.)

**ART 413 3 Credits Fall, Spring**
**Advanced Painting (1+4) h**
Individual experimentation and technical/conceptual development in painting. Can be repeated for credit 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: $50.00. (Prerequisite: ART 105, 207, or permission of instructor. Next offered: 1993-94.)

**ART 419 3 Credits Fall, Spring**
**Life Drawing (1+4) h**
Drawing from life; study of artistic anatomy. Materials fee: $30.00. May be repeated for credit with permission instructor. (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: $50.00. (Prerequisites: ART 105, 207, and 213, or permission of instructor. Next offered: 1993-94.)

**ART 437 3 Credits Every Third Fall**
**Intaglio (1+4) h**
Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. Materials fee: $50.00. (Prerequisites: ART 105, 162, 207, or permission of the instructor. Next offered: 1993-94.)

**ART 441 3 Credits Every Third Spring**
**Lost Wax Casting (1+4) h**
Design and execution of jewelry and other small metal objects by lost wax casting. Materials fee: $50.00. (Prerequisite: ART 409 or permission of instructor. Next offered: 1993-94.)

**ART 442 3 Credits Every Third Spring**
**Nonferrous Forging (1+4) h**
Design and execution of hammer forged nonferrous metal objects. Materials fee: $50.00. (Prerequisite: ART 409 or permission of instructor. Next offered: 1993-94.)

**ART 443 3 Credits Every Third Spring**
**Holloware (1+4) h**
Design and construction of holloware by raising, sinking, and fabrication. Materials fee: $50.00. (Prerequisite: ART 409 or permission of instructor. Next offered: 1993-94.)

**ART 447 3 Credits Every Third Spring**
**Silkscreen (1+4) h**
Silkscreen printing with photo process. Materials fee: $50.00. (Prerequisites: ART 105, 162, 207, or permission of the instructor. Next offered: 1993-94.)

**ART 450 3 Credits Every Third Fall**
**Raku Pottery (1+4) h**
Raku bodies, glazes and decorations. Kiln building. Materials fee: $50.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1993-94.)

**ART 451 3 Credits Every Third Spring**
**Earthenware (1+4) h**
Earthenware pottery bodies, glazes, decorations and firing techniques. Materials fee: $50.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1993-94.)

**ART 452 3 Credits Every Third Fall**
**Porcelain (1+4) h**
Porcelain bodies, glazes, decorations and firing techniques. Materials fee: $50.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1993-94.)

**ART 453 3 Credits Every Third Spring**
**Kiln Design and Construction (1+4) h**
Kiln design and construction including building a full- sized kiln. Materials fee: $50.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1993-94.)

**ART 454 3 Credits Every Third Fall**
**Vapor Glazing (1+4) h**
Clays, glazes, decorative techniques and kilns used in "salt glazing" (i.e. vapor glazing). Materials fee: $50.00. (Prerequisite: ART 201 and permission of instructor. Next offered: 1993-94.)

**ART 455 3 Credits Spring**
**Studio Glass (1+4) h**
Studio participation in cold glass and limited hot glass techniques. Materials fee: $50.00. (Prerequisite: Advanced standing or permission of instructor.)

**ART 457 3 Credits Every Third Fall**
**Papermaking (1+4) h**
Production of paper from rags and linters for use as an end in itself as well as a support for art. Two- and three-dimensional projects are required. Experimentation is encouraged. Materials fee: $50.00. (Prerequisites: ART 105, 207, 163 or 211, or permission of instructor.)

**ART 467 3 Credits Every Third Spring**
**Photoprocess Printmaking (1+4) h**
Production of etchings, lithographs and silkscreen prints using photo mechanical processes. Elements of electro-photography and desktop publishing explored. Materials fee: $50.00. (Prerequisites: ART 105, 262, 207 or permission of instructor. Next offered: 1993-94.)

**ART 468 3 Credits Fall, Spring**
**Advanced Native Art Studio (1+4) h**
**(Same as ANS 468)**
Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. May be repeated for credit with permission of instructor. Materials fee: $25.00. (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. Materials fee: $50.00. (Prerequisites: ART 105 and ART 161, 162 or 163; ART 371 or CS 201 or equivalent.)

**ART 499 1-3 Credits Fall, Spring**
**Thesis Project**
Directed work toward individual exhibition; completed outside regularly scheduled classes. Required for B.F.A. candidates. (Prerequisites: Senior standing.)

## Atmospheric Science

**ATM 636 3 Credits Alternate Fall**
**Physics of Atmospheres (3+0)**

**ATM 644 3 Credits Alternate Spring**
**Weather and Circulation (3+0)**

**ATM 646 3 Credits Alternate Spring**
**Dynamics of the Atmosphere and Ocean (3+0)**

**ATM 656 3 Credits Alternate Spring**
**Climate and Climate Change ((3+0)**

## Automotive

**AUTO 080 2 Credits As Demand Warrants**
**Driver and Safety Education (2+0)**
Drivers Education for the beginning driver. Alaska Driver's Manual, material necessary to gain an Alaska Driver's Permit. Defensive driving methods for accident-free driving and basic mechanical information.

**AUTO 081 1 Credit As Demand Warrants**
**Behind-the-Wheel Training (0+3)**
Practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver's license. (Prerequisite: Must have a valid Alaska Driver's Permit.)

**AUTO 100 1 Credit As Demand Warrants**
**Introduction to Small Engine Repair (1+0)**
Parts and functions of a small engine and its electrical system. Dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs.

**AUTO 103 1 Credit As Demand Warrants**
**Auto Tune-Up (1+0)**
A dual purpose course serving as an introduction to an advanced course and as a consumer interest course. Uses a "hands-on" approach to basic troubleshooting and maintenance, with tools commonly available.

**AUTO 170 1 Credit As Demand Warrants**
**Snowmachine Maintenance and Repair (1+0)**
Fundamental skills for operation and repair. Engine tune-up, lubrication, belt and track repair, alignment, and basic problems encountered during operation.

# Aviation

**AVTY 100 4 Credits As Demand Warrants**
**Private Pilot Ground School (4+0)**
Study of aircraft and engine operation and limitations, aircraft flight instruments, navigation, navigation computers, national weather information and dissemination service. Federal aviation regulations, flight information publications, radio communications and navigation. Preparation for FAA private pilot-airplane written exam. Also available via Independent Learning.

**AVTY 101 2 Credits As Demand Warrants**
**Private Pilot Flight Training (2+0)**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of private pilot certificate. (Prerequisite: Department approval required.)

**AVTY 102 3 Credits As Demand Warrants**
**Commercial Ground Instruction (3+0)**
Advanced study of aircraft performance, airplane systems (including complex single engine, multi-engine and turboprop aircraft), navigation, regulations and meteorology. Employment considerations for commercial pilots surveyed. Preparation for the FAA commercial pilot-airplane written exam.

**AVTY 103 2 Credits As Demand Warrants**
**Commercial Flight Training (2+0)**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of commercial pilot certificate. (Prerequisite: Private Pilot certificate, AVTY 102 or concurrent enrollment, or passing score on FAA Commercial Pilot written exam, department approval required.

**AVTY 105 1 Credit As Demand Warrants**
**Seaplane Flight Training (1+0)**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of single- engine sea rating. (Prerequisites: Private pilot certificate or higher, department approval required.)

**AVTY 107 1 Credit As Demand Warrants**
**Multi-Engine Flight Training (1+0)**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of multi- engine rating. (Prerequisites: Private pilot certificate or higher, department approval required.)

**AVTY 108 1 Credit As Demand Warrants**
**Introduction to Skis (1+0)**
Pilot instruction with a certified flight instructor or flight school in techniques of ski-plane operation and cold weather maintenance. The student is responsible for making arrangements for an appropriate aircraft, instructor, and financing. (Prerequisite: Private pilot certificate.)

**AVTY 109 1 Credit As Demand Warrants**
**Glider Flight Training (1+0)**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of glider and private or commercial pilot certificate with a glider category rating. (Prerequisite: Department approval.)

**AVTY 110 1 Credit As Demand Warrants**
**Biennial Flight Review (1+0)**
Review of federal aviation regulations, air traffic control procedures, communications, normal and emergency aircraft procedures, and aircraft performance. (Prerequisite: Student must have private pilot certificate.)

**AVTY 111 3 Credits Fall**
**Fundamentals of Aviation (3+0)**
Basic concepts associated with the aircraft and its environment. Aircraft and its components, including basic systems, Federal Aviation Administration regulations, airports and airspace utilization, aeronautical charts, navigation, weather theory, medical and emergency factors.

**AVTY 116 3 Credits As Demand Warrants**
**Aviation History (3+0)**
Aviation from its early days to the present. People, places, and machines contributing to the development of Alaskan aviation.

**AVTY 117 3 Credits As Demand Warrants**
**Aviation Weather (3+0)**
Weather and its effects on air transportation and air traffic control. 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. Materials fee: $35.00.

**AVTY 119 1 Credit As Demand Warrants**
**Flight Simulator Instruction Basic Procedures (0+3)**
Individualized operation and use of the LINK GAT-I flight simulator and selected practice in basic flight maneuvers, procedures and techniques. A supplement to both private pilot ground school and actual flight training. (Prerequisite: AVTY 100 or concurrent enrollment in AVTY 100, 111 or 112.)

**AVTY 155 1-3 Credits As Demand Warrants**
**Preventive Maintenance (1-3+0)**
Mechanics of the airplane, its power plant and systems to enable the student to evaluate malfunctions and make maintenance decisions. Designed for the pilot-owner. Materials fee: $35.00. (Prerequisite: AVTY 100 or permission of instructor.)

**AVTY 200 4 Credits As Demand Warrants**
**Instrument Ground School (3+3)**
Instrument flight operations in detail, altitude instrument flying, air traffic control and navigation facilities, pilot responsibilities. IFR enroute charts, instrument approach procedures, airspace and airway route system, ATC operations and procedures. Federal Aviation Regulations, flight planning, human factors, meteorology. Includes visits to FAA RAPCO and ARTCC facilities. Laboratory consists of at least 10 hours of instrument instruction by an authorized instructor in an FAA-approved instrument ground trainer. The student is responsible for making arrangements for an appropriate instrument ground trainer, instrument instructor, and financing. (Prerequisites: AVTY 102 or permission of the instructor.)

**AVTY 201 2 Credits As Demand Warrants**
**Instrument Pilot Training**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Cost of flight instruction varies with location of instruction. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Instrument Rating. (Prerequisite: Private or Commercial Pilot Certificate, or AVTY 200 or concurrent enrollment, or passing score on FAA Private or Commercial Pilot written exam, or permission of instructor. Department approval required.)

**AVTY 202 3 Credits As Demand Warrants**
**Flight Instructor Ground School (3+0)**
Preparation for the FAA certified flight instructor or advanced ground instructor written exam. (Prerequisite: Commercial pilot certificate or permission of instructor.)

**AVTY 203 2 Credits As Demand Warrants**
**Flight Instructor Flight Training (2+0)**
Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training meets federal aviation regulations. Course completion requires awarding of certified flight instructor certificate. (Prerequisites: Commercial pilot certificate with instrument rating, AVTY 202 or concurrent enrollment, or passing score on FAA flight instructor written exams; department approval.)

**AVTY 205 3 Credits As Demand Warrants**
**Instrument Instructor Flying (3+0)**
Preparation for certification as an instrument flight instructor. (Prerequisites: Commercial flight instructor certificate and department approval.)

**AVTY 206 4 Credits As Demand Warrants**
**ATP Ground Instruction (4+0)**
Preparation for the FAA airline transport pilot written exam. (Prerequisite: Compliance with FAR 61.151 and 61.55 or department permission.)

**AVTY 207 2 Credits As Demand Warrants**
**ATP Flying (2+0)**
Qualification for single engine or multi-engine FAA airline transport pilot certificate. (Prerequisites: Commercial pilot certificate, 1500 hours of flight time as pilot or equivalent [CAD 91] as described in FAR 61.55[CAD 93]; AVTY 206 or passing score on FAA airline transport pilot written exam; current FAA first class medical certificate.)

**AVTY 208 Credits As Demand Warrants**
**Flight Simulator Operation (3+0)**
Advanced training in a flight simulator. (Prerequisites: Private pilot certificate [CAD 91] or higher [CAD 93], instrument rating, certified flight instructor-instrument or instrument ground instructor certificate, or department permission.)

**AVTY 210 1 Credit As Demand Warrants**
**Simulated Flight Instruction: Advanced Procedures (0+3)**
Training utilizing the GAT-I Flight Simulator (individually scheduled through the aviation department). A UAF approved instructor must direct and accompany the student while the simulator is in operation. Time accumulated may be applied to requirements of advance ratings or flight as specified in Part 16 of the Federal aviation regulations.

**AVTY 211 3 Credits As Demand Warrants**
**Instrument Flying (3+0)**
Flight instruction provided by an appropriate pilot school designed to qualify commercial pilot for instrument rating. Training meets federal aviation flight training directives. Approximately 40 hours flying. Course completion requires the awarding of FAA instrument rating. (Prerequisite: Private or commercial pilot certificate or AVTY 200 [CAD 91] concurrent enrollment allowed [CAD 93] or passing score on FAA private commercial pilot written exam or permission of department.)

**AVTY 226 4 Credits As Demand Warrants**
**Flight Engineer Ground School (4+0)**
A comprehensive examination of the major systems of one of the following aircraft: turbojet (B-727, DC-8, B-707); turboprop (L-382, L-188); or reciprocating (DC-6). Preparation for the FAA flight engineer written exam. (Prerequisites: FAA commercial pilot license and instrument rating, or equivalent, and department approval.)

**AVTY 231 3 Credits As Demand Warrants**
**Arctic Survival (3+Arr.)**
Use of principles, procedures, techniques and equipment to survive extreme arctic conditions and to assist in safe recovery. Lab required. Materials fee: $50.00.

**AVTY 232 3 Credits As Demand Warrants**
**Aviation Astronomy and Navigation (3+0)**
Air navigation and astronomy, including charts, equipment, star and constellation identification, and calculations.

**AVTY 233 1 Credit As Demand Warrants**
**Loran C and GPS Navigation (1+0)**
The theory of Loran "C" and GPS and considerations regarding their use. System features are compared and the advantages and disadvantages of each are explored.

**AVTY 235 3 Credits As Demand Warrants**
**Elements of Weather (3+0)**
Weather as it affects aircraft operators with an emphasis on Interior Alaska. Materials fee: $50.00.

**AVTY 239 4 Credits As Demand Warrants**
**Aircraft Dispatcher (4+0)**
Coordinating functions involving the aircraft and other departments of an airline business. Those wanting to be eligible for aircraft dispatcher certificate must be 23 years of age.

**AVTY 301WO 3 Credits Fall**
**Air Worker Strategies (3+0)**
Knowledge and skills to use general aviation aircraft as a tool for field transportation, field logistics or as a platform for instrumentation and data collection. For pilots or air workers who use aviation in natural resources management. (Prerequisite: AVTY 100 or 111.)

**AVTY 302 2 Credits Spring**
**Aerial Data Collection (2+0)**
Uses of aircraft to collect resource data ocular observations through operation of remote sensing data equipment. Mission design and sampling strategies. (Prerequisite: AVTY 301.)

**AVTY 302L 1 Credit Spring**
**Aerial Data Collection Laboratory (0+2)**
Optional Lab portion of AVTY 302. (Prerequisites: AVTY 301, 302.)

**AVTY 305 3 Credits Spring**
**Aviation Law (3+0)**
Impact of law and insurance on the aviation industry for pilots, air workers, and other aviation professionals; emphasis on commercial operations and the air transport service; history of the FAA; aircraft ownership; aviation insurance; FAA enforcement procedures; negligence; product liability. (Prerequisites: AVTY 102 and 200 or permission of instructor.)

**AVTY 402 3 Credits Spring**
**Aircraft Management (3+0)**
Securing, dispatching, and monitoring aircraft operations. Safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling. (Prerequisite: AVTY 301.)

**AVTY 405 3 Credits Fall**
**Advanced Aircraft Operations (3+0)**
Techniques and requirements associated with the operation of turbine powered aircraft, remotely piloted aircraft, helicopters, and STOL aircraft for pilots and air workers; safety; systems; aerodynamics; operating characteristics. (Prerequisites: AVTY 100, 111, 301, or 302 or permission of instructor.)

**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 flying, special maneuvers and unique soft and short field take-offs and landings. (Prerequisites: AVTY 231, 235, 301, commercial rating and 20 hours taildragger time.)

# Biology

**BIOL 102 3 Credits Summer, As Demand Warrants**
**High Latitude Biology (3+0) n**
Major themes in modern biological sciences, using experiences and examples in Alaska and circumpolar regions. Exploration of one of six themes in sufficient detail to become aware of the knowledge frontier dividing the known from the undiscovered. Research term paper required.

**BIOL 103X 4 Credits Fall, Spring**
**Biology and Society (3+3) n**
Fundamental principles of biology; emphasis on their application to humans in the modern world. Lectures, laboratory demonstrations, experiments, and discussions of contemporary biological topics. For non-science majors; cannot be used as a biology elective by biological science majors. Laboratory fee: $30.00. (Offered every Fall at the Northwest Campus.)

**BIOL 104 3 Credits Fall, Spring**
**BIOL 104X 4 Credits Fall, Spring**
**Natural History of Alaska (3+0 or 3+3) n**
The physical environment peculiar to the North and important in determining the biological setting; major ecosystem concepts to develop an appreciation for land use and wildlife management problems in both terrestrial and aquatic situations. May not be used as biology elective credit for a major in biological science. BIOL 104X (4 credits) fulfills the Natural Science Core requirement. BIOL 104 (3 credits) is also available via Independent Learning. BIOL 104X laboratory fee: $30.00.

**BIOL 105X 4 Credits Fall**
**BIOL 106X 4 Credits Spring**
**Fundamentals of Biology I and II (3+3) n**
Principles of biology for the science major. First semester: ecology, genetics, evolution, plant structure and function. Second semester: chemistry of life, introduction to cell structure and function, molecular biology, animal structure and function. Laboratory fee: $30.00. Students for whom this course is required for their major will be given preference when space is limited. (Prerequisites: high school algebra or equivalent and placement in ENGL 111X. Recommended: high school biology and chemistry, or permission of instructor; BIOL 105X for BIOL 106X.)

**BIOL 111X 4 Credits Fall**
**BIOL 112X 4 Credits Spring**
**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. These courses may not be used as biology elective credit for majors in biological sciences. Laboratory fee: $30.00. (Prerequisite: BIOL 111 for BIOL 112.)

**BIOL 150 3 Credits Independent Learning Only**
**Introduction to Marine Biology**
Survey of marine organisms, evolution of marine life, habitats and communities of ocean zones, productivity, and marine resources. For non-science majors; may not be used as biology elective credit for a major in biological science.

**BIOL 205 4 Credits Alternate Fall**
**Vertebrate Anatomy (2+6) n**
Anatomy of bony fishes, birds, and mammals. Laboratory dissections emphasized. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X. Next offered: 1993-94.)

**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: $30.00. (Prerequisites: BIOL 105X, 106X CHEM 103X and 104X or 105X may be taken concurrently.)

**BIOL 222 4 Credits Spring**
**Biology of the Vertebrates (3+3) n**
Fishes, amphibians, reptiles, birds, and mammals emphasizing systematics, evolution, structure, and function. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X.)

**BIOL 239 4 Credits Fall**
**Introduction to Plant Biology (3+3) n**
Structure, function, ecology, and evolutionary patterns of the major groups of plants. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X.)

**BIOL 240 4 Credits Fall**
**Beginnings in Microbiology (3+3)**
Basic and applied microbiology for students who are not majoring in biology but wish to learn about the role that microorganisms play in human health and life. Laboratory Fee: $30.00.

**BIOL 271 4 Credits Fall**
**Principles of Ecology (4+0) n**
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. Mechanisms of evolutionary change in populations. Organization of biotic communities. Structure and function of ecosystems. (Prerequisites: BIOL 105X, 106X.)

**BIOL 277 3 Credits Alternate Spring**
**(Same as NRM 277)**
**Introduction to Conservation Biology (3+0)**
Introduction to the basic ecological, genetic, management, legal, and historical developments in conservation biology and focused efforts to manage biological diversity resources, with a status review of important habitats and endangered species. (Prerequisites: BIOL 105X, 106X. Next offered: 1993-94.)

**BIOL 305 5 Credits Fall**
**Invertebrate Zoology (3+6) n**
Classification, structure, function, evolution, and life histories of invertebrate animals. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X, 210, and 271.)

**BIOL 307 3 Credits Alternate Spring**
**Parasitology (2+3) n**
Structure, function, life history, and ecology of animal parasites. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X and BIOL 222 or permission of instructor. Next offered: 1993-94.)

**BIOL 308W 3 Credits Spring**
**Principles of Evolution (3+0) n**
Mechanisms of, and evidence for, the evolution of living systems. Coding and transmission of genetic information in populations, population variability, change, and stabilization. (Prerequisites: BIOL 105X, 106X, 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: $30.00. (Prerequisites: BIOL 105X, 106X. Next offered: 1993-94.)

**BIOL 328 3 Credits Spring**
**Biology of Marine Organisms (3+0) n**
Marine organisms: ocean as a habitat, distribution, classification, functional morphology, and general biology of the major biological groups; man and the oceans. (Prerequisite: Upper division standing in a biologically- oriented major.)

**BIOL 331 4 Credits Spring**
**Systematic Botany (2+6) n**
Classification of flowering plants with emphasis on Alaskan flora; taxonomic principles, classical and experimental methods of research. Preregistration is required to insure that each student will prepare a plant collection. Laboratory fee: $30.00. (Prerequisite: 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**
Structure, function, comparative development, taxonomy, phylogeny and life histories of non-vascular cryptogams (algae, excluding blue greens, fungi, lichens, mosses and hepatics). Laboratory fee: $30.00. (Prerequisite: BIOL 239. Next offered: 1993-94.)

**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: $30.00. (Prerequisite: BIOL 239. Next offered: 1993-94.)

**BIOL 342 4 Credits Spring**
**Microbiology (3+3) n**
Morphology and physiology of microorganisms (viruses, bacteria, fungi, algae and protozoans). The role of these organisms in the environment and their relationship to humans. Concepts of immunology. Laboratory stresses aseptic techniques for handling microorganisms. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X.)

**BIOL 362 4 Credits Fall**
**Principles of Genetics (3+3) n**
Principles of inheritance; physico-chemical properties of genetic systems. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X.)

**BIOL 380 3 Credits Alternate Spring**
**Marine Fishes of Alaska (2+3)**
**(Same as FISH 380)**
Taxonomy, recognition, distribution, life history and ecological relationships of marine fishes of Alaska will be studied. Life history traits that make species susceptible to commercial exploitation, changes in climate, ocean circulation or pollution will be emphasized. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X and 222. Next offered: 1994-95.)

**BIOL 384 3 Credits Alternate Spring**
**Freshwater Fishes of Alaska (2+3)**
**(Same as FISH 384)**
Life histories of Alaskan freshwater fish emphasizing species sought by fishermen. Reproduction, age, growth, migration, food, inter- relationships and habitat requirements. (Prerequisites: BIOL 105X and 106X or permission of instructor. Next offered: 1993-94.)

**BIOL 406 4 Credits Alternate Spring**
**Entomology (3+3) n**
Biology of insects and related arthropods, with emphasis on anatomy, physiology, behavior, ecology, and evolution. Lab emphasizes identification. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X, 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: $30.00. (Prerequisites: BIOL 105X, 106X and 271, or permission of instructor; BIOL 473 recommended. Next offered: 1993-94.)

**BIOL 414 4 Credits Fall**
**Environmental Physiology (3+3) n**
Functional variations and relationships among animals in various environments; respiration, cardiovascular systems, metabolism, temperature regulation, osmoregulation excretion, nerve and muscle function. Laboratory fee: $30.00. (Prerequisites: BIOL 210, CHEM 106X and 321 or permission of instructor.)

**BIOL 418W 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 stresses experimental study of vertebrate embryos. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X, 210 or permission of instructor. Next offered: 1993-94.)

**BIOL 425 3 Credits Fall**
**Mammalogy (2+3) n**
Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution, and zoogeography. Laboratory fee: $30.00. (Prerequisites: BIOL 205 or permission of instructor.)

**BIOL 426W 3 Credits Spring**
**Ornithology (2+3) n**
Evolution, anatomy, physiology, distribution, migration, breeding biology of birds, their classification and identification. Laboratory fee: $30.00. (Prerequisites: BIOL 205 or permission of instructor. Concurrent enrollment in BIOL 479 recommended.)

**BIOL 427 4 Credits Alternate Spring**
**Ichthyology (3+3) n**
**(Same as FISH 427)**
Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology, and importance to man. Laboratory fee: $30.00. (Prerequisites: BIOL 205 or 317 or permission of instructor. Next offered: 1993-94.)

**BIOL 441WO(t) 3 Credits** **Fall**
**Animal Behavior (2+3) n**
Genetic and physiological bases of behavior, evolutionary and ecological principles of individual and social behavior, sociobiology, and techniques of behavioral observation and analysis. Laboratory fee: $30.00. (Prerequisites: BIOL 210, 271; or permission of instructor; Recommended: BIOL 308.)

**BIOL 442W 4 Credits** **Alternate Fall**
**Advanced Microbiology (2+6) n**
**(Same as BIOL 642)**
Diversity of microorganisms. Morphology, physiology and systematics of microorganisms, particularly bacteria. Emphasis on organisms of environmental or medical interest. Laboratory fee: $30.00. (Prerequisites: BIOL 342, CHEM 321 or permission of instructor. Next offered: 1994-95.)

**BIOL 443 3 Credits** **Alternate Fall**
**Microbial Ecology (3+0) n**
Interactions of microorganisms with their environment, emphasizing microbial responses to the environment, microbial processes such as nutrient cycling and pollutant biodegradation, and microbial interactions with each other, with plants, and with animals. Laboratory fee: $30.00. (Prerequisite: BIOL 342 or BIOL 271 or permission of instructor. Next offered: 1993-94.)

**BIOL 444 3 Credits** **Alternate Fall**
**Reproductive Biology (3+0)**
Comparative physiology, endocrinology, behavior and ecology of reproduction in mammals and birds. Hormonal control of reproductive function and behavior; seasonal rhythms, energetics, and life histories of reproduction. Although primarily comparative, aspects of human reproductive function and health covered. Laboratory fee: $30.00. (Prerequisite: BIOL 111, 112, or 210.)

**BIOL 445 4 Credits** **Spring**
**Molecular Evolution (3+3)**
**(Same as CHEM 445)**
Structure, function and evolution of hereditary molecules (nucleic acids). (Prerequisite: BIOL 362.)

**BIOL 461 4 Credits** **Alternate Spring**
**Cell Biology (3+3) n**
**(Same as BIOL 661)**
The structure and function of cells. Analysis of cellular events at the cytoplasmic level including: cell replication, functioning of the cytoskeleton, mitochondria, chloroplasts, Golgi-RER-lysosome system, hormone action, and the regulation of the internal environment of the cell. Laboratory focuses on techniques and problem solving. Laboratory fee: $30.00. (Prerequisites: BIOL 362 or concurrent enrollment, CHEM 321 or concurrent enrollment, or permission of instructor. Next offered: 1994-95.)

**BIOL 471W 3 Credits** **Spring**
**Population Ecology (3+0) n**
Biology of populations of plants and animals, including population structure, natality, mortality, population growth, regulation of population size, population interactions in herbivory, predation, and parasitism. (Prerequisite: BIOL 271 for biology majors; WLF 201 for wildlife majors; either course for others.)

**BIOL 472 3 Credits** **Fall**
**Communities and Ecosystems (3+0) n**
Structure of plant and animal communities and their organization. Structuring forces of competition, predation, herbivory, mutualisms, and the flow of energy and nutrients. Latitudinal gradients in species richness and biogeography. (Prerequisite: BIOL 271.)

**BIOL 473 3 Credits** **Fall**
**Limnology (2+3)**
Physical, chemical and biological characteristics of fresh water, emphasizing ecological aspects important to fish and other organisms. Laboratory fee: $30.00. (Prerequisites: BIOL 271, CHEM 106X or permission of instructor.)

**BIOL 474 4 Credits** **Alternate Fall**
**Plant Ecology (3+3) n**
Principles and contemporary topics in plant ecology. Autecology, community ecology, ecosystem ecology and evolutionary ecology. Laboratory fee: $30.00. (Prerequisites: BIOL 239, BIOL 271, STAT 301. Next offered: 1993-94.)

**BIOL 475 2 Credits** **Alternate Fall**
**Plant Communities of Alaska-Field Course (1+3)**
Identification of vascular and non-vascular plants and the processes affecting the structure and evolution of Alaskan plant communities. Field trips to the plant communities of interior Alaska. Laboratory fee: $30.00. (Prerequisites: BIOL 239, permission of instructor. Next offered: 1993-94.)

**BIOL 477 3 Credits** **Alternate Spring**
**Ecology of Streams and Rivers (3+0)**
Physical, chemical and (especially) biological aspects of stream and river ecosystems. Considerations of methods used in running water research and management of streams and rivers. (Prerequisites: BIOL 271 and 473 recommended or permission of instructor. (Next offered: 1993-94.)

**BIOL 479 2 Credits** **Spring**
**Ornithology Field Trip (0+6) n**
Techniques of field ornithology, emphasizing identification of birds and bird-habitat relationships. Preparation during the spring semester followed by a field trip of 10-12 days in early May. Students must share in expenses. Field trip fee to be announced. Laboratory fee: $30.00. (Prerequisites: BIOL 426 [CAD 91] may be taken concurrently [CAD 93] and permission of instructor.)

**BIOL 480 3 Credits** **Alternate Fall**
**Water Pollution Biology (3+0)**
**(Same as BIOL 685)**
Water quality standards: criteria and use classifications. Effects of man-caused environmental stresses on the composition and dynamics of aquatic communities. Changes in transfers of matter and energy. Biological indices including diversity. (Prerequisites: BIOL 271 and BIOL 473 or 477 or permission of instructor. Next offered: 1993-94.)

**BIOL 601 3 Credits** **Alternate Spring**
**Radioisotopic Techniques (2+3)**

**BIOL 602 3 Credits** **Fall**
**Research Design (3+0)**

**BIOL 611J 3 Credits** **As Demand Warrants**
**Fish Physiology (3+0)**

**BIOL 614 2 Credits** **Alternate Spring**
**Grazing Ecology (2+0)**
**(Same as WLF 614)**

**BIOL 615 3 Credits** **Alternate Spring**
**Systematic and Comparative Biology (3+0)**

**BIOL 618 3 Credits** **Alternate Spring**
**Biogeography (3+0)**

**BIOL 619 2 Credits** **Alternate Fall**
**Marine Mammals (1+3)**

**BIOL 623 3 Credits** **Alternate Fall**
**Physiological Ecology of Overwintering (2+3)**

**BIOL 627 3 Credits** **Alternate Spring**
**Chemical Ecology (3+0)**

**BIOL 629 3 Credits** **Alternate Fall**
**Advanced Animal Behavior (3+0)**

**BIOL 637 2 Credits** **Alternate Fall**
**Modern Evolutionary Theory (2+0)**

**BIOL 638 1 Credit** **Alternate Fall**
**Seminar in Ecology and Evolutionary Biology (2+0)**

**BIOL 642W 4 Credits** **Alternate Fall**
**Advanced Microbiology (2+6)**
**(Same as BIOL 442)**

**BIOL 649J 3 Credits** **As Demand Warrants**
**Molecular Genetics (3+0)**

**BIOL 650 3 Credits** **Fairbanks, Alternate Fall**
**Fish Ecology (2+3)** **Juneau, As Demand Warrants**
**(Same as FISH 650)**

**BIOL 661 4 Credits** **Alternate Spring**
**Cell Biology (3+3)**
**(Same as BIOL 461)**

**BIOL 663 3 Credits** **Alternate Fall**
**Biochemistry and Molecular Biology of Photosynthesis (3+0)**
**(Same as CHEM 663 and MSL 663)**

**BIOL 664 3 Credits** **Alternate Fall**
**Algal Biology: Ecological Adaptations at Physiological, Biochemical and Molecular Levels (3+0)**
**(Same as MSL 664)**

**BIOL 670 3 Credits** **Alternate Fall**
**Ecological Genetics (2+3)**

**BIOL 672 3 Credits Alternate Fall**
**Ecosystem Processes (2+0+2)**

**BIOL 675 3 Credits Alternate Fall**
**Plant Physiological Ecology (2+3)**

**BIOL 677 3 Credits Spring**
**Advanced Topics in Plant Ecology and Systematics (3+0)**

**BIOL 678 3 Credits Alternate Spring**
**Tropical Ecology Field Course (0+3+Arr)**

**BIOL 680 3 Credits Alternate Fall**
**Data Analysis in Biology (2+3)**
**(Same as STAT 680)**

**BIOL 685 3 Credits Alternate Fall**
**Water Pollution Biology (3+0)**
**(Same as BIOL 480)**

# Business Administration

A $50 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (AIS, ACCT, BA and ECON). This fee is in addition to any lab/material fees.

Admittance to upper division School of Management courses, except BA 301, 331 and 332, is granted only to students with junior standing or above who have completed all required 100 and 200 level courses in Accounting, Business Administration, Economics and Mathematics. Any exceptions require approval of the BA department head.

**BA 151 3 Credits Fall, Spring**
**Introduction to Business (3+0)**
Business organization, nature of major business functions such as management, finance, accounting, marketing, personnel administration. Opportunities and requirements for professional business careers.

**BA 160 3 Credits Fall**
**Tourism Principles and Practices (3+0)**
Forces which influence international and domestic hospitality, leisure, travel, and recreation industries. Socio-economic models and measure of regional impact, demand, and supply.

**BA 220 3 Credits Alternate Fall**
**Basic Programming Languages (3+0)**
Programming in selected computer languages including ASSEMBLER, RPG, and machine language. Materials fee: $20.00. (Prerequisite: AIS 101. Next offered: 1993-94.)

**BA 253 1-3 Credits Fall, Spring, Summer**
**Internship in Business (0+1-3)**
Supervised work experience in an approved position related to the student's career interests or objectives. Number of credits depends on type of position time worked. No student can count more than eight internship credits towards a degree. (Prerequisite: Approval of program or department head.)

**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 includes: Advanced leadership development and enrichment seminars. (Prerequisite: Junior standing.)

**BA 307 3 Credits Fall**
**Personnel Management (3+0)**
Introduction to management principles and personnel practice in industry, analysis of labor-management problems, methods and administration of recruiting, selecting, training, and compensating employees, and labor laws and their applications. Materials fee: $10.00. (Prerequisite: Junior standing.)

**BA 317W 3 Credits Fall**
**Employment Law (3+0)**
Basic personnel and human resource management law, including the major federal laws affecting personnel management and state employment laws including Alaska. (Prerequisites: BA 301, 307 or concurrent enrollment in BA 307.)

**BA 325 3 Credits Fall, Spring**
**Financial Management (3+0)**
Methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisites: ACCT 101, ECON 200, STAT 200. ACCT 102, MATH 262 or equivalent, and ECON 227 are also useful.)

**BA 326 3 Credits Spring**
**Principles of Advertising (3+0)**
**(Same as J-B 326)**
Advertising including strategy, media use, creation and production of advertisements, and measurement of advertising effectiveness. (Prerequisite: Junior standing.)

**BA 327 3 Credits Spring**
**Collective Bargaining and Labor Relations (3+0)**
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, 307.)

**BA 330 4 Credits Fall, Spring**
**The Legal Environment of Business (4+0)**
The judicial system, legal processes, administrative procedures, law of torts, contract and agency government regulation of business, business ethics, corporate social responsibility and the uniform commercial code. (Prerequisite: Junior standing or permission of the Business Administration Department Head.)

**BA 331 3 Credits Fall, Spring**
**The Legal Environment of Business (3+0)**
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, Spring**
**Business Law (3+0)**
Legal principles essential to a business person. 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 343 3 Credits Fall, 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: Junior standing.)

**BA 350 3 Credits Spring**
**Introduction to Real Estate and Land Economics (3+0)**
Processes and considerations that influence decisions of individuals and groups concerning real estate investment and utilization. Functions of various types of real estate operators. (Prerequisite: Junior standing or permission of instructor.)

**BA 355 3 Credits As Demand Warrants**
**Personal Finance (3+0)**
Examination of personal financial topics such as stock, debt, and real estate investments, insurance, pensions, and credit. Emphasis on optimal combinations of financial products over an individual's life cycle.

**BA 360 3 Credits Fall, Spring**
**Production/Operations Management (3+0)**
Production management field with an emphasis on the design and management of efficient manufacturing and operating systems including the process of converting, or manufacturing resources into goods, and activities associated with the production of goods and services. Topics include productivity and quality, product design and development, resource-requirements planning, facility and distribution issues, process technology, automation and job design, materials and inventory management, scheduling and production-activity control, project planning. (Prerequisites: Computer literacy, ACCT 101, 102, ECON 200, 227, MATH 161 and 262, STAT 200 or equivalents.)

**BA 372 3 Credits Spring**
**Hotel Administration (3+0)**
Practices and concepts for successful hotel operation in Alaska including but not limited to management systems, financing of hotels, budgeting and food costing, housekeeping, and front office management. (Prerequisite: BA 307.)

**BA 375W 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. (Prerequisite: BA 343.)

**BA 377 3 Credits Alternate Fall**
**Food and Beverage Management (3+0)**
Development of a successful food and beverage system from its inception to operation. Menu planning, purchasing, preparation, service, and food beverage cost control. (Prerequisite: BA 307. Next offered: 1993-94.)

**BA 378 3 Credits Fall**
**Passenger Transportation Management (3+0)**
Modern forms of passenger transportation with emphasis on carriers presently operating in Alaska and future development of transportation in Alaska.

**BA 390 3 Credits Fall**
**Organizational Theory and Behavior (3+0)**
Behavior of individuals and small groups within organizations, including motivation, leadership, communications, group dynamics, organizational development, and conflict management.

**BA 418 3 Credits Spring**
**Simulation Modeling for Decision Making (3+0)**
Concepts of computer simulation, probability distributions, modeling principles and the language STELLA from basics to modeling a reasonably complex operating system and making conclusions about the system. (Prerequisites: AIS 101 or equivalent, ECON 227, MATH 262, ACCT 102; BA 360 is recommended.)

**BA 423 3 Credits Fall**
**Investment Management (3+0)**
Investing in marketable securities for the individual. Determination of value, analysis of growth, technical analysis, and portfolio management. Materials fee: $10.00. (Prerequisite: BA 325 or equivalent.)

**BA 425W 3 Credits Fall**
**Advanced Corporate Financial Problems (3+0)**
Corporate financial problems, planning and controls, and major functions performed by corporate financial managers. (Prerequisite: BA 325.)

**BA 430 3 Credits Fall**
**Current Topics in Finance (3+0)**
An in-depth consideration of sophisticated and specialized applications of financial management principles. Topics are those most timely to the Alaskan economy. Materials fee: $20.00. (Prerequisites: BA 325.)

**BA 436 3 Credits Spring**
**Consumer Behavior (3+0)**
Communication in marketing; culture and its effects on product discrimination. Social class, personality, symbolism, and persuasion from the marketing manager's point of view. Organizational influences on corporate buyers and the impact of buyer behavior on the strategy and tactics of marketing management. (Prerequisites: BA 343, ECON 227, STAT 200.)

**BA 441 3 Credits Spring**
**Promotion Management (3+0)**
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)**
Comparisons of foreign markets with domestic markets. Market enlargement via direct export, direct investment, or joint ventures. Foreign pricing, communications, distribution, and advertising viewed in terms of marketing management and research. (Prerequisite: BA 343.)

**BA 445W 3 Credits Fall**
**Marketing Research (3+0)**
Basic processes and tools of marketing research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Technique of data-gathering and analysis to solve a marketing problem. (Prerequisites: BA 343, 436.)

**BA 447 3 Credits Spring**
**Compensation Management (3+0)**
Theory and practice of wage and salary, benefits and risk management. Planning, administration, auditing, adjusting and budgeting for compensation and risk. (Prerequisites: BA 307, 327.)

**BA 453 3 Credits Fall, Spring**
**Internship in Business Administration (0+var.)**
A supervised practical work experience to enable students to apply their coursework in a business environment. Admission dependent upon approved sponsorship arrangements. (Prerequisites: Senior standing and permission of instructor.)

**BA 454 3 Credits Fall, Spring**
**Student Investment Fund (3+0)**
"Hands-on" experience in portfolio management. Students will be making investment and diversification decisions affecting the $100,000 Student Investment Fund. Materials fee: $20.00. (Prerequisite: BA 325.)

**BA 455 3 Credits Fall, Spring, Summer**
**Portfolio Management (3+0)**
The second course involved with the "hands-on" management of the $100,00 Student Investment Fund. Students will carry out the duties of the officers of the fund and will be responsible for the portfolio diversification and management decisions affecting the fund. Materials fee: $20.00. (Prerequisite: BA 454.)

**BA 456W 3 Credits Spring**
**Small Business Management (3+0)**
Operations and special problems of the small business with emphasis on both existing firms and new ventures. Starting new businesses, 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 307, 317.)

**BA 461 3 Credits Spring**
**International Finance (3+0)**
Foreign investment projects including foreign capital markets, financing exports, hedging foreign exchange risks, and capital budgeting in an international setting. (Prerequisite: BA 325.)

**BA 462O(p) 3 Credits Fall, Spring**
**Corporate Strategy (3+0)**
An integrative approach to strategy formation and implementation to achieve organization goals. Students will be introduced to theoretical perspectives and associated methodologies directed toward resolving the unstructured problems and opportunities which confront general managers at the highest levels of an organization. (Prerequisites: Completion of all 300 level business administration, accounting and economics common body of knowledge requirements and senior standing.)

**BA 465 3 Credits Alternate Spring**
**Tourism Destination Planning and Development (3+0)**
Tourism resource characteristics, location, and market demand considerations. Analysis of development potential, planning processes and procedures, capital and personnel requirements, and tourism destination developments. (Prerequisite: BA 307. Next offered: 1993-94.)

**BA 471 3 Credits Alternate Spring**
**Tourism Seminar (3+0)**
A senior seminar examining all areas of the travel-tourism industry. Lecturer, guest industry speakers, and the case study method are utilized. (Prerequisites: Admission by instructor's permission and upper division standing. Next offered: 1993-94.)

**BA 475 3 Credits As Demand Warrants**
**Transportation and Logistics (3+0)**
Transportation systems components, systems planning, multimode systems, interactions among components and between the transportation system and its environment. Special consideration is given to Alaskan transportation problems by experienced specialists. (Prerequisites: STAT 200, BA 343.)

**BA 483 3 Credits Spring**
**Marketing Management (3+0)**
Analysis planning and implementation of the total marketing program of an organization: goal setting, marketing mix, problem recognition and analysis, and current issues. (Prerequisites: BA 325, 331, 360 and 445.)

**BA 604 3 Credits Spring**
**The Legal Environment of Business (3+0)**

**BA 607 3 Credits Fall**
**Human Resources Management (3+0)**

**BA 610 3 Credits Fall**
**Production/Operations Management (3+0)**

**BA 617 3 Credits Spring**
**Organizational Theory and Behavior (3+0)**

**BA 625 3 Credits Spring**
**Financial Management (3+0)**

**BA 643 3 Credits Fall**
**Marketing Management (3+0)**

**BA 660 3 Credits Spring**
**Seminar in Production Management (3+0)**

**BA 680 3 Credits Fall**
**Seminar in Finance (3+0)**

**BA 683 3 Credits Spring**
**Seminar in Marketing (3+0)**

**BA 685 3 Credits As Demand Warrants**
**International Finance (3+0)**

**BA 690 3 Credits Spring**
**Corporate Strategy (3+0)**

**BA 691 3 Credits Fall**
**Sources of Business Information (3+0)**

# Chemistry

**CHEM 075 3 Credits As Demand Warrants**
**Introduction to Chemical Sciences (3+0)**
Units of measurement, atomic and molecular structure, chemical bonding, metabolism, radioactivity, oxidation-reduction reactions, solutions, acids and buffers. For the non-science major.

**CHEM 100X 4 Credits Spring**
**Chemistry and the Modern World (3+3) n**
Fundamentals of chemistry with an emphasis on the impact of chemistry and the chemical industry on society and the environment. May be used to fulfill part of the natural science requirement or as preparation for Chem 105X. For non-science majors. Laboratory fee: $30.00.

**CHEM 103X 4 Credits Fall**
**Basic General Chemistry (3+3) n**
Fundamentals of chemistry including historical and descriptive aspects as well as basic mathematical concepts. Fulfills the laboratory part of the natural science requirement and prepares the student for CHEM 105X. Laboratory fee: $30.00. (Prerequisite: High school algebra.)

**CHEM 104X 4 Credits Spring**
**Beginnings in Biochemistry:**
**A Survey of Organic Chemistry and Biochemistry (3+3) n**
Fundamentals of chemistry as applied to biological systems. Bridges the gap between a general chemistry course and biochemical concepts of other health-related sciences. Recommended for health-science degree candidates and non-science majors interested in the central role of chemistry in life. May be used to meet the general laboratory science requirement or for preparation for CHEM 105X. Laboratory fee: $30.00. (Prerequisite: CHEM 103X or consent of instructor.)

**CHEM 105X 4 Credits Fall, Spring**
**CHEM 106X 4 Credits Fall, Spring**
**General Chemistry (3+3) n**
CHEM 105X-106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. CHEM 105X Measurements, calculations, atomic and molecular structure, chemical reactions and related energy changes. CHEM 106X; Reaction kinetics, equilibrium (including acids and bases), nuclear chemistry, electro-chemistry, chemistry of the elements and an introduction to organic and biochemistry. Laboratory fee: $30.00. (Prerequisites: For CHEM 105X: high school algebra, high school chemistry or CHEM 103X, or consent of instructor. For CHEM 106X: A grade of "C" or better in CHEM 105X.)

**CHEM 202 3 Credits Spring**
**Basic Inorganic Chemistry (2+3) n**
Inorganic chemical properties and reactions with special emphasis on the environment. Laboratory includes synthesis, characterization and analysis. Laboratory fee: $30.00. (Prerequisite: CHEM 106X or permission of instructor.)

**CHEM 212 3 Credits Fall**
**Chemical Equilibrium and Analysis (3+0) n**
Aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, potentionmetry, and factors considered in the analytical approach. (Prerequisites: CHEM 106X; MATH 107 or equivalent.)

**CHEM 213 1 Credit Fall**
**Quantitative Analysis Laboratory (0+3) n**
Laboratory training in quantitative chemical manipulation, including calibration, standardization, analysis using titrimetric and instrumental methods. Laboratory fee: $30.00 (Prerequisites: CHEM 106X and MATH 107.)

**CHEM 321 3 Credits Fall**
**CHEM 322 3 Credits Spring**
**Organic Chemistry (3+0) n**
A systematic study of the more important classes of carbon compounds, reactions of their functional groups, methods of synthesis, relations, and uses. (Prerequisite: CHEM 106X for CHEM 321; CHEM 321 for CHEM 322.)

**CHEM 324 3 Credits Fall, Spring**
**Organic Laboratory (1+8) n**
A laboratory designed to illustrate modern techniques of isolation, purification, analysis, and structure determination of covalent, principally organic, compounds. Laboratory fee: $30.00. (Prerequisite: CHEM 321 or permission of the instructor.)

**CHEM 331 3 Credits Fall**
**CHEM 332 3 Credits Spring**
**Physical Chemistry (3+0) n**
CHEM 331: Principles of thermodynamics with applications to phase equilibria, solutions, chemical equilibrium and electrochemistry. CHEM 332: Kinetic theory of gases, chemical kinetics, atomic and molecular structure, and spectroscopy. (Prerequisites: CHEM 106X, MATH 202, PHYS 104 or 212 or permission of the instructor; CHEM 331 for CHEM 332.)

**CHEM 402 3 Credits Spring**
**Inorganic Chemistry (3+0) n**
Application of physical chemistry to the study of the elements and their compounds. Bonding, periodic properties and coordination chemistry. (Prerequisite or corequisite: CHEM 332.)

**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, petentiometry, optical spectroscopy, and nuclear magnetic resonance. (Prerequisites: CHEM 212 and 213; Corequisite: CHEM 332.)

**CHEM 413W 3 Credits Spring**
**Analytical Instrumental Laboratory (1+6) n**
Quantitative instrumental measurements with atomic and molecular absorption spectrometry, gas and liquid chromatography and potentiometry. Laboratory fee: $30.00. (Prerequisites: CHEM 212, 331, 412.)

**CHEM 434 3 Credits Fall, Spring**
**Physical Instrumental Laboratory (1+6) n**
Quantitative instrumental measurements: calorimetry, conductance, polarimetry; IR, NMR, x-ray, and Raman spectroscopy. Laboratory fee: $30.00. (Corequisite: CHEM 332.)

**CHEM 445 4 Credits Spring**
**Molecular Evolution (3+3)**
**(Same as BIOL 445)**
The study of structure, function and evolution of hereditary molecules (nucleic acids). (Prerequisite: BIOL 362.)

**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. (Prerequisite: CHEM 322; CHEM 331 recommended or permission of the instructor.)

**CHEM 452 3 Credits Spring**
**Biochemistry Laboratory (1+6)**
Experimental manipulation and observation of enzymes, proteins, and nucleic acids, using chromatographic, spectroscopic, electrophoretic, and other techniques. Laboratory fee: $30.00 (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 655 3 Credits Alternate Spring**
**Environmental Biochemistry and Toxicology (3+0)**

**CHEM 660 3 Credits Spring**
**Chemical Oceanography (3+0)**
**(Same as MSL 660)**

**CHEM 662 3 Credits Fall, Spring**
**Biochemical and Molecular Biology Research Techniques (0+3)**

**CHEM 663 3 Credits Alternate Fall**
**Biochemistry and Molecular Biology of Photosynthesis (3+0)**
**(Same as BIOL 663 and MSL 663)**

**CHEM 673 3 Credits Alternate Spring**
**Bioenergetics (3+0)**
**(Same as MSL 673)**

**CHEM 688 0-1 Credits Fall, Spring**
**Biochemical and Molecular Biology Seminar (1+0)**

# Chinese

For information on studying in China, see Study Abroad.

**CHNS 101 5 Credits Fall**

**CHNS 102 5 Credits Spring**
**Elementary Chinese I and II (5+0) h**
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 4 Credits Fall**
**CHNS 202 4 Credits Spring**
**Intermediate Chinese I and II (4+0) h**
Continuation of Chinese 102. Increasing emphasis on reading ability and cultural material. Conducted in Chinese. (Prerequisite: For CHNS 201, CHNS 102 or equivalent; For CHNS 202, CHNS 201.)

# Civil Engineering

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

**CE 112 3 Credits Spring**
**Elementary Surveying (2+3)**
Basic plane surveying; use of transit, level, theodolite, and total station. Traverses, public land system, circular curves, cross- sectioning and earthwork. (Prerequisite: MATH 108.)

**CE 326W 4 Credits Fall, Spring**
**Introduction to Geotechnical Engineering (3+3)**
Fundamentals of geotechnical engineering including soil mechanics and foundation engineering. Identification and classification of soil, physical and mechanical properties of soil, subsurface exploration and laboratory testing techniques, seepage, compaction, bearing capacity, slope stability, deep and shallow foundation design, retaining structure design, frozen ground consideration. (Prerequisites: ES 331, 341, CE 334 or permission of the instructor.)

**CE 334 3 Credits Fall**
**Properties of Materials (2+3)**
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, Spring**
**EIT Exam**
Complete the EIT application and take the State of Alaska Engineering-in-Training Exam in the same semester of course registration. (Prerequisite: Senior standing in civil engineering.)

**CE 402 3 Credits Fall**
**Introduction to Transportation Engineering (3+0)**
Transportation systems, planning, design parameters, demand and mode specific consideration. Laboratory fee: $10.00. (Prerequisite: CE junior standing or permission of instructor.)

**CE 403 3 Credits 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)**
Aerial and terrestrial photography as applied to surveying and mapping. Flight planning and ground control. Analytical analysis of photography by computer. Kelsh Plotter and other related equipment used. (Prerequisite: Permission of the instructor. Next offered: 1993-94.)

**CE 415 3 Credits Fall**
**Advanced Surveying (2+3)**
Azimuth by astronomic methods. Route surveying, including horizontal and vertical curves, spirals, cross-sectioning, and earthwork. Reduction of electronic distance measurements. Alaska State Plane Coordinate System, both old (NAD27) and new (NAD83). (Prerequisite: CE 112.)

**CE 416 1 Credit Spring**
**Boundary Surveying (1+0)**
Surveying problems related to land subdivision with emphasis on the legal aspects. Metes and bounds descriptions and platted subdivisions. (Prerequisite: CE 112 or permission of instructor.)

**CE 422 3 Credits Spring**
**Foundation Engineering (3+0)**
Bearing capacity of soils and effects of settlements on structure. Design of footings and rafts, pile and pier foundations, retaining walls and anchored bulkheads. Foundations on frozen soils, and construction problems in foundation engineering. (Prerequisites: CE 326, ES 301.)

**CE 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, subsoil investigation, bearing capacity of soils, and lateral earth pressures and stability of slopes. Laboratory fee: $10.00. (Prerequisites: CE 326, ES 301.)

**CE 431 3 Credits Spring**
**Structural Engineering I (2+3)**
Analysis of statically determinate and indeterminate structures to include: beams, trusses and frames. Internal force resultants, shear and moment diagrams, deflections, internal stresses. Influence lines and criteria for moving loads. Indeterminate analysis to include methods of consistent deflections, slope deflection and moment distribution. Introduction to matrix methods. (Prerequisites: CE 334, ES 331.)

**CE 432 3 Credits Fall**
**Structural Engineering II (2+3)**
Concepts of analysis/design using advanced methods of structural analysis and computer techniques. Effects of material behavior, and modes of failure (building, bending, shear, connections) on design decisions examined. (Prerequisite: CE 431.)

**CE 433 3 Credits Fall**
**Reinforced Concrete Design (2+3)**
Design philosophies and current practice. Short and long columns, beam- columns, flexural members, to include: rectangular and T-beams, one and two- way slabs. Footings. Crack control, anchorage, development lengths and deflections. Introduction to complete structural systems. Current ACI specifications used. (Prerequisite: CE 431.)

**CE 434 3 Credits Spring**
**Timber Design (2+3)**
Essentials of structural design. Design of basic components of solid and laminated timber, connections, arches, pole framing, diaphragms, stressed-skin construction, and timber shells. (Prerequisites: ES 331 and CE 431.)

**CE 436 3 Credits Spring**
**Structural Steel Design (2+3)**
Design philosophies and current practice. Columns, tension members, laterally supported and unsupported beams and beam-columns. Local and global instabilities. Welded and bolted connections. Introduction to complete structural systems. Current AISC specifications used. Prerequisite: CE 431.)

**CE 438WO(t) 3 Credits Spring**
**Design of Engineered Systems (3+0)**
System design principles for large-scale constructed facilities. Application of ethics, liability and legal principles to professional practice. Emphasis on teamwork and leadership. (Prerequisite: Last year of civil engineering B.S. program.)

**CE 441 4 Credits Spring**
**Environmental Engineering (3+3)**
Fundamentals of environmental engineering including theory and application of water and wastewater engineering practice. Conservation, quality, treatment, and distribution of water supply. Wastewater characteristics, collection, treatment, and disposal. Solid waste management and air pollution control. Laboratory fee: $10.00. (Prerequisite: ES 341 or permission of instructor.)

**CE 442 3 Credits Fall**
**Environmental Engineering II (3+0)**
Advanced topics involving environmental law and health, air pollution, solid waste management, toxic and hazardous wastes, animal waste management, noise pollution, water quality modeling, wastewater collection systems, chemical/physical processes, theory of sedimentation, disinfection, biological processes, on site treatment, sludge management, advanced waste treatment and other. (Prerequisites: CE 441 and junior standing in civil engineering.)

**CE 445 3 Credits Alternate Spring**
**Engineering Hydrology (2+3)**
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. Next offered: 1993-94.)

**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. Next offered: 1993-94.)

**CE 470 1 Credit Fall, Spring**
**Civil Engineering Internship (0+3)**
Supervised work experience in engineering organizations. Assignments individually arranged with cooperating organizations and agencies. (Prerequisites: Senior standing, permission of department coordinator.)

**CE 603 3 Credits Fall, Spring**
**Arctic Engineering (3+0)**

**CE 605 3 Credits Alternate Spring**
**Pavement Design (3+0)**

**CE 617 3 Credits Alternate Fall**
**Control Surveys (3+0)**

**CE 620 3 Credits Alternate Spring**
**Civil Engineering Construction (3+0)**

**CE 622 3 Credits Alternate Fall**
**Foundations and Retaining Structures (3+0)**

**CE 625 3 Credits Alternate Fall**
**Soil Stabilization (3+0)**

**CE 626 3 Credits Alternate Fall**
**Applications in Geotechnical Engineering (3+0)**

**CE 627 3 Credits Spring**
**Earthquake Engineering I (3+0)**

**CE 631 3 Credits Fall**
**Advanced Structural Analysis (3+0)**

**CE 632 3 Credits Alternate Fall**
**Advanced Structural Design (3+0)**

**CE 637 3 Credits Fall**
**Earthquake Engineering II (3+0)**

**CE 661 3 Credits Alternate Fall**
**Advanced Water Resources Engineering (3+0)**

**CE 662 3 Credits Alternate Spring**
**Open Channel and River Engineering (3+0)**

**CE 663 3 Credits Alternate Spring**
**Groundwater Dynamics (3+0)**

**CE 676 3 Credits Alternate Fall**
**Coastal Engineering (3+0)**

**CE 681 3 Credits Alternate Spring**
**Frozen Ground Engineering (3+0)**

**CE 682 3 Credits Alternate Years**
**Ice Engineering (3+0)**

**CE 683 3 Credits Alternate Fall**
**Arctic Hydrology and Hydraulic Engineering (3+0)**

**CE 684 3 Credits Alternate Years**
**Arctic Utility Distribution (3+0)**

**CE 685 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+0)**

**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+9)**
**(Same as COUN 665.)**

## Community Health Aide/Practitioner

**CHP 082 2 Credits As Demand Warrants**
**Community Health Aide Pre-session I**
Assists the newly employed Community Health Aide to function in the village clinic until he/she enters Session I. Patient evaluation, use of the manual, reporting patients, medicines and lab tests. Emergency care is included if students have not had emergency trauma training. (Prerequisite: Employment by the health corporation as a community health aide or permission of instructor.)

**CHP 108 3 Credits As Demand Warrants**
**Nurse Aide/Patient Care Assistant Training**
Basic skills necessary to assist nurses and to be efficient health care team members. Supervised work in conjunction with health care professionals in hospitals and agencies appropriate for these experiences. (Prerequisite: High school diploma or permission of instructor.)

**CHP 131 8 Credits As Demand Warrants**
**Community Health Aide, Session I**
Introduction to providing village primary health care services with remote supervision of a physician. Topics include CHP standard of care, use of the CHA/P Manual, history-taking and physical exam, lab tests, reporting to the physician, medical charting and medication administration. Supervised clinical experiences prepare the student to conduct patient evaluation of common village health problems of children and adults. Introduction to human anatomy and function, wellness and disease concepts, crisis intervention and emergency care. A 200-hour field component at the students' village clinic follows the didactic program. (Prerequisite: Employed as CHA by a health corporation or permission of the instruction.)

**CHP 132 8 Credits As Demand Warrants**
**Community Health Aide, Session II**
Reinforces the problem-oriented patient encounter process. Includes patient education, introduction to prenatal and well child care, sexually transmitted diseases, HIV, substance abuse, mental illness and death and dying issues. Session I material and emergency care are reinforced and expanded upon. A 200-hour field component at the students's village clinic follows the didactic program. (Prerequisite: CHP 131.)

**CHP 133 8 Credits As Demand Warrants**
**Community Health Aide, Session III**
Session II content reinforced and expanded upon. Additional topics include prenatal care, family planning, fetal alcohol syndrome, emergency delivery techniques, newborn and well child care including immunizations, nutrition, dental health, adult health surveillance, family violence and sexual abuse/rape and clinic management. A 200-hour field component at the students' village clinic follows the didactic program. (Prerequisite: CHP 132.)

**CHP 134 8 Credits As Demand Warrants**
**Community Health Aide, Session IV**
Common patient problems within the body systems are reviewed with a focus on assessment skills and management plans. Previous session content is reviewed. Follow-up care for patients with chronic illness, injury prevention, tuberculosis, cancer, environmental health, post partum care, adolescent care and older adult/elder care. A 200-hour field component at the students' village clinic follows the didactic program. (Prerequisite: CHP 133.)

**CHP 135 2 Credits As Demand Warrants**
**Community Health Aide Preceptorship**
Supervised primary care clinical experience. Minimum of 30 contact hours of direct patient care required. Students provide patient care in a variety of clinical settings including outpatient (acute and emergency care), prenatal, well child and chronic care clinics. Additional experiences are scheduled with the referral center (hospital) departments. (Prerequisite: CHP 134.)

**CHP 202 1-3 Credits As Demand Warrants**
**Emergency Care for Community Health Practitioners**
Covers methods of evaluation and response to a variety of emergency situations that may arise in the village setting. Skills taught include emergency assessment and treatment, administration of intravenous fluids, application of splints, bandages and transportation of the injured. (Prerequisite: CHP 134.)

**CHP 203 1-3 Credits As Demand Warrants**
**Clinical Update for Community Health Practitioners**
Review, update and reinforcement of knowledge and skills taught in CHP 131, 132, 133 and 134. 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 134.)

**CHP 206 1-3 Credits As Demand Warrants**
**Mental Health and Substance Abuse**
Instruction in listening skills, drug therapy and family dynamics for crisis intervention, long term care in the area of mental health, and substance abuse. Other topics include the mentally ill patient, the substance abuser, the co-dependent, and prevention activities for the village. (Prerequisite: CHP 134 or permission of the instructor.)

**CHP 207 1-3 Credits As Demand Warrants**
**Maternal and Infant Health**
Review of the anatomy of the reproductive system, family planning, pregnancy, fetal development, prenatal care, prenatal education, emergency delivery, post-partum care for mother and baby, and well-child evaluations and immunizations. (Prerequisite: CHP 134 or permission of the instructor.)

**CHP 208 1-3 Credits As Demand Warrants**
**Communicable Diseases**
Expands concepts in relation to diagnosis, management and prevention of sexually transmitted diseases. Skills taught include male and female genitalia exam, pelvic exam, pap smear, gonorrhea culture and chlamydia culture. Prevention and patient education are emphasized. (Prerequisite: CHP 134 or permission of the instructor.)

**CHP 211 1-3 Credit As Demand Warrants**
**Health Education**
Methods and philosophy of health education, use and sources of audio-visual materials, presentation planning and participation in school and community health programs are included. A variety of teaching methods including role playing for individual and group presentations permit CHPs to practice their health education knowledge and skills. (Prerequisite: CHP 134 or permission of the instructor.)

**CHP 212 1-3 Credits As Demand Warrants**
**Diabetes: Primary Prevention and Village Medical Care**
Pathophysiology, primary prevention and follow-up treatment of the disease diabetes. Topics include the problem of Type II diabetes in rural Alaska, CHP role in the village health care system, Type I and Type II diabetes, primary prevention of Type II diabetes, village medical care and referral, patient education, emergency care and diabetes medications. The clinical training portion of the course is available for Community Health Aides/Practitioners only. (Prerequisites: CHP 134 or permission of the instructor.)

# Computer Applications

**CAPS 100 1 Credit As Demand Warrants**
**Introduction to Personal Computers (1+0)**
Overview of the three most popular uses of the personal computer: word processing, data base management and electronic spreadsheets. Provides a basic understanding of how the computer works and how it can aid the student at school and work. Materials fee: $10.00.

**CAPS 103 1-3 Credits As Demand Warrants**
**Computer Survey (1+0 to 3+0)**
An introduction to the world of computers emphasizing microcomputers. Provides computer terminology and how to use computers as a tool to make work easier and to extend the reach of the mind.

**CAPS 111 2 Credits As Demand Warrants**
**Computer Software for Beginners (2+0)**
Overview of computer hardware and software. Demonstrations and hands-on experience with telecommunications, word-processing, spreadsheets, data base management and tutorial software.

**CAPS 122 1-2 Credits As Demand Warrants**
**Computer Software Application (1+0 to 2+0)**
Extensive coverage of a specific microcomputer application.

**CAPS 124 1 Credit As Demand Warrants**
**Apple Workshop (1+0)**
Fundamentals of Apple computer operations, popular programs and DOS.

**CAPS 125 3 Credits As Demand Warrants**
**Appleworks (3+0)**
Training and practice in using APPLEWORKS on an apple IIe covers word processing, electronic spreadsheet and data base capabilities. Materials fee: $10.00.

**CAPS 126 1-3 Credits As Demand Warrants**
**Microcomputer Operating Systems (2+0)**
Use, setup, and configuration of a microcomputer operating system including basic and technical topics.

**CAPS 135 3 Credits As Demand Warrants**
**Microcomputer Spreadsheets (3+0)**
Create, format and revise spreadsheets as well as use a spreadsheet to create graphs and as a database. Includes brief introduction to the Microcomputer Operating System for students who have no previous computer experience. Materials fee: $10.00.

**CAPS 150 3 Credits As Demand Warrants**
**Computer Business Applications (3+0)**
Using microcomputers in a business. Includes word processing, spreadsheets, data bases, graphics, project management and telecommunications. Use of each application in a business environment will be shown. No previous experience necessary. Materials fee: $10.00.

**CAPS 160 1 Credit Fall, Spring**
**Introduction to Word Processing (1+0)**
Use of various software to enter text for a document, revise the text once it has been entered and print the text in a professional form.

**CAPS 182 2 Credits As Demand Warrants**
**Introduction to Microcomputers in Small Businesses (2+0)**
Microcomputers used in small business or professional practice by owners or employees. Overview of computers, uses and means of evaluation when purchasing equipment. Does not satisfy certificate or degree requirements.

**CAPS 190 3 Credits As Demand Warrants**
**Integrated Software (3+0)**
Study of microcomputer applications that integrate multiple tasks into one computer application (Microsoft Works, Apple Works, Framework, Symphony, etc.), including individual modules of an integrated application, combining data in an integrated program, and application of integrated software for specific projects.

**CAPS 201 1-3 Credits As Demand Warrants**
**Microcomputer Applications: Special Topics (1-3+0)**
Use and application of specific software applications. (Prerequisite: Basic computer operating system skills.)

**CAPS 202 1-3 Credits As Demand Warrants**
**Independent Project (1-3+0)**
Project will include learning a new microcomputer application, applying the application to significant problems, and demonstrating the result to other computer users. (Prerequisites: Competence in the use of microcomputer applications and operating systems.)

**CAPS 203 3 Credits As Demand Warrants**
**Microcomputer Programming (3+0)**
Study of microcomputer programming environments such as HyperCard, Visual Basic, QuickBasic, Batch Files, etc. and programming of macro languages. Creation of useful programs in a microcomputer programming environment. (Prerequisite: Competence in microcomputer operating systems and applications.)

**CAPS 220 3 Credits As Demand Warrants**
**Microcomputer Graphics (3+0)**
Use and application of microcomputer graphics programs. (Prerequisite: Competence in microcomputer operating systems.)

**CAPS 221 1-3 Credits As Demand Warrants**
**Microcomputer Accounting (1-3+0)**
**(Same as ABUS 221)**
Computer processing of accounting transactions. Software packages, microcomputer systems and hardware, computer terminology, system analysis, and actual computer operations in accounting. (Prerequisite: ABUS 142 or ACCT 101.)

**CAPS 224 1 Credit Fall, Spring, Summer**
**Introduction to Desktop Publishing (1+0)**
Entry-level desktop publishing course introducing the chief features of a page layout program. Step-by-step instructions to create at least three simple publications. Materials fee: $10.00. (Prerequisite: Previous computer experience.)

**CAPS 225 3 Credits Fall, Spring**
**Intermediate Desktop Publishing (3+0)**
Utilization of the advanced features of a page layout program to create camera-ready mechanicals for fliers, brochures and newsletters. Exploration of the elements of good design and the requirements for professional publishing. Materials fee: $10.00. (Prerequisite: CAPS 224 or permission of the instructor.)

**CAPS 226 3 Credits Fall, Spring**
**Desktop Publishing (3+0)**
Basic understanding of what is a computer system and how it operates; graphic design for layout and design with in-depth hands-on experience using a personal computer with word processing, graphics page layout, scanning software and desk accessories.

**CAPS 260 2 Credits Fall, Spring**
**Advanced Word Processing (2+0)**
Advanced concepts of word processing using various softwares. (Prerequisite: CAPS 160.)

**CAPS 261 3 Credit As Demand Warrants**
**Networking and Communications (3+0)**
Integration of microcomputers into networks, using microcomputer applications on networks, and using microcomputers to communicate with other computers. (Prerequisite: Competency in microcomputer operating systems and applications.)

**CAPS 265 3 Credits As Demand Warrants**
**Hardware and Software Configuration and Troubleshooting (3+0)**
Basic skills in software and hardware troubleshooting and configuration, including configuring the operating system, setting a computer for different printers, diagnosing hardware and software problems, and developing troubleshooting and configuration procedures. (Prerequisite: Competence in microcomputer operating systems and applications.)

**CAPS 275 3 Credits As Demand Warrants**
**Microcomputer Databases (3+0)**
Design, use, query, and create reports using a microcomputer database. (Prerequisite: Competence in microcomputer operating systems and applications.)

# Computer Science

**CS 101 3 Credits Fall, Spring**
**Computers and Society (3+0)**
Computer literacy for everyone. Overview of computing machines and automatic data processing. Interaction between social institutions and automated decision making. Some programming for understanding, not for skill development. Materials fee: $10.00. (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)**
Programming for non-majors and for those computer science students without the background for CS 201. Concepts of structured programming and algorithm design within the syntax of the PASCAL programming language. Materials fee: $10.00. (Prerequisite: One year of high school algebra.)

**CS 201 3 Credits Fall, Spring**
**CS 202 3 Credits Fall, Spring**
**Computer Science I and II (3+0)**
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 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)**
The C programming language for students with some experience in other programming languages such as PASCAL or FORTRAN. (Prerequisite: One year high school programming, CS 103, 201, or ES 201.)

**CS 271 3 Credits As Demand Warrants**
**Scientific Programming in FORTRAN (3+0)**
Syntax and principles of FORTRAN. Applications to problems in science and engineering including the solution of linear and non-linear equations, interpolation, numerical integration, monte-carlo techniques and the use of mathematical subroutine libraries. (Prerequisites: One semester of calculus and previous programming 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. Materials fee: $10.00. (Prerequisites: CS 201, MATH 200.)

**CS 301 3 Credits Fall**
**Assembly Language Programming (3+0)**
Organization of computer registers, I/O, and control. Digital representation of data. Symbolic coding, instructions, addressing modes, program segmentation, linkage, macros, and subroutines. (Prerequisite: CS 201.)

**CS 302 3 Credits As Demand Warrants**
**Systems Programming (3+0)**
Advanced assembly language programming including privileged instructions and system services. Applications to asynchronous I/O, process control and communication, device drivers and file management. (Prerequisite: CS 301. Next offered: 1993-94.)

**CS 311 3 Credits Fall**
**Data Structures and Algorithms (3+0)**
Data structures and the algorithms for their manipulation. Arrays, tables, stacks, queues, trees, linked lists, sorting, searching, and hashing. (Prerequisite: CS 202.)

**CS 321 3 Credits Spring**
**Operating Systems (3+0)**
Functions of files and operating systems. Review of required architectural features. The PROCESS concept. Storage management, access methods and control, interrupt processing, scheduling algorithms, file organization and management, and resource accounting. (Prerequisite: CS 301.)

**CS 331 3 Credits Spring**
**Programming Languages (3+0)**
Syntax and semantics of widely differing programming languages. Syntax specification, block structure, binding, data structures, operators, and control structures. Comparison of several languages such as ALGOL, LISP, SNOBOL, and APL. (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. Materials fee: $10.00. (Prerequisites: CS 281 and MATH 314. Next offered: 1994-95.)

**CS 401 3 Credits Alternate Fall**
**Software Engineering (3+0)**
Software design as an engineering discipline. Project planning, proposal writing, and management. Program design, verification, and documentation.
Additional topics from object- oriented design, real time design, and validation. (Prerequisites: CS 311, 321. Next offered: 1993-94.)

**CS 402WO(t) 3 Credits Spring**
**Senior Project and Professional Practice (3+0)**
Students work on group projects in a simulated computer industry environment and produce appropriate documentation and reports. Nature, ethics, and legal considerations of the computer science profession discussed. Additional topics include project management, design methodologies, technical presentation, human-machine interface and programming team interactions. Materials fee: $10.00. (Prerequisites: CS 311, 321 and senior standing.)

**CS 405 3 Credits Alternate Fall**
**Introduction to Expert Systems (3+0)**
Problem selection, knowledge acquisition, representation, and programming, expert system shells, and validation and evaluation of expert systems. Case study of existing expert systems. Individual projects. Materials fee: $10.00. (Prerequisite: CS 311 or permission of the instructor. Next offered 1994-95.)

**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, GCD, Diophantine equations), systems (parsing searching, sorting), and theory (recursion, Turing machines). (Prerequisites: MATH 307, CS 311.)

**CS 421 3 Credits As Demand Warrants**
**Operating System Implementation (3+0)**
Detail level study of operating system functions and associated implementation with the aid of C language source code for a version of UNIX. Operating system tuning methods and security. Multiprocessor and other advanced operating system concepts. Programming and evaluation of operating system segments as projects. (Prerequisite: CS 321.)

**CS 425 3 Credits Alternate Fall**
**Data Base Systems (3+0)**
Data independence, relationships, and organization. Hierarchical, network, and relational data models; canonical schema. Data description languages, query facilities, relational calculus. File organization and security, index organization, data integrity and reliability. (Prerequisites: CS 311, 321. Next offered: 1994-95.)

**CS 431 3 Credits As Demand Warrants**
**Programming Language Implementation (3+0)**
Design and implementation of major phases of high level language translators including scanning, parsing, translation, code generation and optimization. Students develop a compiler for a language in a group project which emphasizes good software engineering practices in structured design, testing and documentation. (Prerequisite: CS 331. Next offered: Spring 1994.)

**CS 442 3 Credits Alternate Fall**
**Computer Communication and Networks (3+0)**
Communication terminology, baud rates, band width, noise, and error detection. Distributed processing and local and global networks. 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: 1994-95.)

**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 communications, and networks. (Prerequisites: EE 342, CS 321. Next offered: 1994-95.)

**CS 451 3 Credits Alternate Fall**
**Automata and Formal Languages (3+0)**
Finite automata, regular languages, finite transducers, context free language, push down automata, parsing algorithms, deterministic context free languages, recursive and recursively enumerable languages, decision procedures, and undecidability. (Prerequisites: MATH 307, CS 201. Next offered: 1993-94.)

**CS 490 1-3 Credits As Demand Warrants**
**Student Internship**
Students work on computer science project under the joint direction of a faculty member and participating industry or governmental agency. (Prerequisite: Acceptance in internship program.)

**CS 605 3 Credits As Demand Warrants**
**Artificial Intelligence (3+0)**

**CS 611 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)**

**CS 642 3 Credits As Demand Warrants**
**Distributed Processing (3+0)**

**CS 644 2 Credits Spring**
**VLSI Fabrication and Testing Practicum (1+3)**
**(Same as EE 644)**

**CS 651 3 Credits Spring**
**The Theory of Computation (3+0)**

**CS 661 3 Credits As Demand Warrants**
**Optimization (3+0)**
**(Same as MATH 661)**

**CS 662 3 Credits As Demand Warrants**
**Mathematical Software (3+0)**

**CS 681 3 Credits As Demand Warrants**
**Topics in Computer Graphics (3+0)**

**CS 690 3 Credits Fall**
**CS 691 3 Credits Spring**
**Graduate Seminar and Project (3+0)**

## Counseling

**COUN 610 1 Credit Yearly**
**Culture and the Counselor (1+0)**

**COUN 611 1 Credit Yearly**
**Theory Building for Counselors (1+0)**

**COUN 615 3 Credits Spring**
**Foundations of Guidance and Counseling (3+0)**

**COUN 623 3 Credits Summer**
**Counseling Theories and Applications (3+0)**
**(Same as PSY 660)**

**COUN 628 3 Credits Fall**
**Child and Adolescent Psychology (3+0)**

**COUN 629 3 Credits Spring**
**Developmental Interventions (3+0)**

**COUN 634 3 Credits Fall**
**Practicum in Individual Counseling (2+7)**

**COUN 636 3 Credits Fall, Spring**
**Practicum in School Counseling (2+7)**

**COUN 646 3 Credits Alternate Spring**
**School Counseling (3+0)**
**(Same as PSY 646)**

**COUN 647 3 Credits Yearly**
**Professional Ethics (3+0)**

**COUN 660 3 Credits Spring**
**Cross-Cultural Counseling (3+0)**
**(Same as PSY 661)**

**COUN 665 3 Credits Fall, Spring**
**Practicum in Counseling: Higher Education/Agency (0+9)**
**(Same as CSP 665)**

**COUN 674 3 Credits Spring**
**Group Counseling (3+0)**
**(Same as PSY 674)**

**COUN 690 3-6 Credits Fall, Spring**
**Internship (0+3-6)**

## Cross Cultural Communication

**CCC 104 3 Credits Fall, Spring**
**University Communications (3+0)**
**(Same as DEVS 104)**
Introduces communication skills characteristic of university contexts (e.g., taking notes from lectures) and addresses cultural differences between rural students and the university community. Links with selected lecture course. (Prerequisite: Referral from Rural Student Services.)

**CCC 105** **3 Credits** **Fall, Spring**
**Intensive Reading Development (3+0)**
**(Same as DEVS 105)**
Develops and refines vocabulary, comprehension, and critical reading at the college level. Includes appropriate strategies for reading a variety of texts and composing essays in relation to them. (Prerequisite: Referral from Rural Student Services.)

# Culinary Arts

**CAH 105** **3 Credits** **Fall, Spring**
**Principles of Food Service I (3+0)**
Food service and the principle variations which students may encounter in the industry; professional standards, kitchen safety, first aid, storeroom operation, kitchen equipment and basic culinary terminology.

**CAH 116** **1 Credit** **As Demand Warrants**
**Beginning Cake Decorating I (1+0)**
The proper preparation of cakes for icing and decorating. Topics include basic borders, buttercreme flowers, leaves, and clowns. Students decorate a minimum of three cakes. Materials fee: $20.00.

**CAH 117** **1 Credit** **As Demand Warrants**
**Intermediate Cake Decorating (1+0)**
Advanced methods such as pattern transfer, flowers and borders, wafer paper, chocolate and sugar molding. Use of an airbrush, flow in techniques and tiered cake assembly covered. For the more advanced cake decorator. Materials fee: $20.00.

**CAH 140** **5 Credits** **Fall, Spring**
**Food Production I (5+0)**
Teaches basic food service skills in a commercial kitchen environment. Standardized recipes and procedures stressed. End product critiqued daily. Student assignments rotate between a stock and soup station, vegetable station, pantry, and service line and grill. Emphasis on sanitary food handling practices and professional work habits. Uniform cleaning fee: $105.00.

**CAH 141** **5 Credits** **Fall, Spring**
**Food Production II (5+0)**
Continuation of CAH 140 with emphasis on preparation and use of small sauces, sauteing, roasting, braising, stewing and broiling. Salad bar preparation and grill service covered. Uniform cleaning fee: $105.00.

**CAH 145** **5 Credits** **Fall, Spring**
**Bakery Production I (5+0)**
Basic commercial baking skills and procedures. Standardized recipes and procedures stressed. End product critiqued daily. Emphasis on sanitary food handling practices and professional work habits. Uniform cleaning fee: $105.00.

**CAH 146** **5 Credits** **Fall, Spring**
**Bakery Production II (5+0)**
Continuation of CAH 145 with emphasis on Danish and French pastries, combination breads, tortes and fancy dessert items. Uniform cleaning fee: $105.00.

**CAH 150** **1 Credit** **Fall, Spring**
**Sanitation (1+0)**
Sanitation principles essential to commercial kitchen personnel. Successful course completion allows the student to receive certification by the National Institute for the Food Service Industry.

**CAH 152** **2 Credits** **Fall, Spring**
**Supervisory Development (2+0)**
Problems and challenges that food service supervisors deal with every day. Development of personnel management methods.

**CAH 154** **2 Credits** **Fall, Spring**
**Dining Room Service (2+0)**
American style table service. Dining room service, management, controls and methods.

**CAH 160** **2 Credits** **Fall, Spring**
**Principles of Nutrition (2+0)**
Basic principles of nutrition with emphasis on nutrients and their function in relation to human health.

**CAH 161** **1 Credit** **Fall**
**Pastry Tube Art (.5+1)**
Basic cake and food product techniques including borders, flowers, cake designing, and proper use of pastry tube bags.

**CAH 170** **2 Credits** **Fall, Spring**
**Gourmet Cooking (2+0)**
Preparation and service of gourmet beef, poultry and seafood entrees for the home cook. Recipes represent new ideas in home entertainment, and menus change every semester. Materials fee: $75.00.

**CAH 171** **2 Credits** **Fall, Spring**
**Gourmet Baking (2+0)**
Preparation of a wide range of breads, pastries, fancy desserts, French pastry, and simple tortes. Recipes represent traditional methods of baking along with current trends in home entertainment. Materials fee: $45.00.

**CAH 172** **2 Credits** **As Demand Warrants**
**Gourmet Asian/Oriental Cooking (2+0)**
Preparation and service of Asian/Oriental dishes. Study and use of proper cooking methods emphasized. Students prepare and enjoy a full meal at each class session. Materials fee: $75.00.

**CAH 175** **2 Credits** **As Demand Warrants**
**Introduction to Meat Cutting I (1.5+2.5)**
Professional meat cutting for lamb, beef, pork, poultry, and seafood; health regulations using current industry standards; sausage making and meat curing. Materials fee: $35.00.

**CAH 199** **1-12 Credits** **Summer**
**Culinary Arts Workstudy Externship**
Practice in a variety of food service operations, learning current cooking methods and techniques. Student evaluations by the externship coordinator and the employer. Enrollment by special permission only.

**CAH 242** **5 Credits** **Fall, Spring**
**Food Production III (5+0)**
Continuation of CAH 141 with emphasis on ala carte and production cooking. Students prepare foods for the advanced table service class. Foods will represent current trends in the industry with kitchen organization and professional methods stressed. Uniform cleaning fee: $105.00. (Prerequisite: CAH 141.)

**CAH 243** **5 Credits** **Fall, Spring**
**Food Production IV (5+0)**
Continuation of CAH 242 with emphasis on international and new trend American Cooking. The role of the Garde Manger in the modern kitchen explored. Uniform cleaning fee: $105.00. (Prerequisite: CAH 242 or permission of instructor.)

**CAH 247** **5 Credits** **Fall, Spring**
**Bakery Production III (5+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 emphasized. Uniform cleaning fee: $105.00. (Prerequisite: CAH 146 or permission of instructor.)

**CAH 248** **5 Credits** **Fall, Spring**
**Bakery Production IV (5+0)**
Continuation of CAH 247 with emphasis on pastry buffet. Students will produce artistic centerpieces, decorated tortes and cakes, assorted French pastries, assorted petits fours, and assorted candies. Uniform cleaning fee: $105.00. (Prerequisites: CAH 146 and 247 or permission of instructor.)

**CAH 250** **2 Credits** **As Demand Warrants**
**Garde Manger (2+0)**
A hands- on experience in buffet. Presentation of hot and cold foods. Students produce pates, mousses, forcements, 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)**
Formal and informal methods of purchasing, receiving and storing of food and nonfood items in food service operations. Specifications, par inventory systems and controls.

**CAH 255** **2 Credits** **As Demand Warrants**
**Food Service Management (2+0)**
The management team's responsibility in food service operation. Students assume the role of kitchen manager, dining room manager and general manager.

**CAH 256** **2 Credits** **As Demand Warrants**
**Food Service Accounting (2+0)**
Principles and practices concerned with determination of food cost, labor cost, beverage cost and the basic accounting practices necessary to operate a successful food service operation.

**CAH 257** **1 Credit** **As Demand Warrants**
**Oenology-Hospitality Industry I (1+0)**
Study and evaluation of the wines of France, Germany, Italy and the California wine producing areas. Focus on "point of sale" approach for first level serving staff. Special attention to selecting for individual meals. Materials fee: $45.00.

**CAH 258 1 Credit As Demand Warrants**
**Oenology-Hospitality Industry II (1+0)**
A continuation of CAH 257 with in-depth evaluation and study of the major wine producing areas of the Pacific Northwest, California, France, Germany and Italy. Focus on preparing the new sommelier. Special attention to selections for building cellar and developing breadth in the restaurant. Materials fee: $45.00. (Prerequisite: CAH 257 or permission of instructor.)

# Dance

**DANC 108 1 Credit As Demand Warrants**
**Beginning Freestyle Jazz (1+0)**
Jazz dance for the beginning student.

# Danish

For information on studying at the University of Copenhagen, see Study Abroad.

**DNSH 101 5 Credits Fall**
**DNSH 102 5 Credits Spring**
**Elementary Danish I & II (5+0) h**
The language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audio-visual materials. (Prerequisite: For DNSH 102, DNSH 101.)

**DNSH 201 4 Credits Fall**
**DNSH 202 4 Credits Spring**
**Intermediate Danish I & II (4+0) h**
Continuation of Danish 102. Increasing emphasis on reading ability and cultural material. Conducted in Danish. (Prerequisite: DNSH 102 or equivalent.)

**DNSH 301 3 Credits Fall**
**DNSH 302 3 Credits Spring**
**Advanced Danish I & II (3+0) h**
Reading of essays in more difficult texts - fiction/non-fiction. Study of selected Danish authors and literary genres. Discussions of cultural materials other than texts: films, slides, pictures. Translations, stylistic exercises and special grammar problems. Conducted in Danish. (Prerequisite: DNSH 202 or permission of instructor.)

# Developmental Studies

**DEVS 052 3 Credits As Demand Warrants**
**Reading Enhancement (3+0)**
Intensive instruction in reading designed to increase vocabulary and comprehension skills necessary for successful reading in the content areas of college courses.

**DEVS 058 1-3 Credits As Demand Warrants**
**Reading Lab (0+3-9)**
Individualized instruction in improving reading comprehension and efficiency. May be repeated.

**DEVS 065 1 Credit As Demand Warrants**
**Spelling Improvement (1+0)**
A diagnostic/prescriptive approach for improving spelling skills.

**DEVS 066 1 Credit As Demand Warrants**
**Vocabulary Development (1+0)**
Designed to increase vocabulary substantially and to provide tools for further vocabulary growth.

**DEVS 104 1-3 Credits Fall, Spring**
**University Communications (1-3+0)**
**(Same as CCC 104)**
Introduces the unique methods of communication required at the college level. Links with selected lecture courses. May be repeated.

**DEVS 105 3 Credits As Demand Warrants**
**College Reading (3+0)**
**(Same as CCC 105)**
Develops and refines vocabulary, comprehension and critical reading at the college level. Instruction focuses on developing readers' ability to use a wide range of comprehensive strategies to enhance reading effectiveness. Placement by examination.

**DEVS 106 1 Credit Fall, Spring**
**Speed Reading (1+0)**
Introduction to newest speed reading techniques. Development of flexible reading rates and increased comprehension and vocabulary skills. Application of techniques to study, professional and leisure reading.

**DEVS 108 1 Credit As Demand Warrants**
**Study Skills Lab (1+0)**
Improvement of study skills in areas of greatest need on an individual basis in the lab. Topics include time management, listening/notetaking, library research, and memory.

**DEVS 110 1 Credit Fall, Spring**
**College Success Skills (2+0)**
**(Same as PSY 110)**
An introduction and overview of the diverse skills, strategies and resources available to ensure success in the college experience. Topics include study skills, time management, career planning, stress management, communication skills, test taking and personal development skills.

**DEVS 185 3 Credits**
**As Demand Warrants**
**Straight Thinking (3+0)**
A study of inductive, deductive and seductive thinking, and skill building to recognize and use all three. Critical thinking skills to analyze newspaper, magazine and spoken arguments. Political speeches and other media presentation examined. Effective and convincing presentation of one's own ideas include formal and informal logic. Materials fee: $10.00.

## DEVELOPMENTAL ENGLISH

**DEVE 060 3 Credits As Demand Warrants**
**Elementary Exposition (3+0)**
Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination.

**DEVE 068 1-3 Credits Fall, Spring**
**English Skills Laboratory (0+3-9)**
Individualized instruction in language skills. Open entry/open exit, one credit lab modules in spelling/vocabulary, writing, and grammar usage. Enrollment in one or more based on diagnosed need or desire; may be repeated. Counts as elective credit only; does not fulfill degree requirements in written communications or humanities.

**DEVE 070 3 Credits As Demand Warrants**
**Preparatory College English (3+0)**
Instruction in writing to improve students' fluency and accuracy and communication skills. Preparation for ENGL 111. Placement by examination or student decision. Materials fee: $0.00-5.00.

## DEVELOPMENTAL MATHEMATICS

**DEVM 050 3 Credits Fall, Spring**
**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. Also available via Independent Learning.

**DEVM 052 3 Credits Fall, 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.)

**DEVM 060 3 Credits Fall, Spring**
**Elementary Algebra (3+0)**
First year high school algebra. Evaluating and simplifying algebraic expressions, solving first degree equations and inequalities, integer exponents, polynomials, factoring, rational expressions, equations and graphs of lines. Also available via Independent Learning. (Prerequisite: DEVM 050 or placement.)

**DEVM 061 1 Credit Independent Learning Only**
**Review of Elementary Algebra**
Designed to assist students in reviewing material covered by DEVM 060. Individuals who have not previously taken an elementary algebra course are recommended to enroll in DEVM 060.

**DEVM 062 3 Credits Fall, Spring**
**Alternative Approaches to Math: Elementary Algebra (3+0)**
Elementary algebra. Algebraic equations, first-degree equations, polynomials, factoring, integral exponents and rational expressions using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEVM 050 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**DEVM 065 1-3 Credits As Demand Warrants**
**Mathematics Lab (0+3-9)**
An individual tutorial lab. Course content selected according to the needs of the individual student from the topics covered in DEVM 050 and DEVM 060. (Prerequisite: Placement.)

**DEVM 070 3 Credits Fall, Spring**
**Intermediate Algebra (3+0)**
Second year high school algebra. Operations with rational expressions, radicals, rational exponents, logarithms, inequalities, quadratic equations, linear systems, functions, Cartesian coordinate system and graphing. Also available via Independent Learning. (Prerequisite: DEVM 060 or placement.)

**DEVM 071 1 Credit Independent Learning Only**
**Review of Intermediate Algebra**
Course reviews material covered by DEVM 070. Individuals who have not taken an intermediate algebra course on the high-school level are recommended to enroll in DEVM 070.

**DEVM 072 3 Credits Fall**
**Alternative Approaches to Math: Intermediate Algebra (3+0)**
Intermediate algebra. Exponents, radicals, graphing, systems of equations, quadratic equations, inequalities and complex numbers using alternative teaching styles tailored to specific cultural backgrounds of the students. (Prerequisites: DEVM 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**DEVM 081 1 Credit Independent Learning Only**
**Review of Basic Geometry**
High school geometry without formal proofs. Topics include basic definitions, measurement, parallel lines, triangles, polygons, circles, area, solid figures and volume. (Prerequisite: DEVM 060.)

## Diesel Technology

**DSLT 150 7 Credits Fall**
**Diesel Mechanics I (7+0)**
Theory and function of the diesel engine. Topics include introduction to various diesel engines, shop tools and instruments for engine disassembly, inspection, assembly, parts failure analysis and shop safety. Materials fee: $125.00.

**DSLT 152 7 Credits Fall**
**Diesel Mechanics II (7+0)**
A continuation of DSLT 150. Topics include air intake systems, exhaust systems, lube systems, cooling systems, fuel systems, live engine overhaul, tuneup, and troubleshooting of running engines. Materials fee: $125.00. (Prerequisite: DSLT 150.)

## Drafting Technology

**DRT 100 1 Credit As Demand Warrants**
**Introduction to Drafting Concepts (1+0)**
Principles of architectural, civil and industrial drafting.

**DRT 101 4 Credits As Demand Warrants**
**Beginning Drafting I (4+0)**
Technical lettering, line techniques, equipment, orthographics, dimensioning, pictorials, auxiliaries and sections. Materials fee: $50.00.

**DRT 102 2 Credits As Demand Warrants**
**Beginning Drafting II (2+0)**
Practice and skill development in geometric construction, sketching, orthographics and dimensioning, sections, auxiliaries and individual projects. Materials fee: $20.00.

**DRT 115 3 Credits As Demand Warrants**
**Graphics I (3+0)**
Study and application of methods, problems and solutions in graphic design.

**DRT 121 3 Credits As Demand Warrants**
**Reading Construction Blueprints (2+0)**
Reading and interpretation of two and three dimensional blueprints of residential, light commercial and heavy commercial structures using conventional symbols and representation.

**DRT 123 3 Credits As Demand Warrants**
**Uniform Building Code (3+0)**
Covers the minimum required construction standards of the Uniform Building Code. Use of local zoning ordinances and the UBC as comprehensive building guides and their principle aspects applied to various building types and trades. Concentrates on zoning, the UBC and some fire codes. Mechanical and electrical codes are introduced only for student familiarity. (Prerequisite: Working knowledge of building systems is strongly recommended.)

**DRT 125 2 Credits As Demand Warrants**
**Lettering I (2+0)**
Lettering methods including varigraphic, Leroy, Kohi-Noor, Kad II, freehand and script. Commercial lettering skills.

**DRT 130 4 Credits As Demand Warrants**
**Perspective Drafting I (4+0)**
Basics of perspective (1 pt., 2 pt., 3 pt.) and introduction to the KLOK Perspective Board.

**DRT 132 4 Credits As Demand Warrants**
**Perspective Drafting II (4+0)**
Additional experience in 1 and 2 pt. perspectives on the KLOK perspective board in both interior and exterior perspectives (Prerequisite: DRT 130.)

**DRT 140 4 Credits As Demand Warrants**
**Architectural Drafting I (4+0)**
Architectural drafting principles including site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plan, and graphic standards. Materials fee: $30.00.

**DRT 141 2 Credits As Demand Warrants**
**Architectural Concepts (2+0)**
Architectural drafting concepts including basic site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plans, and graphic standards. Materials fee: $15.00.

**DRT 150 4 Credits As Demand Warrants**
**Civil Drafting I (4+0)**
Civil drafting principles including plotting traverse and surveys by bearing and distance, latitudes and departures, topographic drawings and maps, contours and elevations, profiles and highway curves, cross-section drawings and grading plans. Materials fee: $30.00.

**DRT 151 2 Credits As Demand Warrants**
**Civil Concepts (2+0)**
Overview of civil drafting concepts and survey drafting including the plotting of traverse and surveys by bearing and distance. Materials fee: $15.00.

**DRT 160 2-3 Credits As Demand Warrants**
**Drafting Co-Op Work Experience (2-3+0)**
A non-paid practical work experience in a professional drafting environment. For the student who has mastered basic drafting techniques and terminology. Placement and work assignments will vary depending upon student experience.

**DRT 170 3 Credits Fall, Spring**
**Beginning AutoCad (3+0)**
Instruction in basic working knowledge of AutoCad software and its applications in drafting from how to turn on the computer through plotting out finished drawings. Practical applications.

**DRT 250 4 Credits As Demand Warrants**
**Civil Drafting III-Advanced (4+0)**
Techniques of highway design, boundaries, right of way layouts, curves and grades, bridges, cut and fill detail drawings, gas and water services, sewers, culverts, signs and guard rails.

**DRT 270 3 Credits As Demand Warrants**
**Advanced AutoCad (2+5)**
Advanced areas of AutoCad (3D, menu modifications, and Auto lisp). (Prerequisites: ES 101, DRT 170 [previously DRT 193 - Beginning AutoCad] or permission of instructor.)

## Early Childhood Development (TVC)

The Early Childhood Development (ECHD) courses listed below are taught only in Fairbanks under auspices of the Tanana Valley Campus. See the next section of this catalog for Early Childhood Education (ECDD) courses taught outside of Fairbanks.

**ECHD 100 3 Credits Fall, Spring**
**Introduction to Early Childhood (2.75+.5)**
The care and education of young children. Assessing needs and skills of young children. Defining skills needed by child care workers. Labs arranged.

**ECHD 101 1 Credit Alternate Fall**
**Family Day Care Home Provider Training (1+0 )**
Operation of safe, successful day care home or family day care program. Overview of laws and regulations, business practices, parental concerns, health and safety, activities, space planning, snack and meal service, community support, and provider concerns. (Next offered: 1993-94.)

**ECHD 105 3 Credits As Demand Warrants**
**Survey of Programs for Young Children (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 Spring**
**Practical Paths to Discipline and Guidance (1+0)**
Practical techniques for guidance and discipline of young children.

**ECHD 120 3 Credits Spring**
**Nutrition, Health and Safety (3+0)**
For parents, caregivers, and teachers of young children. Emphasis on common illnesses, preventive health care, nutritional needs, and safety aspects of caring for young children.

**ECHD 121 1 Credit As Demands Warrants**
**Physical Activities for Young Children (1+0)**
Exploration of a variety of equipment, activities, and opportunities to promote the physical development of children, birth to age 8, with emphasis on fulfilling the needs of the 3-8 year old.

**ECHD 122 1 Credit As Demand Warrants**
**Cognitive Activity for the Young Child (1+0)**
How to provide activities and opportunities that encourage curiosity, exploration, and problem-solving appropriate to the developmental levels and learning styles of children.

**ECHD 123 1 Credit As Demand Warrants**
**Language Activity/Young Child (1+0)**
Activities that help children acquire and use language as a means of communicating their thoughts and feelings. Includes non-verbal communication and understanding others.

**ECHD 124 1 Credit As Demand Warrants**
**Creative Activities for the Young Child (1+0)**
Learning opportunities that stimulate children to play with sound, rhythm, language, materials, space and ideas in individual ways and to express their creative abilities.

**ECHD 131 1 Credit As Demand Warrants**
**Group Management (.75+.5)**
Managing a group of children, 3 years and older, with emphasis on planning, implementing and evaluating developmentally appropriate practices. Includes teacher-directed times, transitions, and supporting child-initiated experiences.

**ECHD 135 2 Credits Spring**
**Infant/Toddler Care (1+2)**
Introduces activities to stimulate development and learning of infants and toddlers individually and in a group setting. Covers discipline and guidance techniques, communication, health concerns and facility requirements. Weekly 2 hour lab required.

**ECHD 211 1 Credit As Demand Warrants**
**Developing Positive Self-Concept (1+0)**
How to provide physical and emotional security for each child to know, accept, and take pride in himself or herself. Includes development of sense of independence.

**ECHD 242 1 Credit As Demand Warrants**
**Observe/Record Behavior of Child (1+0)**
Techniques for accurately observing children's behavior, including several methods of observation and techniques for graphing the results.

**ECHD 245 3 Credits Fall, Spring**
**Child Development (3+0) s**
**(Same as PSY 245)**
Study of development from prenatal through middle childhood including cognitive, emotional, social and physical aspects of the young child. Includes child observations. Roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

**ECHD 250 3 Credits As Demand Warrants**
**Practicum ECHD I (3+0)**
A guided student teaching experience in working with a group of 3-6 year old children. Student assumes increasing responsibility for planning and lead teaching. Prerequisites: PSY 245, ECHD 100, 110, 120, 131, 255 and permission of the instructor.

**ECHD 251 3 Credits As Demand Warrants**
**Practicum ECHD II (3+0)**
A guided field experience in working with a group of young children in a school or center. Students who have demonstrated competency in ECHD 250 may participate in an infant toddler center, child care center, early childhood education program or public school classroom. Schedule times and dates to be arranged. (Prerequisites: ECHD 250 and instructor's permission.)

**ECHD 255 3 Credits Fall, Spring**
**Activities for Young Children (2.75+.5)**
Important considerations in establishing appropriate curriculum and activities for young children. Includes gross motor, creative, science, perceptual-motor, language, literature, dramatic play, and music learning activities and opportunities for children 3 and older.

**ECHD 256 1 Credit Alternate Spring**
**Activities for School-Age Child Care (1+0)**
For child care staff who work in after-school and/or summer programs with focus on daily activity schedules and appropriate, fun, challenging activities and projects for young school-age children. (Next offered: 1993-94.)

**ECHD 257 1 Credit Spring**
**Learning Mathematics (1+0)**
Overview of how children construct mathematical meanings. Introduction to mathematical learning principles and experiences for children, 3-8 years. (Prerequisite: ECHD/PSY 245 or concurrent enrollment.)

**ECHD 260 3 Credits Alternate Fall**
**Introduction to the Exceptional Child (3+0)**
An overview of categories of exceptionality includes hearing and visual impairments; learning, speech and language disabilities; emotional disturbances; physical handicaps; mental retardation; and the gifted and talented. (Prerequisite: ECHD/PSY 245 or permission of instructor.)

**ECHD 261 3 Credits Alternate Fall**
**Mainstreaming Exceptional Children (3+0)**
Developmental, social, educational and legal (PL94-457) issues related to the education of young handicapped children including the role of the teacher in identifying, assessing, and individualizing educational programs for the young handicapped child in the mainstreamed setting. (Prerequisites: ECHD/PSY 245 and ECHD 260 or instructor permission. Next offered: 1993-94.)

**ECHD 265 2 Credits Fall**
**Culture, Learning and the Young Child (2+0)**
Cultural effects on development and learning patterns of young children. Exploring multi-cultural and multi-ethnic resources to create an anti-bias curriculum. Special attention on Alaska Native Cultures. (Prerequisite: ECHD 255 or concurrent enrollment or permission of instructor.)

**ECHD 301 3 Credits Alternate Fall**
**Parents as Partners in Education (2.75+.5)**
Study of strategies that will assist those who work with children and/or families to facilitate supportive partnerships with parents. Includes partnerships, contemporary issues, school and home-based programs, rights and responsibilities, professional ethics, and parents with special or unique needs. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1993-94.)

**ECHD 340 3 Credits Alternate Spring**
**Financial Management of Early Childhood Programs (2.75+.5)**
The financial aspects of managing a day care center or preschool program. Includes budgeting, program resource management, marketing, purchasing, pay and compensation, and fee collection issues important to maintaining quality programs for young children. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1993-94.)

**ECHD 341 3 Credits Alternate Spring**
**Personnel Management of Early Childhood Programs (2.75+.5)**
Management of personnel of child care programs, including recruitment, hiring, in-service training, staff meetings and communication, supervision, evaluation, motivation, burn-out prevention and termination of employees. Focus on maintaining quality programs for young children. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1993-94.)

**ECHD 342 3 Credits Alternate Fall**
**Family Relationships (3+0)**
Examination of relationships in contemporary family life. Focus on the changing family, gender roles, living together, and relationships with children and grandchildren. Includes current family research and issues within and effect of public policy on families in our multicultural society. (Prerequisites: SOC 242 and ECHD/PSY 245 or permission of instructor. Next offered: Fall 1994.)

**ECHD 442 3 Credits Alternate Spring**
**Family Resource Management**
Management of resources which help families meet and alter the increasing complexities of life. Involves purposeful actions which affect the use of time, money, energy, skills, talents and knowledge. Roles, goals, and decision-making within our multi-cultural society throughout the life cycle. (Prerequisite: SOC 242, ECHD/PSY 245 and upper division status, or permission of instructor. Next offered: 1993-94.)

# Early Childhood Education

**(Rural College)**
The Early Childhood Education (ECDD) courses listed below are taught only outside of Fairbanks under auspices of the Rural College. See the preceding section of this catalog for Early Childhood Development (ECHD) courses taught in Fairbanks. Important Note: All Early Childhood Education courses must be accompanied by a lab experience in a facility for children ages 0-5.

**ECDD 100 3 Credits As Demand Warrants**
**Introduction to Early Childhood Education (2+2)**
Introduction to the history of early childhood education, developmental and learning theory, types of programs, behavior modification, creating the learning environment, the role of the parent and teacher, and current issues in the field of early childhood education.

**ECDD 109 1 Credit As Demand Warrants**
**Orientation to Child Development (3+0)**
Overview of training programs for early childhood workers with specific training for working in a Child Development Associate program. Instruction in how to perform as CDA field trainers and/or CDA candidates.

**ECDD 111 1 Credit As Demand Warrants**
**A Safe Environment (1+0)**
Teaches competencies which enable students to provide a safe environment for young children. Emphasis on 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 free of factors which may contribute to or cause illness. (CDA curriculum)

**ECDD 113 1 Credit As Demand Warrants**
**Learning Environment (1+0)**
Arranging the environment to be conducive to learning and appropriate to the developmental level and learning style of children. Selection of materials and equipment, room arrangement, and scheduling. (CDA curriculum)

**ECDD 121 1 Credit As Demand Warrants**
**Physical Activities for Young Children (1+0)**
Essentials of planning a center which promotes the physical development of children. Includes scheduling, planning, activities, and selection of site, equipment and materials. (CDA curriculum)

**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 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 help children acquire and use language as a means of communicating their thoughts and feelings. Includes non-verbal communication and understanding of others. (CDA curriculum)

**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 Warrant**
**Guidance and Discipline (1+0)**
Indirect and direct guidance techniques. Theories of guidance, including body language effects, reinforcement, and logical consequences discussed for cultural relevance and practical application. (CDA curriculum)

**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 on the development of mutual respect and cooperative work/play between child/child and child/adult. (CDA curriculum.)

**ECDD 145 1 Credit As Demand Warrants**
**Nutrition for Young Children (1+0)**
For parents, care-givers and teachers of young children, focus on the nutritional needs of children up to five years of age. (Next offered: Fall 1992.)

**ECDD 211 1 Credit As Demand Warrants**
**Developing Positive Self-Concepts for Young Children (1+0)**
Methods for helping children develop a sense of awareness and self-esteem. Emphasis on providing success-oriented activities, encouraging acceptance and expression of children's feelings and developing pride as an individual and as a member of a cultural/ethnic group. (CDA curriculum)

**ECDD 212 1 Credit Fall, Spring**
**Developing Individual Strengths in Children (1+0)**
Use of activities, techniques and planning that help each child to function to his/her maximum potential. Must be taken concurrently with supervised experience in a child development center, home-based or infant-learning setting.

**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 centers. Emphasis on using this relationship to coordinate 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 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)

**ECDD 233 1 Credit As Demand Warrants**
**Mainstreaming Young Children with Special Needs (1+0)**
Activities that help the teacher to understand the concept and purpose of mainstreaming special needs preschool children into the regular classroom. Emphasis on rights of special needs child to service and procedures for providing service under Public Law 94-142. (CDA curriculum)

**ECDD 289 1 Credit As Demand Warrants**
**Final Assessment for Child Development Associate Credential (1+0)**
Covers procedures for final assessment for the Child Development Associate (CDA) credential. Emphasizes needs of a group of children in a child development setting by nurturing and maintaining a proper child care environment and by promoting good relations between parents and the child development center. (CDA curriculum)

**ECDD 299 1-3 Credits As Demand Warrants**
**Practicum in Early Childhood Education**
A practical application of all previous CDA competency courses. The student will assume responsibility for seven or more children in an approved preschool program. (CDA curriculum)

# Economics

A $50.00 per semester student computing facility user fee will be assessed for any student enrolling in one or more School of Management courses (AIS, ACCT, BA and ECON. This fee is in addition to any lab/material fees.
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 100X 3 Credits** **Fall, Spring**
**(Same as PS 100X**
**Political Economy (3+0) s**
Survey of the evolution and operation of the American domestic political economy with consideration of market failures and government responses. Review of major issues in political economy such as inflation, poverty and budget deficits. Exploration of linkages between American and global systems.

**ECON 101 3 Credits** **Fall, Spring**
**Introduction to Current Economic Problems (3+0) s**
Focuses on such current problems as unemployment, inflation, pollution, and poverty utilizing a less theoretical approach than is customary in introductory economics courses. Primarily for the student who plans no further work in economics.

**ECON 111 3 Credits** **As Demand Warrants**
**Economics of Rural Alaska (3+0)**
Basic economic concepts as they relate to issues and problems of contemporary regional development in rural Alaska. Socio-economic consequences of the introduction of new technologies, modern economic intra-structures and corporate relationships to traditional, small scale communities.

**ECON 200 4 Credits** **Fall, Spring**
**Principles of Economics (4+0+1) s**
Goals, incentives and outcomes of economic behavior with applications and illustrations from current issues: operation of markets for goods, services, and factors of production; the behavior of firms and industries in different types of competition; and income distribution. The functioning and current problems of the aggregate economy, determination and analysis of aspects of international exchange. (Prerequisite: Sophomore standing or permission of instructor.)

**ECON 201 3 Credits** **Fall, Spring**
**Principles of Economics I: Microeconomics (3+0) s**
Price and market theory, income distribution, contemporary problems of labor, agriculture, market structure, and pollution. Also available via Independent Learning.

**ECON 202 3 Credits** **Fall, Spring**
**Principles of Economics II: Macroeconomics (3+0) s**
Analysis and theory of national income, money and banking, and stabilization policy. Also available via Independent Learning.

**ECON 227 3 Credits** **Fall, Spring**
**Intermediate Statistics for Economics and Business (3+0)**
Extension of topics developed in STAT 200. Development of statistical techniques and their application to economic and business problems. Simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, non-parametric methods, and decision theory. (Prerequisite: STAT 200.)

**ECON 235 3 Credits** **Fall**
**Introduction to Natural Resource Economics (3+0) s**
Microeconomic principles and their application to natural resource issues. Topics include supply, demand, marginality, optimality, elementary production economics, economic rent, and comparative advantage. These principles applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure, and public outdoor recreation problems.

**ECON 237 3 Credits** **Spring**
**The Alaskan Economy (3+0) s**
Economic problems in Alaska with analysis of historical trends and current patterns of economic growth; emphasis on present and future alternative economic policies, and their potential impacts. Also available via Independent Learning.

**ECON 321 3 Credits** **Fall**
**Intermediate Microeconomics (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 200 and MATH 262 or equivalent.)

**ECON 322 3 Credits** **Spring**
**Managerial Economics (3+0)**
Interpretation of economic data and applications of economic theory in business firms. Bridging the gap between theory and practice through empirical studies, cases, and decision problems. Emphasis upon decision- making using analysis of research data. Materials fee: $10.00. (Prerequisites: ECON 200 and MATH 262 or equivalent.)

**ECON 324 3 Credits** **Spring**
**Intermediate 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 200 and MATH 262 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. Topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation overtime, resource taxation, common property problems, externalities, public goods, valuation of non-market resources, and land use planning issues. (Prerequisite: ECON 200 or 235.)

**ECON 350 3 Credits** **Fall**
**Money and Banking (3+0) s**
The liquid wealth system in the United States, including the commercial banking system, the Federal Reserve System, and nonbank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives. (Prerequisite: ECON 200.)

**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. (Prerequisite: ECON 200. Next offered: 1993-94.)

**ECON 409W 3 Credits** **Alternate Fall**
**Industrial Organization and Public Policy (3+0) s**
The relationship of market structure to the economic conduct and performance of firms and industries, the determinants, measurement and classification of market structure, public policy toward mergers, industrial concentration, and aggregate concentration. (Prerequisites: ECON 200, 321. Next offered: 1993- 94.)

**ECON 420W 3 Credits** **Alternate Fall**
**Labor Markets and Public Policy (3+0) s**
Application of labor market analysis and wage theory as they relate to public policy issues. Topics include determination of wages, taxation and employment, economic impact of unions, economics of discrimination, and issues relating to women's and minorities' changing roles in the labor market. (Prerequisite: ECON 200. Next offered: 1993-94.)

**ECON 434W 3 Credits** **Alternate Spring**
**Environmental Economics (3+0)**
An extension of concepts introduced in ECON 235, using a higher level of economic analysis. An analysis of the economic forces involved in environmental degradation, preservation, and regulation. Topics include pollution, biodiversity, wilderness, and climatic change. (Prerequisite: ECON 200 or ECON 235. Next offered: 1994-95.)

**ECON 436W 3 Credits** **Alternate Spring**
**Energy Economics (3+0) s**
Market forces and institutions affecting the allocation of energy resources. Special attention to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time. (Prerequisite: ECON 200 or 235. Next offered: 1994-95.)

**ECON 437W 3 Credits** **Alternate Fall**
**Regional Economic Development (3+0)**
Determinants and effects of the spatial distribution of economic activity. Impact of public policy on regional development within the Alaska context. (Prerequisite: ECON 200. Next offered: 1994-95.)

**ECON 438W 3 Credits** **Alternate Spring**
**The Economics of Fisheries Management (3+0)**
Review of theoretical economic concepts as applied to the management of a commercial fishery. Major current management policy issues affecting United States' commercial fishing. Emphasis on the practical application of the economic theory and policy insights derived from the course to problems of management of Alaska's fisheries. (Prerequisite: ECON 200 or 235. Next offered: 1993-94.)

**ECON 451W 3 Credits** **Alternate Spring**
**Public Expenditure Analysis (3+0)**
Purposes and economic effects of governmental expenditures, budgeting techniques, and their effects on resource allocation. (Prerequisite: ECON 200. Next offered: 1994-95.)

**ECON 463O(t) 3 Credits** **Fall**
**International Economics (3+0) s**
Pure theory of international trade: comparative cost, terms of trade, and factor movements. International disequilibrium: balance of payments and its impact on national economy, capital movement, economic development through international trade. (Prerequisite: ECON 200.)

**ECON 475 1-3 Credits** **Fall, Spring**
**Economic Internship**
Designed to give students the opportunity to do research or other practical work with business, governmental agencies, or research organizations. (Prerequisite: Admission by permission of instructor.)

**ECON 601 3 Credits** **Fall**
**Microeconomic Theory I (3+0)**

**ECON 603 3 Credits** **Spring**
**Macroeconomic Theory I (3+0)**

**ECON 611 3 Credits** **Fall**
**Principles of Economic Analysis (3+0)**

**ECON 622 3 Credits** **Fall**
**Managerial Economics (3+0)**

**ECON 623 3 Credits** **Fall**
**Mathematical Economics (3+0)**

**ECON 626 3 Credits** **Spring**
**Econometrics (3+0)**

**ECON 630 3 Credits** **Spring**
**Economic Issues of the Circumpolar North (3+0)**
**(Same as NORS 630)**

**ECON 635 3 Credits** **Fall**
**Resource Economics (3+0)**

**ECON 636 3 Credits** **Spring**
**Microeconomics II | Dynamic Resource Optimization (3+0)**

**ECON 638 3 Credits** **As Demand Warrants**
**Marine Policy Analysis (3+0)**

**ECON 670 0 Credit** **Spring**
**Seminar in Research Methodology (1+0)**

# Education

**ED 101 1 Credit** **Fall, Spring**
**Orientation to Alaska Native Education (1+0)**
A seminar in which Native Alaska educators present information and lead discussions on issues related to rural and urban Alaskan Native education. Topics include cultural differences in teaching and learning styles; curriculum development for multi-graded classrooms and small high schools; use of technology and community resources; and decision- making and local control. (Prerequisite: Permission of instructors.)

**ED 106 3 Credits** **As Demand Warrants**
**Reading Activities in the Classroom (3+0)**
Methods, materials and teaching of reading. Techniques for working with small groups and for integrating a language experience approach using personal language backgrounds with basal reading programs. Use of teacher's guides. Demonstration lessons.

**ED 131 1-3 Credits** **As Demand Warrants**
**Implementation of an Adult Education Program (1+0, 2+0 or 3+0)**
Procedure for planning and establishing a village- based adult education program. Includes organizing the classroom, equipment and materials; grades and record keeping, testing and assessing appropriate levels of 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** **As Demand Warrants**
**Introduction to Methods and Materials in Bilingual Education (3+0)**
Methods and problems of teaching in and preparing material for the bilingual classroom in the areas of reading, language arts, social studies, mathematics, sciences, art, music and health including lesson planning, scheduling, production of bilingual materials, and team teaching. (Recommended: Literacy in both languages of instruction.)

**ED 200 2-6 Credits** **As Demand Warrants**
**Peer Tutoring (1+3 to 6)**
Peer tutoring offers an opportunity to explore issues and practice tutoring techniques. For students interested in teaching or those who wish to share their expertise in a content area. Students may take the Institute section (3 weeks) and/or the Learning Activities Center section (12 weeks). Lab time arranged for variable credit; course may be repeated for up to six credits.

**ED 201 3 Credits** **Fall, Spring**
**Introduction to Education (2+3)**
The prospective teacher is acquainted with the nature of teaching including the scholastic, professional, and personality requirements for effective teaching. Involves laboratory time in public schools as teacher's aide. Open to all students. Required for all students majoring in education. (Prerequisite: Sophomore standing.)

**ED 208 3 Credits** **As Demand Warrants**
**Art for the Classroom Teacher (3+0)**
**(Same as ART 208)**
Concepts in art education for persons with limited art background working with young children. Combines a philosophy of art education, art history, and "hands-on" experiences to enable the teacher to effectively integrate visual arts into the curriculum as enjoyment and enrichment.

**ED 210 3 Credits** **As Demand Warrants**
**Second Language Acquisition (3+0)**
An intensive study of how people acquire second languages, i.e., ones in addition to the ones they learn as young children in the home. Topics include psychological, social and cultural aspects of second language acquisition, theory of acquisition, applied linguistic and socio-linguistic research, and insights of teachers and students of second languages. Examination of acquisition of languages by people in the students' own communities.

**ED 211 3 Credits** **As Demand Warrants**
**Methods and Materials for Teaching a Second Language (3+0)**
Intensive work in a broad repertoire of second language teaching methods. Includes designing, teaching, and assessing actual lessons. (Prerequisite: Experience as an educator in a bilingual/bicultural or second language classroom or permission of instructor.)

**ED 212 3 Credits** **As Demand Warrants**
**Curriculum Development for Teaching a Second Language (3+0)**
Development of scope and sequence for unit plans and yearly/multi-year curricula for teaching a second language. (Prerequisite: Experience in a second language classroom or permission of instructor; ED 211 strongly recommended)

**ED 213 3 Credits** **As Demand Warrants**
**Human Development and Learning (3+0)**
Interrelated principles of human growth, development, adjustment and learning. For students preparing for a career in teaching but also open to parents, counselors, community workers and others.

**ED 214 3 Credits** **As Demand Warrants**
**Natural Approaches to Language Instruction (3+0)**
Students explore modern approaches, methods, techniques, and activities which have been successful in teaching second languages.

**ED 215 3 Credits** **As Demand Warrants**
**Methods of Teaching a Second Language (3+0)**
Provides a basic knowledge of second language acquisition theory. Students taught to adapt materials for teaching Inupiaq, Yup'ik or English as a second language, and write and implement second language lesson plans. Attention paid to practicing different methods of instruction.

**ED 216 3 Credits** **As Demand Warrants**
**Children's Literature (3+0)**
A survey of children's literature and storytelling from around the world, including criteria for evaluation. Emphasizes methods of encouraging children's appreciation of a variety of selections. Students may study materials for a specific age group within 1-12 years.

**ED 241 3 Credits** **As Demand Warrants**
**Methods and Materials in Bilingual Education (3+0)**
Overview of bilingual instruction. Students make and adapt materials for the classroom. Attention to practicing different methods of instruction.

**ED 245 3 Credits** **As Demand Warrants**
**Child Development (3+0)**
A study of the physical, emotional, cognitive, and social aspects of a child's development from the prenatal period through early adolescence. (Prerequisite: PSY 101 or permission of instructor)

**ED 262 3 Credits As Demand Warrants**
**Methods of Teaching English as a Second Language and Standard English as a Second Dialect (3+0)**
**(Same as LING 262)**
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 teaching styles. Roles of the second language teacher and their appropriateness covered. Presents techniques and activities consistent with specific language teaching methods and adaptation of these methods to the needs of western Alaska classrooms. (Prerequisite: Classroom experience.)

**ED 275 3 Credits Fall, Spring**
**Introduction to Microcomputers for Teachers (3+0)**
Computer technology and its present and potential impact on education. Topics include basic microcomputer terminology and operation, classroom applications of computer technology, and choosing and using hardware and software. (Prerequisite: ED 201 or concurrent enrollment in ED 201.)

**ED 099, 199, 299 1-3 Credits**
**As Demand Warrants**
**Practicum in Education**
Individualized work experience. Credit is variable from 1 to 3 credits, depending upon the quality and quantity of the work experience. Credit may be earned in most disciplines and programs.

**ED 303 3 Credits Alternate Spring**
**Language Acquisition (3+0)**
**(Same as LING 303)**
Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary models, and implications for pedagogy and public policy. (Prerequisite: LING 101.)

**ED 304 3 Credits Fall, Spring**
**Literature for Children (3+0)**
Evaluation criteria and application to children's books selected by student. Study of outstanding authors, illustrators and content of specific categories of literature, book selection aids, and effective use of literature to promote learning. (Prerequisite: Junior standing.)

**ED 309 3 Credits Fall**
**Elementary School Music Methods (3+0)**
**(Same as MUS 309)**
Principles, procedures, and materials for teaching music to children at the elementary level. (Prerequisite: ED 330.)

**ED 310 3 Credits Fall, Spring**
**Modes of Creative Expression in Education (3+0)**
Use of art, music, dance, drama, photography and creative writing in education to stimulate creative expression. Methods of incorporating these modes of expression into teaching practices. (Prerequisite: ED 201.)

**ED 311 3 Credits Spring**
**Introduction to Instructional Technologies (2+3)**
Principles, procedures, materials and apparatus associated with use of instructional technologies. Instructional (AV) equipment: video recorders, teleconferencing equipment, motion and still picture projectors, audio recorders, and other programmable equipment reviewed. Systematic selection and utilization techniques. (Prerequisite: ED 201 or concurrent enrollment in ED 201.)

**ED 330 3 Credits Fall, Spring**
**Diagnosis and Evaluation of Learning (3+0)**
Nature of classroom teaching-learning process, emphasizing teaching decisions. Strengths and weaknesses of various forms of diagnosis and evaluation of learning, with emphasis on cross-cultural settings. Informal, formal, process, and product assessment. (Prerequisite: ED 201.)

**ED 333 3 Credits As Demand Warrants**
**History of Childhood (3+0)**
Surveys child rearing practices in the major cultures of the world and parent-child relationships in different time periods. Examines psychogenic personality changes caused by parent-child interaction through successive generations. (Prerequisite: Junior standing.)

**ED 338 3 Credits As Demand Warrants**
**Education and Economic Development (3+0)**
**(Same as RD 338)**
Examines theory and evidence linking varied forms of education to economic growth and development. A comparative approach explores similarities and differences between rural Alaskan regional development and systematic nation-building efforts in developing countries. (Prerequisite: Permission of instructor.)

**ED 345 3 Credits As Demand Warrants**
**Sociology of Education (3+0)**
**(Same as SOC 345)**
The influence of social, political, and economic forces upon schools. Examines how school organization affects teaching practices, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisite: Junior standing.)

**ED 346 3 Credits As Demand Warrants**
**Structure of American Education (3+0)**
Fundamentals of public school organization, control and support in relation to federal, state and local agencies. Issues related to the structure and delivery of educational services analyzed with attention to issues in Alaska. (Prerequisite: Junior standing in education.)

**ED 350 3 Credits Fall, Spring**
**Communication in Cross-Cultural Classrooms (3+0)**
Interdisciplinary examination of communication and language in cross- cultural educational situations, including language, literacy, and inter- ethnic communication related to classrooms in Alaska. Also available via Independent Learning. (Prerequisite: ED 201.)

**ED 375 3 Credits Fall, Spring**
**The Exceptional Learner (3+0)**
Understanding, identifying and serving the exceptional learner in the regular classroom in rural and urban settings. Includes the unique needs of exceptional students in rural settings from bilingual/multicultural backgrounds. Also available via Independent Learning. (Prerequisites: ED 201 and PSY 240.)

**ED 380 3 Credits As Demand Warrants**
**Cultural Influences in Education (3+0)**
Interdisciplinary study of the educational problems, concerns and successes in a variety of cultural contexts. Social, cultural and psychological factors inherent in the educational process and how they are affected by a multicultural setting. Attention given to curriculum improvement and teaching strategies appropriate for the multicultural classroom and school. (Prerequisite: ED 330 and junior standing.)

**ED 402 3 Credits Fall, Spring**
**Methods of Teaching in the Secondary School (2+3)**
Principles and methods of teaching for junior high and high school classrooms. Includes planning for effective teaching, classroom management, and the implementation of teaching plans in classroom settings. Materials fee: $35.00. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

**ED 407 3 Credits Fall, Spring**
**Reading Strategies for Secondary Teachers (3+0)**
Techniques and materials to help secondary students acquire skills for greater comprehension of subject matter. Should be taken concurrently with ED 402. (Prerequisites: ED 330 and junior standing.)

**ED 410W 3 Credits Fall, Spring**
**Foundations of Literacy Development (3+0)**
Language, reading, and writing development examined in children of varying ages and within various social contexts, with emphasis on impact of out-of- school styles on school literacy instruction. Materials fee: $30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 411, 412, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

**ED 411 3 Credits Fall, Spring**
**Strategies for Reading and Writing Instruction in Multi-Cultural Classrooms (3+0)**
Methodology, instructional materials, and language arts content relevant to the instruction of developmental language, reading and writing in diverse K-8 classrooms. Includes practicum placement in elementary school. Materials fee: $30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 412, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

**ED 412 3 Credits Fall, Spring**
**Language Arts and Social Studies: Methods and Curriculum Development (3+0)**
Study of concepts, content, methods and materials which characterize the teaching of language arts and social studies; the development of written plans and units; and practicum experience in elementary school. Materials fee: $30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 413; and permission of instructor. X-CED program: ED 410 and 411.)

**ED 413 3 Credits Fall, Spring**
**Mathematics and Science: Methods and Curriculum Development (3+0)**
Study of concepts, content, methods and materials which characterize the teaching of mathematics and science; the development of written plans and units; and practicum placement in elementary school. Materials fee: $30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 412; and permission of instructor. X-CED program: ED 410 and 411.)

**ED 420 3 Credits Fall**
**Alaska Native Education (3+0)s**
**(Same as ANS 420)**
School systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisite: ANTH 242 or HIST 100; or permission of instructor.)

**ED 422 3 Credits As Demand Warrants**
**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. Emphasis to an application of philosophy of education to cross-cultural situations in Alaskan classrooms. Available only via Independent Learning. (Prerequisite: Junior standing or permission of the instructor.)

**ED 424 3 Credits Fall**
**Small High School Programs (2+3)**
Examines traditional and alternative approaches to the design of small high school programs, with emphasis on problems of designing secondary programs for the small rural communities of Alaska. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

**ED 425 3 Credits Spring**
**Community as an Educational Resource (2+3)**
Methods and techniques for developing and implementing a community-oriented curriculum with practical experience in identifying and using community educational resources. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

**ED 429 3 Credits Spring**
**Microcomputer Application in the Classroom (2+2)**
Strategies for effective use of microcomputers in the classroom; understanding potentials and limitations of the computer in the schools; developing classroom plans to take advantage of computer potentials; and evaluation of educational software. (Prerequisites: Upper division undergraduate or certified teacher status.)

**ED 430 3 Credits Fall, Spring**
**Multicultural Teaching Techniques (2+3)**
Effective teaching strategies for cross-cultural and multicultural classrooms with attention to practices for secondary schools (small school design, computer-based instruction, telecommunications, community-based education, interdisciplinary linkages of coursework, experiential education, productive thinking skills, and individual programmed instruction). Weekly participation in multicultural classrooms. (Prerequisites: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

**ED 440 3 Credits Alternate Spring**
**Gender and Education (3+0)**
**(Same as ED 640 and WMS 440)**
Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender; patterns of access and achievements; gender as an organizing principle in schools and classrooms; and feminist agendas and strategies for change. (Prerequisite: SOC 101 or ED 201 or permission of instructor. Next offered: 1993-94.)

**ED 450 3 Credits As Demand Warrants**
**Education and Cultural Transmission (3+0)**
Education as a process for transmitting culture with examination of issues related to cultural transmission in a multi-cultural environment. Emphasis on dynamics of cultural change. (Prerequisite: ED 330 and junior standing.)

**ED 451 1-9 Credits Fall, Spring**
**Practicum in Education**
Practical application of general ideas and techniques addressed in methods courses in which the student is currently enrolled or previously completed. (Prerequisites: ED 201, 330, 402 or equivalent; concurrent enrollment permitted with ED 402; permission of instructor.)

**ED 452 12 Credits Fall, Spring**
**Elementary Student Teaching (1+33)**
Supervised teaching in elementary schools approved by the department of education. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

**ED 453 12 Credits Fall, Spring**
**Secondary Student Teaching (1+33)**
Supervised teaching in secondary schools approved by the department of education. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

**ED 454 12 Credits Fall, Spring**
**Student Teaching K-12 (1+33)**
Supervised teaching in both elementary and secondary schools approved by the department of education. Open only to Music and P.E. majors seeking K-12 certification or to graduate students seeking K-12 small school certification. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

**ED 456 3 Credits Summer**
**Orientation to Teaching in Rural Alaska (2+3)**
Needs of rural schools, their environments and the recipients of school services with special attention given to cross-cultural educational issues. (Prerequisite: Permission of instructor.)

**ED 462 3 Credits Fall**
**Alaskan Environmental Education (3+0)**
**(Same as NRM 462)**
Utilization of the environment inside and outside the formal classroom in all subject areas. Curriculum materials (K-12), interpretive and audiovisual aids, problem solving, and applications to situations from the public schools to summer campus, short courses, and workshops for individuals of any age. (Prerequisite: Junior standing or permission of instructor.)

**ED 465 3 Credits Fall**
**Working with FAS/FAE Children (2+4)**
For families of children with FAS/FAE and professionals - teachers, social workers, and health workers who deal with these children. Guest speakers, interviews, and reading materials. Project is the development of activities to use with these children with FAS/FAE. Access to work in a school setting required. (Not available on Fairbanks campus.)

**ED 470 3 Credits As Demand Warrants**
**Human Resource Development (3+0)**
Strategies and approaches which emphasize mobilization and utilization of human resources within general processes of socio-economic change and development in historical and cross-national contexts. (Prerequisite: Junior standing.)

**ED 473 3 Credits Spring**
**Marine Education (3+0)**
Instructional techniques and methods for integrating marine and freshwater programs into schools and communities using elementary level Alaska Sea Week Curriculum Guides, plus secondary level materials. Survey of marine biology, oceanography, fisheries, birds, marine mammals, freshwater ecology and the social and political implications of coastal and river issues. (Prerequisites: BIOL 105, 106 and MSL 111 or its equivalent.)

**ED 475 3 Credits Alternate Spring**
**LOGO: A Computer Language for Teachers (3+0)**
The study of the use of the LOGO language with Apple computers including the implications of this language for education its use in the curriculum. (Prerequisite: Upper division undergraduate or certified teacher status. Next offered: 1993-94.)

**ED 490 3 Credits Fall, Spring**
**Curriculum Development in Cultural Perspective (3+0)**
Issues in development of curriculum programs and materials in a cross- cultural environment. Emphasis on process, context, and content as well as curriculum change and evaluation strategies. Students work on a curriculum development project applicable to their individual circumstances.
(Prerequisite: ED 330.)

**ED 580 1 Credit As Demand Warrants**
**Wildlife and Wetlands Curricula (1+0)**
Wildlife education curricula, focusing on strategies for teaching biological and ecological concepts related to the goose populations which nest in the Yukon-Kuskokwim delta; strategies for teaching students the value of wetlands as wildlife habitat, migration, how wildlife becomes endangered and extinct and ways to develop a sense of personal responsibility and decision-making skills about wildlife.

**ED 582 4 Credits Fall**
**Teaching as Reflective Inquiry (3+3)**
Reflective inquiry into the social organization and cultures of large and small schools. Motivations of teachers and stages of professional development. Context of teaching: legal framework, school finance, history of American education and education in Alaska. Materials fee: $30.00 for any combination of ED 582, 583, and 584. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

**ED 583 8 Credits Fall**
**Teaching as Decision-Making and Invention (4+0+8)**
Considers educational purposes of the curriculum. Study of methods and research concerning teaching of major subject areas. Exploration of lesson design, curriculum development, social organization of classroom, evaluation and testing, and needs of special students in multicultural contexts. Materials fee: $30.00 for any combination of ED 582, 583, and 584. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

**ED 584 3 Credits Fall**
**Practicum: Teaching in Small and Large Schools (0+6)**
Accompanies ED 583 and serves as laboratory where students can explore concepts and methods of teaching. Students observe, assist teachers, and prepare lessons in the public schools. Should be taken concurrently with ED 583. Materials fee: $30.00 for any combination of ED 582, 583, and 584. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

**ED 585 3 Credits Spring**
**Reflective Inquiry into Multicultural Classrooms and Communities (1+6)**
A field-delivered course which accompanies student teaching. A structured opportunity for student teachers to reflect on the cultures of the communities in which they are teaching and the social organization of their classrooms. Students do research on the economy and political organization of the community in which they are teaching and the responses of their students to alternative motivational and pedagogical approaches. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

**ED 586 3 Credits Spring**
**Designing Learning Environments (2+3)**
This culminating course of the TFA program involves directed fieldwork projects and brings together the student cohort group for a seminar at the conclusion of their student teaching experience. The full-week seminar features analysis and discussion of their classroom and community experience during student teaching with additional study of issues which students found troubling and problematic. Students develop "cases" of their own student teaching experience which they discuss with the seminar group. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)

**ED 601 3 Credits Fall**
**Introduction of Applied Social Science Research (3+0)**

**ED 603 3 Credits Spring**
**Field Study Research Methods (3+0)**

**ED 610 3 Credits Alternate Fall**
**Education and Cultural Processes (3+0)**

**ED 611 3 Credits As Demand Warrants**
**Learning, Thinking, and Perception in Cultural Perspective (3+0)**

**ED 612 3 Credits Alternate Spring**
**Cultural and Philosophical Foundations of Education (3+0)**

**ED 615 3 Credits Alternate Spring**
**Social Organization of Classrooms and Learning (3+0)**

**ED 616 3 Credits As Demand Warrants**
**Education and Socio-Economic Change (3+0)**

**ED 618 3 Credits As Demand Warrants**
**Higher Education: Basic Understandings (3+0)**

**ED 620 3 Credits Alternate Fall**
**Language, Literacy and Learning (3+0)**

**ED 621 3 Credits Alternate Spring**
**Cultural Aspects of Language Acquisition (3+0)**

**ED 630 3 Credits Alternate Fall**
**Curriculum Theory (3+0)**

**ED 631 3 Credits Alternate Fall**
**Small Schools Curriculum Design (3+0)**

**ED 633 3 Credits As Demand Warrants**
**Computer Tools for Teachers: Word Processing and Telecommunications (1+6)**

**ED 635 3 Credits As Demand Warrants**
**Strategies for Cooperating Teachers (3+0)**

**ED 636 3 Credits As Demand Warrants**
**The Improvement of Elementary Teaching (3+0)**

**ED 640 3 Credits Alternate Spring**
**Gender and Education (3+0)**
**(Same as ED 440 and WMS 440)**

**ED 645 3 Credits Summer**
**Small Schools Institute (2+3)**

**ED 660 3 Credits Fall**
**Educational Administration in Cultural Perspective (3+0)**

**ED 661 3 Credits Fall**
**Organizational Theory for School Administration (3+0)**

**ED 662 3 Credits Spring**
**Educational Leadership in the School and Community (3+0)**

**ED 663 3 Credits Fall**
**School Law (3+0)**

**ED 674 3 Credits Spring**
**Program Planning and Management (3+0)**

**ED 675 3 Credits Spring and Summer**
**Preinternship Management Practicum (3+0)**

**ED 676 3 Credits Fall, Spring**
**Internship: Principal's Endorsement (0+9)**

**ED 677 3 Credits As Demand Warrants**
**Public School Finance (3+0)**

**ED 679 3-6 Credits Fall, Spring**
**Internship: Superintendent's Endorsement (0+9)**

**ED 680 3 Credits Fall**
**Comparative Education (3+0)**
**(Same as NORS 680)**

**ED 689 3 Credits Fall**
**Proseminar in Applied Research (1+6)**

**ED 690 3 Credits Alternate Spring**
**Seminar in Cross-Cultural Studies (3+0)**

**ED 691 3 Credits As Demand Warrants**
**Contemporary Issues in Education (3+0)**

# Electrical Engineering

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

**EE 102 3 Credits Spring**
**Introduction to Electrical Engineering (3+0)**
Basic modern devices, concepts, technical skills, and instruments of electrical engineering. (Corequisite: MATH 200.)

**EE 203 4 Credits Fall**
**Electrical Engineering Fundamentals I (3+3)**
Analysis of alternating-current circuits using complex notation and phasor diagrams, resonance, transformers, Laplace analysis, the complex frequency plane, and three-phase circuits. Introduction to network and system analysis. Laboratory fee: $25.00. (Prerequisites: MATH 200, EE 102.)

**EE 204 4 Credits Spring**
**Electrical Engineering Fundamentals II (3+3)**
Electronics of vacuum and solid state devices, amplifier design, digital circuits, energy conversion, electromechanics, control systems, and instrumentation. Laboratory fee: $25.00. (Prerequisite: EE 203.)

**EE 303 4 Credits Fall**
**Electrical Machinery (3+3)**
Electromechanical energy conversion principles, characteristics and applications of transformers, DC machines, synchronous and induction machines. Introduction to electric power systems. Laboratory fee: $25.00. (Prerequisite: EE 204.)

**EE 311 3 Credits 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 the wave equation to engineering systems. (Prerequisites: PHYS 212, 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, 331, 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 analysis of waveguides, cavity resonators, transmission lines, antennas, and radio propagation. Laboratory fee: $25.00. (Corequisite: EE 312.)

**EE 333W 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, ENGL 211x or 213x.)

**EE 334 4 Credits Spring**
**Electronic Circuit Design (3+3)**
Application of semiconductor devices in circuit design in computation, automatic control, and communication. Laboratory fee: $25.00. (Prerequisite: EE 333.)

**EE 341 4 Credits 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, 8 and 16 bit microprocessor organization, operation and programming, and central processor unit microprogrammable bit slice devices. Laboratory fee: $25.00. (Prerequisite: EE 341.)

**EE 353 3 Credits 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, power flow, and computer-aided power flow analysis. Laboratory fee: $25.00. (Prerequisite: EE 303.)

**EE 406 4 Credits Fall**
**Electrical Power Engineering (3+3)**
Symmetrical and unsymmetrical faults, protective relaying, economic operation of power systems, dynamic power system stability, and computer aided fault and transient stability analysis. Laboratory fee: $25.00. (Prerequisite: EE 404 or equivalent.)

**EE 434WO(p) 4 Credits Spring**
**Instrumentation Systems (3+3)**
Analysis and design of instrumentation systems: static and dynamic characteristics; accuracy, noise, reliability; sensors; signal conditioning; typical measurement systems. Laboratory fee: $25.00. (Prerequisites: EE 334, 354, 442 and senior standing.)

**EE 442 4 Credits Fall**
**Digital Systems Analysis and Design I (3+3)**
Combinational and sequential logic implementation with Medium Scale Integration (MSI) Algorithmic State Machine (ASM) design and implementation with Medium and Large Scale Integration (MSI/LSI) and microprocessors; Central Processor Unit (CPU) analysis and implementation with microprogrammable, "bit-slice" hardware; basic microcomputer input/output (I/O); digital data transmission techniques. Laboratory fee: $25.00. ** (Prerequisites: EE 204, 333; EE 333 may be taken concurrently.) **Note: A student registering for both EE 442 and 443 will be assessed a fee of $150.00 at the beginning of the fall semester for EE 442. The $150.00 fee does not apply to a student registering for only EE 442; however, a student who does not take EE 442 at UAF, but who enrolls in EE 443 will be assessed the $150.00 fee at the time of registration. In all cases, the $150.00 fee is in addition to the standard $25.00 lab fees.

**EE 443 4 Credits Spring**
**Digital Systems Analysis and Design II (3+3)**
Microcomputer interfacing; timing/transmission line effects in logic design; analog-digital and digital-analog converters; basic digital filtering with microcomputers; 8 bit and 16 bit microprocessor organization, operation and programming; computer peripherals; digital signal processing hardware. Laboratory fee: $25.00.** (Prerequisite: EE 442.)

**EE 451 4 Credits Fall**
**Digital Signal Processing (3+3)**
Discrete Fourier Transform (DFT) analyses and applications; FFT implementations; discrete convolution/correlation/statistical theory with application; errors and noise analysis; FIR/IIR filter design and implementation techniques. Laboratory fee: $25.00. (Prerequisite: EE 354 or equivalent.)

**EE 454WO(t) 4 Credits Spring**
**Advanced Digital Systems Application and Design (3+3)**
Techniques in the areas of high speed signal processing, process control and data transmission. Emphasis on recent development and custom design. Laboratory fee: $25.00. (Prerequisites: EE 354, EE 442 and senior standing.)

**EE 461 4 Credits Fall**
**Communication Systems (3+3)**
Theory design and implementation of communication systems. Measurement of modulation, noise, channel spectrum, satellite link budget, and microwave path design. Laboratory fee: $25.00. (Prerequisites: EE 354 and senior standing.)

**EE 464WO(t) 3 Credits Spring**
**Communication Networks (3+0)**
Design of voice and data networks. Traffic measurement, network topology, circuit sizing, and network performance measures. Tariffs and economic considerations. Cost-performance relationships. (Prerequisites: EE 354 and senior standing.)

**EE 471 4 Credits Spring**
**Fundamentals of Automatic Control (4+0)**
Linear system representation by transfer functions and state variables. Feedback, time and frequency response of linear systems. Identification. Controllability and observability. Stability by Routh-Hurwitz criterion and frequency plane methods. Specifications of higher order linear systems. System design and compensation; introduction to sampled data systems. (Prerequisites: EE 353 and MATH 302.)

**EE 603 3 Credits As Demand Warrants**
**Advanced Electric Power Engineering (3+0)**

**EE 604 3 Credits As Demand Warrants**
**Electric Power System Modeling and Transients (3+0)**

**EE 610 3 Credits Alternate Fall**
**Linear Systems (3+0)**

**EE 632 3 Credits As Demand Warrants**
**Quantum Electronics (3+0)**

**EE 635 3 Credits As Demand Warrants**
**Advanced Electronic Circuit Design (3+0)**

**EE 643WO(t) 4 Credits Fall**
**VLSI in Computer System Design (3+3)**

**EE 644 2 Credits Spring**
**VLSI Fabrication and Testing Practicum (1+3)**
**(Same as CS 644)**

**EE 652** 3 Credits — Alternate Spring
**Adaptive Systems and Neural Networks (3+0)**

**EE 656** 3 Credits — Alternate Spring
**Space Systems Engineering (3+0)**

**EE 662** 3 Credits — As Demand Warrants
**Communication Theory (3+0)**

**EE 664** 3 Credits — As Demand Warrants
**Data Communication Techniques (3+0)**

**EE 668** 3 Credits — As Demand Warrants
**Microwave Systems Engineering (3+0)**

**EE 669** 3 Credits — As Demand Warrants
**Radiowave Propagation (3+0)**

**EE 671** 3 Credits — As Demand Warrants
**Digital Control Systems (3+0)**

## Electronics Technology

**ELT 101** 4 Credits — As Demand Warrants
**Basic Electronics: DC Physics (3+0)**
Basic terms and units. Use of test equipment, hand tools and techniques of soldering. Ohm's law, fundamentals of magnetism, DC circuit analysis, inductance and capacitance in DC circuits.

**ELT 102** 4 Credits — As Demand Warrants
**Basic Electronics: AC Physics (3+0)**
Principles of alternating current, vectors, phase relationships, inductive and capacitive reactance, and impedance. AC circuit analysis, series and parallel resonant circuits. Transformers, network analysis.

**ELT 108** 3 Credits — As Demand Warrants
**Arithmetic for DC Circuits (3+0)**
Review of arithmetic. Selected topics in algebra, trigonometry, graphs, analytic geometry, waveform analysis and decibel calculations. Calculations necessary for DC theory and continued study of electronics.

**ELT 109** 3 Credits — As Demand Warrants
**Arithmetic for AC Circuits (3+0)**
Selected topics in algebra, trigonometry, graphs analytic geometry, waveform analysis and decibel calculations. Calculations necessary for AC theory and continued study of electronics.

**ELT 111** 1-3 Credits — As Demand Warrants
**Amateur Radio Licensing (1-3+0)**
Overview of amateur radio. Code and radio theory provided for the Novice and General Amateur License Examination. Community emergency communications, net operations, repeaters, and public classroom applications for those already licensed.

**ELT 122** 3 Credits — As Demand Warrants
**Introduction to Electronic Devices (3+0)**
Fundamentals of vacuum tubes and transistors. Emphasis on types of construction, interpretation of design parameters and applicability to electronic circuits.

**ELT 123** 3 Credits — As Demand Warrants
**Electronic Circuit Fundamentals (3+0)**
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 — As Demand Warrants
**National Electric Code Study (3+0)**
Systematic study of the National Electric Code and rules governing minimum requirements for installation of electrical services, feeders and branch circuits and requirements for construction and installation of electrical equipment.

## Emergency Medical Technology

**EMS 103** 3 Credits — Fall, Spring
**Emergency Trauma Training First Responder (3+0)**
Designed to provide basic emergency care knowledge and skills to the student who will provide the first emergency care. The objective of the first person on the emergency scene will be to recognize the needs of the victim and deliver quality care to the patient, minimizing discomfort and preventing further complications. Materials fee: $15.00.

**EMS 105** 1 Credit — Fall, Spring
**Emergency Trauma Training Refresher (1+0)**
For individuals who have been previously certified in Emergency Trauma Training (40 hrs). Certification is valid for two years. Materials fee: $15.00. (Prerequisite: EMS 103 or ETT Certification which may not be expired more than one calendar year.)

**EMS 119** 6 Credits — Fall, Spring
**EMT: Emergency Medical Technician I (5+3)**
Techniques to administer life-saving first aid and operate an ambulance. Upon successful completion of this course, the student will meet the Alaska requirements for certification as an Emergency Medical Technician. Materials fee: $50.00.

**EMS 124** 1 Credit — As Demand Warrants
**EMT: Emergency Medical Technician Refresher (1+0)**
Review of basic skills and emergency medical procedures at the Basic EMT 1, 2 or 3 level. Covers emergency medical care procedural changes, newly developed equipment and its use, changes in State licensure or other medico- legal requirements. Materials fee: $50.00. (Prerequisite: EMT 1, 2 or 3 certification that may not be expired more than one calendar year.)

**EMS 230** 3 Credits — As Demand Warrants
**EMT: Emergency Medical Technician II (3+0)**
Improvement of EMT skills in trauma intervention for the seriously injured patient through advanced techniques in fluid therapy. Use of MAST pants, utilization of specific drug therapy and advanced airway care covered. Materials fee: $115.00. (Prerequisite: EMT 1 certification as described in State EMT regulations; 7AAC26.010.)

**EMS 231** 2 Credit — As Demand Warrants
**Emergency Medical Technician III (1.5+1.5)**
Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal arrythmias, use of defibrillator monitor, use of morphine, lidocaine, and epinephrine 1:1000. Recognition and treatment of extremity pain due to isolated trauma. Materials fee: $40.00. (Prerequisite: EMT 2 certification as described in State EMT regulations; 7AAC26.010.)

**EMS 247 A, B** 2 Credits — As Demand Warrants
**Arctic Survival (1+2)**
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 practicum; students must take lecture portion to be eligible for practicum.

## Engineering and Science Management

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

**ESM 401** Credits Arr. — 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. Laboratory fee: $20.00.

**ESM 450W** 3 Credits* — Fall, Spring
**Economic Analysis and Operations (3+0)**
Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics, and human relations. Laboratory fee: $20.00. (Not offered for credit toward the Master of Science in Engineering Management or Science Management. Prerequisites: ES 201 and senior standing in engineering or permission of instructor. Undergraduate engineering students who are taking graduate ESM courses as technical electives should have completed or be concurrently enrolled in ESM 450.) *2 Credits meet the writing intensive requirement for the core curriculum.

**ESM 601** 3 Credits — Fall
**Engineers in Organizations (3+0)**

**ESM 605** 3 Credits — Fall
**Engineering Economy (3+0)**

**ESM 608** 3 Credits — Fall
**Legal Principles for Engineering Management (3+0)**

**ESM 609** 3 Credits — Alternate Fall
**Project Management (3+0)**

**ESM 620** 3 Credits — Every Third Semester
**Statistics for ESM (3+0)**

**ESM 621** 3 Credits — Spring
**Operations Research (3+0)**

**ESM 623 3 Credits Fall, Spring**
**Computer Programming for Engineering Managers (3+0)**

**ESM 684 3 Credits Spring and Fall**
**Engineering Management Project (3+0)**

## Engineering Science

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

**ES 101 2 Credits Fall, Spring**
**Introduction to Engineering (1.5+2)**
Overview of the engineering profession and introduction to the fields of engineering. Basic concepts from engineering, physics and mathematics applied to engineering problem solving. Basic skills required of engineers, including an introduction to engineering communications: word processing, descriptive geometry, orthographic and isometric drawings, graphs, computer graphics and computer aided drawing (CAD). Laboratory fee: $25.00. (Prerequisite: MATH 107; Corequisite: MATH 108 or calculus placement.)

**ES 201 3 Credits Fall, Spring**
**Computer Techniques (2+3)**
Basic computer programming, in FORTRAN and BASIC, with applications from all fields of engineering. Laboratory fee: $10.00. (Prerequisites: MATH 107 and 108 or enrollment in MATH 200.)

**ES 208 4 Credits Spring**
**Mechanics (3+3)**
Engineering-oriented coverage of statics and dynamics. Vector methods used where appropriate. (Prerequisites: ES 101, MATH 201, and PHYS 211.)

**ES 209 3 Credits Fall, Spring**
**Statics (3+0)**
Force systems in two and three dimensions. Composition and resolution of forces and force systems; principles of equilibrium applied to various bodies, simple structures, friction, centroids, moments of inertia. Vector algebra used where appropriate. (Prerequisites: ES 101 and MATH 201; corequisite: PHYS 211.)

**ES 210 3 Credits Fall, Spring**
**Dynamics (3+0)**
Motion of particles, kinematics and kinetics of plane motion of rigid bodies, and principles of work and energy, impulse and momentum. Vector methods used where appropriate. (Prerequisite: ES 209.)

**ES 301 3 Credits Fall**
**Engineering Analysis (3+0)**
Application of mathematical tools to typical engineering design problems. Selected topics from all fields of engineering. (Prerequisites: MATH 302, ES 210.)

**ES 307 3 Credits Fall**
**Elements of Electrical Engineering (2+3)**
Elementary circuits and theorems, natural, forced and steady state response, principles of electronics, circuit models and system parameters, and characteristics of AC and DC machines. Laboratory fee: $25.00. (Prerequisite: MATH 202 or permission of instructor.)

**ES 308 3 Credits Spring**
**Instrumentation and Measurement (2+3)**
Instrumentation theory and concepts of digital and analog devices, transducers, data sensing transmission, recording, and display, instrumentation system, remote sensing, and hostile environmental conditions. Laboratory fee: $25.00. (Prerequisite: ES 307.)

**ES 331 3 Credits Fall, Spring**
**Mechanics of Materials (2+3)**
Analysis of internal forces in members subjected to axial, torsional, and flexural loads, singly and in combination. Stress-strain relationships and material property definitions; shear and moment diagrams, Mohr's Circle. Applications include beams, columns, connections, indeterminate cases. (Prerequisites: ES 208 or 209 and MATH 201.)

**ES 334 3 Credits Fall**
**Elements of Material Science/Engineering (2+3)**
**(Same as ME 334)**
Properties of engineering materials. Crystal structure, defect structure, structure and properties, aspects of metal processing, heat treatment, joining, testing, and failure analysis for engineering applications and design. (Prerequisites: CHEM 106 and PHYS 212.)

**ES 341 4 Credits Fall, Spring**
**Fluid Mechanics (3+3)**
Statics and dynamics of fluids; energy and momentum principles. dimensional analysis; flow in open channels, closed conduits and around submerged bodies. Laboratory fee: $25.00. (Prerequisites: MATH 201 and ES 208 or 210.)

**ES 346 3 Credits Fall, Spring**
**Basic Thermodynamics (3+0)**
Thermodynamic systems, properties, processes, and cycles. Fundamental principles of thermodynamics (first and second laws), and elementary applications. (Prerequisites: MATH 201 and PHYS 211.)

**ES 429 3 Credits Fall**
**Ethics and Liability in Professional Practice (2+3)**
The professional, moral, ethical, and legal responsibilities of a professional in today's society and workplace. (Prerequisite: Senior or graduate standing or consent of instructor.)

## English

The written communication requirement for any baccalaureate degree is the successful completion of ENGL 111X and ENGL 211X or 213X or equivalent.

### DEVELOPMENTAL ENGLISH

**DEVE 060 3 Credits As Demand Warrants**
**Elementary Exposition (3+0)**
Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination.

**DEVE 068 1-3 Credits Fall, Spring**
**English Skills Laboratory (0+3-9)**
Individualized instruction in language skills. Open entry/open exit, one credit lab modules in spelling/vocabulary, writing, and grammar usage. Enrollment in one or more based on diagnosed need or desire; may be repeated. Counts as elective credit only; does not fulfill degree requirements in written communications or humanities.

**DEVE 070 3 Credits As Demand Warrants**
**Preparatory College English (3+0)**
Instruction in writing to improve students' fluency and accuracy and communication skills. Preparation for ENGL 111. Placement by examination or student decision. Materials fee: $0.00-5.00. A student may elect to fulfill one half of the composition requirement by completing credit by examination in one of the required English courses. Permission of the Director of Communications in the English Department is required to begin all challenge procedures. Required composition courses may also be taken through University of Alaska Fairbanks correspondence study.

### ENGLISH

**ENGL 104 3 Credits As Demand Warrants**
**Institute on Language, Thought and Culture (3+0)**
Development of critical thinking, writing, and reading skills using the Bard College model. The intensive Institute establishes and nurtures learning communities which support bold thinking, risk-taking, collaboration, and independence. Offered only at the Kuskokwim Campus.

**ENGL 111X 3 Credits Fall, Spring**
**Methods of Written Communication (3+0)**
Expository prose, including topic development. Practice in developing, organizing, writing, revising, and editing compositions. Materials fee: $8.00. Also available via Independent Learning. (Prerequisite: Placement examination or DEVE 070.)

**ENGL 190H 3 Credits Fall, Spring**
**Honors English Composition (3+0)**
Extensive readings in a variety of disciplines. Frequent writing assignments addressing a wide range of topics for specific purposes and audiences. Emphasis upon writing as a tool for learning across the curriculum. ENGL 190H may be substituted for ENGL 111X. (Prerequisite: Admission to the Honors Program or recommendations of instructor.)

**ENGL 200X 3 Credits Fall, Spring**
**World Literature (3+0) h**
**(Same as FL 200X)**
Introduction to the reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, storytelling and drama. Students will gain an understanding of cultural differences and universals in text from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Course may be repeated for credit when content varies. Materials fee: $8.00. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 211X 3 Credits Fall, Spring**
**Intermediate Exposition, with Modes of Literature (3+0)**
Instruction in writing through close analysis of literature. Research paper required. Materials fee: $8.00. Also available via Independent Learning. (Prerequisites: Sophomore standing and completion of ENGL 111X or its equivalent.)

**ENGL 212 3 Credits As Demand Warrants**
**Business, Grant, and Report Writing (3+0)**
Forms and techniques of business, grant, and report writing. (Special emphasis may be placed on one or another of these topics in a given semester.) Does not fulfill the second half of the baccalaureate requirements in written communication. (Prerequisite: ENGL 111X.)

**ENGL 213X 3 Credits Fall, Spring**
**Intermediate Exposition (3+0)**
Instruction in writing through close analysis of expository prose from the social and natural sciences. Research paper required. Materials fee: $8.00. (Prerequisites: Sophomore standing and completion of ENGL 111X or its equivalent.) NOTE: Neither ENGL 211X nor ENGL 213X can be used as a prerequisite for any other course or for any particular course of study. However, either one of them will fulfill the second half of the requirement in written communication for the baccalaureate degree. A student who has taken one of these courses before declaring a major in which the other course may be considered more appropriate, or a student who changes major from a field in which one of these courses is considered more appropriate than the other, will not be required to take the other course.

**ENGL 215 3 Credits Spring**
**Introduction to Poetry (3+0) h**
Analysis and appreciation of the various kinds of writing in verse (lyric, narrative, and other poetry), including the terminology used to describe poetic techniques. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 216 3 Credits Fall, Spring**
**Introduction to Fiction (3+0) h**
Analysis and appreciation of selected novels and short stories, including the terminology used to describe fictional techniques. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 217 3 Credits Spring**
**Introduction to the Study of Film (2+2) h**
**(Same as JB 217)**
An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects. (Prerequisite: ENGL 111X.)

**ENGL 218 3 Credits Spring**
**Themes in Literature (3+0) h**
Exploration of literary themes in various genres of literature, including fiction, poetry and drama. Such themes as "Women in Literature," "Literature of the North," and "Detective Stories in Literature and Film" may be offered. Specific theme is announced at registration. Course maybe repeated for credit when content varies. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 219 3 Credits As Demand Warrants**
**Aleut Narrative Art (3+0) h**
Introduction to and survey of the oral and written literature of the Unangan, the Aleut people. All works in English translation, though some supplementary materials in the Aleut language (eastern and western dialects). Offered at the Aleutian campus. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 230 3-7 Credits Fall**
**ENGL 231 3-7 Credits Spring**
**English Language Proficiency (3+Var.)**
Intensive listening, speaking, reading, and writing in English. Especially recommended for all students for whom English is a foreign language. These courses do not meet general degree requirements in written communications and are not classified as humanities. (Prerequisites: Open only to students for whom English is a foreign language. Permission of instructor required.)

**ENGL 271 3 Credits Fall, Spring**
**Introduction to Creative Writing - Fiction (3+0) h**
Forms and techniques of fiction for beginning students; discussion of students' work in class and in individual conferences. Materials fee: $10.00. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 272 3 Credits Fall**
**Introduction to Creative Writing - Poetry (3+0) h**
Forms and techniques of poetry for beginning students; discussion of students' work in class and in individual conferences. Materials fee: $5.00. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 290H 2 Credits Fall**
**Summer Reading Program (Honors) (2+0) h**
Selected readings in a variety of disciplines. Group discussions and written responses to the readings follow in the fall. Students keep a summer journal. May be repeated for credit. (Prerequisite: ENGL 111X or enrollment in the Honors Program.)

**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,* Bible, Dante: the classical background out of which western literary tradition has risen. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 306 3 Credits Spring**
**Survey of American Literature (3+0) h**
American thought as reflected in its major writers, including works representative of American Calvinism, Rationalism, Transcendentalism, Romanticism, Realism, Naturalism, and Modernism. (Prerequisite: ENGL 111X or permission of instructor.)

**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 Elizabethan period (Shakespeare), Restoration, and Neoclassic Period of the 18th Century. (Prerequisite: ENGL 111X or permission of instructor.)

**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 111X or permission of instructor.)

**ENGL 310 3 Credits Spring**
**Literary Criticism (3+0) h**
History and principles of literary criticism, from earliest days to present. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 313W 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. Course does not fulfill the second half of the general degree requirement in written communication. (Prerequisites: Junior standing, ENGL 211X or 213X or permission of instructor.)

**ENGL 314W 3 Credits Fall, Spring**
**Technical Writing (2+0+1) h**
Writing business letters (letters of inquiry, complaint, evaluation, and job application with resume), preparing tables, graphs, process descriptions, technical instructions, abstracts, grant proposals, and technical reports (progress, laboratory, survey, incident, inspection, feasibility, and research). Course does not fulfill the second half of the requirement in written communication. Materials fee: $8.00. (Prerequisites: Junior standing and ENGL 211X or 213X or permission of instructor).

**ENGL 318 3 Credits Fall, Spring**
**Modern English Grammar (3+0) h**
Structure of current English as seen through traditional and contemporary grammatical theories. (Prerequisite: English 111X or permission of instructor.)

**ENGL 333 3 Credits Spring**
**Women's Literature (3+0) h**
**(Same as WMS 333)**
Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period, or genre, but readings will include both primary and secondary texts. (Prerequisite: ENGL 111X; ENGL 211X recommended.)

**ENGL 340 3 Credits Fall**
**Contemporary Native American Literature (3+0)h**
**(Same as ANS 340)**
Contemporary Native American writing in English, including novels, short stories, poetry, and plays. Examples of Native American film when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 349 3 Credits Fall**
**Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h**
**(Same as ANS 349)**
Traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 350 3 Credits Alternate Spring**
**Literature of Alaska and the Yukon Territory (3+0) h**
Representative fiction, verse, and non-fiction dealing with Alaska and the Yukon Territory. Also available via Independent Learning. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1994-95.)

**ENGL 371WO(p) 3 Credits Fall, Spring**
**Intermediate Creative Writing (3+0) h**
Practice and guidance in writing fiction, poetry, drama, or essays. Students' work read and discussed in class and in conference with the instructor. Close study of the techniques of established writers. Materials fee: $10.00. (Prerequisite: ENGL 271 or ENGL 272 or permission of instructor.)

**ENGL 403WO(g) 3 Credits Every Third Spring**
**American Renaissance (3+0) h**
American literature of the mid-nineteenth century: Poe through Whitman. (Prerequisite: ENGL 111X or permission of instructor. ENGL 306 recommended but not required. Next offered: 1994-95.)

**ENGL 404 3 Credits Every Third Spring**
**American Realism (3+0) h**
American literature from the Civil War to World War I: Twain through James. (Prerequisite: ENGL 111X or permission of instructor. ENGL 307 desirable but not required. ENGL 306 desirable but not required. Next offered: 1993-94.)

**ENGL 405 3 Credits Every Third Fall**
**British Writers of the 19th Century: Romantic Period (3+0) h**
English literary romanticism including authors such as Byron, Keats, Shelley, Coleridge, Wordsworth, Austen, the Bronte sisters, and Scott. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1993-94.)

**ENGL 406 3 Credits Every Third Fall**
**British Writers of the 19th Century: Victorian Period (3+0) h**
Impact of industrialization, social reformation, religious controversy, and philosophical attitudes on literature. Authors to include (but not limited to): Browning, Tennyson, Thackeray, Eliot, Arnold, Dickens, Hazlitt, Ruskin, and Meredith. (Prerequisite: ENGL 111X or permission of instructor. ENGL 309 desirable but not required. Next offered: 1994-95.)

**ENGL 407 3 Credits Every Third Spring**
**British Writers of the Restoration and 18th Century: Neo-Classical Period (3+0) h**
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, Swift, Pope, Johnson, Boswell, Goldsmith, and Sheridan. (Prerequisites: ENGL 111X and junior standing or permission of instructor. ENGL 308 recommended. Next offered: 1995-96.)

**ENGL 408 3 Credits Every Third Spring**
**American Origins. (3+0) h**
Writers who contributed to the development of a national literary identity: Bradstreet through Cooper. (Prerequisites: ENGL 111X and junior standing or permission of instructor. ENGL 306 recommended but not required. Next offered: 1994-95.)

**ENGL 414W 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. (Prerequisites: ENGL 111X and 211X or 213X 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 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1994-95.)

**ENGL 422W 3 Credits Fall**
**Shakespeare: History Plays and Tragedies (3+0) h**
Major chronicle plays and tragedies, including significant criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required.)

**ENGL 425W 3 Credits Spring**
**Shakespeare: Comedies and Non-Dramatic Poetry (3+0) h**
Major comedies and non-dramatic poems, including significant criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required.)

**ENGL 426 3 Credits Every Third Fall**
**Milton (3+0) h**
Major poetry and prose, and survey of Miltonian criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1993-94.)

**ENGL 444W 3 Credits Every Third Spring**
**Fiction in Translation (3+0) h**
Major fiction in English translation. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1994-95.)

**ENGL 445 3 Credits Alternate Fall**
**20th-Century Drama: From Chekhov to Ionesco (3+0) h**
The major dramatists and their achievements. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1994-95.)

**ENGL 446 3 Credits Alternate Spring**
**Major Modern and Contemporary Poetry (3+0) h**
Yeats to the present. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1993-94.)

**ENGL 447 3 Credits Alternate Fall**
**20th-Century British Prose (3+0) h**
Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1993-94.)

**ENGL 448 3 Credits Alternate Spring**
**20th-Century American Prose (3+0) h**
Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1994-95.)

**ENGL 452 3 Credits Every Third Fall**
**The British Novel to 1900 (3+0) h**
Origin and development of the novel with concentration on significant novelists from Daniel Defoe to Thomas Hardy. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1993-94.)

**ENGL 462 3 Credits Alternate Spring**
**Applied English Linguistics (3+0) h**
Topic(s) for each offering of the course are announced. Examples are teaching English as a second language, dialects and education, dictionaries, stylistics, and composition. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1993-94.)

**ENGL 471W 3 Credits Fall, Spring**
**Undergraduate Writers' Workshop (3+0) h**
Discussion of craft and techniques and student work. For advanced students who prepare a manuscript as a final project. May be repeated one time for credit. Materials fee: $10.00. (Prerequisite: ENGL 371 or permission of instructor.)

**ENGL 472 3 Credits Alternate Spring**
**History of the English Language (3+0) h**
Origin and development of the English language from prehistoric times to the present. (Prerequisite: ENGL 111X or permission of instructor. ENGL 318 or a linguistics course is desirable, but not required. Next offered: 1994-95.)

**ENGL 485 3 Credits Alternate Spring**
**Teaching Composition in the Schools (3+0)**
Theoretical background and workshop experience for teaching composition in middle and high schools with current pedagogy on teaching of writing stressed. Variety of teaching methods demonstrated, practiced and discussed. (Prerequisites: Completion of university composition requirement with grade of "B" or higher, or permission of instructor. Next offered: 1993-94.)

**ENGL 601 3 Credits Spring**
**Bibliography, Methods, and Criticism (3+0)**

**ENGL 603 3 Credits Every Third Fall**
**Studies in British Literature: Old and Middle English (3+0)**

**ENGL 604 3 Credits Alternate Fall**
**Studies in British Literature: Renaissance and 17th Century (3+0)**

**ENGL 606 3 Credits Alternate Fall**
**Studies in British Literature: Restoration and 18th Century (3+0)**

**ENGL 607 3 Credits Alternate Fall**
**Studies in British Literature: 19th Century (3+0)**

**ENGL 608 3 Credits Alternate Spring**
**Studies in Modern British Literature (3+0)**

**ENGL 609 3 Credits Alternate Spring**
**Studies in American Literature: Colonial Period and 19th Century (3+0)**

**ENGL 612 3 Credits Alternate Spring**
**Studies in Modern American Literature (3+0)**

**ENGL 615 3 Credits Alternate Spring**
**Contemporary Literature (3+0)**

**ENGL 620 3 Credits Alternate Fall**
**Images of the North (3+0)**
**(Same as NORS 620)**

**ENGL 651** 3 Credits — Alternate Spring
**Internship in Publishing (3+1)**

**ENGL 671** Credits Arr. — Fall, Spring
**Writers' Workshop**

**ENGL 673** 3 Credits — Fall
**Professional Writing Workshop (3+0)**

**ENGL 681** 3 Credits — Every Third Semester
**Forms of Poetry (3+0)**

**ENGL 682** 3 Credits — Every Third Semester
**Forms of Fiction (3+0)**

**ENGL 683** 3 Credits — As Demand Warrants
**Forms of Drama (3+0)**

**ENGL 684** 3 Credits — Every Third Semester
**Forms of Non-Fiction Prose (3+0)**

**ENGL 685** 3 Credits — Fall
**Teaching College Composition (3+0)**

**ENGL 687** 3 Credits — Alternate Spring
**Writing Professional Prose (3+0)**

**ENGL 688** 3 Credits — Alternate Spring
**Audiovisual Script Writing (3+0)**

**ENGL 689** 3 Credits — Alternate Fall
**Editing Prose (3+0)**

**ENGL 692** Credits Arr. — Fall, Spring
**Graduate Seminar**

# English as a Second Language

**ESLG 051** 1-3 Credits — As Demand Warrants
**Speaking English as a Second Language**
This class provides opportunity to engage in English conversation. For students who do not speak English as their first language, but who can understand and follow simple instructions in English. The emphasis is on large quantities of comprehensible English, and building student confidence in understanding and speaking it. May be repeated up to nine credits.

**ESLG 061** 1-3 Credits — As Demand Warrants
**Reading English as a Second Language**
Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English. May be repeated up to nine credits.

**ESLG 071** 1-3 Credits — As Demand Warrants
**Writing English as a Second Language**
This class provides an opportunity to develop skills at writing simple English compositions. For students whose first language is not English. The emphasis is on writing large quantities of English which is understandable to native English speakers, and on building students' confidence in communicating through written English. May be repeated up to nine credits.

# Environmental Quality Engineering/ Science

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

**EQS 201** 3 Credits — Spring
**Environmental Management (3+0) s**
Social processes which affect 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 used. Course integrated with and complements NRM 101.

**EQE 641** 3 Credits — Every Fifth Semester
**Environmental Quality Science Measurements (2+3)**

**EQE 642** 3 Credits — Every Fifth Semester
**Modeling for Environmental Management (3+0)**

**EQE 643** 3 Credits — Fall
**Air Pollution Management (4+0)**

**EQE 644** 3 Credits — Alternate Spring
**Environmental Management and Law (3+0)**

**EQE 645** 3 Credits — Every Fifth Semester
**Unit Processes - Chemical and Physical (3+0)**

**EQE 646** 3 Credits — Every Fifth Semester
**Unit Processes - Biological (3+0)**

**EQE 647** 3 Credits — Every Fifth Semester
**Biotechnology (3+0)**
**(Same as NRM 607)**

**EQE 648** 3 Credits — Every Fifth Semester
**Solid Waste Management (3+0)**

**EQE 649** 3 Credits — Every Fifth Semester
**Hazardous and Toxic Waste Management (3+0)**
**(Same as GE 649)**

**EQE 650** 3 Credits — Alternate Spring
**Advanced Hazardous Waste Management (3+0)**

# Eskimo

**ESK 101** 5 Credits — Fall
**ESK 102** 5 Credits — Spring
**Elementary Central Yup'ik Eskimo (5+0) h**
Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences.

**ESK 103** 1-3 Credits — As Demand Warrants
**ESK 104** 1-3 Credits — As Demand Warrants
**Conversational Central Yup'ik (1+3)**
Entry-level course to learn to speak and understand Yup'ik Eskimo. Focus on communication in everyday situations. Kuskokwim and Northwest Campuses only. (Prerequisite: ESK 103 for 104 or permission of instructor.)

**ESK 109** 3 Credits — As Demand Warrants
**Central Yup'ik Orthography (3+0)**
An entry level-class for persons fluent in Central Yup'ik. Covers reading, silent and oral, and writing, emphasizing specific skills and practical application of those skills through writing assignments. Dialect differences in the Central Yup'ik region are used to demonstrate standardization of the writing systems. (Prerequisite: Demonstrated conversational Yup'ik skills).

**ESK 111** 5 Credits — Fall
**ESK 112** 5 Credits — Spring
**Elementary Inupiaq Eskimo (5+0) h**
Introduction to Inupiaq, the language of Unalakleet, Seward Peninsula, Kotzebue Sound, and North Slope. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences.

**ESK 115** 1-3 Credits — As Demand Warrants
**ESK 116** 1-3 Credits — As Demand Warrants
**Conversational Inupiaq (1+3)**
Introductory course for students who wish to acquire the ability to speak Inupiaq, the language of Norton Sound, the Seward Peninsula, Kotzebue Sound, the North Slope, and the arctic portions of Canada and Greenland. Students first learn to understand simple spoken language, then to speak simple Inupiaq, developing a beginning level of communicative competence in the language. (Prerequisite: ESK 115 for 116.)

**ESK 118** 3 Credits — As Demand Warrants
**Inupiaq Orthography (3+0)**
Entry-level course designed for students who are fluent in Inupiaq. Silent and oral reading and writing. Emphasis on specific skills and practical application of skills through writing assignments. (Prerequisite: Demonstrated conversational Inupiaq skills.)

**ESK 130 3 Credits As Demand Warrants**
**Beginning Yup'ik Grammar (3+0) h**
Literacy and grammatical analysis of the Central Yup'ik language are introduced in this course. Both Yup'ik speakers and 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 Yup'ik 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. Northwest Campus only.

**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 instructor permission.) Northwest Campus only.

**ESK 201 3 Credits Fall**
**ESK 202 3 Credits Spring**
**Intermediate Central Yup'ik (3+0) h**
Continuation of ESK 101 and 102. Increasing emphasis on speaking, reading, and writing. (Prerequisite: ESK 102 or instructor permission.)

**ESK 203 3 Credits As Demand Warrants**
**Conversational Central Yup'ik III (3+0) h**
A continuation of ESK 103 and 104. Kuskokwim campus only. (Prerequisite: ESK 104 or instructor permission.)

**ESK 204 3 Credits As Demand Warrants**
**Conversational Central Yup'ik IV (3+0) h**
Continuation of ESK 203. Development of proficiency in the Central Yup'ik language, vocabulary for everyday situations, reading and writing.

**ESK 205 3 Credits As Demand Warrants**
**Regaining Fluency in Yup'ik (3+0) h**
Yup'ik speaking skills and fluency for those with some background in the language. (Prerequisite: Permission of instructor. Each potential student must be evaluated for language capabilities.)

**ESK 206 3 Credits As Demand Warrants**
**Regaining Fluency in Yup'ik II (3+0) h**
Continuation of ESK 205. Speaking skills and fluency for those with some background in the language. (Prerequisite: ESK 205 or permission of instructor. Each potential student must be evaluated for language capabilities.)

**ESK 208 3 Credits As Demand Warrants**
**Yup'ik Composition (3+0) h**
An examination of the development of written Yup'ik and exploration of writing for entertainment, information, transcription of oral narratives and note taking in meetings where Yup'ik is the dominant language. New writing styles are examined, rather than simply translating the standard categories of English composition. Students receive extensive practice in Yup'ik orthography and participate in the evaluation of each other's writings. (Prerequisite: ESK 109.)

**ESK 211 3 Credits Fall**
**ESK 212 3 Credits Spring**
**Intermediate Inupiaq Eskimo (3+0) h**
Continuation of Eskimo 111 and 112, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary. (Prerequisite: ESK 112 or instructor permission.)

**ESK 218 3 Credits As Demand Warrants**
**Inupiaq Composition (3+0)**
An examination of the development of written Inupiaq uses to entertain, inform, persuade, transcribe oral narratives and take notes on such occasions as city council meetings. Open to new genres, rather than simply translating the standard categories of English composition. Students receive extensive practice in the Inupiaq orthography and actively participate in evaluation of each other's writing (Prerequisite: ESK 118 or equivalent.)

**ESK 301 3 Credits Fall**
**Advanced Central Yup'ik Eskimo (3+0) h**
Continuation of ESK 201 and 202. Completes the basic study of the Central Yup'ik grammar. (Prerequisites: ESK 101, 102, 201, 202 or instructor permission.)

**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. Yup'ik dialectology. Study of related Eskimo languages from the standpoint of Central Yup'ik. Additional topics to be studied depending upon the interests of the students and the instructor. (Prerequisites: ESK 101, 102, 201, 202 or instructor permission.)

**ESK 417 3 Credits Spring**
**Advanced Inupiaq Eskimo (3+0) h**
Advanced study in Inupiaq Eskimo. Continuation of ESK 212. (Prerequisites: Completion of ESK 111, 112, 211, 212 or permission of instructor.)

## Fire Science

**FIRE 101 3 Credits Fall**
**Introduction to Fire Science (3+0)**
A course designed to inform students of career opportunities within municipal fire protection and related fields including history, nomenclature, fire department functions and the incident command system. Materials fee: $5.00.

**FIRE 105 3 Credits Spring**
**Fundamentals of Fire Prevention (3+0)**
Organization and function of fire prevention programs, inspections, surveying, mapping, recognition of fire and life safety hazards, fire protection engineering, public fire education and enforcement. Materials fee: $5.00. (Prerequisite: FIRE 101 or instructor permission.)

**FIRE 107 3 Credits Spring**
**Municipal Fire Tactics and Strategy (3+0)**
Principles of fire control through utilization of personnel, equipment and extinguishing agents. Materials fee: $5.00. (Prerequisite: FIRE 101 or instructor permission.)

**FIRE 110 3 Credits Fall**
**Introduction to Hazardous Waste Operations and Emergency Response (3+0)**
Survey of the Federal and State hazardous materials laws and regulations. General examination of the sciences and their interdisciplinary applications that are part of the field of hazardous materials. Materials fee: $5.00.

**FIRE 111 3 Credits Fall**
**Supervision and Management for Emergency Services (3+0)**
Review of management, organization, planning, and supervision to meet the needs of Emergency Services. Materials fee: $5.00. (Prerequisite: FIRE 101 or instructor permission.)

**FIRE 115 3 Credits Alternate Spring**
**Fire Apparatus and Equipment (3+0)**
Fire apparatus design, specifications and performance capabilities, effective utilization of apparatus in fire emergencies. Materials fee: $5.00. (Prerequisite: FIRE 101 or instructor permission. Next offered: 1994-95.)

**FIRE 117 3 Credits Spring**
**Rescue Practices I (3+0)**
Rescue situations and techniques including vehicle extrication, rescue carries, ventilation principles, structural rescue, use of portable hand and power tools, wildland/canine search and rescue, ice and water rescue and emergency life saving principles. Materials fee: $75.00. (Prerequisites: Advanced First Aid, EMS 103 or 119, or instructor permission. All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator.)

**FIRE 120 3 Credits Fall**
**Introduction to Fire Chemistry and Physics (3+0)**
Introduction to nomenclature, principles, problem solving of basic chemistry and physics as they relate to fire and hazardous material situations. Emphasis on problem solving and understanding how chemical and physical properties of materials and basic mathematics impact today's fire fighters. Materials fee: $5.00.

**FIRE 123 3 Credits Alternate Fall**
**Fire Investigation (3+0)**
Determining origin and cause of fires (mechanical, accidental, or incendiary) for structural, wildland and transportation incidents; fire effects on materials; related laws; recognizing and preserving evidence, interviewing witnesses and suspects, rules of arrest and detention procedures, and court discipline. Materials fee: $5.00. (Prerequisites: FIRE 101 and membership in a fire or law enforcement agency, or permission of instructor. Next offered: 1994-95.)

**FIRE 131 3 Credits Alternate Fall**
**Firefighter I, Series I (2+2)**
The initial phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: $75.00. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1994-95.)

**FIRE 133 3 Credits Alternate Spring**
**Firefighter I, Series II (2+2)**
The second phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: $75.00. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1994-95.)

**FIRE 135 3 Credits Alternate Fall**
**Firefighter I, Series III (2+2)**
The third phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: $75.00. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1993-94.)

**FIRE 137 3 Credits Alternate Spring**
**Firefighter I, Series IV (2+2)**
The final phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: $75.00. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1993-94.)

**FIRE 143 1 Credit Fall**
**Firefighter Internship, Series 1 (0+var)**
Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: $5.00.

**FIRE 145 1 Credit Spring**
**Firefighter Internship, Series 2 (0+var)**
Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: $5.00. (Prerequisite: FIRE 143.)

**FIRE 147 1 Credit Summer**
**Firefighter Internship, Series 3 (0+var)**
Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: $5.00. (Prerequisite: FIRE 145.)

**FIRE 151 3 Credits Spring**
**Wildland Fire Control I (3+0)**
Designed to provide national certification for both entry-level and experienced fire fighters with fundamental knowledge of wildland fire organization, fire behavior, air operations, suppression methods, safety, the incident command system, portable pumps, water use, and chain saws. Materials fee: $5.00.

**FIRE 155 3 Credits Alternate Spring**
**Wildland Fire Behavior (3+0)**
Provides fire behavior knowledge to determine basic input data for fire behavior calculations such as rate of spread, fire line intensity, flame length, and area/perimeter growth using fire behavior prediction systems. Prepare fire perimeter maps, assess and predict chances of extreme fire behavior conditions, assess fire line data and fire behavior estimations, identify fire suppression limitations, and make recommendations for fire line location and safe control tactics. Materials fee: $5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1994-95.)

**FIRE 157 3 Credits Alternate Fall**
**Wildland Air Operations and Safety (3+0)**
Basic use of aircraft in wildland fire operations including helicopter operations, types and capacities, helibase/helispot construction, logistics support and specialized missions. Fixed wing operations include establishment of air bases, retardant operations, aircraft fueling and paracargo support. Emphasis on aviation safety. Materials fee: $5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1993-94.)

**FIRE 159 3 Credits Alternate Fall**
**Wildland Fire Operations Function (3+0)**
Overview of the operations function including organization; implementation of the incident action plan; tactical use of crews, engines, bulldozers; appointment of supervisors in accordance with span of control; utilization of fixed wing and rotor wing aircraft. Functional positions of crew boss, staging area manager and strike team leader covered. Materials fee: $5.00. (Prerequisites: FIRE 151, 155, 157 and 254, or instructor permission. Next offered: 1993-94.)

**FIRE 161 3 Credits Alternate Fall**
**Wildland Fire Logistics Function (3+0)**
Overview of the support and service branches of the logistics function within the incident command system. Emphasis on entry-level positions of ordering manager, receiving and distribution manager, base camp manager, equipment manager, and medical unit leader. Materials fee: $5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1994-95.)

**FIRE 165 3 Credits Alternate Spring**
**Wildland Fire Planning Function (3+0)**
Provides an overview of the planning process, organizational relationships with other functions, use of planning matrix board, check-in and resource status procedures, evaluation, analysis and display of incident information, documentation, demobilization, use of technical specialist and components of an incident action plan. Materials fee: $5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1993-94.)

**FIRE 202 3 Credits Fall**
**Fire Hydraulics (3+0)**
Review of applied mathematics; hydraulic principles; applications of formulas and calculations; water supply and distribution. Materials fee: $5.00. (Prerequisites: FIRE 101 and satisfactory demonstration of basic math skills (pretest), or instructor permission.)

**FIRE 203 3 Credits Fall**
**Hazardous Materials I (3+0)**
Basic fire chemistry relating to most categories of hazardous materials. Problems of recognition, reactivity and health encountered by fire fighters. Meets the requirements of the 8-hour Awareness Level, First Responder to Hazardous Materials Incidents. Materials fee: $5.00. (Prerequisite: Satisfactory demonstration of basic chemistry knowledge (pretest) or instructor permission.)

**FIRE 205 3 Credits Spring**
**Hazardous Materials II (3+0)**
Chemistry review of common hazardous materials control, confinement and containment operations with an emphasis on decontamination procedures. Basic Incident Command System instruction. Meets the requirements of the 24-hour Operations Level, First Responder to hazardous materials incidents. Materials fee: $5.00. (Prerequisite: FIRE 203 or instructor permission.)

**FIRE 206 3 Credits Alternate Spring**
**Building Construction for Fire Protection (3+0)**
Fundamentals of building construction as it relates to fire protection. Materials fee: $5.00. (Prerequisite: FIRE 101 or employment or experience in related field, such as fire protection, insurance, construction architecture, or engineering. Next offered: 1994-95.)

**FIRE 207 3 Credits Fall, Spring**
**Hazardous Materials III (2+2)**
Advanced information for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the Hazardous Materials Technician level (EPA course #165.15). Materials fee: $75.00. (Prerequisite: FIRE 205 or permission of instructor.)

**FIRE 208 3 Credits Alternate Fall**
**Fire Service Records and Reports (3+0)**
Use of records and report systems. Involves knowledge and understanding of computers, ANFIRS reporting, maintenance of training, equipment apparatus records, writing reports, and managing documentation. Materials fee: $5.00. (Prerequisite: FIRE 101 or instructor permission. Next offered: 1993-94.)

**FIRE 209 3 Credits Fall, Spring**
**Hazardous Materials IV (3+0)**
Preparation for Incident Commander as the Safety Officer positions on complex hazardous materials incidents or large site cleanup operations. Materials fee: $5.00. (Prerequisite: FIRE 207 or instructor permission.)

**FIRE 212 3 Credits Alternate Fall**
**Building and Fire Codes (3+0)**
Introduction to life safety aspects of Uniform Building Code. Emphasis on Uniform Fire Code for fire inspections on existing buildings, flammable liquids, hazardous materials, and special processes. Preparation for the Uniform Fire Code Exam administered by International Conference of Building Officials. Materials fee: $5.00. (Prerequisites: FIRE 101 and 206, or instructor permission. Next offered: 1993-94.)

**FIRE 214 3 Credits Alternate Spring**
**Fire Protection Equipment and Systems (3+0)**
Portable fire extinguishing equipment, protection systems for specific hazards including sprinkler systems, halon, dry chemical, fire detection, and alarm systems. Materials fee: $5.00. (Prerequisite: FIRE 101 or instructor permission. Next offered: 1993-94.)

**FIRE 216 3 Credits Alternate Spring**
**Methods of Instruction for Fire Service Training (3+0)**
Skills necessary to instruct fire service courses including adult education techniques, classroom setup, use of audio-visual equipment, presentation, and evaluation methods of students and instruction. Materials fee: $5.00. (Next offered: 1994-95.)

**FIRE 218 3 Credits Fall**
**Rescue Practices II (3+0)**
In-depth knowledge at the technician level and national compliance for municipal fire department requirements in the four most important areas of resuce: high and low angle rope resuce, vehicle extrication, ice rescue and structural rescue. All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Materials fee: $75.00. (Prerequisites: FIRE 117 and EMS 103 or 119 or instructor permission.)

**FIRE 221 3 Credits Alternate Spring**
**Hazardous Materials Contingency Planning (3+0)**
Planning for a large scale hazardous material incident within the community to include hazards analysis, impact on population and growth, response capabilities and integration with other response plans. Materials fee: $5.00. (Next offered: 1994-95.)

**FIRE 231 3 Credits Alternate Fall**
**Hazardous Materials Tactical Operations (2.5+1)**
Preparation for the position of a Hazardous Materials Response Team Specialist who will be capable of handling flammable liquids, oxidizers, poisons, cryogenics, etiological materials, etc. Materials fee: $5.00. (Prerequisite: FIRE 207 or instructor permission. Next offered: 1993-94.)

**FIRE 232 3 Credits As Demand Warrants**
**Fire Fighter II/III (2.5+1)**
Advanced technical knowledge of fire alarms, communications, fire behavior, self contained breathing apparatus, rescue, safety, ladders, fire hose, nozzles and appliances, fire streams, water supplies, sprinklers, overhaul and inspections. Students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Materials fee: $75.00. (Prerequisites: FIRE 131, 133, 135 and 137, or instructor permission.)

**FIRE 241 3 Credits Alternate Spring**
**Hazardous Substance Specialist (3+0)**
Evaluation of storage conditions in a hazardous materials facility and providing limited technical assistance to the building owners. Knowledge of the codes as they apply to the storage of hazardous materials. Materials fee: $5.00. (Prerequisites: FIRE 205 and FIRE 212 or instructor permission. Next offered: 1993-94.)

**FIRE 244 1 Credit Fall**
**Firefighter Internship, Series 4 (0+var)**
Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: $5.00. (Prerequisite: FIRE 145 or 147.)

**FIRE 246 1 Credit Spring**
**Firefighter Internship, Series 5 (0+var)**
Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: $5.00. (Prerequisite: FIRE 244.)

**FIRE 248 1 Credit Summer**
**Firefighter Internship, Series 6 (0+var)**
Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: $5.00. (Prerequisite: FIRE 246.)

**FIRE 249 3 Credits Alternate Fall**
**Computer Aided Management of Emergency Operations (2.5+1)**
Assistance to emergency planners and first responders to plan for and safely handle chemical accidents through the use of a computer. CAMEO contains chemical nomenclature and response information for 3,311 commonly transported chemicals. Materials fee: $5.00. (Next offered: 1994-95.)

**FIRE 252 3 Credits Alternate Spring**
**Wildland Fire Prevention (3+0)**
Overview of wildland fire prevention including data collection, problem identification, problem analysis, action planning, fire reporting, fire cause determination, enforcement of laws and ordinances, public fire education, and the economics of fire prevention. Materials fee: $5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1993-94.)

**FIRE 254 3 Credits Fall**
**Wildland Fire Business Management (3+0)**
Fire business management objectives, including duties and responsibilities of fire finance section relating to management practices and programs. Procedures required in various finance positions including financial management of a large complex wildland fire. Materials fee: $5.00. (Prerequisite: FIRE 151 or instructor permission.)

**FIRE 256 3 Credits Alternate Fall**
**Wildland Fire Planning and Multiple Use Management (3+0)**
Fire management and its role in a multiple use resource program. Includes prescribed and wild fire practices, environmental concerns, management goals and objectives, and prefire planning. Materials fee: $5.00. (Prerequisite: FIRE 151, FIRE 155, or instructor permission. Next offered: 1993-94.)

**FIRE 258 3 Credits Alternate Spring**
**Prescribed Burning and Fuels Management (3+0)**
Compares use of different fuels. Evaluates benefits and effect of management practices. Includes prescribed fire procedures and objectives. Materials fee: $5.00. (Prerequisites: FIRE 151, 155, 158 and 262 or instructor permission. Next offered: 1993-94.)

**FIRE 260 3 Credits As Demand Warrants**
**Fire Research and Development (3+0)**
Research and development in the area of fire prevention, detection, prescribed burns, fire suppression, and post suppression. Materials fee: $5.00.

**FIRE 262 3 Credits Alternate Fall**
**Wildland Fire Control II (3+0)**
Instruction in tactical operations of fireline construction, use of handcrews, heavy equipment, water and engines, firing operations, wildland/urban interface and using combinations of resources. Advanced level course for trained and experienced wildland fire fighters. Materials fee: $5.00. (Prerequisites: FIRE 151, 155, 157, 159, and 254 or instructor permission. Next offered: 1994-95.)

**FIRE 270 3 Credits Alternate Spring**
**Wildland Fire Command Function (3+0)**
An overview of the command function including use of single and unified command, roles and responsibilities of the incident commander and staff, development and implementation of strategic decision, providing information to the media, and managing the incident from initial attack of small, noncomplex fires to larger, more complex initial attack suppression organizations dealing with escape attack situations. Materials fee: $5.00. (Prerequisites: FIRE 151, 155, 252 or instructor permission. Next offered: 1994-95.)

# 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 are identified by the initial "F" following the course number. Courses offered only at Juneau are identified with a "J" following the course number. The frequency of offering is identified by location for those courses offered at both units.

**FISH 101 3 Credits Fairbanks, Spring**
**Introduction to Fisheries (3+0) Juneau, Alternate Fall**
A survey of the values, habitats, biology, ecology and management of fishes with particular reference to Alaskan fisheries and issues.

**FISH 261F 3 Credits Fall**
**Introduction to Seafood Science and Nutrition (3+0)**
Application of scientific and engineering principles in the harvesting, processing, preservation and marketing of Alaska's rich fisheries resources. For sophomore-level natural sciences/environmental studies students. (Prerequisites: CHEM 105 or BIOL 105 or consent of instructor.)

**FISH 380 3 Credits Alternate Spring**
**Marine Fishes of Alaska (2+3)**
**(Same as BIOL 380)**
Taxonomy, recognition, distribution, life history and ecological relationships of marine fishes of Alaska will be studied. Life history traits that make species susceptible to commercial exploitation, changes in climate, ocean circulation or pollution will be emphasized. Laboratory fee: $30.00. (Prerequisites: BIOL 105X, 106X and 222. Next offered: 1994-95.)

**FISH 381 3 Credits As Demand Warrants**
**Biology of Commercially Important Salmonid Fishes (3+0)**
Biology, life history and ecology of economically valuable salmonids. Management of salmonid fisheries. (Prerequisite: BIOL 427.)

**FISH 382 4 Credits As Demand Warrants**
**Biology of Commercially Important Marine Fishes (3+2)**
Review of the major marine fish resources of Alaska. Taxonomy, distribution, life history and ecological relationships of marine fishes, with emphasis on demersal fishes, early life history and the effects of fisheries on stocks. (Prerequisite: BIOL 222 [BIOL 209-J].)

**FISH 383 4 Credits As Demand Warrants**
**Biology of Commercially Important Invertebrates (3+3)**
Topics include the taxonomy, morphology, physiology and ecology of commercially important invertebrates. History of the management and fishery of the major species presented. Emphasis on Alaskan species. (Prerequisite: BIOL 222 [BIOL 209-J].)

**FISH 384 3 Credits Alternate Spring**
**Freshwater Fishes of Alaska (2+3)**
**(Same as BIOL 384)**
Life histories of Alaskan freshwater fish emphasizing species sought by fishermen. Reproduction, age, growth, migration, food, inter- relationships and habitat requirements. (Prerequisites: BIOL 105X and 106X or permission of instructor. Next offered: 1993-94.)

**FISH 400 3 Credits Fairbanks, Fall**
**Fisheries Science (F 2+3; J 3+0) Juneau, Alternate Spring**
**(Same as NRM 400)**
The general biology of fishes in relation to their management. Methods of collecting, analyzing, and interpreting field and laboratory data. (Prerequisite: one 200-level biology class. Corequisite: STAT 200 [STAT 373-J].)

**FISH 401 3 Credits Fairbanks, Spring**
**Fisheries Management (3+0) Juneau, Alternate Fall**
**(Same as NRM 401)**
Principles, concepts and techniques of fisheries management in terms of their biological, economic, social and political aspects. Topics are stocking and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. Examples of several fisheries are used to clarify concepts and practices. (Prerequisite: BIOL 271. Next offered Juneau: 1993-94.)

**FISH 418-J 4 Credits Alternate Fall**
**Renewable Resource Management Systems (4+0)**
Develops abilities to recognize, process and apply critical information in the management of renewable resources by examples from Alaskan fisheries. The computer as a primary tool of resource management. (Prerequisite: STAT 200 [STAT 373-J]. STAT 401 recommended. Next offered: 1993-94.)

**FISH 420-J 3 Credits As Demand Warrants**
**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-J].)

**FISH 421-J 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 200 [STAT 373-J]. FISH 418 recommended. Next offered: 1993-94.)

**FISH 427 4 Credits Alternate Spring**
**Ichthyology (3+3) n**
**(Same as BIOL 427)**
Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology, and importance to man. Laboratory fee: $30.00. (Prerequisites: BIOL 205 or 317 or permission of instructor. Next offered: 1993-94.)

**FISH 436-J 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-J], CHEM 106, FISH 381. Next offered: 1993-94.)

**FISH 445-J 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, demonstrations, use of field laboratory techniques, ship- board sampling. (Prerequisite: STAT 200 [STAT 373-J]. Next offered: 1993-94.)

**FISH 460-K 3-6 Credits As Demand Warrants**
**Food Science and Technology Internship (1+0+3) n**
**(Same as FSN 460-K)**
A combination of traditional and industrial training opportunities. Assigned required readings and discussion of appropriate topics in food science and technology. Information applied during hands-on experience in a food processing plant. Discussion includes fundamental information and solutions to industrial problems. Faculty mentor assigned to each intern. Required written evaluation of internship. 30 hours in-plant work experience for 12-24 weeks. (Prerequisites: 16 credits in natural sciences, MATH 200 or MATH 272 or permission of instructor.) Course offered only in Kodiak.

**FISH 601-F 3 Credits Alternate Spring**
**Quantitative Fishery Science (2+3)**

**FISH 602 3 Credits Juneau, Alternate Fall**
**Advanced Fisheries Management (2+3) Fairbanks, Alt Spring**

**FISH 606-J 4 Credits Juneau, Alternate Spring**
**Finfish and Shellfish Diseases (3+3)**

**FISH 621-J 4 Credits Alternate Fall**
**Advanced Fisheries Population Dynamics I (3+2)**

**FISH 622-J 4 Credits Alternate Spring**
**Advanced Fisheries Population Dynamics II (3+2)**

**FISH 650 3 Credits Fairbanks, Alternate Fall**
**Fish Ecology (2+3) Juneau, As Demand Warrants**
**(Same as BIOL 650)**

**FISH 651-J 3 Credits Alternate Spring**
**Fishery Genetics (3+0)**

**FISH 652-J 3 Credits As Demand Warrants**
**Use of Electrophoresis in Fisheries (1+4)**

**FISH 661-F 3 Credits As Demand Warrants**
**Seafood Processing and Preservation (3+0)**
**(Same as FSN 661-K)**

**FISH 662-F 3 Credits As Demand Warrants**
**Seafood Composition and Analysis (3+0)**
**(Same as FSN 662-K)**

# Food Science and Nutrition

**FSN 460-K 3-6 Credits As Demand Warrants**
**Food Science and Technology Internship (1+0+3) n**
**(Same as FISH 460-K)**
A combination of traditional and industrial training opportunities. Assigned required readings and discussion of appropriate topics in food science and technology. Information applied during hands-on experience in a food processing plant. Discussion includes fundamental information and solutions to industrial problems. Faculty mentor assigned to each intern. Required written evaluation of internship. 30 hours in-plant work experience for 12-24 weeks. (Prerequisites: 16 credits in natural sciences, MATH 200 or MATH 272 or permission of instructor.) Course offered only in Kodiak.

**FSN 661-K 3 Credits Spring**
**Seafood Processing and Preservation (3+0)**
**(Same as FISH 661-F)**

**FSN 662-K 3 Credits Fall**
**Seafood Composition and Analysis (3+0)**
**(Same as FISH 662)**

**FSN 663-K 3 Credits Alternate Years**
**Statistical Quality Control and Sensory Evaluation (3+0)**

**FSN 671-K 4 Credits Alternate Years**
**Unit Operations in Food Processing (3+3)**

**FSN 672-K 4 Credits Alternate Years**
**Laboratory Methods in Food Science and Nutrition (2+6)**

**FSN 673-K 3 Credits Alternate Years**
**Current Topics in Food Science and Nutrition (3+0)**

**FSN 674-K 4 Credits Alternate Years**
**Research and Development Projects in Food Science and Nutrition (2+6)**

**FSN 692-K 1 Credit As Demand Warrants**
**Food Science and Nutrition Seminar (1+0)**

# Foreign Languages

**FL 110** **2 Credits** **As Demand Warrants**
**How to Pronounce French, German, Italian, and Spanish (2+0)**
Designed for students and others in radio, television, journalism, drama, music (esp. voice), etc. who want to pronounce French, German, Italian and Spanish correctly and with confidence. The method is practical and direct. Concrete examples are used.

**FL 200X** **3 Credits** **Fall, Spring**
**World Literature (3+0) h**
**(Same as ENGL 200X)**
Introduction to the critical reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, storytelling and drama. Students will gain an understanding of cultural differences and universals in texts from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Course may be repeated for credit when content varies. (Prerequisite: ENGL 111X or permission of instructor.)

# French

For information on studying in Europe, see Study Abroad.

**FREN 075** **3 Credits** **As Demand Warrants**
**FREN 076** **3 Credits** **As Demand Warrants**
**Conversational French I and II (3+0)**
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. (Prerequisite: FREN 075 for 076.)

**FREN 101** **5 Credits** **Fall**
**FREN 102** **5 Credits** **Spring**
**Elementary French 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. Materials fee: $4.00.

**FREN 201** **3 Credits** **Fall**
**FREN 202** **3 Credits** **Spring**
**Intermediate French I and II (3+0) h**
Continuation of FREN 102. Increasing emphasis on reading ability and cultural material. Conducted in French. Materials fee: $4.00. (Prerequisite: FREN 102 or equivalent.)

**FREN 301** **3 Credits** **Fall**
**FREN 302** **3 Credits** **Spring**
**Advanced French (3+0) h**
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in French. Materials fee: $4.00. (Prerequisite: FREN 202 or equivalent or permission of instructor.)

**FREN 431** **3 Credits** **Fall**
**Studies in the Culture of the French Speaking World (3+0) h**
Intensive study of selected aspects of the culture of the French speaking world. Conducted in French. Students may repeat course for credit if topic varies. Materials fee: $4.00. (Prerequisites: FREN 302 or equivalent; junior standing or permission of instructor.)

**FREN 432** **3 Credits** **Spring**
**Studies of Literature in French (3+0) h**
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in French. Student may repeat course for credit when topics vary. Materials fee: $4.00. (Prerequisites: French 302 or equivalent and at least junior standing, or permission of instructor.)

**FREN 487** **3 Credits** **Fall**
**Translation of French Texts (3+0) h**
Expansion of vocabulary and grammatical knowledge, emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language, and literary and non-literary texts. Student may repeat course for credit if materials vary. Conducted in French. Materials fee: $4.00. (Prerequisites: FREN 302 or equivalent and at least junior standing or permission of instructor. Next offered: 1993-94.)

**FREN 488** **3 Credits** **As Demand Warrants**
**Individual Study: Senior Project h**
Designed for the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Conducted in French. (Prerequisites: At least 10 credits in upper division French or permission of instructor.)

# Geography

**GEOG 101** **3 Credits** **Fall, Spring**
**Introductory Geography (3+0) s**
World regions, an analysis of environment, with emphasis on major culture realms. Also available via Independent Learning.

**GEOG 203** **3 Credits** **Fall**
**World Economic Geography (3+0) s**
Study of the world's major economic activities: their physical and cultural bases, spatial growth and distribution patterns, and their significance in interregional and international development. (Prerequisite: GEOG 101 or permission of instructor.)

**GEOG 205** **3 or 4 Credits** **Fall, Spring**
**Elements of Physical Geography (3+0 or 3+3) n**
Analysis of processes that form the physical environment and resulting physical patterns. Study of landforms, climate, soils, water resources, vegetation, and their world and regional patterns. Optional laboratory for one additional credit. Also available via Independent Learning. (Offered every Spring at the Northwest Campus.)

**GEOG 241** **3 credits** **Spring**
**Introduction to Geographic Information Systems (2+3)**
**(Same as NRM 241)**
Review of hardware and software components, exploration of several applications and introduction to data structures and basic functions. Several different GIS systems considered. Materials fee: $35.00. (Prerequisite: Knowledge of PC's or unix workstations desirable.)

**GEOG 301** **3 Credits** **Alternate Fall**
**Geographic Field Research Techniques**
Theory and application of geographic methods of conducting field investigations. Collection, analysis, synthesis, and interpretation and reporting of data concerning the natural and human environments. (Prerequisite: Permission of instructor. Next offered: 1993-94.)

**GEOG 302** **3 Credits** **Spring**
**Geography of Alaska (3+0) s**
Regional, physical and economic geography of Alaska. Special consideration of the state's renewable and nonrenewable resources, and of plans for their wise use. Frequent class study of representative maps and visual materials. Also available via Independent Learning. (Prerequisites: GEOG 101, 205.)

**GEOG 303** **3 Credits** **Alternate Fall**
**Geography of United States and Canada (3+0) s**
Introductory systematic study of the area as a whole, followed by detailed study of the physical and cultural landscape forms, patterns, and associations of each major region in turn. Consideration of the United States and Canada in current world economic and political geography. (Prerequisite: GEOG 101 or 203, or 205 or permission of instructor. Next offered: 1993-94.)

**GEOG 304O** **3 Credits** **Alternate Spring**
**Advanced Economic Geography (3+0) s**
Major theories of economic geography with particular focus on those theories relevant to underdeveloped regions. Emphasis on theories appropriate to northern regions. (Prerequisite: Introductory course in World Economic Geography or equivalent. Next offered: 1993-94.)

**GEOG 305W** **3 Credits** **Alternate Fall**
**Geography of Europe (except U.S.S.R.) (3+0) s**
Regional, physical, economic and cultural geography of Europe, except U.S.S.R. (Prerequisites: GEOG 101, 205. Next offered: 1993-94.)

**GEOG 306** **3 Credits** **Alternate Spring**
**Geography of Russia (3+0) s**
The physical, cultural and historical geography of Russia and the Ukraine, Central Asia, Siberia and parts of Eastern Europe. (Prerequisite: GEOG 101 or 203 or 205 or permission of the instructor. Next offered: 1993-94.)

**GEOG 309 4 Credits** **Alternate Spring**
**Cartography (1+9) s**
Graphic techniques for presenting geographic data through the construction of maps, projections and charts. Materials fee: $40.00. (Prerequisite: Permission of instructor. Next offered: 1993-94.)

**GEOG 311W 3 Credits** **Alternate Fall**
**Geography of Asia (3+0) s**
Regional geography of Asia, exclusive of the Soviet Union. Physical framework, natural resources, peoples, major economic activities, and characteristic landscapes of the major regions of Japan, China, Southeast Asia, India-Pakistan, and the Asiatic countries of the Middle East. (Prerequisite: GEOG 101 or 203 or 205 or permission of the instructor. Next offered: 1993-94.)

**GEOG 315W 3 Credits** **As Demand Warrants**
**Geography of Africa (3+0) s**
Physical and cultural geography of Africa, by regions. Significance of Africa in current world cultural, economic, and political geography. Major emphasis on regions south of the Sahara. (Prerequisites: GEOG 101, 203 or 205.)

**GEOG 327 3 Credits** **Spring**
**Cold Lands (3+0) s**
Comparative physical, human, and economic geography of cold regions, with particular attention to Siberia, Greenland, Scandinavia and Canada. Special attention given to different approaches taken toward economic development in cold regions. (Prerequisite: GEOG 101 or 203 or 205 or permission of the instructor.)

**GEOG 339 3 or 4 Credits** **Spring**
**Maps and Landscape Analysis (3+0) or (3+3) n**
Application of methodology of physical geography to analysis of regional landscapes. Optional laboratory for one additional credit. (Prerequisites: GEOG 101 or 203, 205.)

**GEOG 341 4 Credits** **Fall**
**Techniques in Geographic Information Systems (3+3)**
**(Same as NRM 341)**
GIS algorithms, data structures, advanced computational topics and analysis of error. Examination of ways traditional planning and management theories and techniques can be implemented in GIS's. (Prerequisite: GEOG 241.)

**GEOG 401 3 Credits** **Alternate Fall**
**Weather and Climate (3+0) n**
Introduction to the study of weather and classification of climates. (Prerequisite: Permission of the instructor. Next offered: 1993-94.)

**GEOG 402 3 Credits** **Alternate Fall**
**Culture and Environment (3+0) s**
Relationship of cultures with the land they have occupied over time, in the context of the world's major regions. Consideration given to significance of cultural diversity, differing patterns of livelihood, settlement and population change. (Prerequisites: GEOG 101, 205. Next offered: 1993-94.)

**GEOG 404W 3 Credits** **Alternate Fall**
**Urban Geography (3+0) s**
A world survey of urbanization with particular emphasis on the accelerating urban revolution. Conditions favoring the rise of cities, locational and site factors, regional and interregional resource availability, and human factors. Changing functions and patterns of urban areas. National and international problems inherent in trends toward a predominantly urbanized economy and culture. Implications of urbanization in Alaska. (Prerequisite: GEOG 101. Next offered: 1993-94.)

**GEOG 405 3 Credits** **Alternate Fall**
**Political Geography (3+0) s**
Geographical analysis of the evolution, structure, internal coherence, and sources of strength of individual nation states, with emphasis on nations of the Pacific realm and Arctic periphery. Consideration of regional blocs, spheres of influence, and potential for international cooperation. (Prerequisite: GEOG 101. Next offered: 1993-94.)

**GEOG 408 3 Credits** **Alternate Spring**
**Quantitative Research Techniques (3+0)**
Philosophy and methodology in geography. Theories, laws, and models for measurement, analysis and explanation of geographic patterns and associations. Applications of findings to solution of geographic problems. (Prerequisites: Junior standing and college-level mathematics, or permission of the instructor. Next offered: 1993-94.)

**GEOG 482WO(g) 3 Credits** **Spring**
**Geography Seminar (3+0) s**
History, philosophy and methodology of geographic thought from the Sumerians to the present with particular attention to changing philosophies of geography. (Prerequisite: Senior Geography major and permission of instructor.)

**GEOG 637 3 Credits** **Alternate Fall**
**Geography of Northern Development (3+0)**
**(Same as NORS 637)**

# Geological Engineering

**GE 101 1 Credit** **Fall**
**Introduction to Geological Engineering (1+0)**
Multiple aspects of geological engineering as a profession; the area and scope of the field. Graded pass/fail.

**GE 261 3 Credits** **Spring**
**General Geology for Engineers (2+3)**
**(Same as GEOS 261)**
Study of common rocks and minerals, landforms, erosion. Geologic materials and engineering application of geology. Laboratory fee: $15.00. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)

**GE 365 3 Credits** **Fall**
**Geological Engineering I (3+0)**
Geological and geotechnical factors for the solution of engineering problems. Special emphasis on soils and permafrost. Some fieldwork and student report. (Prerequisites: GEOS 101 or GEOS/GE 261 and ES 208 or 209.)

**GE 372 3 Credits** **Spring**
**Rock Engineering (3+0)**
Rock engineering related to tunnels, slope design, and strata control. Some field work and student report. (Prerequisites: GEOS 101 or GE/GEOS 261 and ES 208 or 209.)

**GE 375 3 Credits** **Fall**
**Terrain Analysis (3+0)**
Evaluation of terrain characteristics using basic geomorphic and engineering principles. Consideration given to Alaskan applications. (Prerequisite: GEOS 101 or GE/GEOS 261.)

**GE 381W 3 Credits** **Summer**
**Field Methods and Applied Design I (0+9+3)**
Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation. (Prerequisites: GE 375, GEOS 321 and GEOS 332 or equivalent.)

**GE 382W 3 Credits** **Summer**
**Field Methods and Applied Design II (0+9)**
Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation. (Prerequisites: GE 375, GEOS 321 and GEOS 332 or equivalent.)

**GE 405 4 Credits** **Spring**
**Exploration Geophysics (3+3)**
Theory and application of gravity, magnetic, electrical, electro-magnetic, radioactive, and seismic methods as used for geophysical exploration. Some field work. (Prerequisites: MATH 200 and PHYS 211 or equivalent.)

**GE 420 3 Credits** **Spring**
**Subsurface Hydrology (2+3)**
Hydraulic characteristics of earth materials, engineering problems and models related to subsurface fluids, and properties of water. (Prerequisites: GE/GEOS 261 and PHYS 211.)

**GE 431 2 Credits** **Alternate Fall**
**Applied Ore Microscopy (1+3)**
Preparation of polished sections of ores. Identification of ore minerals in reflected light by physical, optical, and chemical methods. Applications to ore genesis, drill core interpretation, beneficiation, and process control. (Prerequisite: GEOS 213 or permission of the instructor. Next offered: 1993- 94.)

**GE 435 3 Credits** **Spring**
**Exploration Design (3+0)**
Geologic, engineering, and economic considerations applied to the design and development of mineral exploration programs. (Prerequisites: GEOS 214 and 314 or permission of instructor.)

**GE 440 3 Credits** **Alternate Spring**
**Slope Stability (3+0)**
Slope design for open pit mining and other excavations. Stability analysis by various methods and on-site measuring and monitoring techniques. (Prerequisite: ES 331 or permission of instructor. Next offered: 1993-94.)

**GE 471 3 Credits Fall**
**Remote Sensing for Engineering (3+0)**
Applications of remote sensing to geological engineering problems. Introduction to digital satellite image processing with hands-on practice. (Prerequisites: GEOS 101 or GE/GEOS 261, 408, PHYS 212.)

**GE 480W 3 Credits Spring**
**Geological Engineering II (1+6)**
Design factors and procedures for the solution of geological engineering problems. A term design-project is the focus of the course. (Prerequisite: Senior standing or permission of instructor.)

**GE 630 3 Credits Alternate Fall**
**Advanced Applied Mining Geology (2+3)**

**GE 631 3 Credits Spring**
**Electron Microprobe Methods in Mineral Exploration and Development (2+3)**

**GE 633 3 Credits Fall**
**Fluid Inclusion Methods in Mineral and Petroleum Exploration (2+3)**

**GE 635 3 Credits Spring**
**Geostatistical Ore Reserve Estimation (2+3)**
**(Same as MIN 635)**

**GE 649 3 Credits Every Fifth Semester**
**Hazardous and Toxic Waste Management (3+0)**
**(Same as EQE 649)**

**GE 666 3 Credits Alternate Fall**
**Advanced Engineering Geology (2+3)**

**GE 668 3 Credits Alternate Spring**
**Tunneling Geotechniques (3+0)**

**GE 671 3 Credits Alternate Spring**
**Engineering Applications of Digital Image Processing (2+3)**

# Geoscience (Geology and Geophysics)

A $20.00 per semester student computing facilities user fee is assessed for Department of Geology and Geophysics courses 200 level and above. This fee is in addition to any material/laboratory fees.

**GEOS 100X 4 Credits Spring**
**Introduction to Earth Science (3+3) n**
Survey of four main disciplines of earth science: geology, oceanography, meteorology, and astronomy. Lab portion goals: vehicle to learn scientific methodology, evidence to support theories presented in lectures. (Prerequisite: English placement test)

**GEOS 101X 4 Credits Fall**
**The Dynamic Earth (3+3) n**
Physical geology: a study of the earth, its materials, and the processes that effect changes upon and within it. Laboratory training in use of topographic maps and recognition of common rocks and minerals. Laboratory fee: $15.00.

**GEOS 102X 4 Credits Spring**
**Environmental Geology (3+3) n**
Application of principles of geological sciences to the solution of practical problems. Origin, distribution, availability and exploitation of earth's mineral and energy resources. Study of geologic hazards including prediction and mitigation. Numerous examples and case studies from Alaska. Laboratory fee: $15.00. (Prerequisite: GEOS 101X or instructor permission.)

**GEOS 103 3 Credits As Demand Warrants**
**Landscapes and Resources of Alaska (3+0)**
Geology of Alaska and of the processes which formed it. Origins of mountains, volcanos, islands, and glaciers.

**GEOS 104 3 Credits Independent Learning Only**
**Principles of Geology**
Provides an understanding of earth processes (both on the earth's surface and at depth) and origin and classification of major rock types. Other topics include factors that have shaped the Earth, geologic events and processes occurring today, and ideas of future occurrences. Will not substitute for GEOS 101X.

**GEOS 105 3 Credits As Demand Warrants**
**Geology of America's National Parks (3+0)**
Explanations and geologic history of prominent geologic features and landforms for which national parks and monuments have been selected.

**GEOS 112X 4 Credits Spring**
**The History of Earth and Life (3+3) n**
Historical geologic interpretation, geologic time scale, stratigraphic record and interpretation. Sedimentation and plate tectonics, fossil record and utilization, biostratigraphy, and geologic evolution of the North American continent. Lab examination of fossils, interpretation of geologic maps and stratigraphic columns. Laboratory fee: $15.00. (Prerequisite: GEOS 101X with lab (4 credits) or GEOS/GE 261.)

**GEOS 120X 4 Credits Spring**
**Glaciers, Earthquakes, and Volcanoes: Past, Present, and Future (3+3) n**
A survey course for the non-specialist on the causes, effects, measurements, and prediction of glaciers, earthquakes and volcanoes.

**GEOS 212 3 Credits As Demand Warrants**
**Geology of Alaska (3+0) n**
Modern geologic processes in Alaska will be used as a basis for understanding past geologic evolution of the region. The origin and recovery of Alaska's petroleum and mineral resources will be discussed. For non-majors. (Prerequisite: GEOS 101X.)

**GEOS 213 4 Credits Fall**
**Mineralogy (2+6) n**
Mineral chemistry, atomic structure, elementary crystallography, optical crystallography and descriptive and determinative mineralogy. Instrumental determinative techniques (x-ray diffraction, petrographic microscope). Laboratory fee: $15.00.. (Prerequisites: GEOS 101X or 261; CHEM 105 and concurrent registration in MATH 107-108.)

**GEOS 214 4 Credits Spring**
**Petrology and Petrography (2+6) n**
Origin, occurrence, and classification of igneous, sedimentary, and metamorphic rocks. Laboratory work involves hand lens identification and thin section examination of representative rocks. Laboratory Fee: $15.00. (Prerequisite: GEOS 213.)

**GEOS 215 3 Credits Fall**
**Paleobiology and Paleontology (2+3) n**
Survey of the history of life on earth as represented in the fossil record. Contribution of paleontology to the study of evolution, past environments, and paleogeography; biostratigraphically important invertebrate fossil groups and their temporal ranges; evolution of terrestrial flora and fauna; current issues in paleontology. Laboratories will emphasize recognition of major fossil groups and paleontological problem solving. (Prerequisites: GEOS 112, BIOL 103 or BIOL 106.)

**GEOS 261 3 Credits Spring**
**General Geology for Engineers (2+3) n**
**(Same as GE 261)**
Study of common rocks and minerals, landforms, erosion. Geologic materials and engineering application of geology. Laboratory fee: $15.00. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)

**GEOS 262 3 Credits Alternate Fall**
**Rocks and Minerals (2+3)**
Physical properties of minerals and rocks, classification, mode of occurrence and economic applications. Role of rock materials in soil formation and fluid flow; influence 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. (Prerequisites: GE/GEOS 261, 101X or equivalent. Next offered: 1993-94.)

**GEOS 304 3 Credits Fall**
**Geomorphology (2+3) n**
Surface features of the Earth and the processes which create or modify them. Application to Quaternary history, environmental science and related fields. Laboratory examination of topographic maps and aerial photographs, introduction to geomorphic measurements. Laboratory fee: $15.00. (Prerequisite: GEOS 101X.)

**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: $15.00. (Prerequisites: GEOS 112X, PHYS 103 or 211, MATH 201, GEOS 214 [or concurrent registration].)

**GEOS 321 3 Credits Alternate Fall**
**Sedimentology (2+3) n**
Origin, classification, composition, transportation, deposition, and diagenesis of sediments. Laboratory covers identification and description of hand specimens as well as techniques of textural and compositional analysis. Laboratory fee: $15.00. (Prerequisite: GEOS 213 or permission of instructor. Next offered: 1993-94.)

**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. Laboratory fee: $15.00. (Prerequisites: GEOS 101X or 261, and 112X).

**GEOS 332 3 Credits Alternate Spring**
**Ore Deposits and Structure (1+6)**
Distribution and characteristics (especially mineralogy, morphology, and structure) of major mineral deposit types with background on structural techniques. Emphasis on application to mineral exploration and development. Laboratory exercises stress recognition of major mineral deposit types, zoning and grade patterns; and use of structural techniques in mineral deposit exploration/development. Laboratory fee: $15.00. (Prerequisite: GEOS 262 or permission of instructor. Next offered: 1993-94.)

**GEOS 351 6 Credits Alternate Summer**
**Field Geology (Arranged) n**
Practical experience in collecting and presenting basic field data. Includes field mapping of stratigraphic and structural problems, aerial photographs, plane table maps, and preparation of professional reports and geologic maps. Students pay own transportation, subsistence and tuition. Entrance by preregistration only; apply through the department. Early registration recommended. Geophysics option students may enroll for 4 credits if they also register for GEOS 451. All others must take 6 credits. (Prerequisites: Junior standing in geology and permission of instructor. Next offered: Summer 1992.)

**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. Laboratory fee: $15.00. (Prerequisite: GEOS 101X or GE/GEOS 261. Next offered: 1993-94.)

**GEOS 401 3 Credits Alternate Spring**
**Invertebrate Paleontology (2+3) n**
Study of invertebrate phyla with extensive geologic records. Emphasis on principles of biostratigraphy and paleoecology, application to geologic problems, and case studies from Alaska. Laboratory study of fossil assemblages with emphasis on stratigraphically significant groups. Designed to complement GEOS 322. Laboratory fee: $15.00. (Prerequisite: GEOS 215 or permission of instructor; GEOS 322 recommended. Next offered: Spring 1993.)

**GEOS 408 2 Credits Alternate Spring**
**Photogeology (1+3) n**
Use of topographic maps, geologic maps, aerial photographs, and satellite imagery in interpretation of geological structures, landscapes, landforms, and geomorphic processes. Techniques included are map compilation, photo mapping, statistical treatment of map data, and composite mapping for planning. Laboratory fee: $15.00 (Prerequisite: GEOS 304 or permission of instructor. Next offered: 1993-94.)

**GEOS 410 2 Credits Fall**
**Potential Methods in Geophysics (1+3) n**
Theory of potential methods and application to geophysical exploration. Basic techniques and methods of interpretation of gravimetric and magnetic measurements. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

**GEOS 411 3 Credits Spring**
**Seismic Exploration (2+3) n**
Fundamental principles of seismic exploration techniques, beginning with basic laws of seismic wave propagation and ending with practical application of the techniques, including reflection and refraction methods. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

**GEOS 412 2 Credits Fall**
**Electrical Methods in Geophysics (1+3) n**
Electrical resistivity and current flow in the earth and the practical application in the realm of geophysical exploration. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

**GEOS 414 3 Credits As Demand Warrants**
**Introduction to Glaciology (3+0) n**
Thermodynamics 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 properties and processes in seasonal and perennial snow, frozen ground and sea ice, and transformation of snow to glacier ice examined. Distribution and classification of glaciers, mass balance of glaciers, glacier flow and causes of glaciation. (Prerequisite: MATH 201 or permission of instructor. Next offered: 1993-94.)

**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**
Concepts and techniques of geophysics including origin of the earth, its structure, and large scale dynamic processes responsible for its surface features. Geophysical techniques including seismology, gravity, magnetometry, and electrical methods discussed along with measurements of the earth's thermal structure, rotation rates, and tide effects. (Prerequisite: Permission of the instructor.)

**GEOS 419 4 Credits Alternate Spring**
**Continuum Mechanics (4+0) n**
Mechanics of continuous deformable media; analysis of stress and strain using tensor notation; elastic, viscous, plastic and visco-elastic constitutive laws with examples from the geophysical environment including hydrology, geology, glaciology and meteorologic. (Prerequisites: PHYS 211, 212 and MATH 302 or permission of instructor. Next offered: 1993-94)

**GEOS 420 4 Credits Alternate Fall**
**Elements of Seismology (3+3) n**
Global distribution of earthquakes; causes and effects of earthquakes with reference to Alaska; instrumentation utilization for determination of earthquake sources and subsurface structures; techniques for studies of seismotectonics and earthquake prediction. (Prerequisite: Geoscience students: MATH 201; Civil Engineering students: ES 331. Next offered: 1993- 94)

**GEOS 422 3 Credits Spring**
**Geoscience Applications of Remote Sensing (2+3) n**
Remote sensing and its applications to geologic, environmental and physical sciences. Includes nomenclature, a review of sensing systems, and forms in which data is available. Emphasis on use of LANDSAT, radar imagery, thermal imagery and color infrared photography. (Prerequisites: PHYS 104, 212, junior standing or consent of instructor.)

**GEOS 430 3 Credits Spring**
**Statistics and Data Analysis in Geology (3+0) n**
Computer-supported geologic applications of elementary statistics, Markov chains, time-series analysis, trend-surface analysis, factor analysis, cluster analysis, discriminant analysis, and multiple regression. Laboratory fee: $15.00. (Prerequisites: MATH 200 or STAT 301; senior standing or permission of instructor.)

**GEOS 432 3 Credits Alternate Fall and Spring**
**Geology of Mineral Resources (3+0) n**
Occurrence and characteristics of metallic and selected non-metallic mineral deposits, geographic locations, petrotectonic settings, mineralogic and petrologic features, and theories of genesis, with applications to exploration and development. (Prerequisites: GEOS 214, 314, 322, 401. Next offered: 1993- 94.)

**GEOS 432L 2 Credits Alternate Fall and Spring**
**Geology of Mineral Resources Laboratory (1+3) n**
Laboratory work includes identification, characterization and systematic description of major ore types. Laboratory fee: $15.00. (Prerequisites: GEOS 214. Next offered: 1993-94.)

**GEOS 451 2 Credits Summer**
**Practical Field Geophysics n**
A field experience in data acquisition and reduction. Techniques used include gravimetric, radiometric, resistivity, magnetic, electro-magnetic and seismic. Taught concurrently with the last two weeks of GEOS 351. Entrance by preregistration only; apply through the department. Class usually is filled to capacity by February of current year. (Prerequisites: MATH 201, PHYS 212, introductory exploration geophysics, and permission of instructor.)

**GEOS 462 4 Credits Alternate Fall**
**Glacial and Periglacial Geology (3+3) n**
Glaciers and their geological processes. Emphasizes recognition and understanding of glacial landforms, sediments, and stratigraphic relations, and implications for paleoclimatology, and paleogeography. Includes non- glacial techniques and methods for interpreting Quaternary sediments. Laboratory fee: $15.00. (Prerequisite: GEOS 304. Next offered: 1993-94.)

**GEOS 465 3 Credits As Demand Warrants**
**Geoarchaeology (3+0)**
**(Same as ANTH 465)**
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 101X, an introductory course in archeology, or permission of instructor. Next offered: 1993-94.)

**GEOS 470 4 Credits As Demand Warrants**
**Petroleum Geology (3+3)**
Basic elements required for hydrocarbon accumulation: source, maturation, migration, reservoir, seal, and trap. These elements, and exploration and production practices illustrated using examples of oil and gas fields throughout the world. Lab provides experience with the tools and techniques of surface and subsurface exploration. Laboratory fee: $15.00. (Prerequisites: GEOS 314, 321, 322. Next offered: 1993-94.)

**GEOS 475WO(t) 2 Credits Spring**
**Presentation Techniques in the Geosciences (1+3)**
**(Same as GEOS 675)**
Instruction and practice in oral and written communication skills specifically related to the geosciences. Oral and written presentation of abstracts, resumes, proposals, and reports required. Works critically analyzed by instructor(s), and peers for both geoscience content and communication effectiveness. Laboratory fee: $15.00. (Prerequisite: Senior standing in geology.)

**GEOS 482 1 Credit Fall, Spring**
**Geology Seminar (1+0)**
A weekly seminar series on a geologic theme of current interest for a complete semester. (Prerequisite: Senior or graduate standing or permission of instructor.)

**GEOS 600 4 Credits Spring**
**Introduction to X-ray Spectrometry (2+6)**

**GEOS 602 3 Credits Alternate Fall**
**Geophysical Fields (3+0)**

**GEOS 603 1-2 Credits As Demand Warrants**
**Advanced Field Mapping (0+3)-(1+3)**

**GEOS 604 3 Credits Alternate Spring**
**Intermediate Seismology (3+0)**

**GEOS 605 3 Credits Alternate Spring**
**Geochronology (3+0)**

**GEOS 606 2 Credits Alternate Spring**
**Volcanology (2+0)**

**GEOS 607 2 Credits Spring**
**Advanced Paleomagnetism (1+3)**

**GEOS 609 2-4 Credits Fall-Spring**
**Advanced Geomorphology (2-4+0-3)**

**GEOS 610 3 Credits Alternate Spring**
**Advanced Seismology (3+0)**

**GEOS 611 3 Credits Alternate Fall**
**Tectonics and Sedimentation (3+0)**

**GEOS 612 3 Credits Alternate Fall**
**Geologic Evolution of Alaska (3+0)**

**GEOS 613 3 Credits Alternate Spring**
**Global Tectonics (3+0)**

**GEOS 614 3 Credits Alternate Spring**
**Ice Physics (3+0)**

**GEOS 615 3 Credits Fall**
**Sea Ice (3+0)**

**GEOS 616 3 Credits Alternate Spring**
**Permafrost (3+0)**

**GEOS 617 3 Credits Alternate Fall**
**Glaciers (3+0)**

**GEOS 620 3 Credits Alternate Fall**
**Geodynamics (3+0)**

**GEOS 621 3-4 Credits As Demand Warrants**
**Advanced Petrology (2-3+3-6)**

**GEOS 622 4 Credits As Demand Warrants**
**Advanced Clastic Petrology (3+3)**

**GEOS 625 3 Credits Alternate Fall**
**Mountain Belts of the World (3+0)**

**GEOS 626 3 Credits As Demand Warrants**
**Structural Analysis (3+0)**

**GEOS 631 3 Credits As Demand Warrants**
**Advanced Geochemistry (1-3+0)**

**GEOS 632 4 Credits As Demand Warrants**
**Advanced Study of Mineral Deposits (3+3)**

**GEOS 635 1-4 Credits As Demand Warrants**
**Advanced Economic Geology (1-4+0-3)**

**GEOS 636 2 Credits As Demand Warrants**
**Scientific Methods, Strategies and Tools in Geology (2+0)**

**GEOS 637 4 Credits As Demand Warrants**
**Rock-Forming Minerals (3+3)**

**GEOS 640 4 Credits Alternate Spring**
**Petrology of Carbonate Rocks (3+3)**

**GEOS 641 1-3 Credits As Demand Warrants**
**Advanced Paleontology (1-3+0)**

**GEOS 643 3 Credits Alternate Fall**
**Sandstone Depositional Environments (3+0)**

**GEOS 644 3 Credits Alternate Spring**
**Advanced Stratigraphy (3+0)**

**GEOS 645 3 Credits Alternate Fall**
**Advanced Carbonate Sedimentology (3+0 or 2+3)**

**GEOS 647 3 Credits As Demand Warrants**
**Advanced Sedimentology (3+0)**

**GEOS 649 3 Credits As Demand Warrants**
**Geomorphology of the Unglaciated Arctic and Subarctic (3+0)**

**GEOS 650 3 Credits As Demand Warrants**
**Paleoecology of Beringia (3+0)**

**GEOS 651 3 Credits As Demand Warrants**
**Quaternary Seminar (3+0)**
**(Same as ANTH 651)**

**GEOS 652 3 Credits Alternate Fall**
**Quaternary Vegetation History (2+3)**

**GEOS 661 3 Credits Alternate Spring**
**Microwave Active Remote Sensing (3+0)**

**GEOS 662 3 Credits Alternate Fall**
**Microwave Scattering from Land, Sea and Ice (3+0)**

**GEOS 670 1-3 Credits As Demand Warrants**
**Selected Topics in Volcanology (1-3+0)**

**GEOS 675 2 Credits Spring**
**Presentation Techniques in the Geosciences (1+3)**
**(Same as GEOS 475WO)**

# German

For information on studying in Europe, see Study Abroad.

**Admission to this program is presently suspended.**

**GER 075 3 Credits**
**GER 076 3 Credits**
**Conversational German I and II (3+0)**
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**
**GER 102 5 Credits**
**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. Materials fee: $2.00.

**GER 201** 3 Credits
**GER 202** 3 Credits
**Intermediate German I and II (3+0) h**
Continuation of GER 102. Increasing emphasis on reading ability and cultural material. Conducted in German. Materials fee: $2.00. (Prerequisite: GER 102 or equivalent.)

**GER 301** 3 Credits
**GER 302** 3 Credits
**Advanced German (3+0) h**
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in German. Materials fee: $2.00. (Prerequisite: GER 202 or equivalent.)

**GER 431** 3 Credits
**Studies in the Culture of the German Speaking World (3+0) h**
Study of the cultures of the German speaking world. Conducted in German. Students may repeat course for credit if topic varies. Materials fee: $5.00. (Prerequisites: GER 301 or equivalent; junior standing or permission of instructor.)

**GER 432** 3 Credits
**Studies of Literature in German (3+0) h**
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in German. Student may repeat course for credit when topics vary. Materials fee: $5.00. (Prerequisites: GER 302 or equivalent and at least junior standing, or permission of instructor.)

**GER 487** 3 Credits
**Translation of German Texts (3+0) h**
Expansion of vocabulary and grammatical knowledge, emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language; and literary and non-literary texts. Student may repeat course for credit if material varies. Conducted in German. Materials fee: $10.00. (Prerequisites: GER 302 or equivalent and at least junior standing, or permission of instructor. Next offered: 1993-94.)

**GER 488** 3 Credits
**Individual Study: Senior Project h**
Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Offered normally in the semester preceding the student's graduation. Conducted in German. (Prerequisites: At least 10 credits in upper division German or permission of instructor.)

# Health

**HLTH 101** 1 Credit — As Demand Warrants
**CNR - Normal Nutrition Counseling (1+1)**
First in a series of four courses examines basic applied nutrition and counseling techniques. Counseling opportunities are provided to allow students to practice skills learned in the classroom. Graded Pass/Fail.

**HLTH 102** 1 Credit — As Demand Warrants
**CNR - Therapeutic Nutrition Counseling (1+1)**
Second in a series of four courses examines basic therapeutic knowledge and nutrition counseling techniques. Counseling opportunities are provided to allow students to practice skills learned in the classroom. Kuskokwim Campus only. Graded Pass/Fail. (Prerequisite: HLTH 101 or permission of instructor.)

**HLTH 103** 1 Credit — As Demand Warrants
**CNR - Nutrition Education and Food Preservation (1+1)**
Third in a series of four courses examines methods for planning and presenting group nutrition education talks and food preservation methods. Graded Pass/Fail. (Prerequisite: HLTH 102 or permission of instructor.)

**HLTH 104** 1 Credit — As Demand Warrants
**CNR - Community Resources and Problem Solving (1+1)**
Fourth in a series of four courses examines community nutrition resources and methods for community nutrition problem solving. Graded Pass/Fail. (Prerequisite: HLTH 103 or permission of instructor.)

**HLTH 108** 3 Credits — As Demand Warrants
**Nurse Aide/Patient Care Assistant Training**
Basic skills necessary to assist nurses and to be efficient health care team members. Supervised work in conjunction with health care professionals in hospitals and agencies appropriate for these experiences. (Prerequisite: High school diploma or permission of instructor.)

**HLTH 120** 1 Credit — As Demand Warrants
**Industrial First Aid (1+0)**
Includes CPR training, control of bleeding and shock, recognizing heart problems, stroke, poisoning, sugar diabetes, epileptic seizures, and dealing with major trauma injuries such as fractures, head, neck and back injuries. Also covered are hypothermia, frostbite, and cold water near-drowning. Upon satisfactory completion of course, students will receive a Mines Safety Health Administration Certificate, a State Industrial First Aid Card, and the American Heart Association CPR card.

**HLTH 203** 3 Credits — Independent Learning Only
**Science of Nutrition**
Principles of nutrition and their relationship to the life cycle. Importance of nutrition awareness and good dietary habits stressed.

**HLTH 281** 1 Credit — As Demand Warrants
**Pharmacology Update (1+0)**
Update on pharmacology including review of old drugs and information on new drugs. Review of pharmaceutical calculations and pharmacodynamics. (Prerequisite: Practicing or licensed nurse.)

# History

**HIST 100X** 3 Credits — Fall, Spring
**Modern World History (3+0) s**
Significant aspects of modern world history, using either a chronological or an issues approach to be announced when offered. The chronological approach will examine major global developments in the twentieth century, while the issues approach will deal with such aspects of the modern world as revolutionary change, the interaction of peoples, ideology, and the historical background of significant contemporary events.

**HIST 101** 3 Credits — Fall
**Western Civilization (3+0) s**
Origins and major political, economic, social, and intellectual developments of western civilization 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) s**
The region's history beginning with oral traditions about the creation of the area, and ending with passage of the Alaska Native Land Claims Act in 1971. Concentrates on Yup'ik social, economic, and educational changes, including both native and non-native accounts. Offered only at the Kuskokwim Campus.

**HIST 105** 1 Credit — As Demand Warrants
**Introduction to the History and Culture of the Seward Peninsula (1+0) (Same as ANTH 105)**
Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, social anthropology, ecology, and climatology. Eskimo and Euro- American cultures which have existed in western Alaska. Materials fee: $5.00.

**HIST 110** 3 Credits — Fall, Spring
**History of Alaska Natives (3+0) s**
The history of Alaska Natives from contact to the signing of the Land Claims Settlement Act.

**HIST 115** 3 Credits — Independent Learning Only
**Alaska, Land and Its People (3+0) s**
A survey of Alaska from earliest days to present, its peoples, problems, and prospects.

**HIST 121** 3 Credits — Alternate Fall
**East Asian Civilization (3+0) s**
Origin and development of the civilizations of China, Japan and Korea from the beginning to 1800, with emphasis on traditional social, political, and cultural institutions. (Next offered: 1993-94.)

**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: 1993-94).

**HIST 123** 3 Credits — As Demand Warrants
**Japan: The Changing Tradition (3+0)**
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**
**HIST 132** 3 Credits **Spring**
**History of the U.S. (3+0) s**
Fall semester: The discovery of America to 1865. Colonial period, revolution, formation of the constitution, western expansion, Civil War. Spring semester: From the reconstruction to the present. Both courses also available via Independent Learning.

**HIST 141** 3 Credits **Alternate Fall**
**Africa to 1800 (3+0) s**
Major developments and trends in African history to 1800, with particular emphasis on political, social, and economic factors. Topics include early civilizations, cultural diversity, migrations, trade routes, religion, customs, and the slave trade. (Next offered: 1993-94.)

**HIST 142** 3 Credits **Alternate Spring**
**Africa Since 1800 (3+0) s**
Introduction to the complex issues which have formed modern Africa, including imperialism, colonialism, partition, social unrest, and numerous other difficulties resulting from contact with non-African societies. (Next offered: 1993-94.)

**HIST 200** 3 Credits **As Demand Warrants**
**Heritage of Alaska Natives (3+0)**
Alaska Native cultures, kinship systems, world views and social organizations. Covers pre-contact days to the present including effects of the Native Land Claims Act.

**HIST 201** 3 Credits **As Demand Warrants**
**History of the Bering Straits (3+0) s**
Covers prehistory, exploration and permanent settlement, material culture, religion, education. Focus on the influence these factors have had on development of the region. Includes analysis of perceptions of others in writings about the region.

**HIST 202** 3 Credits **Alternate Spring**
**History of Women in America (3+0) s**
**(Same as WMS 202)**
A chronological approach; study of issues of concern; introduction to different approaches utilized in analysis of women's past; consideration of multi-racial backgrounds. (Next offered: 1993-94.)

**HIST 244** 3 Credits **As Demand Warrants**
**Movies: Mirror of the World (3+0) s**
World history using the medium of film to highlight cultural, economic and political conditions of each country. Films will be from the USA, Mexico, Central America, South America, England, France, Russia, Turkey, India, China, Japan, Australia, Africa, and the Arctic. Offered only at the Kuskokwim Campus.

**HIST 250** 3 Credits **As Demand Warrants**
**Alaska History for Local Historians (3+0)**
Techniques of regional and local historical research using exploration accounts, oral history, education reports, census studies, newspapers, etc. Final project of original research required. This local history course is currently available with emphasis on the Bering Straits, Bristol Bay, and Aleutian/Pribilof regions.

**HIST 257** 3 Credits **As Demand Warrants**
**Gold Rush Era: Myth and Reality (3+0)**
The Gold Rush Era of 1880-1905 in Alaska and the Yukon. Emphasis on the Klondike, but Juneau, Nome and Fairbanks are also investigated. Fact and fiction utilized to understand the myth and reality of the era.

**HIST 305** 3 Credits **Alternate Fall**
**Europe: 1789-1850 (3+0) s**
The French Revolution, Napoleon, the Industrial Revolution, the Revolutions of 1848, their impact on political, economic, social and intellectual history. (Prerequisite: HIST 102 or permission of instructor. Next offered: 1993-94.)

**HIST 306** 3 Credits **Alternate Spring**
**Europe: 1850-1900 (3+0) s**
The European Imperium | industrialization, nationalism, imperialism and their impact on political, economic, social and intellectual history. (Prerequisite: HIST 102 or permission of instructor. Next offered: 1993-94.)

**HIST 315** 3 Credits **Alternate Fall**
**Europe: 1900-1945 (3+0) s**
Europe through two world wars, the Russian Revolutions, the depression, the development of fascism, the evolution of Russian Communism. (Prerequisites: HIST 101, 102 or permission of instructor. Next offered: 1993-94.)

**HIST 316** 3 Credits **Alternate Spring**
**Europe Since 1945 (3+0) s**
Germany and problems of the Peace, the Soviet Union and the Satellites, the Cold War, Economic Problems and Recovery, European Integration and the Common Market, Europe and the World. (Prerequisites: HIST 101, 102 or permission of instructor. Next offered: 1993-94.)

**HIST 320** 3 Credits **Alternate Spring**
**Modern Scandinavia (3+0) s**
Scandinavia (Denmark, Finland, Iceland, Norway, and Sweden) from the 19th Century to the present: the development of parliamentary democracy and welfare systems, cooperation and neutrality, and Scandinavia's experience in the world wars. (Prerequisite: HIST 101 or 102 or permission of the instructor. Next offered: 1993-94.)

**HIST 321** 3 Credits **Alternate Fall**
**HIST 322** 3 Credits **Alternate Spring**
**English History (3+0) s**
Fall semester: Pre-Roman Britain to the end of the Puritan Revolution, emphasizing social and political developments. Spring semester: From the restoration of 1660 to the present, emphasizing social, economic, and political developments. Attention given to the British Empire and Commonwealth. (Next offered: 1993-94.)

**HIST 330** 3 Credits **Alternate Fall**
**Modern China (3+0) s**
From 1800 to the present: resistance to change, rebellion, reform, revolution, and the rise of the People's Republic. (Prerequisite: HIST 121 or 122 or permission of instructor. Next offered: 1993-94.)

**HIST 331** 3 Credits **Alternate Spring**
**Modern Japan (3+0) s**
From 1600 to the present: change within tradition, rise to world power, and the position of Japan in the modern world. (Prerequisite: HIST 121 or 122 or permission of instructor. Next offered: 1993-94.)

**HIST 340** 3 Credits **Fall**
**Russian Eastward Expansion (3+0) s**
A history of Russian exploration, conquest and settlement in Siberia, Central Asia and the Caucasus region, including the impact of this contact on the indigenous peoples and on relations with other countries. (Prerequisites: HIST 101, 102 or permission of instructor.)

**HIST 341** 3 Credits **Fall**
**History of Alaska (3+0) s**
Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial Alaska, military Alaska, statehood, Alaska Native Claims Settlement Act of 1971, and the Alaska National Interest Lands Act of 1980. Also available via Independent Learning. (Prerequisite: Junior standing.)

**HIST 344** 3 Credits **Spring**
**History of Russia (3+0) s**
Origin and development of Russia from early times to the present. Emphasis on the nineteenth and twentieth centuries. (Prerequisites: HIST 101, 102 or permission of the instructor.

**HIST 345** 3 Credits **Independent Learning Only**
**Maritime History of Alaska (s)**
A survey of Alaska's maritime history with emphasis on exploration and resource utilization by Natives, Russians and Americans. (Prerequisite: Junior standing or permission of the instructor.)

**HIST 350** 3 Credits **Alternate Spring**
**History of the People's Republic of China (3+0) s**
Political, economic, and social developments, from 1949 to the present. (Prerequisite: HIST 121 or 122, or permission of instructor. Next offered: 1993-94.)

**HIST 354** 3 Credits **Alternate Fall**
**Canadian History to 1867 (3+0) s**
The political, social, and economic development of Canada from the founding of New France to Confederation. (Next offered: 1993-94.)

**HIST 355** 3 Credits **Alternate Spring**
**Canadian History: 1867 to Present (3+0) s**
The political, social, and economical development of Canada from Confederation to the present. (Next offered: 1993-94.)

**HIST 375** 3 Credits **Alternate Fall**
**History of the Northern Pacific (3+0) s**
Development and interrelationships and problems of the North Pacific (Siberia, Canada, Alaska) from the 18th century to the present. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**HIST 380** 3 Credits **Alternate Spring**
**Polar Exploration and its Literature (3+0) s**
**(Same as NORS 602)**
A survey of polar exploration efforts of all Western nations from A.D. 870 to the present and a consideration of the historical sources of this effort. Also available via Independent Learning. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**HIST 382 3 Credits Alternate Spring**
**History of Circumpolar Research (3+0) s**
**(Same as LS 382)**
Studies the history of arctic and sub-arctic sciences through geological, biological and atmospheric sciences and the people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology research in education, government and law covered. The literature and source material on these fields analyzed. (Prerequisite: HIST 110 or 115 or ANTH 242 or BIOL 104 or permission of instructor. Next offered: 1993-94.)

**HIST 384W 3 Credits Alternate Fall**
**20th Century Circumpolar History (3+0) s**
**(Same as NORS 603)**
A comparative history of the circumpolar north, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze, and scientific research in the Arctic. (Prerequisite: Junior standing or permission of the instructor. Next offered: 1993-94.)

**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: 1993-94.)

**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: 1993-94.)

**HIST 405 3 Credits Alternate Fall**
**Modern Germany (3+0) s**
Germany from 1848 to present: unification, the Second Empire, WWI, the Weimar Republic, National Socialism, WWII, the Holocaust, the creation of two post-war German states with different societies and reunification. Emphasis on political, social and economic developments. (Prerequisite: HIST 101 or 102. Next offered: 1993-94.)

**HIST 424 3 Credits Alternate Spring**
**Topics in Women's History (3+0) s**
**(Same as WMS 424)**
An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present. (Prerequisites: A lower division history course and junior standing or permission of instructor. Next offered: 1993-94.)

**HIST 430W 3 Credits Alternate Fall**
**American Colonial History (3+0) s**
Early America European settlement, economic and social development of the American community, establishment of political independence. (Prerequisites: HIST 131, 132 or permission of instructor. Next offered: 1993-94.)

**HIST 435W 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: 1993-94.)

**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. (Prerequisite: HIST 131 or permission of instructor. Next offered: 1993-94.)

**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. (Prerequisite: HIST 132 or HIST 440 or permission of instructor.)

**HIST 442 3 Credits Fall**
**History of the American Military s**
**(Same as MILS 442)**
The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves. Also available via Independent Learning. (Prerequisite: Sophomore standing or permission of instructor.)

**HIST 450W 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: 1993-94.)

**HIST 451 3 Credits Independent Learning Only**
**History of U.S. Foreign Policy s**
Evolution of U.S. foreign policy with emphasis on post-World War II period and emergence of a bipolar distribution of power. Includes 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 tactics and strategy. (Prerequisites: Junior standing or permission of instructor. Next offered: 1993-94.)

**HIST 460 3 Credits Spring**
**Russian America (3+0) s**
A history of Russian exploration and settlement in North America, including the impact of this contact on the indigenous peoples.

**HIST 470W 3 Credits Spring**
**Researching and Writing Alaska History (1.5+3)**
Introduction to research methodology, differing historical interpretations, resources used by historians, such as primary materials and secondary sources, and appropriate footnoting. Research paper required based on archival sources. (Prerequisite: Senior standing or permission of instructor.)

**HIST 475W 3 Credits Fall**
**Historiography (3+0) s**
Historical interpretation by different historians on a topic of the student's choosing. (Prerequisites: History major with junior or senior standing or instructor permission.)

**HIST 476W 3 Credits Spring**
**Historical Method (3+0) s**
Preparation and writing of a senior thesis using primary research materials on a topic of the student's choosing. (Prerequisites: HIST 475 and instructor permission.)

**HIST 600 3 Credits Fall**
**Perspectives on the North (3+0)**
**(Same as NORS 484 and NORS 600)**

**HIST 690 3 Credits Alternate Spring**
**Researching and Writing Public Northern History (1+3)**
**(Same as NORS 690)**

## Honors

**HONR 390 3 Credits Alternate Spring**
**Liability and Ethics: Practical Questions in Today's Complex Society (3+0) s**
Ethical questions regarding the practice of a profession in today's complex society are explored. These are integrated into the associated fields of law, liability and insurance, among other fields, as they relate to working in today's highly competitive marketplace. (Prerequisites: Sophomore standing and permission of the Honors Director or instructor.)

## Human Services

**HMSV 201 3 Credits As Demand Warrants**
**Introduction to Human Services (3+0)**
Examines purposes and functions of the various social and human service programs which constitute society's organized response to social problems. Federal, state and local programs and agencies are described, including those directed at child welfare, alcohol and drug abuse, mental health, juvenile delinquency, and discrimination. (Prerequisite: SOC 101 or PSY 101).

**HMSV 205 3 Credits Fall**
**Factors in Health and Disease (3+0)**
Introduction to the phenomenon of human disease. Cases presented demonstrate ways the normal healthy state may be disrupted by external or internal influences. Natural histories of major types of disease are reviewed.

**HMSV 210 3 Credits Alternate Fall**
**Crisis Intervention (3+0)**
Theoretical foundations and appropriate techniques and strategies for helping individuals, families, and groups during stressful situations. Application of the crisis approach to stress-induced situations, such as natural disasters, developmental life crises, rapid social change, and situational crises such as illness and personal loss. (Prerequisites: SOC 101, PSY 101 or permission of instructor. Next offered: 1993-94.)

**HMSV 215 3 Credits As Demand Warrants**
**Death and Dying (3+0)s**
An interdisciplinary study of thanatology with material from multicultural, humanistic and life span perspectives. Topics include attitudes in societies, individual responses to bereavement, children's understanding of death and ethical issues associated with choices at the end of life. (Prerequisite: Instructor permission.)

**HMSV 225 2 Credits As Demand Warrants**
**Case Management (2+0)**
**(Same as SWK 225)**
Basic knowledge and skills to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management considered and discussed.

**HMSV 230 3 Credits As Demand Warrants**
**Alcoholism: Causes and Consequences (3+0)**
Examination of theories concerning the causes of alcoholism. Physical and psychological factors, personality disorders or disease states. Data supporting these theories evaluated. (Prerequisite: SOC 101 or PSY 101 or permission of instructor.)

**HMSV 255 3 Credits Fall**
**Foundations of Counseling I (3+0)**
**(Same as PSY 255)**
Survey of counseling philosophy approaches and types of counseling systems in use. Topics include approach and system match; psychoanalysis, behavior therapy, and humanistic approaches; counseling ethics and ethical problems. (Prerequisites: PSY 101, 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 announced. (Prerequisite: Permission of instructor.)

**HMSV 330 3 Credits As Demand Warrants**
**Alcoholism: Treatment and Prevention (3+0)**
Survey and evaluation of alcoholism and alcohol abuse treatment and prevention programs with emphasis on prevention strategies. (Prerequisites: HMSV 230.)

**HMSV 340 1 Credit Spring**
**Peer Advisor Training (1+0)**
Emphasis on developing skills needed to assist exploratory/undecided students with their academic planning and decision making. Topics include resource referral, communication/active listening, academic and career planning, time and stress management, group dynamics, and values clarification. (Prerequisites: Sophomore standing and application.)

**HMSV 342 1-3 Credit Fall, Spring**
**Peer Advising Practicum (0+3 or more)**
Supervised peer advising experience (both individually and paired with faculty member) in the Academic Advising Center or appropriate department, allowing for application of theory and skills gained in HMSV 340. (Prerequisite: HMSV 340.)

**HMSV 356 3 Credits Spring**
**Foundations of Counseling II (3+0)**
**(Same as PSY 356)**
Continuation of HMSV 255. Specific counseling strategies studied in-depth include crisis intervention, individual techniques such as the rational therapies, and specific behavioral approaches. Other topics include role of the counselor in community education and consultation, methods of promoting community change and issues in cross-cultural counseling. (Prerequisite: HMSV 255 or PSY 355.)

**HMSV 410 3 Credits As Demand Warrants**
**Management of Human Services Programs (3+0)**
Basic methods of program management and personnel supervision, with emphasis on applications in rural or isolated locations. Supervised in-service activities. (Prerequisite: HMSV 255.)

**HMSV 415 3 Credits As Demand Warrants**
**Group Processes (3+0)**
Study of various groups including problem solving/task-oriented, encounter, therapy, career guidance, and assertive training. Different theoretical orientations to group counseling discussed. (Prerequisites: HMSV 255, 356.)

**HMSV 445 3 Credits Fall**
**Community Psychology (3+0)**
**(Same as PSY 445)**
Foundations of community psychology including community assessment consultations. Community assessment activities explored include selecting study areas, surveys, evaluation of services, and use of results. During the community consultation portion, education, prevention, and service issues are covered. Attention given to rural and small community assessment and change especially as it applies to Alaska. (Prerequisites: PSY 101, SOC 101 and HMSV 201.)

**HMSV 488 3-6 Credits As Demand Warrants**
**Practicum in Human Services**
Supervised work experience in case management including interviewing, assessment, facilitating, and intervening. Enrollment can be prior to or concurrent with placement in a human service agency. Student's study and work directed by a university instructor and an agency supervisor. (Prerequisites: HMSV 255. Student must be a major in the program.)

# Human Service Technology

**HST 101 3 Credits Fall**
**Introduction to Human Services (3+0)**
Overview of human services including history, social welfare system, strategies of intervention and career opportunities. A generalist human service model of helping will be presented. Issues related to providing human services in Alaska presented.

**HST 105 3 Credits Fall**
**Personal Awareness and Growth (3+0)**
Interpersonal and intrapersonal communication explored. Personal growth process presented from a holistic perspective. Focus will identify opportunities for personal enrichment through increased awareness of self and others.

**HST 120 3 Credits Spring**
**Cultural Diversity in Human Services (3+0)**
The impact of culture on the delivery of human services with emphasis on Alaskan Native cultures; examination of relationship of multi-cultural and multi-ethnic concepts. Issues of age, class, disablement, race, gender and sexual orientation will also be discussed.

**HST 125 3 Credits Spring**
**Introduction to Addictive Processes (3+0)**
Focus on gaining knowledge of the psycho-social aspects of addiction. Historic and behavioral approaches, disease concept and current trends relating to addiction presented. Twelve step and self-help approaches explored.

**HST 205 3 Credits Spring**
**Basic Principles Group Counseling (3+0)**
Concepts and techniques of working with small groups, including establishing group goals, effective group interaction, termination and evaluation. Development of therapeutic group activities presented.

**HST 210 3 Credits Fall**
**Crisis and Grief Counseling (3+0)**
Helping people in crisis from a theoretical and experiential perspective. Understanding how people feel, think and behave during periods of crisis and grieving. Suicide, violence, life transitions and AIDS explored.

**HST 215 3 Credits Fall**
**Individual Interviewing (3+0)**
Introduction to interpersonal communication skills. Focus on gathering client information through the interviewing process. Emphasis on development of one to one interviewing, behavioral observation and documentation skills.

**HST 230 2 Credits Fall, Spring**
**Human Service Practicum I (0+8)**
Integration of human service theory with skill-based training through a professional, supervised experience in a human service agency. Practicum requires a minimum of 8 hours of placement per week. (Prerequisites: HST 101, 105, 120, 125 and permission of instructor.)

**HST 231 2 Credits Fall, Spring**
**Human Service Practicum II (0+8)**
Continuation of HST 230. (Prerequisite: HST 230.)

**HST 240 1 Credit Fall, Spring**
**Human Service Seminar I (1+0)**
Human service documentation including progress notes, social history, mental status exam, and journaling. Student shared learning and peer support based on practicum experience. (Prerequisites: HST 101, 105, 120, 125.)

**HST 241 1 Credit Fall, Spring**
**Human Service Seminar II (1+0)**
Human service documentation skills, student shared learning and peer support based on practicum experience. (Prerequisite: HST 240.)

**HST 250 1-4 Credits As Demand Warrants**
**Current Issues in Human Service (1-4+0)**
Selected current issues of importance to the human service field. Emphasis on issues impacting Alaskan communities. Repeatable for credit by HST majors to a maximum of 6 credits.

**HST 301O(g) 3 Credits Spring**
**Ethics in Human Service (3+0)**
Professional and ethical issues related to the helping professions. Ethical concerns in multicultural and rural human service delivery. Ethics and legal issues related to substance abuse counseling in Alaska.

**HST 305 3 Credits Spring**
**Substance Abuse Counseling (3+0)**
Introduction to the basic principles of substance abuse counseling. Application of counseling modalities to intervention and treatment of individuals, families and groups experiencing alcohol and drug abuse or dependence. Cross-cultural issues addressed. (Prerequisite: HST 125.)

# Humanities

**Admission to this program is presently suspended.**

**HUM 101 3 Credits As Demand Warrants**
**The Humanities: A Cultural Perspective (3+0) h**
Examination of humanities using a non-Yup'ik culture and the Yup'ik culture as bases. Introduction of fundamental principles of Yup'ik and non-Yup'ik performing and visual arts, ideas and cultural developments that have stirred and enriched civilization, and aspects of Yup'ik and non-Yup'ik culture to help students develop greater awareness of forces that affect them. Offered only at the Kuskokwim campus.

**HUM 131 3 Credits As Demand Warrants**
**Introduction to Alaska Literature (3+0)**
Survey of Alaskan literature, poetry and drama with emphasis on appreciation of literature written by both natives and non-Natives. Students read examples from oral Native tradition, the frontier era, and meet contemporary living writers by audioconference.

**HUM 161 3 Credits As Demand Warrants**
**In Our Own Image (3+0)**
Focuses on some very basic notions about people - how they see things and what they care about - and some very basic notions about the fine arts - how they are created, how they communicate, and how they can be evaluated.

**HUM 201 3 Credits Fall**
**Unity in the Arts (3+0) 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 scientific methods and principles within a larger cultural context. Explanation of the roles of mathematics and logic in the structure of the scientific enterprise. (Prerequisite: Open to students beyond the freshman level or by permission of the instructor.)

**HUM 211 3 Credits As Demand Warrants**
**Introduction to Humanities I (3+0)**
Integrated exploration of fundamental principles of literature, music, and visual arts.

**HUM 212 3 Credits As Demand Warrants**
**Introduction to Humanities II (3+0)**
Study of specific historical period or periods with reference to philosophy, literature, science, art and music.

**HUM 220 3 Credits As Demand Warrants**
**Film: Asthetics, Criticism, History (3+0) h**
Film as an art form, featuring documentaries and examples from the early history of film. Emphasis on aesthetic value of film as art and the place of film in the contemporary history of art.

**HUM 241 3 Credits As Demand Warrants**
**HUM 242 3 Credits As Demand Warrants**
**Eskimo and World Literature (3+0)**
Examination of literature of the Eskimo peoples as well as of other Native North Americans, Asians, and Europeans. Universal and timely themes are compared which communicate aspects of the human experience valid across cultures and times. HUM 241 is not prerequisite to HUM 242.

**HUM 329O(t) 3 Credits Alternate Fall**
**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: 1993-94.)

**HUM 332 3 Credits Alternate Spring**
**Varieties of Visual Expression: Art as Image and Idea (3+0) h**
Discussion of the visual elements of art, principles of visual organization, the process of artistic perception and its evaluation by the viewer. (Prerequisite: 3 credits in the visual arts or permission of instructor. Next offered: 1993-94.)

**HUM 342 3 Credits Alternate Spring**
**Synthesis in Musical Expression (3+0) h**
In-depth study of one of the classical composers to show culmination of generic efforts and inter-arts relationships. (Prerequisite: MUS 123 or 124, or permission of instructor. Next offered: 1993-94.)

**HUM 411 3 Credits Alternate Fall**
**Dimensions of Literature (3+0) h**
Systematic discussion of the medium of literary creation, of the organization of literary texts and the functions of literature. (Prerequisites: 6 credits in literature courses, or permission of the instructor. Next offered: 1993-94.)

**HUM 467 3 Credits Alternate Fall**
**Architecture: Art, Design, Technology and Social Impact (3+0) h**
Concepts of environmental, urban, and industrial design. Relationship of human and natural environment is stressed in this history of architecture with special attention given to contemporary conditions in urban areas and effects of industrialization and mechanization on human living and working spaces, artistic design, and aesthetics. (Prerequisites: ART 261 and 262 or HUM 201 and 202 or permission of instructor. Next offered: Fall 1992.)

**HUM 492 3 Credits Alternate Spring**
**Senior Seminar (3+0) h**
Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense. (Prerequisite: Open requirements, or by permission of the instructor. Next offered 1993-94.)

# Japanese

For information on studying in Japan, see Study Abroad.

**JPN 101 5 Credits Fall**
**JPN 102 5 Credits Spring**
**Elementary Japanese I and II (5+0) h**
Introduction to spoken and written Japanese. The student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese. Materials fee: $10.00.

**JPN 201 4 Credits Fall**
**JPN 202 4 Credits Spring**
**Intermediate Japanese I and II (4+0) h**
The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Courses are taught in Japanese. Materials fee: $5.00. (Prerequisite: JPN 102 or equivalent.)

**JPN 301 3 Credits Fall**
**JPN 302 3 Credits Spring**
**Advanced Japanese (3+0) h**
Development of advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics. Materials fee: $5.00. (Prerequisite: JPN 202 or equivalent.)

**JPN 331** **3 Credits** **Alternate Spring**
**Women's Voices in Japanese Literature (3+0) h**
**(Same as WMS 331)**
A close reading of selected novels, short stories, poems, and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society, the role of women writers as social critics, and cross-cultural differences and similarities in women's issues. (Prerequisites: ENGL 211X or 213X, ENGL/FL 200x; HIST 121, 122 or 331 recommended. Next offered: 1993-94.)

**JPN 332** **3 Credits** **Alternate Spring**
**Japanese Cultural Traditions (3+0) h**
A study of Japanese cultural traditions as revealed in the literary, visual, and performing arts. Discussion of literature in English translation is integrated with slide-lectures on Buddhist painting and sculpture, picture scrolls, castle decoration, woodblock prints, the tea ceremony, gardens, and the No, Kabuki, and puppet theatres. Course is taught in English. Materials fee: $15.00. (Prerequisite: Junior standing or consent of instructor. Next offered: 1993- 94.)

**JPN 333** **3 Credits** **Alternate Spring**
**Twentieth Century Japanese Prose Fiction (3+0) h**
A study of selected novels, short stories, and film scripts in translation representative of styles and themes which characterize twentieth century Japanese literature. Analysis of each work in terms of characterization, themes, structure, style, and as an expression of social problems or intellectual issues in modern Japanese society. Course is taught in English. Materials fee: $15.00. (Prerequisite: Junior standing or consent of instructor. Next offered: 1994-95.)

**JPN 431** **3 Credits** **Fall**
**Studies in Japanese Culture (3+0) h**
Further study of advanced written and spoken Japanese through essays, newspaper and journal articles, and television documentaries dealing with topics in Japanese culture. Materials fee: $5.00. (Prerequisite: JPN 302.)

**JPN 432** **3 Credits** **Spring**
**Studies of Literature in Japanese (3+0) h**
Intensive study of authors, literary texts, movements, genres, themes or critical approaches. Conducted in Japanese. Student may repeat course for credit when topics vary. Materials fee: $5.00. (Prerequisites: JPN 302 or equivalent; at least junior standing or permission of instructor.)

**JPN 475** **3 Credits** **As Demand Warrants**
**Seminar on Contemporary Japan (3+0) h**
Ties together various threads of the Japanese Studies program and gives students an opportunity to apply their knowledge to contemporary issues in Japan. Provides a forum for student presentations of research papers begun in Japan. (Prerequisite: Upper division semester in Japan at pre-approved program.)

# Journalism-Broadcasting

**JB 101** **3 Credits** **Fall**
**Introduction to Mass Communications (3+0) h**
History and principles of mass communications and the role of information media in American society. Introduction to professional aspects of mass communications, including print and broadcast. Also available via Independent Learning.

**JB 102** **3 Credits** **Spring**
**Introduction to Broadcasting (3+0) h**
Principles of broadcasting as they relate to the people of the United States, including history, government involvement, and social effects.

**JB 105** **3 Credits** **Spring**
**History of the Cinema (3+0) h**
History and development of the medium of film in the United States and abroad during the last 100 years. Content will vary each semester. Materials fee: $25.00. Also available via Independent Learning.

**JB 201** **3 Credits** **As Demand Warrants**
**Writing for the Media (3+0) h**
Basic journalism writing, including information gathering, grammar, word use and style, news story structure, interviewing techniques, headline writing, and writing for broadcast news. Emphasis on student mastery of clear, concise writing. Available via audio conferencing. (Prerequisite: ENGL 111X or instructor permission.)

**JB 203** **3 Credits** **Fall, Spring**
**Basic Photography (2+3) h**
Photography fundamentals, including use of an adjustable camera, film and exposure techniques, filters, flash techniques, and an introduction to color. Darkroom procedures including black and white film processing and printing, photograph design and composition. Students must have use of an adjustable camera. Laboratory fee: $40.00.

**JB 204** **3 Credits** **Spring**
**Photojournalism (2+3) h**
Fundamentals of visual communication through photography; issues and techniques of modern photojournalism; news, features, sports, fashion, and the photo essay assignments as encountered at a daily newspaper; preparation of photographs for publication. Students must have basic 35mm camera equipment. Laboratory fee: $40. (Prerequisite: JB 203 or instructor permission.)

**JB 215** **3 Credits** **Fall, Spring**
**Audio Production (2+3)**
Sound production for radio, television, film, and stage amplifications. Emphasis on writing, recording, control room techniques, and editing. Laboratory fee: $25.00.

**JB 217** **3 Credits** **Spring**
**Introduction to the Study of Film (2+2) h**
**(Same as ENGL 217)**
An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects. (Prerequisite: ENGL 111X.)

**JB 240** **3 Credits** **Spring**
**International Communications (3+0) h**
Historical development of different mass communication systems around the globe. The relationship between press philosophies and their practical implementation. Mass communication systems of selected countries as representative examples of generalized systems.

**JB 301W** **4 Credits** **Fall, Spring**
**News Reporting and Writing (2+4) h**
Finding and getting the story, writing the lead, developing story structure, writing on deadline, editing copy, writing headlines and captions, cropping and sizing pictures, and writing for broadcast news. Laboratory fee: $25.00. (Prerequisites: ENGL 111 and ENGL 211, 213 or 311, junior standing or instructor permission.)

**JB 308** **3 Credits** **Fall**
**Film and TV Criticism (3+0) h**
Theoretical approaches to viewing, analyzing and evaluating film and television program content. Laboratory fee: $25.00.

**JB 311W** **3 Credits** **Fall, Spring**
**Magazine Article Writing (2+1) h**
Writing articles for publication. Students repeating the course limited to six credits. Laboratory fee: $25.00. (Prerequisite: JB 301 or permission of instructor.)

**JB 316** **3 Credits** **Fall**
**Television Productions (2+4)**
Television production, floor directing, audio, camera, film chain, staging, lighting, and switching. Materials fee: $40.00. (Prerequisite: JB 215 or permission of instructor.)

**JB 317W** **3 Credits** **Fall**
**Broadcast Journalism (3+0)**
Overview of the broadcast journalism field. Emphasis on intensive broadcast news writing practice, including interviewing techniques, ethical issues and current controversies, structure of television and radio news operations and broadcast reporting experiences. (Prerequisite: JB 301 or instructor permission.)

**JB 320** **3 Credits** **Spring**
**Journalism in Perspective (3+0) h**
Present problems and trends in mass communication with emphasis on historical development, including survey of world press coverage and problems. (Prerequisite: Junior standing.)

**JB 323** **3 Credits** **Fall**
**Publication Editing (3+0)**
Publication management and editing: content selection, design, editorial responsibility, and economics of publishing. Laboratory fee: $25.00. (Prerequisite: Junior standing.)

**JB 324** **3 Credits** **Spring**
**Typography and Publication Design (2+2)**
Typography, layout, and design, coupled with a study of the methods of printing production. Materials fee: $25.00. (Prerequisite: Permission of instructor.)

**JB 326** 3 Credits Spring
**Principles of Advertising (3+0)**
**(Same as BA 326)**
Advertising including strategy, media use, creation and production of advertisements and measurement of advertising effectiveness. (Prerequisite: Junior standing.)

**JB 340** 3 Credits Fall
**Mass Media and Society (3+0) s**
The growth and development of mass media research in the U.S. in the twentieth century. Methods used in media research, how the data are used by media professionals, and how to evaluate current media research. Different forms of research conducted using local media. Use of Neilson and Arbitron ratings books.

**JB 380** 3 Credits Fall
**Women, Minorities and the Media (3+0)**
**(Same as WMS 380)**
Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how accurately the media reflects our society demographically. Presented from a feminist, multi-culturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age, and sexual orientation. (Prerequisite: Junior standing.)

**JB 400** 1-3 Credits Fall, Spring
**Media Practicum (1+6)**
Practical training in print or electronic communication. Participation at an approved publication or broadcast station required. (Prerequisite: Senior standing or permission of instructor.)

**JB 402** 3 Credits Fall
**Advanced Photography (2+3)**
Continuation of JB 203. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography. Laboratory fee: $40. (Prerequisite: JB 203 or instructor permission.)

**JB 407** 3 Credits Alternate Year
**Broadcasting Programming (3+0)**
Programming practices at radio and TV stations, networks, cable companies and relationship of the practices with sales, audience, and government. (Prerequisites: JB 215 and JB 316 or permission of instructor. Next offered: Spring 1994.)

**JB 408** 3 Credits Alternate Year
**Broadcast Station Management (3+0)**
Overview of broadcast station management, including management theories, media competition, media research, regulatory issues of concern to managers, organizational planning, and future trends in media. Case studies in practical problem solving techniques. (Prerequisites: Senior standing or permission of instructor. Next offered: Fall 1993.)

**JB 411W** 3 Credits Alternate Year
**Advanced Writing for Publication (3+0) h**
Writing advanced prose for publication in books or magazines. May be repeated for credit with permission of instructor. Laboratory fee: $25.00. (Prerequisite: JB 311 or permission of instructor. Next offered: Fall 1994.)

**JB 413** 3 Credits Fall
**Mass Media Law and Regulation (3+0) s**
Common law, statutory law and administrative law that affects the mass media, including libel, copyright, access to the media, constitutional problems, privacy, shield laws, and broadcast regulations. (Prerequisite: JB 301 or permission of instructor.)

**JB 415** 3 Credits Spring
**Electronic Newsgathering (2+2)**
Electronic news gathering, electronic field production using remote videotape equipment. Scriptwriting, budgets, location sound recording, interview techniques, editing, videography, and other aspects of field production. Materials fee: $40.00. (Prerequisites: JB 316, 317.)

**JB 416** 3 Credits Fall
**Advanced TV News Production (1+6)**
In-depth experience with television news production including electronic newsgathering. Emphasis on producing broadcast quality news footage and packages. Materials fee: $40.00. (Prerequisites: JB 316, 317 and 415.)

**JB 424** 3 Credits Alternate Year
**Magazine Production (2+3)**
Writing, photography, editing, design, layout, advertising, and circulation through the editing and publication of a magazine under journalism faculty supervision. Materials fee: $25.00. (Prerequisite: JB 301. Next offered: Spring 1994.)

**JB 433** 3 Credits Fall
**Public Relations (3+0) h**
Techniques, causes and consequences of influencing public opinion; propaganda, mass communication and public relations as instruments of economic, political, and social change. (Prerequisite: JB 301 or permission of instructor.)

**JB 444W** 3 Credits Alternate Year
**Advanced News Reporting (2+2) h**
Advanced reporting of news with emphasis on public affairs. Develops sophisticated news judgment, writing and investigative reporting skills for print and electronic media. Laboratory fee: $25.00. (Prerequisites: JB 301, junior standing or permission of instructor. Next offered: Spring 1995.)

# Justice

**JUST 110** 3 Credits Fall, Spring
**Introduction to Justice (3+0) s**
Survey of the structure and process of the agencies of criminal justice. Includes introduction to criminology, criminal law, and the juvenile justice system. Also available via Independent Learning.

**JUST 222** 3 Credits Fall
**Research Methods (3+0) s**
**(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 or PS 101.)

**JUST 251** 3 Credits Spring
**Criminology (3+0) s**
The study of the major areas of deviant behavior and its relationship to society, law, and law enforcement, including the theories of crime causation. (Prerequisite: JUST 110.)

**JUST 258** 3 Credits Fall
**Juveniles and the Law (3+0) s**
Survey of the structure and process of the juvenile justice system and the major theories of juvenile delinquency. Materials fee: $10.00. (Prerequisite: JUST 110. Next offered: 1993-94.)

**JUST 259** 3 Credits Alternate Spring
**Introduction to Public Administration (3+0) s**
**(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: 1993-94.)

**JUST 303** 3 Credits Alternate Spring
**Politics and the Judicial Process (3+0)**
**(Same as PS 303)**
The role of federal courts as political institutions. The politics of judicial selection, the nature of judicial decisionmaking and intracourt politics, litigations as a policymaking device, changes in the nature and scope of judicial power, governmental attorneys, the legal bureaucracy, and judicial agenda setting. (Prerequisite: PS 101 or JUST 110. Next offered: 1993-94.)

**JUST 310** 3 Credits Spring
**Principles of Corrections (3+0) s**
An introduction to adult institutions, community-based programs, and theories of incarceration. Correctional programs are examined. (Prerequisite: JUST 110.)

**JUST 320** Variable Credit Fall, Spring
**Practicum**
A research- oriented exercise directed at the resolution of a specific problem within an agency of the criminal justice system. (May be repeated to a maximum of 6 credits.)

**JUST 330** 3 Credits Spring
**Law, Justice and Society (3+0) s**
**(Same as PS 330)**
Study of moral issues related to the proper reach, extent, and enforcement of the law. (Prerequisites: PS 101 or JUST 110.)

**JUST 335** 3 Credits Spring
**Women, Crime and Justice**
**(Same as WMS 335)**
Interaction of women with the American justice system focusing on women as victims, offenders and working professionals in justice agencies. Materials fee: $10.00. (Prerequisites: JUST 110 and junior standing.)

**JUST 340** 3 Credits Fall
**Rural Justice in Alaska (3+0) s**
Indian justice system including historical development of the Federal/Indian relationship, constitutional basis for federal power over Indians, relationship of tribes in Alaska to the state and federal justice agencies, the effect of urban life on native peoples, the issue of cultural conflict when imposing the western system of justice on native offenders. (Prerequisites: JUST 110 and junior standing.)

**JUST 345 3 Credits Alternate Fall**
**Police Problems (3+0)**
Analysis of the nature of coercive power and the special problems faced by people who assume the responsibility of coercing others; how coercive power affects personality and how personality affects the way different types of people respond to the challenge and responsibilities of using coercive means; conditions that discourage excessive use of coercive means and encourage police officers to develop in morally and politically mature ways. Materials fee: $10.00. (Prerequisites: JUST 110 and junior standing. Next offered: 1993-94.)

**JUST 352 3 Credits Fall**
**Criminal Law (3+0)**
A study of elements, purposes, and functions of the substantive criminal law with emphasis upon historical and philosophical concepts. (Prerequisite: JUST 110.)

**JUST 354 3 Credits Spring**
**Procedural Law (3+0)**
Emphasis upon the legal limitations of the police and the right of the people to be secure from the government under the protections of the Constitution and the Rules of Evidence. (Prerequisite: JUST 110.)

**JUST 404 3 Credits Spring**
**Introduction to Legal Research and Writing (3+0)**
**(Same as PS 404)**
Methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101 or JUST 110, JUST/PS 303.)

**JUST 452 3 Credits Spring**
**Comparative Criminal Justice (3+0) s**
The study of crime problems, legal systems and the organization and performance of criminal justice agencies (police, courts, corrections, juvenile) in selected countries. (Prerequisites: JUST 110 and junior standing.)

**JUST 460 3 Credits Fall**
**Justice Processes (3+0) s**
Major concepts of the structure and process of criminal justice revisited with emphasis on current issues. (Prerequisite: JUST 110 and senior standing. Restricted to Justice majors only.)

**JUST 475 3-9 Credits Fall, Spring**
**Internship**
Supervised work experience in criminal justice agencies. (Prerequisite: Permission of director of intern program. Note: Department approval required for 9 credits.)

**JUST 492 Variable Credit Fall, Spring**
**Seminar**
Various topics of current interest and importance to the justice major will be presented. Topics will be announced prior to each offering. (Prerequisites: JUST 110 and junior standing and permission of instructor.)

**JUST 651 3 Credits Alternate Fall**
**Justice and Social Control in the Circumpolar North (3+0)**
**(Same as NORS 651)**

## Korean

For information on studying in Korea, see Study Abroad.

**Admission to the Korean sequences is presently suspended.**

**KORE 101 3 Credits**
**KORE 102 3 Credits**
**Elementary Korean 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. (Prerequisite: For KORE 102, KORE 101.)

**KORE 201 3 Credits**
**KORE 202 3 Credits**
**Intermediate Korean I and II (3+0) h**
Continuation of KORE 102. Increasing emphasis on reading ability and cultural material. Conducted in Korean. Materials fee: $2.00. (Prerequisite: KORE 102 or equivalent.)

**KORE 232 3 Credits**
**Korean Culture (3+0)h**
An overview of Korean cultural traditions as revealed in the life styles, ways of thinking, literature, and the arts. Lectures on painting, architecture, shamanistic rituals, and performing arts accompanied by video tapes and films. (Next offered: 1993-94.)

## Library Science

**LS 100X 1 Credit Fall, Spring**
**Library and Information Strategies (1+0)**
Principles of information organization and how libraries can provide access to information and scholarly resources. Emphasis on use of a library via distance delivery methods. For students who do not have direct physical access to the Rasmuson Library.

**LS 101X 1 Credit Fall, Spring**
**Library Information and Research (0+0)**
An introductory course which emphasizes information-seeking skills used in academic libraries in general and in the Rasmuson Library in particular. Some required lectures; otherwise the student completes a self-paced workbook.

**LS 307 1 Credit Spring**
**Information Sources for Educators (1+0)**
A self-paced study course providing a survey of major library reference sources and computer databases for education/education related majors. Class meets for an introductory session and a computer literature search demonstration; otherwise, the student works at his individual rate and on his own time schedule.

**LS 309 1 Credit As Demand Warrants**
**Information Resources (1+0)**
Information organization, scholarly communication and research reporting for a specific discipline, including major disciplinary reference sources and bibliographic databases in the disciplines. This course should be taken before or during the semester when the student prepares a term paper for an upper division course. Course may be repeated when there is a change in discipline. (Prerequisite: Junior standing in specific discipline or permission of the instructor. LS 101 recommended.)

**LS 382 3 Credits Alternate Spring**
**History of Circumpolar Research (3+0) s**
**(Same as HIST 382)**
Studies the history of arctic and sub-arctic sciences through geological, biological and atmospheric sciences and the people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology research in education, government and law covered. The literature and source material on these fields analyzed. (Prerequisite: HIST 110 or 115 or ANTH 242 or BIOL 104 or permission of the instructor. Next offered: 1993-94.)

## Linguistics

**LING 101 3 Credits Fall, Spring**
**Nature of Language (3+0) h**
The study of language: systematic analysis of human language and description of its grammatical structure, distribution, and diversity. Also available via Independent Learning.

**LING 216 3 Credits Alternate Fall**
**Languages of the World (3+0) h**
A comprehensive survey of the world's languages | past and present. Topics include genetic relationships among languages, linguistic change, language universals, language classification, and language families, as well as the interaction of culture and language. (Next offered: 1993-94.)

**LING 262 3 Credits As Demand Warrants**
**Methods of Teaching English as a Second Language and Standard English as a Second Dialect (3+0)**
**(Same as ED 262)**
Covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affect they have on teaching styles. Roles of the second language teacher and their appropriateness covered. Presents techniques and activities consistent with specific language teaching methods and adaptation of these methods to the needs of western Alaskan classrooms. (Prerequisite: Classroom experience.)

**LING 303 3 Credits Alternate Spring**
**Language Acquisition (3+0)**
**(Same as ED 303)**
Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary models, and implications for pedagogy and public policy. (Prerequisite: LING 101.)

**LING 318 3 Credits Alternate Fall**
**Introduction to Phonetics and Phonology (3+0) h**
Scientific study of human speech sounds, mechanism of their production, and sound systems of languages. (Prerequisite: Upper division standing or permission of instructor. Next offered: 1993-94.)

**LING 320 3 Credits Alternate Spring**
**Introduction to Syntactic Theory (3+0) h**
Study of principles and processes of sentence construction in language. (Prerequisites: LING 101 or its equivalent, at least junior standing or permission of the instructor. Next offered: 1993-94.)

**LING 340 3 Credits Every Third Spring**
**Aspects of Bilingualism (3+0) h**
Cognitive, linguistic, sociopolitical, and educational aspects of bilingualism at both the individual and societal levels, including factors contributing to language maintenance and language shift. (Prerequisite: LING 101 or permission of instructor. Next offered: 1993-94.)

**LING 410 3 Credits Alternate Fall**
**Theory and Methods of Second Language Teaching (3+0)**
**(Same as LING 610)**
Theory and practice of teaching a second language, including methodological approaches, second language acquisition theory, materials, and testing. (Next offered: 1993-94.)

**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: 1993-94.)

**LING 430 3 Credits Alternate Fall**
**Historical Linguistics (3+0) h**
**(Same as LING 630)**
Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages. (Prerequisite: LING 318. Next offered: 1993-94.)

**LING 450 3 Credits Every Third Spring**
**Language Policy and Planning (3+0) s**
Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance. Materials fee: $15.00. (Next offered: 1993-94.)

**LING 482 3 Credits Every Third Year**
**Seminar in Linguistics (3+0)**
Current issues in various subfields of linguistics including semantics and pragmatics, discourse analysis, bilingualism, lexicography, language philosophy, and issues within a particular language or language group, e.g. Eskimo phonology, Athabaskan morphology. May be repeated once. (Next offered: 1993-94.)

**LING 610 3 Credits Alternate Fall**
**Theory and Methods of Second Language Teaching (3+0)**
**(Same as LING 410)**

**LING 630 3 Credits Alternate Fall**
**Historical Linguistics (3+0)**
**(Same as LING 430)**

## Marine Science and Limnology

**MSL 111X 4 Credits Juneau Alternate Fall**
**The Oceans (3+3) n Fairbanks Spring**
Study of the oceans from the broad perspective offered by combining insights from biology, physics, chemistry, and geology. Topics include the evolution of the oceans and marine life, forces acting on water and the resulting currents and waves, and relationships between the physics and chemistry of water bodies and their biological productivity. Societal questions related to fisheries management, global climate change, and pollution will be discussed. Laboratory fee: $20.00.

**MSL 411 3 Credits Juneau As Demand Warrants**
**Current Topics in Oceanographic Research (3+0)Fairbanks Alternate Fall**
Study of research problems from biology, chemistry, geology and physics. Topics include sea floor hydrothermal vents and their indigenous communities, manganese nodules, tsunami prediction, radioisotopes in the sea, Bering Sea productivity, and the role of the ocean in global warming due to fossil fuel carbon dioxide. (Prerequisites: Four semesters of natural sciences at 100 level or above or permission of the instructor. Next offered Fairbanks: 1994-95.)

**MSL 435 3 Credits Alternate Fall**
**Acoustical Oceanography (3+0)**
Principles and applications of underwater sound in solving oceanographic problems related to chemistry, physics, geology and biology, including hydroacoustical methods, acoustical phenomena, bioacoustics and fisheries acoustics, environmental noise and signal processing. (Prerequisites: College physics and calculus. Next offered: 1993-94.)

**MSL 610 3 Credits Alternate Spring**
**Marine Biology (3+0)**

**MSL 611 5 Credits Alternate Summer**
**Field Problems in Marine Biology (0+Arr)**

**MSL 615 3 Credits Alternate Fall**
**Physiology of Marine Organisms (2+0)**

**MSL 619 3 Credits Alternate Spring**
**Biology of Marine Mammals (3+0)**

**MSL 620 4 Credits Fall**
**Physical Oceanography (3+3)**

**MSL 621 3 Credits Alternate Fall**
**Polar Marine Science (3+0)**

**MSL 622 3 Credits Alternate Spring**
**Satellite Oceanography (3+0)**

**MSL 625 2 Credits Spring**
**Shipboard Techniques (1+3)**

**MSL 629 3 Credits Alternate Fall**
**Methods of Numerical Simulation in Fluids and Plasma (3+0)**
**(Same as PHYS 629)**

**MSL 629L 1 Credit Alternate Fall**
**Methods of Numerical Simulation in Fluids and Plasma Lab (0+3)**

**MSL 630 3 Credits Spring**
**Geological Oceanography (3+0)**

**MSL 640 3 Credits Alternate Spring**
**Fisheries Oceanography (3+0)**

**MSL 650 3 Credits Fall**
**Biological Oceanography (3+0)**

**MSL 652 3 Credits Alternate Spring**
**Marine Ecosystems (3+0)**

**MSL 660 3 Credits Spring**
**Chemical Oceanography (3+0)**
**(Same as CHEM 660)**

**MSL 661 2 Credits Alternate Spring**
**Isotope Techniques for Aquatic Sciences (2+0)**

**MSL 663 3 Credits Alternate Fall**
**Biochemistry and Molecular Biology of Photosynthesis (3+0)**
**(Same as BIOL 663 and CHEM 663)**

**MSL 664 3 Credits Alternate Fall**
**Algal Biology: Ecological Adaptations at Physiological, Biochemical and Molecular Levels (3+0)**
**(Same as BIOL 664)**

**MSL 665 3 Credits Alternate Spring**
**Microbial Biochemistry (2+3)**

**MSL 670 2 Credits Alternate Fall**
**Nutrient Dynamics (2+0)**

**MSL 673 3 Credits Alternate Spring**
**Bioenergetics (3+0)**
**(Same as CHEM 673)**

**MSL 680 3 Credits Alternate Spring**
**Physical-Chemical Limnology (3+0)**

## Mathematics

No student will be permitted to enroll in a course having prerequisites if a grade lower than C is received in the prerequisite course.

## DEVELOPMENTAL MATHEMATICS

**DEVM 050 3 Credits** **As Demand Warrants**
**Basic College Mathematics (3+0)**
Operations with whole numbers, fractions, decimals and signed numbers. Percents and rations. Evaluating algebraic expressions. Introduction to geometric figures. Metric system.

**DEVM 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: DEVM 050 or placement.)

**DEVM 065 Variable Credit** **As Demand Warrants**
**Mathematics Lab**
An individual tutorial lab. Content is selected according to the needs of the individual student from the topics covered in DEVM 050 and DEVM 060. (Prerequisite: Placement.)

**DEVM 070 3 Credits** **As Demand Warrants**
**Intermediate Algebra (3+0)**
Second year high school algebra. Operations with rational functions, radicals, rational exponents, complex numbers, quadratic equations and inequalities, Cartesian coordinate system and graphing, systems of equations, determinants and logarithms. (Prerequisite: DEVM 060 or placement.)

## MATHEMATICS

**MATH 107 3 Credits** **Fall, Spring**
**Functions for Calculus (3+0) m**
A study of algebraic, logarithmic, and exponential functions, together with selected topics from algebra. Note: No credit may be earned for more than one of MATH 107, 161, or 171. Also available via Independent Learning. (Prerequisites: Two years of high school algebra and MATH 107 placement or higher.)

**MATH 108 2-3 Credits** **Fall, Spring**
**Trigonometry (2-3+0) m**
A study of the trigonometric functions. Also available via Independent Learning. (Prerequisite: MATH 107 or concurrent registration in MATH 107.)

**MATH 131X 3 Credits** **Fall, Spring**
**Concepts and Contemporary Applications of Mathematics (3+0) m**
Applications of mathematics in modern life including applications of graph theory in management science; uses of probability and statistics in industry, government and science; and applications of geometry to engineering and astronomy. Problem solving emphasized. (Prerequisites: High school geometry and algebra II.)

**MATH 132X 3 Credits** **Spring**
**Concepts of Mathematics (3+0) m**
Mathematical thought and history for students with a limited mathematical background. Mathematical reasoning rather then formal manipulation. Topics may include number theory, topology, set theory, geometry, algebra and analysis. (Prerequisites: MATH 131X.)

**MATH 161 3 Credits** **Fall, Spring**
**Algebra for Business and Economics (3+0) m**
Functions of one and several variables with attention to linear, polynomial, rational, logarithmic, and exponential relationships. Geometric progressions as applied to compound interest and present value. Linear systems of equations and inequalities. Note: No credit may be earned for more than one of MATH 107, 161, or 171. (Prerequisites: Two years of high school algebra and MATH 161 placement or higher.)

**MATH 181 3 Credits**
**Finite Math (3+0)**
Topics in matrix theory including Markov chains, linear programming, simplex method. Partitions, binomial and multinomial theorems, counting techniques, probability and finite stochastic processes. May be used as a prerequisite for STAT 200. (Prerequisite: DEVM 070 or placement.)

**MATH 200 4 Credits** **Fall, Spring**
**MATH 201 4 Credits** **Fall, Spring**
**MATH 202 4 Credits** **Fall, Spring**
**Calculus (4+0) m**
Techniques and application of differential and integral calculus, vector analysis, partial derivatives, multiple integrals, and infinite series. Note: No credit may be earned for more than one of MATH 200, 262 or 272. MATH 200 and 201 also available via Independent Learning. (Prerequisites: MATH 107, 108.)

**MATH 205 3 Credits** **Fall**
**Mathematics for Elementary School Teachers I (3+1) m**
Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers, introduction to rational numbers. Materials fee: $10.00. Also available via Independent Learning. (Prerequisites: Two years high school mathematics, including at least one year of algebra. Restricted to B.Ed. students; others by permission of instructor.)

**MATH 206 3 Credits** **Spring**
**Mathematics for Elementary School Teachers II (3+1) m**
A continuation of MATH 205. Real number systems and sub-systems, logic, informal geometry, metric system, probability, and statistics. Materials fee: $10.00. Also available via Independent Learning. (Prerequisite: MATH 205.)

**MATH 215 2 Credits** **Spring**
**Introduction to Mathematical Proofs (2+0) m**
Emphasis on proof techniques with topics including logic, sets, relations, equivalence induction, number theory, graph theory and congruence classes. In addition, a rigorous treatment of topics from calculus could be given. (Prerequisites: MATH 200, 201 or concurrent with 201 or instructor permission.)

**MATH 262 4 Credits** **Fall, Spring**
**Calculus for Business and Economics (4+0) m**
Ordinary and partial derivatives. Maxima and minima problems, including the use of Lagrange multipliers. Introduction to the integral of a function of one variable. Applications include marginal cost, productivity, revenue, point elasticity of demand, competitive/complementary products, consumer's surplus, etc. Note: No credit may be earned for more than one of MATH 200, 262 or 272. (Prerequisite: MATH 161.)

**MATH 272 3 Credits** **Fall**
**Calculus for Life Sciences (3+0) m**
Differentiation and integration with applications to the life sciences. Note: No credit may be earned for more than one of MATH 200, 262 or 272. (Prerequisites: MATH 107 and 108.)

**MATH 273 3 Credits** **Spring**
**Calculus for Life Sciences (3+0) m**
Applications of integration. Differential and difference equations as models of real life processes. Partial differentiation. (Prerequisite: MATH 272.)

**MATH 302 3 Credits** **Fall, Spring**
**Differential Equations (3+0)**
Nature and origin of differential equations, first order equations, and solutions, linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, and applications. (Prerequisite: MATH 202.)

**MATH 305 3 Credits** **As Demand Warrants**
**Geometry (3+0)**
Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine geometry, projective geometry, and topology. (Prerequisite: MATH 202 or permission of instructor.)

**MATH 306 3 Credits** **Alternate Spring**
**Introduction to the History and Philosophy of Mathematics (3+0)**
Includes a detailed study of certain important periods of history as examined by such thinkers as Plato, B. Russell, D. Hilbert, L.E.J. Brouwer and K. Godel. For students of mathematics, science, history and philosophy. (Prerequisite: MATH 202 or permission of instructor. Next offered: 1993-94.)

**MATH 307 3 Credits** **Fall**
**Discrete Mathematics (3+0)**
Logic, counting, sets and functions, recurrence relations graphs and trees. Additional topics chosen from probability theory. (Prerequisite: MATH 201 or permission of instructor.)

**MATH 308 3 Credits** **Spring**
**Abstract Algebra (3+0)**
Theory of groups, rings and fields. (Prerequisite: MATH 215 or permission of instructor. Recommended: MATH 307 and/or MATH 314.)

**MATH 310 3 Credits** **Fall**
**Numerical Analysis (3+0)**
Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, and error analysis. (Prerequisite: MATH 302 or permission of instructor. A knowledge of FORTRAN or BASIC is desirable.)

**MATH 314 3 Credits** **Spring**
**Linear Algebra (3+0)**
Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations, and characteristic values. Inner product spaces. (Prerequisite: MATH 201.)

**MATH 371 3 Credits As Demand Warrants**
**Probability (3+0)**
Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions, and characteristic functions. Materials fee: $5.00. (Prerequisite: MATH 202.)

**MATH 401W 3 Credits Fall**
**MATH 402W 3 Credits Spring**
**Advanced Calculus (3+0)**
A rigorous treatment of one and several dimensional calculus. Includes mappings from n-space and their continuity, differentiability and integrability properties as well as sequences and series. Materials fee: $10.00. (Prerequisites: MATH 215 and 202 for MATH 401; MATH 401 for MATH 402.)

**MATH 404WO(t) 3 Credits**
**As Demand Warrants**
**Topology (3+0)**
Introduction to topology, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continua. (Prerequisites: MATH 202 and 215. Recommended: MATH 314 and/or 308.)

**MATH 408 3 Credits As Demand Warrants**
**Mathematical Statistics (3+0)**
Distribution of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests. Materials fee: $5.00. (Prerequisites: MATH 371 and STAT 200.)

**MATH 412 3 Credits Alternate Spring**
**Differential Geometry (3+0)**
Introduction to the differential geometry of curves, surfaces, and Riemannian manifolds. Basic concepts covered include the Frenet-Serret apparatus, surfaces, first and second fundamental forms, geodesics, Gauss curvature and the Gauss-Bonnet Theorem. Time permitting topics such as minimal surfaces, theory of hypersurfaces and/or tensor analysis may be included. (Prerequisites: MATH 202 and MATH 314. Next offered: 1994-95.)

**MATH 421 4 Credits Fall**
**Applied Analysis I (4+0)**
Vector calculus, including gradient, divergence, and curl in orthogonal curvilinear coordinates, ordinary and partial differential equations and boundary value problems, and Fourier series and integrals. Materials fee: $10.00. (Prerequisite: 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 functions, including series, integrals, residues, conformal mapping, and potential theory. Materials fee: $10.00. (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 selected from combinatorics, probability, statistics, perturbation, numerical analysis, and differential equations. Students develop a modeling project. Materials fee: $10.00. (Prerequisite: MATH 201. Recommended: One or more of MATH 302, 314, STAT 300, 401; and some programming experience.)

**MATH 490 1 Credit Fall**
**Senior Seminar (1+0)**
Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed. (Prerequisites: At least one of MATH 308 or 401.)

**MATH 603 3 Credits Fall**
**Real and Complex Analysis I (3+0)**

**MATH 604 3 Credits Spring**
**Real and Complex Analysis II (3+0)**

**MATH 608 3 Credits As Demand Warrants**
**Partial Differential Equations (3+0)**

**MATH 611 3 Credits Alternate Fall**
**MATH 612 3 Credits Alternate Spring**
**Mathematical Physics (3+0)**
**(Same as PHYS 611, 612)**

**MATH 615 3 Credits Alternate Spring**
**Applied Numerical Analysis (3+0)**

**MATH 621 3 Credits Alternate Fall**
**Advanced Applied Analysis (3+0)**

**MATH 622 3 Credits As Demand Warrants**
**Topics in Applied Analysis (3+0)**

**MATH 630 3 Credits Fall**
**Advanced Linear Algebra (3+0)**

**MATH 631 3 Credits Spring**
**Theory of Modern Algebra (3+0)**

**MATH 651 3 Credits Every third year**
**Topology (3+0)**

**MATH 660 3 Credits Alternate Spring**
**Advanced Mathematical Modeling (3+0)**

**MATH 661 3 Credits As Demand Warrants**
**Optimization (3+0)**
**(Same as CS 661)**

**MATH 663 3 Credits Alternate Spring**
**Applied Combinatorics and Graph Theory (3+0)**

# Mechanical Engineering

A $25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any material/laboratory fees.

**ME 150 1 Credit Fall**
**Aerodynamics for Pilots (1+1)**
Nature of the atmosphere, elementary airfoil theory, drag and power requirements, performance computations, and introduction to stability. For those with minimum mathematical background who desire a basic understanding of flight. (Prerequisites: High school algebra and general science.)

**ME 302 4 Credits Spring**
**Mechanical Design I (3+3)**
Kinematics and dynamics of mechanisms. Analysis and design of displacements, velocities, accelerations, and forces in linkages, cams, and gear systems by analytical, experimental, and computer methods. Laboratory fee: $15.00. (Prerequisites: ES 208, 210.)

**ME 313 3 Credits Spring**
**Mechanical Engineering Thermodynamics (3+0)**
Continuation of ES 346 including power and refrigeration cycles (Rankine, Brayton, Otto, and Diesel), compressible flow (isentropic, shock waves, and flow in ducts with friction), combustion and gas vapor mixtures. (Prerequisites: ES 341, 346).

**ME 321 3 Credits Fall**
**Industrial Processes (2+3)**
Manufacturing processes used in modern industry. Primary and secondary manufacturing processes, casting, hot and cold forming, machining, welding, and mass production tools and techniques as related to economic and efficient product design. Laboratory fee: $35.00.

**ME 334 3 Credits Fall**
**Elements of Material Science/Engineering (2+3)**
**(Same as ES 334)**
Properties of engineering materials. Crystal structure, defect structure, structure and properties, aspects of metal processing, heat treatment, joining, testing, and failure analysis for engineering applications and design. Laboratory fee: $15.00. (Prerequisites: CHEM 106 and PHYS 212.)

**ME 403 4 Credits Spring**
**Mechanical Design II (3+2)**
Design and analysis of machines by analytical, experimental and computer methods. Identification of requirements and conceptual design of mechanical systems, detailed design of components, strength, life, reliability, and cost analysis. Laboratory fee: $15.00. (Prerequisites: ME 302 and ES 331.)

**ME 404 3 Credits Spring**
**Stress Analysis (3+0)**
Analysis of the strength, stability and rigidity of machine components by analytical and computer methods. (Prerequisites: ES 331, MATH 302, ES 201.)

**ME 408 3 Credits Fall**
**Dynamics of Systems (2+2)**
Response of mechanical systems to internal and external forces. Free and forced vibration, random vibration. Discrete and continuous systems. Vibration parameter measurements and stability criteria. Laboratory fee: $15.00. (Prerequisites: ES 201, 301.)

**ME 409 3 Credits Spring**
**Controls (2+2)**
Analysis and design of control systems. Block diagrams, transfer functions, and frequency analysis. Closed loop systems and system stability. Industrial controllers and system compensation. Laboratory fee: $15.00. (Prerequisites: ES 201, 301. Corequisite: ME 408.)

**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 415W 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, ME 313, ME 441.)

**ME 416 3 Credits Fall**
**Design of Mechanical Equipment for the Petroleum Industry (3+0)**
Design, selection, and operation of equipment used in production and processing of crude oil and gas. Instrumentation and control systems used with mechanical equipment. (Prerequisites: ES 341, 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 real surface radiation, and heat exchangers. (Prerequisite: ES 346.)

**ME 450 3 Credits Alternate Fall**
**Theory of Flight (3+0)**
Airfoil theory in subsonic flow. Performance, stability and control of aircraft. Aircraft design. (Prerequisite: ES 346. Corequisite: ES 341.)

**ME 451 3 Credits Alternate Spring**
**Aerodynamics (3+0)**
Aerodynamics of non-lifting and lifting airfoils in incompressible irrotational flow, wings of finite span, the Navier-Stokes equations, boundary layers, numerical methods, supersonic and transonic flow past airfoils, rocket aerodynamics, rocket drag. (Prerequisites: ES 341, ES 346, ME 313. Next offered: 1994-95.)

**ME 452 3 Credits Fall**
**Introduction to Astrodynamics (3+0)**
Geometry of the solar system, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories. Elements of orbit determination. (Prerequisite: ES 210.)

**ME 453 3 Credits Alternate Spring**
**Propulsion Systems (3+0)**
Basic principles of propulsion: turbojet, turboprop and rocket engines. Fluid mechanics and thermodynamics of flow in nozzles, compressors, combustors and turbines. Liquid and solid propellant rockets. Heat transfer in rocket motors and nozzles. Design and testing methods for components of propulsion systems. (Prerequisites: ES 341, ME 313 and senior standing. Next offered: 1993-94.)

**ME 464 3 Credits Spring**
**Corrosion Engineering (3+0)**
Principles and forms of corrosion and factors that affect it. Methods of testing and measurement, control and prevention are examined. Laboratory fee: $15.00. (Prerequisite: Senior standing in engineering.)

**ME 487WO(t) 3 Credits Spring**
**Design Project**
A real or simulated engineering design project selected jointly by student and instructor. Emphasis on design of practical mechanical engineering systems and/or components which integrate students' engineering knowledge and skills. (Prerequisite: 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)**

## Mechanics-Diesel/Heavy Equipment

**MECN 101 7 Credits Spring**
**Heavy Equipment I**
Introduction to suspension systems, wheel bearings, brakes, air systems, clutches, transmissions (auto. and mech.), driveshafts, and differentials. Topics include disassembly, inspection, and assembly of components, use of tools and instruments, use of fixtures, and shop safety. Materials fee: $100.00.

**MECN 102 7 Credits Spring**
**Heavy Equipment II**
Introduction to electrical and hydraulic systems, and crawler tractor undercarriage final drive and steering clutches. Materials fee: $100.00.

**MECN 112 1 Credit As Demand Warrants**
**Basic Auto Maintenance (1+0)**
Covers basic automobile system functions, owner maintenance of electrical, cooling, and fuel systems, auto lubricants and fluids, tires and wheels, tune- ups, and cold weather maintenance and operation. For the person without mechanical experience. Materials fee: $10.00.

## Military Science

**MILS 100 1 Credit Fall**
**MILS 200 1 Credit Spring**
**Outdoor Skills Laboratory (0+2)**
Fundamentals of orienteering, marksmanship, arctic survival, skiing, and snowshoeing. Emphasis on practical work. The same skills are not taught both semesters. (Corequisite: Concurrent registration in another basic military science course [MILS 111, 112, 201 or 202].)

**MILS 111 2 Credits Fall**
**U.S. Army and Society I (2+0)**
Origin, development, organization and function of the American military. Structure and purpose of the U.S. Army and ROTC program and the civilian- military relationship. An introduction to chain of command and small unit organization includes characteristics of officers and their relation to subordinates.

**MILS 112 2 Credits Spring**
**U.S. Army and Society II (2+0)**
Survey of human behavior and leadership in the army and military environment. Role of the soldier, military training, discipline, ethics, and professionalism presented. Introduction to behavioral dimensions and management techniques used by successful officer-leaders.

**MILS 113 2 Credits Spring**
**Map Reading and Orienteering (2+0)**
Introduction to military and civilian topographical maps and their related informational content. Use of the lensatic compass and map as navigational instruments. Exercises in orienteering complement academic instruction.

**MILS 201 2 Credits Fall**
**U.S. Defense and World Affairs (2+0) s**
Effect of current world events on the military leader and defense structure. Relationship of historical and political events to the decision- making processes. Socio-political influence on military thought of the effect of geography on the economic base of a nation. Current military strengths and weaknesses of power groups.

**MILS 202 2 Credits Spring**
**Communications Arts for the Military Leader (2+0)**
Principles of public speaking and instructional techniques. Emphasis on development of functional skills through rehearsed and unrehearsed presentations. Use of audio-visual aids. Intensive practice in developing lesson plans and skill in presentation.

**MILS 250 3 Credits Summer**
**Basic Camp**
A six- week camp in basic military skills and leadership experience in preparation for entrance into the advanced course. For students who did not take the basic course. (Prerequisite: At least two years of schooling remaining upon completion of camp. Admission by arrangement with professor of military science.)

**MILS 100 1 Credit Fall**
**MILS 200 1 Credit Spring**
**Outdoor Skills Laboratory (0+2)**
Advanced training in orienteering, marksmanship, arctic survival, skiing and snowshoeing. Students assist in instruction and in organizing and managing the lab. May be repeated for a maximum of two credits at each level. (Prerequisite: Junior or senior standing in military science.)

**MILS 301 3 Credits Spring**
**Theory and Dynamics of Tactical Operations (3+1)**
Concepts, principles, and techniques applicable to the doctrine of tactical operations. Emphasizes role of small unit leader in managing individuals and small units in offensive, defensive, and specialized combat operations. Practical application of performance objectives and the integration of support functions emphasized. Laboratory in leadership development. (Prerequisite: Junior standing in MILS or permission of instructor.)

**MILS 303 3 Credits Fall**
**Advanced Leadership (3+1)**
**(Same as BA 303)**
An interdisciplinary approach to the study of effective leadership in the contemporary environment. Analysis of individual skills, emphasizing a behavioral approach to effective decision making. For ROTC cadets, class and laboratory includes preparation for MILS 350. (Prerequisite: Junior standing in MILS or permission of instructor.)

**MILS 350 3 Credits Fall**
**Advanced Camp**
Six- week camp structured as a leadership workshop allowing students to utilize leadership skills in a variety of situations in a military environment. (Prerequisites: Must be enrolled as an advanced course cadet and have completed MILS III.)

**MILS 351 2 Credits Fall**
**Cadet Troop Leadership Training**
Three-to-five-week full-time leadership training and development, serving in leadership positions with the active Army. Application of leadership and management principles in real life junior officer situations/positions. (Prerequisites: Must be enrolled as an advanced course cadet and completed MILS III and MILS 350.)

**MILS 401 3 Credits Fall**
**Seminar on Tactical Operations (3+1) s**
A study of tactical operations from the time of Hannibal to the present. Introduces a variety of historical examples where application or violation of sound tactical principles, or various styles and types of leadership, have produced success or failure. (Prerequisite: Senior standing in MILS or permission of instructor.)

**MILS 404 3 Credits Spring**
**Seminar in Leadership and Management (3+0)**
Overview of management principles and practices, and military justice. Orientation on various military administrative, training, logistical, and maintenance tools. Class includes preparation for commissioning. (Prerequisite: Senior standing in MILS.)

**MILS 442 3 Credits Fall**
**History of the American Military (s)**
**(Same as HIST 442)**
The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves. Also available via Independent Learning. (Prerequisite: Sophomore standing or permission of instructor.)

# Mineral Preparation Engineering

**MPR 601 3 Credits Fall**
**Froth Flotation (2+3)**

**MPR 606 3 Credits Spring**
**Plant Design (1+6)**

**MPR 611 3 Credits Alternate Fall**
**Hydrometallurgy (3+0)**

**MPR 612 3 Credits Alternate Fall**
**Solution Concentration and Purification (3+0)**

**MPR 684 3 Credits Spring**
**Mineral Preparation Research (1+6)**

**MPR 688 1 Credit Fall**
**Graduate Seminar I (1+0)**
**(Same as MIN 688)**

# Mining Engineering

**MIN 101 3 Credits Fall**
**Minerals, Man and the Environment (3+0)**
A general survey of the impact of the mineral industries on man's economic, political, and environmental systems.

**MIN 102 1 Credit Spring**
**Introduction to Minerals Industry (1+0)**
Fundamentals of the mineral industry.

**MIN 103 2 Credits Fall**
**Introduction to Mining Engineering (2+0)**
Concepts and methods utilized in mining engineering. Practical training in safety and mining unit operations.

**MIN 104 1 Credit Fall**
**Mining Safety and Operations Laboratory (0+3)**
Practical training at the Silver Fox Mine in mining operations and safety. Course complies with Mine Safety and Health Administration (MSHA) 40 Hour New Miner Training.

**MIN 202 3 Credits Fall**
**Mine Surveying (2+3)**
Surveying principles for surface and underground control of mining properties. Field and office procedures for preparation of maps and engineering data. (Prerequisites: MATH 107, 108.)

**MIN 301 3 Credits Spring**
**Mine Plant Design (3+0)**
Quantitative study and design of various systems and equipment used in haulage, hoisting, drainage, pumping and power (compressed air and electricity). Importance of the natural conditions and production level in the equipment selection procedure emphasized. (Prerequisites: ES 208, 307, 341.)

**MIN 302 3 Credits Spring**
**Underground Mine Environmental Engineering (2+3)**
Analysis of underground mine ventilation systems, ventilation planning, design and engineering control, mine ventilation network. (Prerequisite: MIN 103.)

**MIN 304 3 Credits Alternate Fall**
**Introduction to Metallurgy (3+0)**
Overview of the extractive metallurgy of gold, silver, and platinum group metals; from gravity concentration to cyanidation and smelting. (Prerequisites: CHEM 211, PHYS 212. Next offered: 1993-94.)

**MIN 313 3 Credits Alternate Fall**
**Introduction to Mineral Preparation (2+3)**
Elementary theory and principles of unit processes of liberation, concentration, and solid-fluid separation as applied to mineral beneficiations. (Prerequisite: Junior standing or permission of the instructor. Next offered: 1993-94.)

**MIN 314 3 Credits Alternate Spring**
**Unit Preparation Processes (1+6)**
Liberation and concentration by gravity, electro-magnetic, and electrostatic methods. Economic analysis and flowsheets for different ores developed. (Prerequisite: MIN 313. Next offered: 1993-94.)

**MIN 370 3 Credits Spring**
**Rock Mechanics (2+3)**
Physical and mechanical properties of rock; rock mass classification systems; stress distribution in the vicinity of mining openings, design criteria and support for structures in rock mass, instrumentation and monitoring of opening's stability as well as strata control and surface subsidence. (Prerequisites: ES 331 and STAT 451 or equivalent.)

**MIN 400 1 Credit As Demand Warrants**
**Practical Engineering Report**
Twelve weeks of practical work in some industry or project related to the student's option, or equivalent. To be taken during one or more of the summer vacations prior to the fourth year.

**MIN 407 2 Credits Alternate Spring**
**Mineral Industry and the Environment (2+0)**
Principles and practices of mining reclamation and waste disposal. Impact of regulations on the mineral industry and the environment. (Prerequisite: Permission of instructor. Next offered: 1993-94)

**MIN 408O(g) 3 Credits Spring**
**Mineral Valuation and Economics (3+0)**
Introduction to engineering economics, ore sampling and reserve calculations, and mine feasibility studies. (Prerequisites: GEOS 332, GE 372 or MIN 301.)

**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 301 or 451.)

**MIN 410 3 Credits Alternate Fall**
**Surface Materials Handling Systems (2+3)**
The techniques and design of systems to load and transport ore, concentrates, and waste materials in mining and milling operations. (Prerequisite: Senior standing or permission of the instructor. Next offered: 1993-94.)

**MIN 415 3 Credits Alternate Fall**
**Coal Preparation (2+3)**
Unit operations, flowsheets, washability characteristics, and control by sink-float methods for coal preparation plants. Market requirements and economics of preparation. (Prerequisite: MIN 313. Next offered: 1993-94.)

**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 spectography 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 Law**
History of mining law. Access to property, safety and environmental laws (and court decisions) as they pertain to mining. (Prerequisite: Senior standing or permission of instructor. Next offered: 1993-94.)

**MIN 443 3 Credits Fall**
**Rock Fragmentation (3+0)**
Selection and design of modern mining rock breaking and disintegrating techniques. In particular, cutting, drilling, blasting, water jets and other methods are covered. (Prerequisite: MIN 370.)

**MIN 445 3 Credits Fall**
**Design of Surface Mines for Conventional and Arctic Conditions (3+0)**
Surface mining methods. Principles and reclamation techniques, design of surface mine infrastructure. (Prerequisite: MIN 443 or concurrent registration.)

**MIN 446 3 Credits Fall**
**Underground Mining Methods and Their Design (3+0)**
Design of main development openings; mining methods such as room and pillar, open stoping, supported stopes and caving systems; selection of mining method and mine planning processes covered. (Prerequisites: MIN 301, 302, and 370.)

**MIN 447W 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**
**Ground Control (3+0)**
Stability and design for ground control of surface and underground mining excavations; reinforcement and monitoring systems for openings constructed in rock mass. Construction in swelling rock and frozen ground, underground hazards (bursts and water inflow), monitoring of deformation and stresses associated with the opening's presence. (Prerequisites: MIN 370, 443. Next offered: 1993-94.)

**MIN 490W 3 Credits Spring**
**Mining Design Project (1+6)**
Design of mine layout including extraction and beneficiation and economic evaluation of a mining project. A comprehensive written report of the design and analysis is required. (Prerequisites: MIN 408, 445, 446, and 447; MIN 408 can be taken concurrently.)

**MIN 621 3 Credits Fall**
**Advanced Mineral Economics (3+0)**

**MIN 631 4 Credits Alternate Fall**
**Research Methods in Mineral Engineering (3+3)**

**MIN 635 3 Credits Spring**
**Geostatistical Ore Reserve Estimation (2+3)**
**(Same as GE 635)**

**MIN 637 3 Credits Alternate Fall**
**Mine Systems Simulation (2+3)**

**MIN 646 3 Credits Alternate Spring**
**Mining Engineering in the Arctic (3+0)**

**MIN 647 2 Credits Alternate Fall**
**Advanced Underground Mine Design (1+3)**

**MIN 652 3 Credits Alternate Spring**
**Numerical Methods in Mine Ventilation (2+3)**

**MIN 670 3 Credits Alternate Spring**
**Optimization Models in the Mineral Industry (3+0)**

**MIN 673 3 Credits Alternate Fall**
**Advanced Rock Mechanics (2+3)**

**MIN 674 3 Credits Alternate Spring**
**Advanced Ground Control (2+3)**

**MIN 688 1 Credit Fall**
**Graduate Seminar I (1+0)**
**(Same as MPR 688)**

**MIN 689 1 Credit Spring**
**Graduate Seminar II (1+0)**

## Museum Studies

**MSM 211 3 Credits Alternate Fall**
**Fundamentals of Museum Studies I (3+0)**
Origin, structure and development of museums, types of museums and their functions, professional directions and ethics. Collection management systems and techniques, role and ethics of museum conservation. (Prerequisite: Sophomore standing or permission of the instructor. Next offered: 1993-94.)

**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, museum management, administrative frameworks, legal considerations, and financial management. (Prerequisite: MSM 211. Next offered: 1993-94.)

**MSM 311 3 Credits Alternate Fall**
**Museum Administration (3+0)**
Administrative philosophy and procedures in public and private, large and small museums; the types and sources of support and interactions with local and national supportive groups. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1993-94.)

**MSM 312 3 Credits Alternate Spring**
**Museum Collection Management (3+0)**
Basic curatorial techniques and problems. Field collecting and other forms of acquisition through accessioning, cataloging, preparation, exhibit, teaching, and research. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1993-94.)

**MSM 487 3 Credits As Demand Warrants**
**Museum Practicum**
Supervised participation in one or more phases of museum operations or disciplines. (Prerequisites: MSM 211 and 212 and permission of the instructor.)

**MSM 488 3 Credits As Demand Warrants**
**Individual Research: Field Collecting Museum Specimens**
Philosophies, purposes and goals of field collection, procedures for collecting museum specimens, and methods of handling before they reach the museum. Field trips may be required. By arrangement with the appropriate curator(s). May be repeated for credit with permission of instructor. (Prerequisites: MSM 211 and 212 and prior disciplinary preparation or permission of the instructor.)

# Music

## APPLIED MUSIC

**MUS 161, 162 2 or 4 Credits** **Fall, Spring**
**MUS 261, 262 2 or 4 Credits** **Fall, Spring**
**MUS 361, 362 2 or 4 Credits** **Fall, Spring**
**MUS 461, 462 2 or 4 Credits** **Fall, 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. See accompanying box for private lesson fees. (Prerequisite: Admission by audition. Course may not be audited. Credit-No Credit grading not permitted.)

**MUS 190 0 Credit** **Fall, Spring**
**Recital Attendance (1+0)**
Recital and concert attendance.

**MUS 390 0 Credit** **Fall, Spring**
**Junior Recital**
Half-length solo music performance recital. (Prerequisites: MUS 262 or equivalent, junior standing in music study, permission of instructor.)

**MUS 490 0 Credit** **Fall, Spring**
**Senior Recital**
Full length 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, Spring**
**Advanced Private Lessons**
Private instruction as arranged. See accompanying box for private lesson fees.

### CLASS LESSONS AND APPLIED MUSIC FEES

**MUS 151**
**Class Lessons**
Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: $70.00
Lesson fees for music majors enrolled in 12 or more credits: $35.00.
Note: Class lessons for guitar for all students: $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 ENSEMBLES AND CLASS LESSONS

**MUS 101 1 Credit** **Fall, Spring**
**Choral Society (0+3) h**

**MUS 151 1 Credit** **Fall, Spring**
**Class Lesson (0+3) h**
Class instruction in piano, voice, orchestral instrument, or guitar. See accompanying box for class lesson fees. (MUS 151 may be repeated for credit. Course may not be audited.)

**MUS 153 1 Credit** **Fall, Spring**
**Functional Piano (1+0) h**
Laboratory instruction to help music majors obtain performance, sight- reading, and harmonization-transposition skills needed to pass the Piano Proficiency Examination. It also provides non-music majors an opportunity to study basic piano skills on a space-available basis. See accompanying box for class lesson fees. (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, Spring**
**Orchestra (0+3) h**
(Admission by audition.)

**MUS 205 1 Credit** **Fall, Spring**
**Concert Band (0+3) h**
(Admission by audition.)

**MUS 211 1 Credit** **Fall, Spring**
**"Choir of the North" (0+3) h**
(Admission by audition.)

**MUS 253 0 Credit** **Fall, Spring**
**Piano Proficiency (0+1)**
Final phase of completion of piano proficiency examination. (Prerequisites: MUS 153 and permission of instructor.)

**MUS 307 1 Credit** **Fall, 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, Spring**
**Opera Workshop (0+3, 6 or 9) h**

**MUS 317 1 Credit** **Fall, 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)**

## MUSIC THEORY, MUSIC HISTORY AND MUSIC EDUCATION

**MUS 103 3 Credits** **Fall, 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. Examines different uses of music in various societies, and includes demonstration of ethnic musical instruments.

**MUS 131 2 Credits** **Fall**
**MUS 132 2 Credits** **Spring**
**Basic Theory (1+2) h**
First semester: Intensive training in fundamentals of music, pitch and rhythm notation, scales, modes, triads, and techniques of harmonization. Second semester: Concentration upon acquisition of skills in harmonization and techniques of formal and harmonic analysis. (Prerequisites: For MUS 131, concurrent enrollment in 133; For MUS 132, 134 unless exempted by music theory placement test.)

**MUS 133 2 Credits** **Fall**
**MUS 134 2 Credits** **Spring**
**Basic Ear Training (2+0) h**
Ear training skills including sight reading, sight singing, error detection, and dictation. Use of programmed materials in a laboratory situation in addition to classroom instruction. (Prerequisite: Concurrent enrollment in MUS 131 or 132 unless exempted by music theory placement examination.

**MUS 200X 3 Credits** **Fall, Spring**
**Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h**
**(Same as ART 200X and THR 200X)**
Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends. Materials fee: $20.00. (Prerequisite: Sophomore standing or permission of instructor.)

**MUS 221 3 Credits** **Fall**
**MUS 222 3 Credits** **Spring**
**History of Music (3+0) h**
Fall semester: Music before 1750. Spring semester: Music since 1750. (Prerequisites: MUS 131 and 132 or permission of the instructor.)

**MUS 223 3 Credits Spring**
**Native Alaskan Music (3+0) h**
Eskimo and Indian dance and song styles in Alaska. Emphasis on the sound, effect, and purpose unique to each and the collection methods, analysis, and the development of a broad musical perspective.

**MUS 231 2 Credits Fall**
**MUS 232 2 Credits Spring**
**Advanced Theory (1+2) h**
Continued study of harmony and musical form through analysis of representative works from the standard repertoire. The second semester is devoted to study and synthesis of 20th century stylistic and harmonic idioms. (Prerequisites: Concurrent enrollment in MUS 233 for 231 and 234 for 232 unless exempted by music theory placement test.)

**MUS 233 1 Credit Fall**
**MUS 234 1 Credit Spring**
**Advanced Ear Training (0+2)**
Continued training in sight singing and melodic dictation skills begun in MUS 133 and 134. Harmonic dictation and error detection skills also included. (Prerequisites: Concurrent enrollment in MUS 231 for 233 and 232 for 234 required unless exempted by music theory placement test.)

**MUS 309 3 Credits Fall**
**Elementary School Music Methods (3+0)**
**(Same as ED 309)**
Principles, procedures, and materials for teaching music to children at the elementary level. (Prerequisite: ED 330.)

**MUS 315 2 Credits Fall, Spring**
**Music Methods and Techniques (1+2)**
Instruction in voice and the basic instruments of band and orchestra. Emphasis on teaching methods. Course may be repeated for credit. See Music Department Handbook. Materials fee: $75.00. (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: 1993-94.)

**MUS 351O(t) 3 Credits Fall**
**Conducting (3+0) h**
Principles of conducting; interpretation of vocal and instrumental ensemble music. (Prerequisite: MUS 232.)

**MUS 405W 3 Credits Spring**
**Secondary School Music Methods (2+3)**
Principles and methods of teaching music in junior and senior high school with emphasis on philosophies, management, objectives, teaching techniques, choral, and general music programs. Includes use of teaching plans in classroom and rehearsal settings. (Prerequisite: Permission of instructor. Should be taken prior to ED 453.)

**MUS 410W 3 Credits Alternate Spring**
**Women in Music History (3+0) h**
**(Same as WMS 410)**
Lives and works of female musicians, composers, and performers will be traced from the earliest days of the ancient and mythological through the medieval, Baroque Classical, and Romantic periods with special emphasis on composers of the 20th century. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**MUS 421W 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: 1993-94.)

**MUS 422W 3 Credits Alternate Spring**
**Music in the Seventeenth and Eighteenth Centuries (3+0) h**
Style and performance practices of 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. Style study of representative works from early Baroque composers through Bach, Handel, Bach's sons, Hayden, 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: 1993-94.)

**MUS 423W 3 Credits Alternate Fall**
**Music of the Nineteenth Century (3+0) h**
Musical trends in the 19th century. Romanticism, Nationalism, Italian Opera, and Wagnerian Music Drama, as exemplified by representative works, chosen from the music of Weber, Berlioz, Mendelssohn, Schumann, Brahms, Wagner, Chopin, Tchaikowsky, and others. Related readings in other aspects of the Romantic movement. (Prerequisite: MUS 221 or 222 or permission of the instructor. Next offered: 1993-94.)

**MUS 424W 3 Credits Fall**
**Music in the Twentieth Century (3+0) h**
Music since 1900. Style studies of significant works from the modern repertoire. Hindemith, Bartok, Schoenberg, Stravinsky, the avant-garde, and others. (Prerequisite: MUS 221 or 222 or permission of the instructor.)

**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: 1993-94.)

**MUS 432 3 Credits Alternate Fall**
**Orchestration and Arranging (3+0) h**
Instrumentation and arranging for vocal and instrumental ensembles. (Next offered: 1993-94.)

**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: 1993-94.)

**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: 1993-94.)

**MUS 601 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 608 2 Credits As Demand Warrants**
**Seminar in Secondary Music Ed. (2+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, Spring**
**Graduate Recital**

## Natural Resources Management

**NRM 101 3 Credits Fall**
**Natural Resources Conservation and Policy (3+0)**
Concepts, management practices and issues/concerns associated with the conservation of natural resources; natural and social science aspects of resource conservation and policy; resource commentaries and discussion sessions provide opportunities for developing a personal philosophy related to natural resources. Majors in all fields welcome. (Prerequisite: Placement in ENGL 111.)

**NRM 102 1-3 credits Fall, Spring**
**Practicum in Natural Resources Management**
Practical experience in natural resources management. Supervised individual study on a farm, in a greenhouse, managed forest, agency or business, or another approved location. (Prerequisite: Natural Resource Management majors only.)

**NRM 122 3 credits Spring**
**Food Facts, Fads and Consumer Choices (3+0)**
Consideration of the food supply and its safety, available alternatives in the marketplace and applied basic nutrition as it relates to food choices and health.

**NRM 204 3 Credits Spring**
**Natural Resources Legislation and Policy (3+0)**
Background on selected federal lands management legislation and agency policies affecting resources conservation, development, and preservation.

**NRM 211 3 Credits Fall**
**Introduction to Applied Plant Science (2+3)**
Basic principles and requirements for plant growth and development with special attention to the production and management of field and greenhouse grown crops. (Prerequisite: A basic course in the subject area.)

**NRM 241 3 credits Spring**
**Introduction to Geographic Information Systems (2+3)**
**(Same as GEOG 241)**
Review of hardware and software components, exploration of several applications and introduction to data structures and basic functions. Several different GIS systems considered. Materials fee: $35.00. (Prerequisite: Knowledge of PC's or unix workstations desirable.)

**NRM 251 4 credits Spring**
**Silvics and Dendrology (3+3)**
Addresses ecological requirements and characteristics of tree species of the Northern Forest and western North American forest; silvical characteristics including range, climate, soils, shade tolerance, growth, and principal enemies. Family and species characteristics for identification on sight or with a key. Field trips required. Laboratory fee: $10.00. (Prerequisites: BIOL 105, 106 and 271 or permission of instructor.)

**NRM 260 3 credits Spring**
**Elements of Information Transfer for Natural Resource Managers (3+0)**
Information transfer methods, including the extension process. Identification of, and networking with various publics. Tools, techniques, and planning strategies for effective information transfer. (Prerequisites: NRM 101 and a speech communications course or permission of instructor.)

**NRM 277 3 Credits Alternate Spring**
**(Same as BIOL 277)**
**Introduction to Conservation Biology (3+0)**
Introduction to the basic ecological, genetic, management, legal, and historical developments in conservation biology and focused efforts to manage biological diversity resources, with a status review of important habitats and endangered species. (Prerequisites: Biol 105, 106. Next offered: 1993-94.)

**NRM 300 1-6 Credits Fall, Spring, Summer**
**Internship in Natural Resources Management**
Supervised pre-professional experience in a business or agency (public or private). Open to students majoring or minoring in natural resources management only. Course may be repeated for credit up to a maximum of 6 credits. (Prerequisites: NRM 101, junior standing, 3.0 gpa, permission of instructor, and an approved internship plan.)

**NRM 303 3 Credits Alternate Spring**
**Environmental Ethics and Actions (3+0)**
Exploration of the history of modern Western views of the relationship between people and nature, alternative foundations for an environmental ethic (utilitarianism, spiritual activity, rights-based, and respect-based ethics) and practices of such ethics in business, profession, and general lifestyle today. (Prerequisite: At least junior standing or permission of instructor. Next offered: 1994-95.)

**NRM 304O(p) 3 Credits Fall**
**Perspectives in Natural Resources Management (3+0)**
Analysis of philosophical/ethical, economic, scientific, and political foundations of diverse natural resource management perspectives. (Prerequisites: NRM 101, SPC 131X or 141X, junior standing or permission of instructor.)

**NRM 305 3 Credits Alternate Fall**
**Nutrition for Children, Adolescents and Adults (3+0)**
Application of basic nutrition principles to health and well-being of children, adolescents and adults including nutritional and related health problems found among Alaskans. (Prerequisite: BIOL 105 or CHEM 105 or equivalent, or permission of instructor. Next offered: 1993-94.)

**NRM 310O(g) 3 Credits Fall**
**Agricultural Concepts (3+0)**
Food and fiber origins are traced through world production techniques and use patterns to show how components of the agricultural industry (government, multi-national corporations and consumers) are affected by and can affect policy, production, marketing and end-products. (Prerequisites: BIOL 105, 106.)

**NRM 312 3 Credits Alternate Fall**
**Introduction to Range Management (3+0)**
Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands. Origin of the discipline, management practices, important rangelands of North America; emphasis on Alaska's rangelands and grazers. (Prerequisites: BIOL 105, 106, BOT 239 or permission of instructor; NRM 320, 321 recommended. Next offered: 1994-95.)

**NRM 313 4 Credits Alternate Spring**
**Introduction to Plant Pathology (3+3)**
Plant pathology; non-parasitic and parasitic causes of plant diseases; methods of plant infestation and mechanism of plant defenses; epidemiology and disease control. (Prerequisites: BIOL 105, 106; BOT 239 recommended. Next offered: 1994-95.)

**NRM 320 3 Credits Alternate Fall**
**Introduction to Animal Science (2+3)**
Origin, history, and economic significance of breeds of dairy and beef cattle, swine, sheep, and poultry. Discussion of reindeer, bison, and musk-ox. Management and production systems with special reference to Alaska. (Prerequisite: A course in general biology. Next offered: 1994-95.)

**NRM 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: 1993-94.)

**NRM 340 3 Credits Spring**
**Natural Resources Measurement and Inventory (2+3)**
Techniques and instrumentations used to measure and inventory natural resources, including land, timber, range, wildlife, water, and recreation resources. (Prerequisite: Junior standing or permission of instructor.

**NRM 341 4 Credits Fall**
**Techniques in Geographic Information Systems (3+3)**
**(Same as GEOG 341)**
GIS algorithms, data structures, advanced computational topics and analysis of error. Examination of ways traditional planning and management theories and techniques can be implemented in GIS's. (Prerequisite: NRM 241.)

**NRM 365W 3 Credits Fall**
**Principles of Outdoor Recreation Management (2+3)**
Theories, practices, economics, and problems fundamental to the use of land and related natural resources for recreation. (Prerequisite: Junior standing or permission of the instructor.)

**NRM 370 3 Credits Fall**
**Introduction to Watershed Management (2+3)**
The hydrologic cycle and the influence of land management techniques on water quantity, quality, and timing. Water yield, soil erosion and non-point pollution, snowpack management, and land use alternatives. (Prerequisites: NRM 101 and GEOS 101 or permission of instructor.)

**NRM 380W 3 Credits Spring**
**Soils (2+3)**
Soil development and classification; physical and chemical properties; biological activity; water movement and nutrient cycling in natural and manipulated ecosystems. (Prerequisite: CHEM 105.)

**NRM 400 3 Credits Fairbanks, Fall**
**Fisheries Science (F 2+3; J 3+0) Juneau, Alternate Spring**
**(Same as FISH 400)**
The general biology of fishes in relation to their management. Methods of collecting, analyzing, and interpreting field and laboratory data. (Prerequisite: one 200-level biology class. Corequisite: STAT 200 [STAT 373-J].)

**NRM 401 3 Credits Fairbanks, Spring**
**Fisheries Management (3+0) Juneau, Alternate Fall**
**(Same as FISH 401)**
Principles, concepts and techniques of fisheries management in terms of their biological, economic, social and political aspects. Topics are stocking and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. Examples of several fisheries are used to clarify concepts and practices. (Prerequisite: BIOL 271. Next offered Juneau: 1993-94.)

**NRM 404 3 Credits Spring**
**Processes of Natural Resources Decision Making (3+0)**
Analysis of decision-making models and evaluation criteria within the institutional and social constraints of federal and state agencies. (Prerequisites: NRM 101 and sophomore standing.)

**NRM 405W 2 Credits Fall, Spring**
**Senior Thesis in Natural Resources Management (2+0)**
Problem-solving with emphasis on writing and analysis. Individual project under the guidance of faculty sponsor involving formulation of a question in natural resources management and preparation of a formal, comprehensive written report. Must be repeated for a maximum of 4 credits. (Prerequisites: NRM core, senior standing, senior thesis orientation workshop, or permission of instructor.)

**NRM 407 3 Credits Spring**
**Environmental Law (3+0)**
The role of common law theory in regulatory, statutory, and constitutional interpretation in the field of environmental protection, including air and water pollution, toxic/hazardous substances, and land-use regulation. (Prerequisite: Junior or senior class standing or permission of instructor.)

**NRM 411 3 Credits Alternate Fall**
**Plant Propagation (2+3)**
Plant propagation, including seeds, bulbs, divisions, layers, cuttings, buds, grafts, and rootstocks. Where possible, emphasis will be placed on the propagation of indigenous plants. (Prerequisite: NRM 211 or permission of instructor. Next offered: 1994-95.)

**NRM 412 3 Credits Alternate Fall**
**Field Crop Production (3+0)**
Agronomic principles and practices involved in the production, storage, marketing, and utilization of field crops. (Prerequisite: NRM 211. Next offered: 1994-95.)

**NRM 420 3 Credits Alternate Spring**
**Animal Nutrition and Metabolism (3+0)**
Nutrition and metabolism of domestic animals; ruminant and monogastric. (Prerequisites: CHEM 105, 106; biochemistry recommended. Next offered: 1993-94.)

**NRM 425 3 Credits Alternate Spring**
**Ungulate Management and Production Systems (2+3)**
Functional biology of large herbivores (ungulates) and the management of world's grazing systems. Production strategies (cropping, herding, ranching, and farming) as they pertain to productive and/or commercial management of wild ungulates with emphasis on Alaska's species. Laboratory presents specific examples with guest lecturers, films, and an introduction to modeling of grazing systems. (Prerequisites: BIOL 105X-106X and a wildlife or animal science course or permission of instructor. Next offered: 1994-95.)

**NRM 430 3 Credits Spring**
**Land-Use Planning (3+0)**
History, legal framework, principles, processes, and practices of land use planning. Important Alaskan issues and problems. (Prerequisite: Upper division standing.)

**NRM 431 3 Credits Spring**
**Wildlife Policy and Administration (3+0)**
**(Same as WLF 431)**
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.)

**NRM 445 4 Credits Alternate Spring**
**Managing Food Production Systems (3+3)**
Principles of the firm applied to development of a diversified plan for food production. Budget and cash flows, using a personal computer. (Prerequisites: NRM 310, 320, basic economics [can be taken concurrently], and basic knowledge of operation of a personal computer, or permission of instructor. Next offered: 1993-94.)

**NRM 450 3 Credits Alternate Fall**
**Forest Management (3+0)**
Forest land management for production of goods and services; relation of timber production to other forest land uses. Sustained yield, allowable cut, information needs, valuation, decision making. (Prerequisites: NRM 251, 340, ECON 235 (or equivalent), or permission of instructor. Next offered: 1994-95.)

**NRM 451W 3 credits Alternate Spring**
**Silviculture (2+3)**
Examines biological, environmental, and silvicultural considerations essential for successful regeneration and maintenance of boreal and western North American forests. For persons in land management, including timber, woodlot, wildfire habitat, streamside, aesthetics. Provides intense look at science and art of forest stand management. Involves considerable critical writing. Field trips required. (Prerequisites: NRM 251, BIOL 271, junior standing or permission of the instructor. Next offered: 1994-95.)

**NRM 452 3 Credits Alternate Spring**
**Forest Protection (3+0)**
Principles and practical management systems for protection from fire, insects, and diseases. Factors in managing forest ecosystems, problems and techniques important in high latitude forests, especially in Alaska. (Prerequisites: BIOL 105, 106, 271, BOT 239; NRM 251 or instructor's permission. Next offered: 1993-94.)

**NRM 453 3 Credits Alternate Fall**
**Harvesting and Utilization of Forest Products (3+0)**
Manual and mechanized timber harvesting systems including timber cutting, yarding, and transport processes. Technology of processing wood into various products including lumber, plywood, veneer, pulp, and energy. (Prerequisites: NRM 101 and 251 or permission of instructor. Next offered: 1993-94.)

**NRM 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. (Prerequisite: Junior standing or permission of instructor. Next offered: 1994-95.)

**NRM 462 3 Credits Fall**
**Alaskan Environmental Education (3+0)**
**(Same as ED 462)**
Utilization of the environment inside and outside the formal classroom in all subject areas. Curriculum materials (K-12), interpretive and audiovisual aids, problem solving, and applications to situations from the public schools to summer camps, short courses, and workshops for individuals of any age. (Prerequisite: Junior standing or permission of instructor.)

**NRM 465 3 Credits Alternate Spring**
**Outdoor Recreation Planning (3+0)**
Allocations of natural resources for recreational purposes, including concomitant services. Macrobehavioral patterns influencing the allocation process. (Prerequisites: NRM 101 and ECON 235 or equivalent, or permission of instructor. Next offered: 1994-95.)

**NRM 480 3 Credits Alternate Fall**
**Soil Conservation (3+0)**
Managing soil to maintain or increase crop productivity while minimizing soil losses from wind and water erosion. (Prerequisite: NRM 380. Next offered: 1993-94).

**NRM 485 3 Credits Alternate Spring**
**Soil Biology (3+0) n**
Major groups of organisms in the soil and their interrelationships; the major biological processes which take place in the soil and their significance to soil productivity, plant growth, and environmental quality; and methodology for studying soil organisms and soil biological processes. (Prerequisites: A course in biology or microbiology and a course in soils or permission of instructor. Next offered: 1993-94.)

**NRM 607 3 Credits Alternate Spring**
**Biotechnology (3+0)**
**(Same as EQE 647)**

**NRM 625 3 Credits Alternate Spring**
**Advanced Ungulate Management and Production Systems (2+3)**

**NRM 630 3 Credits Fall**
**Planning Theory (3+0)**

**NRM 631 3 Credits Spring**
**Planning Practicum (3+0)**

**NRM 640 3 Credits Alternate Spring**
**Simulation and Modeling in Resource Management (3+0)**

**NRM 641 3 Credits Alternate Spring**
**Natural Resources Applications of Remote Sensing (2+3)**

**NRM 670 3 Credits Alternate Fall**
**Biometeorology (3+0)**

**NRM 672 2 Credits Alternate Fall**
**Dynamics of Nitrogen in Forest Ecosystems (2+0)**

**NRM 675 3 Credits Alternate Fall**
**Applied Ecosystem Science (3+0)**

**NRM 680 3 Credits Alternate Fall**
**Environmental Decision-Making (3+0)**

**NRM 681 3 Credits Alternate Spring**
**Natural Protection and Management (3+0)**

**NRM 690 3 Credits Alternate Fall**
**Advanced Topics in Resource Management (3+0)**

## Northern Studies

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the U.S.S.R., see Study Abroad.

**NORS 484 3 Credits Fall**
**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.)

**NORS 600 3 Credits Fall**
**Perspectives on the North (3+0)**
**(Same as NORS 484 and HIST 600)**

**NORS 601 3 Credits Fall**
**Research Methods and Sources in the North (3+0)**

**NORS 602 3 Credits Alternate Spring**
**Polar Exploration and its Literature (3+0)**
**(Same as HIST 380)**

**NORS 603 3 Credits Alternate Fall**
**20th Century Circumpolar History (3+0)**
**(Same as HIST 384)**

**NORS 606 3 Credits Alternate Fall**
**Science, Technology and Development in Northern Regions (3+0)**

**NORS 610 3 Credits Alternate Fall**
**Northern Indigenous Peoples and Contemporary Issues (3+0)**
**(Same as ANTH 610)**

**NORS 614 3 Credits Alternate Spring**
**Human Adaptation to the Circumpolar North (3+0)**
**(Same as PSY 614)**

**NORS 620 3 Credits Alternate Fall**
**Images of the North (3+0)**
**(Same as ENGL 620)**

**NORS 625 3 Credits Alternate Spring**
**Visual Images of the North (3+0)**

**NORS 630 3 Credits Spring**
**Economic Issues of the Circumpolar North (3+0)**
**(Same as ECON 630)**

**NORS 637 3 Credits Alternate Fall**
**Geography of Northern Development (3+0)**
**(Same as GEOG 637)**

**NORS 648 3 Credits Alternate Spring**
**Environmental Politics of the Circumpolar North (3+0)**
**(Same as PS 648)**

**NORS 650 3 Credits Alternate Spring**
**Comparative Government and Politics in the Circumpolar North (3+0)**
**(Same as PS 650)**

**NORS 651 3 Credits Alternate Fall**
**Justice and Social Control in the Circumpolar North (3+0)**
**(Same as JUST 651)**

**NORS 652 3 Credits Alternate Spring**
**International Relations of the North (3+0)**
**(Same as PS 652)**

**NORS 680 3 Credits As Demand Warrants**
**Comparative Education (3+0)**
**(Same as ED 680)**

**NORS 690 3 Credits Alternate Spring**
**Researching and Writing Public Northern History (1+3)**
**(Same as HIST 690)**

## Office Management and Technology

**OMT 072 1 Credit As Demand Warrants**
**Alphabetic Filing (1+0)**
Organizing records alphabetically according to standard indexing rules for names of individuals, organizations and business firms. Open lab.

**OMT 073 1 Credit As Demand Warrants**
**Spelling and Vocabulary (1+0)**
Skill development in spelling correctly and using general and specialized terms in business. Open lab.

**OMT 080 1 Credit As Demand Warrants**
**Keyboarding (0+3)**
Basic keyboarding skills with emphasis on correct technique and development of speed and accuracy. Open lab. Materials fee: $10.00.

**OMT 082 1 Credit As Demand Warrants**
**Clerical Accounting I (1+0)**
Acquaints student with the relationship between accounting and business, steps of the accounting cycle, and principles and procedures involved in handling cash. Open lab.

**OMT 083 1 Credit As Demand Warrants**
**Clerical Accounting II (1+0)**
Overview of accounting systems. Topics include use of journals and subsidiary ledgers, preparation of financial statements and end-of-the-period procedures. (Prerequisite: OMT 082.)

**OMT 086 1 Credit As Demand Warrants**
**Reception Skills (1+0)**
Training and practice in office receptionist skills. For persons seeking an entry level position. Open lab.

**OMT 100 3 Credits As Demand Warrants**
**Alphabetic Shorthand (3+0)**
Introduces alphabetic shorthand, including alphabet, shortcuts, phasing, and other abbreviating devices.

**OMT 103 1-3 Credits As Demand Warrants**
**Keyboarding I/Beginning Typewriting (1-3+0)**
Basic keyboarding skills with emphasis on correct techniques and development of speed and accuracy. Introduction to centering, typing of personal and business letters, envelopes, simple tables and manuscripts. For those with no previous typing training. May be taken in 1-credit segments in the Office Professions lab. Materials fee: $10.00.

**OMT 104 1 Credit As Demand Warrants**
**Typing Skill Building (1+0)**
Supervised training to improve speed and/or accuracy on straight and numerical copy. May be repeated up to 3 credits. Materials fee: $5.00. (Prerequisite: OMT 103 or permission of instructor.)

**OMT 105 3 Credits As Demand Warrants**
**Keyboarding II/Intermediate Typewriting (3+0)**
Instruction and training to attain at least minimal typing skill, experience and knowledge necessary for typist beginning an office career. Lab arranged. Materials fee: $10.00. (Prerequisite: OMT 103 or one year high school typing or permission of instructor.)

**OMT 106 3 Credits As Demand Warrants**
**Keyboarding III/Advanced Typewriting (3+0)**
Training and practice to achieve level of typing skill, experience, knowledge and production output required in business office positions. Lab arranged. Materials fee: $10.00. (Prerequisite: OMT 105 or permission of instructor.)

**OMT 107 3 Credits As Demand Warrants**
**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.

**OMT 108 4 Credits As Demand Warrants**
**Medical Office Procedures I (4+0)**
Introduction and orientation to business aspects of medical offices. Includes medical law and ethics, reception and telephone procedures, medical economics, orientation to medical profession and patient care.

**OMT 109 1 Credit As Demand Warrants**
**Proofreading (1+0)**
Provides instruction and practice in finding, making and correcting errors commonly made but often overlooked in business communication. Practice in recognizing frequently-made errors, where they are likely to occur and special techniques of finding them. Open lab.

**OMT 110 3 Credits As Demand Warrants**
**Office Procedures (3+0)**
Duties and responsibilities of general office employees including filing, processing mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.

**OMT 131 3 Credits As Demand Warrants**
**Business English (3+0)**
Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.

**OMT 151 2 Credits As Demand Warrants**
**Microcomputer Word Processing/WordPerfect (2+0)**
Provides practice on an IBM compatible microcomputer using Wordperfect software to create, edit, and store documents as well as perform more advanced applications. Materials fee: $10.00. (Prerequisite: Keyboard speed of 35 wpm.)

**OMT 153 2 Credits Fall, Spring**
**Microsoft Word (2+0)**
A beginning course in a powerful and versatile word processor for the IBM. Materials fee: $10.00. (Prerequisite: OMT 103 or equivalent.)

**OMT 154 1 Credit As Demand Warrants**
**Advanced Applications-Wordperfect (1+0)**
Provides instruction and practice in the use of macros, merging, headers/footers, advanced document formatting and manipulation, tables, math function, indexing, and other features specific to the Wordperfect software program. Materials fee: $5.00.

**OMT 157 1 Credit As Demand Warrants**
**Introduction to Office Computers (1+0)**
Provides an introduction to personal computers as well as the basics of spreadsheets, data bases and word processing software commonly used in an office setting. Materials fee: $5.00. (Prerequisite: Knowledge of basic keyboarding or instructor permission.)

**OMT 203 2 Credits As Demand Warrants**
**Calculating Machines (2+0)**
Provides basic operating knowledge of the electronic calculator for such applications as discounting, amount and percent of change, prorating interest, commissions and payroll. Development of proficiency in use of machines for initial job placement. Open lab. (Prerequisite: ABUS 155 strongly recommended.)

**OMT 207 2 Credits As Demand Warrants**
**Machine Transcription (2+0)**
Training in machine transcription with emphasis on mailable copies. Review of language skills and vocabulary included. Materials fee: $5.00. (Prerequisite: OMT 105 or permission of instructor.)

**OMT 210 3 Credits As Demand Warrants**
**Legal Typewriting (3+0)**
Provides legal procedures background and skill improvement in typewriting and transcription. Emphasis on understanding legal processes as well as developing expertise in typewriting and office procedures. Materials fee: $10.00. (Prerequisite: OMT 105 or permission of instructor.)

**OMT 211 2 Credits As Demand Warrants**
**Medical Typing (2+0)**
Provides training for employment as an office worker, particularly as a forms typist, in a hospital or medical bureau or office or toward qualifications as a medical assistant or secretary. (Prerequisite: OMT 105 or demonstration of equivalent proficiencies.)

**OMT 214 1 Credit As Demand Warrants**
**Medical Machine Transcription (1+0)**
Instruction and practice in formatting medical papers including a Medicare form, an admission form, a dental report; preparing patient histories, medical reports, file cards and other medical documents. Practice in transcribing from machine dictation and in using medical terminology correctly. Materials fee: $5.00. (Prerequisite: OMT 105 and 207.)

**OMT 219 1 Credit As Demand Warrants**
**Legal Machine Transcription (1+0)**
Instruction and practice in formatting legal papers including a lease, bill of sale, subpoena, stipulations, interrogatories, notices and various types of orders. Transcription from machine dictation; using the language of the law correctly. Materials fee: $5.00.

**OMT 221 3 Credits As Demand Warrants**
**Filing/Records Management (3+0)**
Instruction in basic alphabetic storage with filing rules and cross- referencing and procedures for retrieving records manually. Includes adaptations of the alphabetic storage method including geographic, numeric and subject; storing and retrieving special records (card files, visible records, microrecords); organization and operation of records management programs and control of records systems.

**OMT 225 1-2 Credits As Demand Warrants**
**CPS Review**
Prepares students for the CPS (Certified Professional Secretary) examination. Review sessions offered in six areas covered by the exam: behavioral science in business, business law, economics and management, accounting, office administration and office technology. One credit is granted for any combination of three of the above review topic areas. Materials fee: $5.00.

**OMT 231 3 Credits As Demand Warrants**
**Business Communications (3+0)**
Composition and evaluation of various kinds of common communications between a business person and associates, customers and dealers. Included are inter- office memos, letters, reports and oral communications. (Prerequisite: OMT 131 or permission of instructor.)

**OMT 244 3 Credits As Demand Warrants**
**Office Management (3+0)**
Review of procedures, basic attitudes and skills required of a secretary. Range of opportunities for secretarial advancement through knowledge relating to ergonomics, automation, employee relations, productivity, etc. (Prerequisite: Minimum of 12 credits in Office Professions or permission of instructor.)

**OMT 282 3 Credits As Demand Warrants**
**Cooperative Work Experience**
On-the-job training related to occupational objectives. Weekly seminar with coordinator required. (Prerequisites: Permission of instructor and 12 credits in OMT courses.)

## Paralegal Studies

**PLS 101 3 Credits As Demand Warrants**
**Introduction to Paralegal Studies (3+0)**
Introduction to paralegal studies including ethical rules for paralegals, tripartite form of government, basic legal terminology, basic legal analysis and the paralegal job market. Materials fee: $10.00.

**PLS 203 3 Credits As Demand Warrants**
**Personal Injury and Property Damage (3+0)**
Basic vocabulary and concepts essential to effectively assist an attorney pursue and defend claims based upon personal injury or property damage. Materials fee: $10.00.

**PLS 210 3 Credits As Demand Warrants**
**Civil Procedure (3+0)**
Basic vocabulary and concepts essential to effectively assist an attorney with the procedural aspects of civil litigations. Materials fee: $10.00.

**PLS 215 3 Credits As Demand Warrants**
**Contracts/Real Property (3+0)**
Basic vocabulary and concepts essential to effectively assist an attorney with the preparation of contracts and real property transactions. Materials fee: $10.00.

**PLS 240 3 Credits As Demand Warrants**
**Family Law (3+0)**
Basic vocabulary and concepts essential to understanding family law and assisting a practicing attorney.

## Petroleum Engineering

**PETE 103 1 Credit Fall**
**Survey of the Energy Industries (1+0)**
Overview of global energy supply and demand, alternate energy options, and petroleum production technology.

**PETE 205 3 Credits Fall**
**Introduction to Petroleum Drilling and Productions (3+0)**
Fundamental principles of drilling, well completions, production engineering; field trips to Alaskan oil fields if possible. (Prerequisite: MATH 200.)

**PETE 211 1-2 Credits Spring**
**Drilling Laboratory (0+3 or 6)**
Measurement of physical properties of drilling mud; optional BOP certification and drilling rig operation experience during spring break. (Prerequisite: PETE 205 or permission of instructor.)

**PETE 301 4 Credits Fall**
**Reservoir Rock and Fluid Properties (4+0)**
Fundamental concepts of reservoir rock and fluid properties including porosity, permeability, fluid saturations, capillary pressure, relative permeabilities, classification of petroleum reservoirs by fluid phase contents, oil, gas and water properties, fluid sampling, and PVT analysis. (Prerequisites: MATH 201, ES 346 and GEOS 101 or GE/GEOS 261.)

**PETE 302 3 Credits Spring**
**Well Logging (3+0)**
Comprehensive treatment of modern well logging methods including formation and production logging tools and techniques and basic concepts of log interpretation. (Prerequisite: Junior standing in engineering or geoscience.)

**PETE 303W 1 Credit Spring**
**Reservoir Rock and Fluid Properties Laboratory (0+3)**
Measurement of properties of reservoir rock and reservoir fluids; determination of porosity, permeability, fluid saturations, capillary pressures, specific gravity density, viscosity, surface tension, PVT properties and interpretation of PVT reports for reservoir fluid samples. (Prerequisite: PETE 301.)

**PETE 321 3 Credits Fall**
**Advanced Thermodynamics for Petroleum Engineers (3+0)**
Thermodynamics in the transport of petroleum fluids from the formation to the surface with an emphasis on multi-phase, multi-component equilibrium processes. (Prerequisites: MATH 302, CHEM 321 and ES 346 and concurrent registration in ES 341.)

**PETE 400 1 Credit Fall**
**Practical Engineering Report (0+3)**
Report on practical experience from petroleum engineering summer job. (Prerequisite: Senior standing in engineering or geoscience, or permission of instructor.)

**PETE 407 3 Credits Fall**
**Petroleum Production Engineering (3+0)**
Well completion, workovers, surface and subsurface equipment design, sucker-rod pumping, gas lift, stimulation techniques, sand control. Laboratory includes measurement of gas and oil streams. (Prerequisites: ES 341 and ES 346.)

**PETE 411W 1 Credit Spring**
**Drilling Fluids Laboratory (0+3)**
Design, composition and measurement of drilling fluid properties, evaluation of mud activities and chemical treatment of contaminated drilling fluid. (Prerequisites: PETE 205 and concurrent enrollment in PETE 426.)

**PETE 421 3 Credits Spring**
**Reservoir Characterization (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. Impact of formation structure on enhanced oil recovery methods. Reservoir surveillance. (Prerequisites: PETE 301, 302, and GEOS 370)

**PETE 426 3 Credits Spring**
**Drilling Engineering (3+0)**
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, 341.)

**PETE 431 2 Credits Fall**
**Natural Gas Engineering (2+0)**
Natural gas production and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems. (Prerequisite: PETE 301.)

**PETE 456O 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 PETE 476.)

**PETE 466 3 Credits Fall**
**Petroleum Recovery Methods (3+0)**
Flow and physiochemical principles of oil recovery by water, chemical, thermal and miscible floods. Prediction of recovery for each of these methods. (Prerequisites: PETE 301 and PETE 476.)

**PETE 476 3 Credits Fall, Spring**
**Petroleum Reservoir Engineering (3+0)**
Quantitative study and prediction of the behavior of oil and gas reservoirs under primary, secondary, and tertiary recovery mechanisms. (Prerequisites: PETE 301, 405.)

**PETE 478 2 Credits Spring**
**Well Test Analysis (2+0)**
Transient flow of fluids through porous media, application of solutions of the diffusivity equation to pressure buildup, drawdown, interference testing and log-log type curve analysis and effect of reservoir heterogeneities on pressure behavior. (Prerequisites: PETE 476 and MATH 302)

**PETE 481W 3 Credits Fall**
**Well Completions and Stimulation Design (2+3)**
Design of casing programs, cementing, open-hole and set-through completions, well stimulation; completion and workover fluids; and evaluation of sand control and workover operations. (Prerequisites: PETE 205, ES 341 and PETE 426.)

**PETE 487W 2 Credits Spring**
**Petroleum Project Design (2+0)**
Emphasis on design and analysis of petroleum exploration, production and reservoir engineering systems by analytical, experimental and computer methods. Identification of requirements, conceptual and detailed project design and cost analysis. Completion of an engineering project. (Prerequisite: Senior standing.)

**PETE 489 2 Credits Fall, Spring**
**Reservoir Simulation (2+0)**
The theory and use of computer reservoir simulation in petroleum reservoir and production engineering. (Prerequisites: MATH 310 and PETE 476.)

**PETE 607 3 Credits Fall**
**Advanced Production Engineering (3+0)**

**PETE 610 3 Credits Fall**
**Advanced Reservoir Engineering (3+0)**

**PETE 630 3 Credits As Demand Warrants**
**Waterflooding (3+0)**

**PETE 661 3 Credits Spring**
**Advanced Well Testing (3+0)**

**PETE 662 3 Credits Every Third Semester**
**Enhanced Oil Recovery (3+0)**

**PETE 663 3 Credits Fall**
**Advanced Reservoir Simulation (3+0)**

**PETE 665 3 Credits Every Third Semester**
**Advanced Phase Behavior (3+0)**

**PETE 666 3 Credits Every Third Semester**
**Advanced Drilling and Completions (3+0)**

**PETE 670 3 Credits Fall**
**Fluid Flow Through Porous Media (3+0)**

**PETE 683 3 Credits Every Third Semester**
**Advanced Natural Gas Engineering (3+0)**

**PETE 684 3 Credits Fall**
**Computational Methods in Petroleum Engineering (3+0)**

## Philosophy

**PHIL 201 3 Credits Fall, Spring**
**Introduction to Philosophy (3+0) h**
Terms, concepts, and problems as reflected in writings of great philosophers. (Prerequisite: Sophomore standing or permission of the instructor.)

**PHIL 202 3 Credits Spring**
**Introduction to Eastern Philosophy (3+0) h**
Basic assumptions, problems and systems of the major philosophical traditions of the Far East. (Prerequisite: PHIL 201 or permission of the instructor.)

**PHIL 204 3 Credits Fall, Spring**
**Introduction to Logic (3+0) h**
Principles of deductive and inductive logic and application of these principles to critical thinking in science and other fields; brief introduction to symbolic logic and its application. (Prerequisite: Sophomore standing.)

**PHIL 321 3 Credits Alternate Fall**
**Aesthetics (3+0) h**
The nature of aesthetic experience in poetry, music, painting, sculpture and architecture; studies in relation to artistic production and the role of art in society. (Prerequisite: PHIL 201. Next offered: 1993-94.)

**PHIL 322X 3 Credits Fall and Spring**
**Ethics (3+0) h**
Examination of ethical theories and basic issues in moral thought. (Prerequisite: At least junior standing.)

**PHIL 341O(t) 3 Credits Alternate Fall**
**Epistemology (3+0) h**
The nature of knowledge, truth and certainty. (Prerequisite: PHIL 201. Next offered: 1994-95.)

**PHIL 342 3 Credits Alternate Spring**
**Metaphysics (3+0) h**
Theories of reality and their relationship to science, philosophy and religion. (Prerequisite: PHIL 201. Next offered: 1994-95.)

**PHIL 351 3 Credits Fall**
**History of Philosophy and Science (3+0) h**
Ancient and medieval periods. (Prerequisite: Six credits in philosophy and/or natural and social science.)

**PHIL 352 3 Credits Spring**
**History of Philosophy and Science (3+0) h**
Renaissance, modern, and recent periods. (Prerequisite: Six credits in philosophy and/or natural and social science.)

**PHIL 381 3 Credits As Demand Warrants**
**Topics in Logics (3+0) h**
An advanced explanation of problems, philosophies and approaches in logics, including classical, symbolic and comparative logics. (Prerequisites: Completion of PHIL 204 or its equivalent and permission of the instructor.)

**PHIL 471 3 Credits Alternate Fall**
**Contemporary Philosophical Problems (3+0) h**
Ideological issues facing the modern world. (Prerequisite: Nine credits philosophy or permission of the instructor. Next offered: 1994-95.)

**PHIL 481 3 Credits Alternate Spring**
**Philosophy of Science (3+0) h**
Comparison and discussion of various contemporary methodological positions. (Prerequisite: Junior standing. Next offered: 1993-94.)

**PHIL 482 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: 1993-94.)

**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: 1994-95.)

**PHIL 485 3 Credits As Demand Warrants**
**Topics in Comparative Philosophies (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.)

**PHIL 486 3 Credits As Demand Warrants**
**B.A. Thesis in Philosophy (1+2+var) h**
Independent research on a 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.)

# Physical Education

PE and PER courses are available to all UAF students who meet stated prerequisites. Students with disabilities are encouraged to participate. Any students requiring special accommodations are asked to contact the department office as soon as possible.

**PER 100-199 1 Credit Fall, Spring**
**Physical Activities and Instruction (0+3)**
Instruction, practice, and activity in a variety of physical activities, sports, and dance in separate sections. Courses may be taken for credit one time only. Laboratory fees as indicated.
PER 101 - Multifitness Conditioning
PER 102 - Running for Fitness
PER 103 - Cycling for Fitness
PER 104 - Walking for Fitness
PER 105 - Weight Training for Fitness
PER 106 - Aerobics
PER 107 - Low Impact Aerobics
PER 108 - Power Lifting
PER 109 - Beginning Ice Skating
PER 110 - Intermediate Ice Skating
PER 111 - Ice Skating for Conditioning
PER 112 - Beginning Ice Dancing
PER 113 - Intermediate Ice Dancing
PER 114 - Advanced Ice Dancing
PER 115 - Beginning Ice Hockey
PER 116 - Intermediate Ice Hockey
PER 117 - Speed Skating
PER 118 - Curling
PER 119 - Beginning Swimming
PER 120 - Intermediate Swimming
PER 121 - Advanced Swimming
PER 122 - Conditioning Swimming
PER 123 - Aqua Aerobics
PER 124 - Water Polo
PER 125 - Springboard Diving
PER 126 - Synchronized Swimming
PER 127 - Beginning Fencing
PER 128 - Intermediate Fencing
PER 129 - Advanced Fencing
PER 130 - Beginning Aikido
PER 131 - Intermediate Aikido
PER 132 - Advanced Aikido
PER 133 - Beginning Tae Kwon Do
PER 134 - Intermediate Tae Kwon Do
PER 135 - Advanced Tae Kwon Do
PER 136 - Beginning Tai Chi Chuan
PER 137 - Intermediate Tai Chi Chuan
PER 138 - Advanced Tai Chi Chuan
PER 139 - Beginning Yoga
PER 140 - Intermediate Yoga
PER 141 - Advanced Yoga
PER 142 - Beginning Karate
PER 143 - Intermediate Karate
PER 144 - Advanced Karate
PER 145 - Basketball
PER 146 - Volleyball
PER 147 - Soccer
PER 148 - Team Handball
PER 149 - Orienteering
PER 150 - Canoeing
PER 151 - Kayaking
PER 152 - Rock Climbing
PER 153 - Mountaineering
PER 154 - Racquetball
PER 155 - Tennis
PER 156 - Table Tennis
PER 157 - Badminton
PER 158 - Billiards
PER 159 - Golf
PER 165 - Beginning Bowling (Lab fee: $35)
PER 166 - Intermediate Bowling (Lab fee: $35)
PER 167 - Advanced Bowling (Lab fee: $35)
PER 168 - Beginning Pistol Marksmanship (Lab fee: $35)
PER 169 - Intermediate Pistol Marksmanship (Lab fee: $35)
PER 170 - Advanced Pistol Marksmanship (Lab fee: $35)
PER 171 - Beginning Rifle Marksmanship (Lab fee: $35)
PER 172 - Intermediate Rifle Marksmanship (Lab fee: $35)
PER 173 - Advanced Rifle Marksmanship (Lab fee: $35)
PER 174 - Beginning Ballet
PER 175 - Intermediate Ballet
PER 176 - Advanced Ballet
PER 177 - Beginning Jazz Dance
PER 178 - Intermediate Jazz Dance
PER 179 - Advanced Jazz Dance
PER 180 - Modern Dance
PER 181 - Ballroom Dance
PER 182 - Western Dance
PER 183 - Folk Dance
PER 184 - Square Dance
PER 187 - Cross-Country Skiing
PER 188 - Downhill Skiing
PER 189 - Ski Mountaineering
PER 190 - Recreational Fitness Activities
PER 199 - Varsity Athletics

**PE 205** **2 Credits** **Alternate Fall**
**Introduction to the Human Movement Sciences (2+0)**
The interrelationship of the biological sciences, sociopsychological, historical and philosophical foundations and the role of the humanities in physical activity, fitness, sport and dance. Clarification of career possibilities included. (Next offered: 1993-94.)

**PE 208** **2 Credits** **Alternate Fall**
**Advanced Life Saving (1+3)**
Knowledge and skills to provide aid and treatment in aquatic emergencies. Instruction in American Red Cross Cardio-Pulmonary Resuscitation, Advanced Lifesaving, Advanced Swimmer, and Basic First Aid. Certification fee: $5.00 covers American Red Cross Advanced Life Saving Certification. (Prerequisite: Swim Test. Next offered: 1993-94.)

**PE 210** **1 Credit** **As Demand Warrants**
**Water Safety (1+3)**
Review and practice of swimming and lifesaving skills. Includes review of courses instructors are eligible to teach, teaching methods relative to those courses, general teaching methods, and practice teaching.

**PE 211** **1 Credit** **Every Third 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. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 212** **1 Credit** **Every Third 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. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 213** **1 Credit** **Every Third Spring***
**Fundamentals of Ice Sports (1+3)**
Basic skills in ice sports for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 214** **1 Credit** **Every Third Spring***
**Fundamentals of Snow Sports (1+3)**
Basic skills in snow sports for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1994-95.) *Meets for 7 weeks.

**PE 215** **1 Credit** **Every Third Fall***
**Fundamentals of Volleyball (1+3)**
Basic skills in volleyball for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1994-95.) *Meets for 7 weeks.

**PE 216** **1 Credit** **Alternate Fall***
**Fundamentals of Rhythms (1+3)**
Basic skills in rhythms for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 217** **1 Credit** **Alternate Spring***
**Fundamentals of Recreational Activities (1+3)**
Basic skills in recreational activities for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 218** **1 Credit** **Every Third Fall***
**Fundamentals of Soccer (1+3)**
Basic skills in soccer for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1994-95.) *Meets for 7 weeks.

**PE 219** **1 Credit** **As Demand Warrants***
**Fundamentals of Aquatics (1+3)**
Basic skills in aquatics for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. *Meets for 7 weeks.

**PE 220** **1 Credit** **Every Third Spring***
**Fundamentals of Wrestling (1+3)**
Basic skills in wrestling for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 221** **1 Credit** **Alternate Fall***
**Fundamentals of Gymnastics (1+3)**
Basic skills in gymnastics for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 222** **1 Credit** **Alternate Spring***
**Fundamentals of Track and Field (1+3)**
Basic skills in track and field for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1993-94.) *Meets for 7 weeks.

**PE 224** **1 Credit** **Alternate Fall**
**Fundamentals of Resistive Training (1+3)**
Principles and practices of resistive training for enhancement of muscle strength, strength endurance, cardiovascular endurance, and body composition components of physical fitness with emphasis on development of correct and safe techniques using the various resistive modes available. (Next offered: 1993-94.)

**PE 225** **1 Credit** **Alternate Spring**
**Fundamentals of Cardiovascular Training (1+3)**
Survey of techniques of development of health and performance related to cardiovascular fitness; safe and effective cardiovascular training in various modes (e.g. aerobics, aquatics, running, and mechanical); and system training as it pertains to each mode. (Next offered: 1993-94.)

**PE 226** **1 Credit** **Alternate Fall**
**Fundamentals of Movement Mechanics (1+3)**
Basic principles of body mechanics underlying common (non-athletic) movements and activities. Emphasis on preventative self-care for various populations. (Next offered: 1993-94.)

**PE 232** **3 Credits** **Alternate Spring**
**Analysis of Human Movement (3+0)**
Qualitative analysis of sport and dance through principles derived from the biological and physical sciences and directed towards understanding and improving human performance. (Next offered: 1993-94)

**PE 246** **3 Credits** **Fall, Spring**
**Advanced First Aid (3+0)**
Knowledge and skills to provide efficient aid and treatment in emergencies. Progresses through the Basic, Standard, and Advanced First Aid packages of the American Red Cross. Successful completion leads to certification by the American Red Cross in Advanced First Aid. Materials Fee: $10.00.

**PE 300** **1 Credit** **Every Third Fall***
**Advanced Theory and Techniques for Teaching Gymnastics (1+3)**
In-depth study of advanced skills, strategies, and analysis in gymnastics. (Prerequisite: PE 221. Next offered: 1994-95.) *Meets for 7 weeks.

**PE 302** **1 Credit** **Every third Fall***
**Advanced Theory and Techniques for Teaching Basketball (1+3)**
In-depth study of advanced skills, strategies, and analysis in basketball. (Prerequisite: PE 212. Next offered: 1993-94.) *Meets for 7 weeks.

**PE 303** **1 Credit** **Every third Fall***
**Advanced Theory and Techniques for Teaching Ice Sports (1+3)**
In-depth study of advanced skills, strategies, and analysis in teaching ice sports. (Prerequisite: PE 213. Next offered 1993-94.) *Meets for 7 weeks.

**PE 304** **1 Credit** **Every third Spring***
**Advanced Theory and Techniques for Teaching Snow Sports (1+3)**
In-depth study of advanced skills, strategies, and analysis in teaching snow sports. (Prerequisite: PE 214. Next offered 1993-94.) *Meets for 7 weeks.

**PE 305** **1 Credit** **Every third Fall***
**Advanced Theory and Techniques for Teaching Volleyball (1+3)**
In-depth study of advanced skills, strategies, and analysis in volleyball. (Prerequisite: PE 215. Next offered: 1993-94.) *Meets for 7 weeks.

**PE 306** **1 Credit** **Alternate Spring***
**Techniques in Teaching Creative Dance (1+3)**
Skill and practice in organizing creative dance experiences for all age groups. Emphasis on learning techniques will free people to create from their own movement vocabularies. Some emphasis on correct body alignment and techniques of moving. (Prerequisite: PE 216. Next offered: 1993-94.) *Meets for 7 weeks.

**PE 307** **1 Credit** **Alternate Spring***
**Techniques in Camping and Outdoor Recreation (1+3)**
In-depth study of advanced skills and organizational techniques in camping and outdoor recreation. One weekend campout required. Laboratory fee: $25.00. (Prerequisite: PE 217. Next offered: 1993-94.) *Meets for 7 weeks.

**PE 308 1 Credit Every third Fall***
**Techniques in Track and Field (1+3)**
In-depth study of advanced skills and analysis of track and field. (Prerequisite: PE 222. Next offered: 1993-94.) *Meets for 7 weeks.

**PE 309 2 Credits As Demand Warrants**
**Aquatic Instructor (1+3)**
Knowledge and skills to teach swimming to children and adults, beginner through advanced swimmer and lifesaving. For American Red Cross Water Safety Instructor Certificate. Certification fee: $5.00. (Prerequisites: Current American Red Cross Lifesaving Certificate and swim test.)

**PE 310 1 Credit Every third Spring***
**Techniques in Teaching Folk and Square Dance (1+3)**
Techniques and practical application in organizing and teaching varying age and ability levels in folk and square dance. Dances include partner and non-partner folk dances, some fad dances and traditional square dance, and practice in cueing and calling. (Prerequisite: PE 216. Next offered: 1993-94.) *Meets for 7 weeks.

**PE 316 3 Credits Alternate Fall**
**Motor Development (3+0)**
Motor skill and behavior development, infancy through old age. Individual differences, issues, applications and appraisal techniques. (Prerequisites: PSY 101 and junior standing. Next offered: 1993-94.)

**PE 317 3 Credits Every third Spring**
**Motor Learning (3+0)**
Physical skills learning processes, patterns, issues, programs, applications, and evaluation. (Prerequisites: PSY 101 and junior standing. Next offered: 1994-95.)

**PE 321 1-6 Credits Fall, Spring**
**Practicum in Physical Education (0+var)**
Supervised training as apprentice instructor or leader in university class or within the community. Planning and conducting activities with increasing responsibility. Class may be repeated. Only 2 credits may count toward department requirement. (Prerequisites: Appropriate 300 level technique courses and junior standing or equivalent background.)

**PE 327 3 Credits Spring**
**Physical Education for Children (3+0)**
Introduction to a variety of games, fundamental movement activities and sports appropriate for the K-5 student. Practical application of methods and techniques of instruction specific to physical education including: lesson planning, behavior control, maintenance of a quality learning environment, observation and evaluation techniques. (Prerequisites: PSY 101 and sophomore standing.)

**PE 337 3 Credits Alternate Fall**
**Psychological Aspects of Physical Activity (3+0)**
Theoretical and practical applications of psychological issues related to participation in physical activities, including exercise adherence, performance enhancement, group dynamics, leadership and coaching behaviors, arousal/anxiety, intervention strategies and lifespan participation. (Prerequisites: PSY 101, PE 316 or 317. Next offered: 1993-94.)

**PE 400 2 Credits As Demand Warrants**
**Judging and Coaching Gymnastics (1+3)**
Techniques for teaching, coaching, judging, and administering men's and women's gymnastics, including apparatus, tumbling, and floor exercise. (Prerequisite: Junior standing or previous gymnastic experience.

**PE 401 2 Credits Every third Fall**
**Theory of Basketball (2+0)**
Techniques of playing and coaching men's and women's basketball, including theories of offense and defense, contest strategies and psychology of individual and team play. (Prerequisites: PE 302 and junior standing. Next offered: 1993-94.)

**PE 405 2 Credits Alternate Fall**
**Concepts and Design of Physical Fitness Programs (1-1/2+1-1/2)**
Problems, methods of achievement, and maintenance of physical fitness. Assessment of personal fitness status, participation in selected fitness activities, and acquisition of skills in basic physical fitness activity. (Prerequisites: BIOL 111, 112. Next offered 1993-94.)

**PE 406 3 Credits Alternate Fall**
**Instructional Methodology for Physical Activity (2+3)**
Philosophy, curriculum development, methods for facilitating learning/skill development and controlling behavior, measurement and evaluation, observation off community programs, and instructional laboratories for adolescents and adults. (Prerequisite: Junior standing. Next offered: 1993-94.)

**PE 408 2 Credits As Demand Warrants**
**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.)

**PE 411 3 Credits Alternate Spring**
**Sport and Physical Activity in Today's World (3+0)**
Examines the contributions of physical activity to survival, artistic development, and classic and popular culture as they have influenced the role of physical activity in the contemporary world. (Prerequisite: Junior standing. Next offered 1993-94.)

**PE 412 3 Credits Every Third Fall**
**Principles and Problems in Athletic Coaching (3+0)**
Philosophy and objectives of athletic competition at various age levels. Roles and responsibilities of the coach. Problems of athletic coaching and management of athletes and their training. For those who plan to take leadership or coaching roles in school or community athletic programs. (Prerequisite: Junior standing. Next offered: 1993-94.)

**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 stressors, including effects of environmental stressors, especially those specific to northern regions. (Prerequisite: BIOL 111, 112. Next offered: 1993-94.)

**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 interschool athletics. (Prerequisite: Junior standing. Next offered: 1993-94.)

**PE 432 4 Credits Alternate Fall**
**Biomechanics of Human Performance (3+3) n**
Mechanical analysis of human movement, focusing internally on musculo-skeletal interactions and externally on the body with the environment. (Prerequisites: BIOL 111, 112, MATH 107. Next offered: 1993-94.)

**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 in regular programs in physical education and recreation. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1993-94.)

**PE 440 3 Credits Every third Spring**
**Care and Prevention of Athletic Injuries (3+0)**
Scientific bases for the care and prevention of sports and physical activity injuries. Rationale and strategies for taping and wrapping for injury prevention and rehabilitation, techniques in pre-activity conditioning and post-injury reconditioning, and equipment safety. (Prerequisites: BIOL 111, 112, PE 205 or permission of instructor. Next offered: 1993-94.)

**PE 442 3 Credits Alternate Spring**
**Measurements and Evaluation in Physical Activity (3+0)**
Evaluation theory and application including basic statistics, formation of measureable behavioral objectives, written test construction, survey of fitness and skill tests, their selection, administration and interpretation of results, and use of computer programs to calculate statistical values. (Prerequisites: Completion of 8 credits from PE 211 through 222. Next offered: 1993-94.)

**PE 475 1-6 Credits Fall, Spring**
**Internship in Exercise Science (.5+var)**
For exercise science majors. Provides an opportunity to synthesize and integrate knowledge gained from academic programs through a process of experience, problem solving and experienced professional supervision. (Prerequisites: Senior standing in exercise science and departmental approval.)

# Physics

**PHYS 101 3 Credits Fall, Spring**
**Introduction to Space Science (3+0) n**
An exploration 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. (Prerequisite: High school algebra.)

**PHYS 103X 4 Credits Fall**
**College Physics (3+3) n**
Classical physics including vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity, fluids, heat, temperature, Laws of Thermodynamics, and kinetic theory. For mathematics, science and liberal arts majors. Laboratory fee: $15.00 (Prerequisites: High school algebra, trigonometry and geometry or instructor permission.)

**PHYS 104X 4 Credits Spring**
**College Physics (3+3) n**
Coulomb's Law, electrical potential, capacitance, Kirchoff's Laws, magnetic fields, Faraday's Law, electromagnetic waves, physical and geometrical optics, waves and particles, atomic and nuclear physics. For mathematics, science and liberal arts majors. Laboratory fee: $15.00. (Prerequisite: PHYS 103X or instructor permission.)

**PHYS 113 1 Credit Fall**
**Concepts of Physics (1+0)**
Review of experimental and theoretical studies of fundamental interactions of nature leading to major advances in human knowledge. Application of these discoveries to modern technologies, such as solid state electronics, lasers, holography, nuclear fusion, medical diagnostics, remote sensing, etc.

**PHYS 211X 4 Credits Fall, Spring**
**General Physics (3+3) n**
Vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity, and fluids. For engineering, mathematics and physical science majors. Laboratory fee: $15.00. (Prerequisite: Concurrent enrollment in MATH 201 or instructor permission.)

**PHYS 212X 4 Credits Fall, Spring**
**General Physics (3+3) n**
Heat, temperature, Laws of Thermodynamics, Coulomb's Law, electrical potential, capacitance, Kirchoff's Laws, Biot-Sarvart Law, Faraday's Law, and electromagnetic waves. For engineering, mathematics and physical science majors. Laboratory fee: $15.00. (Prerequisite: PHYS 211X or instructor permission.)

**PHYS 213 4 Credits Spring**
**Elementary Modern Physics (3+3) n**
Geometrical and physical optics: elementary-level modern physics including special relativity, atomic physics, nuclear physics, solid-state physics, elementary particles, simple transport theory, kinetic theory, and concepts of wave mechanics. Laboratory fee: $15.00. (Prerequisites: PHYS 211X and 212X or permission of instructor.)

**PHYS 275 3 Credits Fall**
**PHYS 276 3 Credits Spring**
**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 276 or permission of instructor.)

**PHYS 311 4 Credits Fall**
**PHYS 312 4 Credits Spring**
**Mechanics (4+0) n**
Newtonian mechanics, motion of systems of particles, rigid body statics and dynamics, moving and accelerated coordinate systems, Lagrangian and Hamiltonian mechanics, continuum mechanics, theory of small vibrations, tensor analysis, rigid body rotations, special theory of relativity. (Prerequisites: PHYS 211X and at least concurrent enrollment in MATH 302; PHYS 311 for 312, or permission of instructor.)

**PHYS 313 4 Credits Fall**
**Thermodynamics and Statistical Physics (4+0) n**
Thermodynamic systems, equations of state, the laws of thermodynamics, changes of phase, thermodynamics of reactions, kinetic theory, and introduction to statistical mechanics. (Prerequisite: PHYS 212X or permission of instructor.)

**PHYS 331 3 Credits Fall**
**PHYS 332 3 Credits Spring**
**Electricity and Magnetism (3+0) n**
Electrostatics, dielectrics, magnetostatics, magnetic materials, and electromagnetism. Maxwell's equations, electromagnetic waves, radiation, physical optics, and selected topics from electronics. (Prerequisites: PHYS 212X and MATH 202 or permission of instructor.)

**PHYS 381 2 Credits Fall**
**PHYS 382 2 Credits Spring**
**Physics Laboratory (0+6) n**
Laboratory experiments in classical and modern physics. (Prerequisite: PHYS 213, PHYS 381 for 382, or permission of instructor.)

**PHYS 411 4 Credits Fall**
**PHYS 412 4 Credits Spring**
**Modern Physics (4+0) n**
Relativity, elementary particles, quantum theory, atomic and molecular physics, x-rays, and nuclear physics. (Prerequisites: PHYS 213, MATH 302 and MATH 314, PHYS 411 for 412, or permission of instructor.)

**PHYS 445 4 Credits Spring**
**Solid State Physics and Physical Electronics (4+0) n**
Theory of matter in the solid state and the interaction of matter with particles and waves. (Prerequisites: MATH 302, 314 and PHYS 411 or permission of the instructor.)

**PHYS 462 4 Credits Fall**
**Geometrical and Physical Optics (3+3) n**
Geometrical optics, interference and diffraction theory, non-linear optics, Fourier optics, and coherent wave theory. (Prerequisites: MATH 302, 314 and PHYS 331 or permission of instructor.)

**PHYS 611 3 Credits Alternate Fall**
**PHYS 612 3 Credits Alternate Spring**
**Mathematical Physics (3+0)**
**(Same as MATH 611-612)**

**PHYS 621 3 Credits Alternate Fall**
**Classical Mechanics (3+0)**

**PHYS 622 3 Credits Alternate Spring**
**Statistical Mechanics (3+0)**

**PHYS 626 3 Credits Alternate Fall**
**Fundamentals of Plasma Physics (3+0)**

**PHYS 627 3 Credits Alternate Spring**
**Advanced Plasma Physics (3+0)**

**PHYS 628 3 Credits Alternate Fall**
**Digital Time Series Analysis (3+0)**

**PHYS 629 3 Credits Alternate Fall**
**Methods of Numerical Simulation in Fluids and Plasma (3+0)**
**(Same as MSL 629)**

**PHYS 631 3 Credits Alternate Fall**
**PHYS 632 3 Credits Alternate Spring**
**Electromagnetic Theory (3+0)**

**PHYS 640 3 Credits Alternate Spring**
**Auroral Physics (3+0)**

**PHYS 645 3 Credits Alternate Fall**
**Fundamentals of Geophysical Fluid Dynamics (3+0)**

**PHYS 650 3 Credits Alternate Fall**
**Aeronomy (3+0)**

**PHYS 651 3 Credits Alternate Fall**
**PHYS 652 3 Credits Alternate Spring**
**Quantum Mechanics (3+0)**

**PHYS 660 3 Credits Alternate Spring**
**Radiative Transfer (3+0)**

**PHYS 672 3 Credits Alternate Fall**
**Magnetospheric Physics (3+0)**

**PHYS 673 3 Credits Alternate Spring**
**Space Physics (3+0)**

# Political Science

**PS 100X 3 Credits Fall, Spring**
**(Same as ECON 100X)**
**Political Economy (3+0) s**
Survey of the evolution and operation of the American domestic political economy with consideration of market failures and government responses. Review of major issues in political economy such as inflation, poverty and budget deficits. Exploration of linkages between American and global systems.

**PS 101 3 Credits Fall, Spring**
**Introduction to American Government and Politics (3+0) s**
Principles, institutions, and practices of American national government; the Constitution, federalism, interest groups, parties, public opinion, and elections. Also available via Independent Learning.

**PS 110 1 Credit Fall, Spring**
**Parliamentary Procedures (1+0)**

**(Same as ANS 110)**
Rules and principles of parliamentary procedures and application to group decision-making processes.

**PS 201 3 Credits Fall**
**Comparative Politics: Western Political Systems (3+0) s**
Introductory survey of modern European government and politics. Emphasis on western democracies.

**PS 202 3 Credits Spring**
**Comparative Politics: Non-Western Political Systems (3+0) s**
Introductory survey of governments and politics of developing nations in the Third World, including Democratic, Communist, post-Communist, military and other authoritarian regimes.

**PS 210 3 Credits Spring**
**Alaska Government and Politics (3+0) s**
A comprehensive introduction to Alaska's government and politics, in the context of American state and local government and politics. Topics include political history, constitution, political parties, interest groups, elections, public opinion, governor, legislature, judiciary, administration and local governments. Compares Alaska to the contiguous 48 states, and examines how government institutions and processes respond to social, environmental, and political changes of Northern communities.

**PS 212 3 Credits Alternate Spring**
**Introduction to Public Administration (3+0) s**
**(Same as JUST 259)**
Theories and practice of public administration, especially as applied to federal agencies. Study of organization, planning, and decision making in implementing public policy. (Next offered: 1993-94.)

**PS 222 3 Credits Fall**
**Research Methods (3+0) s**
**(Same as JUST 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: PS 101 or JUST 110.)

**PS 263 3 Credits Fall, Spring**
**Alaska Native Politics (3+0) s**
Political development, organization, interests and activities of Alaska Natives; treatment of ethnic leadership issues, history of federal Indian policy, evolution of Native leadership, village and regional government, land claims, and community politics from the Alaska Native brotherhood to ANCSA to the Alaska Native Coalition. Compares Alaska Native political developments to those of other circumpolar Northern Native communities.

**PS 300X 3 Credits Fall, Spring**
**Values and Choice (3+0) h**
The central question, "What is Justice?" will be posed of both Western and non-Western value and ethical theories. Value choices on issues such as abortion, pornography, gender inequality in the work-place, and alternative life styles will be examined. (Prerequisites: At least two lower-division courses in "Perspectives on the Human Condition" or equivalent (PS/ECON 100X, HIST 100X, ANTH/SOC 100X, ART/MUS/THR 100X, ENGL/FL 100X) and junior standing.)

**PS 301 3 Credits Alternate Fall**
**American Presidency (3+0) s**
The institution of the presidency in the American political system. (Prerequisite: PS 101 or consent of instructor. Next offered: 1993-94.)

**PS 302 3 Credits Alternate Spring**
**Congress and Public Policy (3+0) s**
The American Congress in the political system. (Prerequisite: PS 101. Next offered: 1993-94.)

**PS 303 3 Credits Fall**
**Politics and the Judicial Process (3+0)**
**(Same as JUST 303)**
The role of federal courts as political institutions. The politics of judicial selection, the nature of judicial decisionmaking and intracourt politics, litigations as a policymaking device, changes in the nature and scope of judicial power, governmental attorneys, the legal bureaucracy, and judicial agenda setting. (Prerequisite: PS 101 or JUST 110. Next offered: 1993-94.)

**PS 311 3 Credits Alternate Spring**
**Government and Politics of the Soviet Union and Eastern Europe (3+0) s**
Survey of political institutions and processes in the Soviet Union and Eastern European countries. (Prerequisite: PS 101 or instructor permission. Next offered: 1993-94.)

**PS 312 3 Credits Alternate Fall**
**Government and Politics of China and East Asia (3+0) s**
Modern East Asia (including China, Japan and Southeast Asia) politics and society, including governmental institutions, political processes and regional and global foreign relations. (Prerequisite: PS 101 or consent of instructor. Next offered: 1993-94.)

**PS 315 3 Credits Alternate Spring**
**American Political Thought (3+0) s**
Political ideas in the United States from colonial times to the present: Puritanism, revolutionary ideas, Constitutionalism, nature of the Union, Progressive movement, pragmatism. (Prerequisite: PS 101 or consent of instructor. HIST 131 and 132 strongly recommended. Next offered: 1993-94.)

**PS 316 3 Credits Alternate Fall**
**State and Democratic Society (3+0) s**
Theories of types of democratic regimes, including individualist and socialist. Analysis of underlying values and structural differences, drawing upon contemporary national state cases. (Prerequisite: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 321 3 Credits Fall**
**International Politics (3+0) s**
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 or permission of instructor.)

**PS 322 3 Credits Alternate Spring**
**International Law and Organizations (3+0) s**
Development of international law (for example, the Law of the Seas). Regional and international organizations; non-state actors in the world system (for example, the Inuit Circumpolar Conference, Greenpeace); international political integration. (Prerequisites: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 323 3 Credits Alternate Fall**
**Issues of International Political Economy (3+0) s**
Exploration of the manner in which political and economic forces interact to affect international flows of goods, money, investments, and technology. International political economic relations are examined in several contexts. (Prerequisite: PS 100X. Next offered: 1993-94.)

**PS 325 3 Credits Spring**
**Native Self- Government (3+0) s**
**(Same as ANS 325)**
Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance, federal Indian Law and Alaska state chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people. (Prerequisites: HIST 100, PS 263.)

**PS 330 3 Credits Spring**
**Law, Justice and Society (3+0) s**
**(Same as JUST 330)**
Study of moral issues related to the proper reach, extent, and enforcement of the law. (Prerequisites: PS 101 or JUST 110.)

**PS 350 3 Credits Alternate Fall**
**Justice and the Philosophy of Law (3+0) s**
Major theories of rights in political theory, philosophy, and legal theory: general theory of rights and theories of particular rights, such as property. Liberal, nineteenth century German, Marxist, and contemporary theoretical approaches are considered. Emphasis on how a theoretically valid conception of justice and particular rights can be formulated. (Prerequisite: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 401 3 Credits Alternate Spring**
**Political Behavior (3+0) s**
Focuses on the attitudes, opinions, beliefs of the American electorate and the impact of these factors on political behavior. (Prerequisite: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 403 3 Credits Alternate Spring**
**Public Policy (3+0) s**
Discussion of how policy process works and how policy analysis is conducted. Examples of policy issues from recent cases, especially in Alaska. (Prerequisites: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 404 3 Credits Spring**
**Introduction to Legal Research and Writing (3+0)**
**(Same as JUST 404)**
Methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101 or JUST 110.)

**PS 411 3 Credits Alternate Fall**
**Classical Political Theory (3+0) h**
Political ideas from ancient Greece, Rome, and the Judaeo-Christian tradition. Theories of Plato, Aristotle, Cicero, Augustine, and Aquinas. (Prerequisites: PS 101 or consent of instructor. Next offered: 1993-94.)

**PS 412 3 Credits Alternate Spring**
**Modern Political Theory (3+0) s**
Political ideas from the Renaissance to the modern world. Theories of Machiavelli, Hobbes, Locke, Rousseau, Burke, Marx, and Lenin. (Prerequisites: PS 101 or consent of instructor; PS 411 strongly recommended. Next offered: 1993-94.)

**PS 415 3 Credits Alternate Fall**
**Contemporary Political Theory (3+0) s**
An examination of contemporary theories about "What is democracy?" including theoretical investigation of the nature of existing "democracies." Theory is used to provide an account of the process of determination of policy in democratic capitalist systems. Evaluation of existing "democratic" systems by comparing their nature with the realizable democratic ideals. (Prerequisite: PS 101 or permission of instructor.)

**PS 420 3 Credits Alternate Fall**
**Environmental Politics (3+0) s**
Examination of politics of federal environmental policy decisions focusing on the environmental movement as a force reshaping American society. Topics include limits to growth thesis, impact assessment policy, and wilderness politics. (Prerequisite: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 425 3 Credits Fall**
**(Same as ANS 425)**
**Federal Indian Law and Alaska Natives (3+0) s**
The "special relationship" between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives. (Prerequisites: PS 101 and HIST 100; or permission of instructor; PS 263 is recommended.)

**PS 435W 3 Credits Alternate Fall**
**Constitutional Law I: Institutions and Governmental Powers (3+0) s**
Constitutional doctrines and historical evolution of federalism and the separation of powers in the United States. Emphasis on the courts role in arbitering intergovernmental and interbranch disputes, the constitutional status of the administrative bureaucracy, and the control of the war power and foreign policy. (Prerequisite: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 436W 3 Credits Alternate Spring**
**Constitutional Law II: Civil Rights and Civil Liberties (3+0) s**
Origin and development of civil rights and civil liberties in the United States. Emphasis on the social, political and philosophical justifications of rights as expressed in judicial decision and constitutional doctrine. (Prerequisite: PS 101 or permission of instructor. Next offered: 1993-94.)

**PS 437 3 Credits Alternate Spring**
**American Foreign Policy (3+0) s**
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 or permission of instructor. Next offered: 1993-94.)

**PS 438 3 Credits Fall**
**Peace and National Security (3+0) s**
Analysis of requirements for the reduction of global tensions in relation to national security needs, with a focus on the politics of war and conflict, ideas of peace and order, obstacles to national protection, new strategic beliefs, and methods of assessing national security policies. (Prerequisite: PS 101 or permission of instructor.)

**PS 450 3 Credits Alternate Spring**
**Comparative Aboriginal Rights and Policies (3+0) s**
**(Same as ANS 450)**
A case-study approach in assessing Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations examined for factors promoting or limiting self-determination. (Prerequisites: Upper division standing or instructor's permission. Next offered: 1993-94.)

**PS 475 3 Credits Fall, Spring**
**Internship in Public Affairs (3+0)**
Individual study of public agencies or organizations through actual experience. (Admission by permission of the instructor.)

**PS 648 3 Credits Alternate Spring**
**Environmental Politics of the Circumpolar North (3+0)**
**(Same as NORS 648)**

**PS 650 3 Credits Alternate Spring**
**Comparative Government and Politics in the Circumpolar North (3+0)**
**(Same as NORS 650)**

**PS 652 3 Credits Alternate Spring**
**International Relations of the North (3+0)**
**(Same as NORS 652)**

# Psychology

**PSY 101 3 Credits Fall, Spring**
**Introduction to Psychology (3+0) s**
Principles of general psychology emphasizing natural science and social science orientation. Cultural, environment, heredity, and psychological basis for integrated behavior; visual, audition and the other senses; motivation and emotion; basic processes in learning, problem solving, and thinking; personality; psychological disorders - their prevention and treatment, and therapeutic strategies. Also available via Independent Learning or via television as a self-paced, computer-aided course; special telecourse fee: $20.00.

**PSY 110 1 Credit Fall, Spring**
**College Success Skills (2+0)**
**(Same as DEVS 110)**
An introduction and overview of the diverse skills, strategies and resources available to ensure success in the college experience. Topics include study skills, time management, career planning, stress management, communication skills, test taking and personal development skills.

**PSY 161 3 Credits As Demand Warrants**
**Counseling Skills I (3+0)**
Study and acquisition of counseling techniques centered on development of a helping relationship. Emphasis on communication skills including questioning, responses and leads, non-verbal communication. Other topics include delineation of the counselor role, ethics and confidentiality and referrals. Extensive use of role playing and videotaping.

**PSY 210 3 Credits Alternate Spring**
**Cross-Cultural Psychology (3+0) s**
Concepts, premises, and methods of cross-cultural psychology emphasizing its use in testing, extending, and refining Western psychological theories. Topics include perceptions, cognition, social behavior, psychopathology, and social change as they relate to cultural variation. (Prerequisite: PSY 101. Next offered: 1993-94.)

**PSY 230 3 Credits As Demand Warrants**
**Psychology of Adjustment (3+0) s**
Study of the psychology of adjustment, growth, and creativity, including advances in personal psychology, understanding personality patterning, and an exploration of techniques and methods for furthering creative potential. (Prerequisite: PSY 101.)

**PSY 240 3 Credits Fall, Spring**
**Developmental Psychology in Cross-Cultural Perspective (3+0) s**
Individual development examined from both a psychological and cross-cultural perspective. Development of cognition, personality, and social behavior; attention to relevant research on those cultures found in Alaska. Also available via Independent Learning. (Prerequisite: PSY 101.)

**PSY 245 3 Credits Fall, Spring**
**Child Development (3+0) s**
**(Same as ECHD 245)**
Study of development from prenatal through middle childhood including cognitive, emotional, social and physical aspects of the young child. Includes child observations. Roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

**PSY 250 3 Credits Fall, Spring**
**Introductory Statistics for Behavioral Sciences (3+0)**
**(Same as SOC 250)**
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. (Prerequisite: MATH 107 or equivalent.)

**PSY 255 3 Credits Fall**
**Foundations of Counseling I (3+0)**
**(Same as HMSV 255)**
Survey of counseling philosophy, approaches, and types of counseling systems in use. Topics include approach and system match; psychoanalysis, behavior therapy, and humanistic approaches; counseling ethics and ethical problems. (Prerequisites: PSY 101 and 240 or permission of instructor.)

**PSY 261 3 Credits As Demand Warrants**
**Counseling Skills II (3+0)**
A continuation of PSY 161 to further development and use of counseling skills. Topics include counseling strategies and techniques, goal-setting, termination issues and methods of self-critique for paraprofessional counselors. Extensive use in class of 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)**
Concentration on practical counseling skills applied to problems of everyday living and those presented to local human service agencies. Students encouraged to integrate theoretical 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. Sources of stress inside and outside the family system. Concentration on normal, gradual and cumulative life stressors during the life cycle of the family as well as extraordinary stressors which occur suddenly and frequently overwhelm the family's ability to cope. (Prerequisite: PSY 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)**
Analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. (Prerequisite: 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 emphasizing basic premises, causal factors, functional consequences and interrelationships. Synthesis of animal behavior and ethology in development and maintenance of behavioral patterns in individual organisms and social groups. (Prerequisites: PSY 101, BIOL 105, 106 and/or permission of instructor. Next offered: 1993- 94.)

**PSY 356 3 Credits Spring**
**Foundations of Counseling II (3+0)**
**(Same as HMSV 356)**
Continuation of PSY 255. Specific counseling strategies studied in-depth include crisis intervention, individual techniques such as the rational therapies, and specific behavioral approaches. Other topics include role of the counselor in community education and consultation, methods of promoting community change and issues in cross-cultural counseling. (Prerequisites: HMSV 255 or PSY 255.)

**PSY 360O(t) 3 Credits Alternate Spring**
**Psychology of Women Across Cultures (3+0) s**
**(Same as WMS 360)**
Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1993-94.)

**PSY 370 3 Credits Alternate Fall**
**Drugs and Drug Dependence (3+0) s**
**(Same as SOC 370)**
A multidisciplinary approach emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological, psychological and sociological aspects of drug abuse, recommended drug education alternatives and plans, and treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1993-94.)

**PSY 380 3 Credits Alternate Fall**
**Human Behavior in the Arctic (3+0) s**
Living systems in Alaska and behavioral characteristics that have to do with stress and isolation. Material includes structural design as related to behavioral research. (Prerequisite: PSY 101. Next offered: 1993-94.)

**PSY 440 3 Credits Alternate Spring**
**Learning (3+0) s**
Theory and research on the fundamentals of learning. Topics include animal learning, classical conditioning, instrumental learning, discrimination learning, biological constraints on learning, and cross-cultural differences in learning styles. (Prerequisite: PSY 101. Next offered: 1993-94.)

**PSY 445W 3 Credits Fall**
**Community Psychology (3+0) s**
**(Same as HMSV 445)**
Foundations of community psychology including community assessment consultations. Community assessment activities explored include selecting study areas, surveys, evaluation of services, and use of results. During the community consultation portion, education, prevention, and service issues are covered. Attention given to rural and small community assessment and change especially as it applies to Alaska. (Prerequisites: PSY 101, SOC 101, HMSV 201.)

**PSY 450 4 Credits Alternate Spring**
**Experimental Psychology (2+6) s**
An integrated approach to the study of experimental psychology. Emphasis on research methodologies and techniques. Design, execution, and analysis of individual projects involving both animal and human subjects. (Prerequisites: PSY 101, PSY 250 or STAT 301, and computer science course(s) strongly recommended and/or permission of instructor. Next offered: 1994-95.)

**PSY 460 4 Credits Alternate Fall**
**Physiological Psychology (3+3) n**
An integrated multidisciplinary approach to the study of neuroanatomy and neurophysiology emphasizing the basic principles, cortical and subcortical organization, functional mechanisms, and the physical-chemical foundations in physiological bases of behavior with special reference to neuroanatomy, neurochemistry, and electrophysiological measures employed in the study of behavior and brain activity. Research topics include brain dynamics, the neural bases of learning, the neural substrates of emotion and motivation, states of consciousness, and stress and psychosomatic relationships. (Prerequisite: PSY 101, BIOL 105, 106 or BIOL 111, 112 and/or permission of instructor. Next offered: 1993-94.)

**PSY 470 3 Credits Alternate Spring**
**Sensation and Perception (3+0) n**
An integrated psychophysiological inquiry emphasizing principles, functions and organization, fundamental mechanisms, and the structural complexity extant in the sensory physiology of audition, gustation, kinesthesis, olfaction, proprioception, somesthesis, and vision. Theoretical models and systems of perception with reference to biological, cultural, developmental, hereditary, physiological, psychological, and social effects on sensory perceptions. (Prerequisites: PSY 101, PSY 460, and BIOL 105, 106 or BIOL 111, 112 and/or permission of instructor. Next offered: 1993-94.)

**PSY 473 3 Credits Fall**
**Social Science Research Methods (3+0) s**
**(Same as SOC 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.)

**PSY 610 3 Credits Fall**
**Alcohol: Pharmacology and Behavior (3+0)**

**PSY 614 3 Credits Alternate Spring**
**Human Adaptation to the Circumpolar North (3+0)**
**(Same as NORS 614)**

**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 Dependence (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
**Proseminar in Community Psychology (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
**School Counseling (3+3)**
**(Same as COUN 646)**

**PSY 650** 3 Credits — As Demand Warrants
**Cross-Cultural Psychopathology (3+0)**

**PSY 655** 3 Credits — Alternate Spring
**Healing: Implications for Clinical/Community Practice (3+0)**

**PSY 660** 3 Credits — Fall
**Counseling Theories and Applications (3+0)**
**(Same as COUN 623)**

**PSY 661** 3 Credits — Fall
**Cross-Cultural Counseling (3+0)**
**(Same as COUN 660)**

**PSY 662** 3 Credits — Alternate Spring
**Counseling Theories and Applications II (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, Spring
**Practicum in Community Psychology (2+7)**

**PSY 690** 3-12 credits — Fall, Spring
**Internship in Community Psychology (0+40)**

# Religion

**RELG 205** 3 Credits — As Demand Warrants
**Introduction to the Bible (3+0) h**
A study of the Bible as literature of ancient Israel and the early Christian Church.

**RELG 211** 2 Credits — As Demand Warrants
**Arctic Native Religion: Shamanism (2+0) h**
Basic principles and beliefs of Shamanism with emphasis on North American and Arctic Shamanism. Introduction to traditional functions of Shamanism; past and present perceptions of Shamanism.

**RELG 221** 3 Credits — As Demand Warrants
**Religions of the World (3+0) h**
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) s**
Examines rural community development efforts in Circumpolar countries and the impact of these efforts on Northern communities and indigenous peoples.

**RD 245** 3 Credits — Alternate Years
**Issues in Alaskan Maritime Development (3+0)**
Introduction to the current concepts, strategies, and issues of maritime development in Alaska as well as potential environmental and cultural impact assessment of maritime development projects. Emphasis on maritime development issues of a global nature. (Prerequisite: ENGL 111X. Next offered: Spring 1993.)

**RD 255** 3 Credits — As Demand Warrants
**Rural Alaska Land Issues (3+0)**
The history and significance of ANCSA, ANILA and other land issues in rural areas of Alaska.

**RD 256** 3 Credits — As Demand Warrants
**Advanced topics in Rural Land Management (1.5+Arr)**
Additional experience in practical issues in rural land management through directed readings. Advanced examples in use of public land records, example of local land record systems, and an overview of survey techniques. (Prerequisites: RD 255 and ABUS 223.)

**RD 265** 3 Credits — Fall
**Perspectives on Subsistence in Alaska (3+0) s**
Examines the socio-economic, cultural, legal and political dimensions of subsistence lifestyles in Alaska.

**RD 280** 3 Credits — As Demand Warrants
**Resource Management Research Techniques (3+0)**
Overview of standard methods of field-based scientific research conducted by resource management agencies in rural Alaska including elementary statistical concepts, survey techniques, and tools used in land and renewable resources research. (Prerequisites: NRM 101 and BIOL 104X.)

**RD 300** 3 Credits — Fall
**Rural Development in a Global Perspective (3+0) s**
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 permission of instructor.)

**RD 315** 3 Credits — Alternate Spring
**Tribal People and Development (3+0) s**
Comparative examination of socio-economic development processes on tribal peoples in third and fourth world societies. Attention to implications of these processes for Alaska Native people. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**RD 325** 3 Credits — Spring
**Community Development Strategies (3+0) s**
Examines community development/organizational strategies appropriate for a variety of institutional and community situations.

**RD 338** 3 Credits — As Demand Warrants
**Education and Economic Development (3+0)**
**(Same as ED 338)**
Examines theory and evidence linking varied forms of education to economic growth and development. A comparative approach explores similarities and differences between rural Alaskan regional development and systematic nation-building efforts in developing countries. (Prerequisite: Permission of instructor.)

**RD 350** 3 Credits — Fall
**Community Research Techniques (3+0)**
Basic techniques and concepts associated with community-based research and evaluation activities related to the needs of rural institutions and communities.

**RD 351** 3 Credits — Spring
**Community Planning and Grant Writing Techniques (3+0)**
Examination of the major components of planning and grant writing processes as they relate to community level land-use, business and social service projects. (Prerequisite: RD 350 or SOC 473 or permission of instructor.)

**RD 375** 3 Credits — As Demand Warrants
**Women and Development (3+0) s**
**(Same as WMS 375)**
The effect of modernization and development processes on the role of women in a variety of Third World and tribal world contexts as well as the increasingly important "new" role women play in these complex processes.

**RD 400 3 Credits Fall, Spring**
**Rural Development Internship**
Structured experience in an appropriate educational, agency or corporate setting. Approved project required. Enrollment only by prior arrangement with the instructor.

**RD 425 3 Credits As Demand Warrants**
**Cultural Impact Analysis (3+0)**
An examination of the potential impacts of development projects on cultural systems; use of impact data to shape the actual project in positive directions. Data gathering and analysis techniques related to impact predictions. Student impact analysis required. (Prerequisite: RD 350 or permission of instructor.)

**RD 450 3 Credits Fall**
**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 350 and RD 351 or permission of instructor.)

**RD 475W 3 Credits Fall, Spring**
**Rural Development Senior Project**
Under faculty supervision, the student completes a major theoretical, research and/or applied project which relates the student's applied emphasis area to rural development considerations. (Prerequisite: Senior standing or permission of instructor.)

**RD 492 1-3 Credits As Demand Warrants**
**Rural Development Seminar (3+0)**
Various topics of current interest and importance to the Rural Development major. Topics announced prior to each offering and course may be taken for repeat credit. (Prerequisites: Upper division standing, RD 300 or equivalent, and permission of instructor. Next offered: Spring 1994.)

# 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 language, 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) h**
Introduction to language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 750 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audio-visual materials.

**RUSS 201 4 Credits Fall**
**RUSS 202 4 Credits Spring**
**Intermediate Russian I and II (4+0) h**
Continuation of RUSS 102. Increasing emphasis on reading ability and cultural materials. Conducted in Russian. (Prerequisite: RUSS 102 or two years of high school Russian.)

**RUSS 301 3 Credits Fall**
**RUSS 302 3 Credits Spring**
**Advanced Russian (3+0) h**
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in Russian. Materials fee: $5.00. (Prerequisite: RUSS 202 or instructor permission.)

**RUSS 431 3 Credits Fall**
**Studies in Russian Culture (3+0) h**
Study of the cultures of the Russian speaking world. Conducted in Russian. Students may repeat course for credit if topic varies. Materials fee: $10.00. (Prerequisites: RUSS 301 or equivalent; junior standing or permission of instructor.)

**RUSS 432 3 Credits Spring**
**Studies of Literature in Russian (3+0) h**
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in Russian. Student may repeat course for credit when topics vary. Materials fee: $10.00. (Prerequisites: RUSS 302 or equivalent, and at least junior standing, or permission of instructor.)

**RUSS 487 3 Credits Fall**
**Translation of Russian Texts (3+0) h**
Expansion of vocabulary and grammatical knowledge, emphasis on understanding precise shades of meaning, stylistic, artistic expression and cultural values in language; literary and non-literary texts. Conducted in Russian. Student may repeat course for credit if materials vary. Materials fee: $5.00. (Prerequisites: RUSS 302 or equivalent and at least junior standing, or permission of instructor. Next offered: 1993-94.)

**RUSS 488 3 Credits As Demand Warrants**
**Individual Study: Senior Project h**
Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Conducted in Russian. (Prerequisite: At least 10 credits in upper division Russian or permission of instructor.)

# Science Application

Science application courses are not offered on the Fairbanks campus.

**SCIA 100 1 Credit As Demand Warrants**
**Introducing Astronomy (1+0)**
History of astronomy, the structure of the universe and its parts and the techniques used for studying the universe. Observation of celestial bodies with various optical instruments.

**SCIA 101 3 Credits Independent Learning Only**
**Fundamentals of Petroleum**
An overall view of the petroleum industry in terms understandable by the lay person as well as the professional. Included are lessons on petroleum geology, prospecting, leasing, drilling, production, pipelines, refining, processing and marketing. Sponsored by the Alaska Mining and Petroleum Training Service.

**SCIA 107 1 Credit As Demand Warrants**
**Rock Identification (1+0)**
Physical properties of igneous, sedimentary and metamorphic rocks. Sight identification of rocks with emphasis on rocks found on the Seward Peninsula.

**SCIA 109 1 Credit As Demand Warrants**
**Mineral Identification (1+0)**
Physical and field identifiable chemical properties of rocks and minerals. Emphasis on minerals found on the Seward Peninsula.

**SCIA 130 1 Credit As Demand Warrants**
**Moose Ecology (1+0)**
Natural history of moose, the ecological concepts of energy flow, nutrient cycling, food webs and population dynamics. Attention to the Seward Peninsula moose population and factors used in making wildlife management decisions.

**SCIA 150 1 Credit As Demand Warrants**
**Subarctic Horticulture (0+3)**
Soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques. Emphasis on development and care of greenhouses and gardens in the Nome area.

**SCIA 161 1 Credit As Demand Warrants**
**Birds of Alaska (1+0)**
Biology of birds including behavior, anatomy, physiology, ecology, systematics and field identification.

**SCIA 230 2 Credits As Demand Warrants**
**Biology and Management of King Crab in Norton Sound (1+3)**
Anatomy, physiology and ecology of the King Crab. Topics include scientific methodology, field biologist's duties and problems of fishery management. Students work with Alaska Department of Fish and Game biologists in an ongoing study. Six-student limit in lab; may register for lecture portion only.

**SCIA 251 3 Credits As Demand Warrants**
**Horticultural Science in a Subarctic Environment (2+3)**
Plant anatomy, physiology, genetics, ecology, propagation, insect and disease control, soils, greenhouse construction and care and gardening techniques. Students will develop and conduct a horticultural research project in the Nome area.

# Social Work

**SWK 103 3 Credits Fall, Spring**
**Social Work in the Human Services (3+0)**
Introduction to the profession of social work and the human services delivery system. Examines historical development of social work focusing on the knowledge, values, and skills that characterize the social worker. Orientation to the context for social work, including the diversity of human needs, human services, social policy and legislation. Services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.

**SWK 225 2 Credits As Demand Warrants**
**Case Management (2+0)**
**(Same as HMSV 225)**
Basic knowledge and skills to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management considered and discussed. (Prerequisite: PSY 101, SOC 101 or permission of instructor.)

**SWK 306 3 Credits Spring**
**Social Welfare: Policies and Issues (3+0)**
Social policies and how they effect the delivery of social services. Factors influencing development of the current social service system. Analysis of dilemmas which develop in a welfare system attempting to deal with rapid social change. Alternative approaches to the solution of social problems and possible future developments. (Prerequisite: SWK 103.)

**SWK 320 3 Credits Spring**
**Rural Social Work (3+0)**
Preparation for practice in rural areas characterized by the need for multiple delivery systems, unique local customs, and inadequate resources. Emphasis on preparation for practice nationally with unique features of Alaska incorporated at key points. (Prerequisites: SWK 103, SOC 101.)

**SWK 360 3 Credits Fall**
**Child Abuse and Neglect (3+0)**
Dynamics, implications and treatments of child abuse and neglect for individuals and families in rural and urban Alaska. (Prerequisite: SWK 103 or permission of instructor.)

**SWK 442 3 Credits Fall**
**Human Behavior in the Social Environment (3+0)**
Theoretical frameworks for organizing knowledge about personality development and social behavior of individuals. Includes study of the life cycle and processes that shape individual differences. (Prerequisites: SWK 103, SOC 101, PSY 240, social work major, senior standing and concurrent with SWK 460, 461.)

**SWK 460 3 Credits Fall**
**Social Work Practice I (3+0)**
Development of beginning skills in interviewing and helping processes with individuals, families and groups. Application of intervention strategies and techniques made to case materials, primarily in family and child welfare services. Contracting, case management and social brokerage. (Prerequisites: SWK 306, social work major, senior standing, concurrent with SWK 461, 442.)

**SWK 461 6 Credits Fall**
**Practicum in Social Work I (0+15)**
Individual training and practice in a social service agency. 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, 442.)

**SWK 463 3 Credits Spring**
**Social Work Practice II (3+0)**
Further development of student's knowledge of direct practice with clients and development of beginning skills in community work including social planning. Emphasis on aspects of rural practice such as utilization of community associations and the informal helping network. (Prerequisites: SWK 460, 461, 442, social work major, senior standing, concurrent with SWK 464.)

**SWK 464 6 Credits Spring**
**Practicum in Social Work II (0+15)**
Continuation of SWK 461; further direct practice experience in an agency. Students complete 200 hours of practice in an approved agency under the supervision of a field instructor. (Prerequisites: SWK 460, 461, 442, social work major, senior standing, concurrent with SWK 463.)

**SWK 484 3 Credits As Demand Warrants**
**Seminar in Social Work Practice Areas (3+0)**
Covers problem areas in social work. Problem areas vary in different semesters, content announced in class schedule prior to each semester. Course may be repeated for credit when topic varies. (Prerequisites: SWK 103, junior or senior standing or permission of instructor.)

# Sociology

**SOC 100X 3 Credits Fall**
**Individual, Society and Culture (3+0) s**
An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts.

**SOC 101 3 Credits Fall, Spring**
**Introduction to Sociology (3+0) s**
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 and predicting 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, Spring**
**Social Institutions (3+0) s**
A continuation of SOC 101: application of the concepts from 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 cross-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 160 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) s**
A study of major contemporary social problems, analysis of factors causing these problems. Emphasis on cross-cultural differences in Alaska and other parts of the world. 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) s**
Contemporary patterns of marriage and family relationships. Developmental, systems, and social psychological approaches used to analyze these relationships. Family life cycle stages examined include mate selection, marriage, early marital interaction, parenthood, the middle and later years, and possible dissolution. Attention given to cross-cultural differences in Alaska as well as in other parts of the world. Also available via Independent Learning. (Prerequisite: SOC 101 or permission of instructor.)

**SOC 250 3 Credits Fall, Spring**
**Introductory Statistics for Behavioral Sciences (3+0)**
**(Same as PSY 250)**
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. (Prerequisite: MATH 107 or equivalent.)

**SOC 301 3 Credits Spring**
**Rural Sociology (3+0) s**
Societal processes, changing values, economic development, demographic change, agrarian reforms, planned change, and rural community networks. Part of focus on rural communities of Alaska. Materials fee: $10.00. (Prerequisite: SOC 101 or permission of instructor.)

**SOC 307O 3 Credits Spring**
**Demography (3+0) s**
A study of formal demographic variables such as fertility, mortality, and migration and their interaction with social demographic variables like social class, religion, race, residence, attitudes, and values. Alaskan population dynamics examined.

**SOC 309 3 Credits As Demand Warrants**
**Urban Sociology (3+0) s**
Origin and development of urban society as an industrial-ecological phenomenon; the trends of migration and metropolitanism with futuristic implications; and the rural-urban dichotomy in the Alaskan context.

**SOC 310 3 Credits Alternate Spring**
**Sociology of Later Life (3+0) s**
An analysis of the social status and role of the aging in America, with comparisons with elderly in Alaska as well as those elsewhere. (Prerequisite: SOC 101. Next offered: 1993-94.)

**SOC 330 3 Credits Spring**
**Social Psychology (3+0) s**
**(Same as PSY 330)**
Analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. (Prerequisite: 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)**
The influence of social, political, and economic forces upon schools. Examines how school organization affects teaching practices, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisites: SOC 101 and junior standing.)

**SOC 363 3 Credits Fall**
**Social Stratification (3+0) s**
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) s**
**(Same as PSY 370)**
A multidisciplinary approach emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological, psychological and sociological aspects of drug abuse, recommended drug education alternatives and plans, and treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1993-94.)

**SOC 402 3 Credits Spring**
**Theories of Sociology (3+0) s**
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. Materials fee: $10.00. (Prerequisite: SOC 101.)

**SOC 405 3 Credits As Demand Warrants**
**Social Change (3+0) s**
Philosophy of change and its affiliation to socio-cultural change in terms of history, technology, axiology, and social movement. (Prerequisite: SOC 101 or permission of instructor.)

**SOC 407 3 Credits Alternate Fall**
**Formal Organization (3+0) s**
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 considered. (Prerequisite: SOC 101. Next offered: 1993-94.)

**SOC 408 3 Credits Alternate Fall**
**American Minority Groups (3+0) s**
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 relationships are applied to American and Alaskan racial and ethnic groups. (Prerequisite: SOC 101. Next offered: 1993-94.)

**SOC 473 3 Credits Fall**
**Social Science Research Methods (3+0) s**
**(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**
**Proseminar in Community Psychology (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**
**SPAN 076 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 100A 3 Credits As Demand Warrants**
**SPAN 100B 3 Credits As Demand Warrants**
**Beginning Spanish I and II(3+0) h**
An introductory course in the Spanish language and culture with an emphasis on spoken and written language. After completion of SPAN 100A and 100B the student will be able to continue on to SPAN 102.

**SPAN 101 5 Credits Fall**
**SPAN 102 5 Credits Spring**
**Elementary Spanish 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 1000 words; exploration of the cultural dimension, implicitly through language and explicitly through texts and audio-visual materials. Materials fee: $3.00. (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) h**
Continuation of SPAN 102. Increasing emphasis on reading ability and cultural material. Conducted in Spanish. Materials fee: $5.00. (Prerequisite: SPAN 102 or equivalent.)

**SPAN 301 3 Credits Fall**
**SPAN 302 3 Credits Spring**
**Advanced Spanish (3+0) h**
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in Spanish. Materials fee: $5.00. (Prerequisite: SPAN 202 or equivalent or instructor permission.)

**SPAN 431 3 Credits Fall**
**Studies in the Culture of the Spanish Speaking World (3+0) h**
Study of the cultures of the Spanish speaking world. Conducted in Spanish. Students may repeat course for credit if topic varies. Materials fee: $3.00. (Prerequisites: SPAN 302 or equivalent; junior standing or permission of instructor.)

**SPAN 432 3 Credits Spring**
**Studies of Literature in Spanish (3+0) h**
Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in Spanish. Student may repeat course for credit when topics vary. Materials fee: $3.00. (Prerequisites: SPAN 302 or equivalent and at least junior standing or permission of instructor.)

**SPAN 487 3 Credits Fall**
**Translation of Spanish Texts (3+0) h**
Expansion of vocabulary and grammatical knowledge; emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language, and literary and non-literary texts. Student may repeat course for credit if materials vary. Conducted in Spanish. Materials fee: $5.00. (Prerequisites: SPAN 302 or equivalent and at least junior standing, or permission of instructor. Next offered: 1993-94.)

**SPAN 488 3 Credits As Demand Warrants**
**Individual Study: Senior Project h**
Designed for the student to demonstrate ability with the language and the culture through the analysis and presentation, in Spanish, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Offered normally in the semester preceding the student's graduation. Conducted in Spanish. (Prerequisite: At least 10 credits in upper division Spanish or permission of instructor.)

# Speech Communication

Due to enrollment pressures, it is Department of Speech Communication policy to drop from the class roll students who fail to attend the first two meetings of a basic course (SPC 131X and 141X) even if they have preregistered.

**SPC 131X 3 Credits Fall, Spring**
**Fundamentals of Oral Communication: Group Context (3+0)**
The communication process, focusing on listening, perception, verbal and nonverbal communication, and organizing material. Emphasizes increased understanding of and effective performance in small group communication situations.

**SPC 141X 3 Credits Fall, Spring**
**Fundamentals of Oral Communication: Public Context (3+0)**
The communication process, focusing on listening, perception, verbal and nonverbal communication, and organizing material. Emphasizes increased understanding of and effective performance in public speaking situations.

**SPC 180 3 Credits Fall**
**Introduction to Human Communication (3+0) s**
Critical thinking about fundamental concepts in human communication in interpersonal, group, public, organizational, and intercultural settings. Introduction to inquiry into human communication as a social science.

**SPC 222 3 Credits Alternate Years**
**Fundamentals of Interpersonal Communication (3+0)**
The communication process, focusing on listening, perception, verbal and nonverbal communication, and organizing materials. Emphasizes understanding of and effective performance in two-person communication situations. May be used to fulfill the oral communication degree requirement under all catalogs through 1990-91. (Next offered: 1993-94.)

**SPC 225 3 Credits Alternate Years**
**Listening and Interviewing (3+0)**
Examination and application of effective listening skills and interviewing skills used in a variety of situations, considering the roles of both listener and speaker. (Prerequisite: Any 100 level speech communication course or permission of instructor. Next offered: 1994-95.)

**SPC 231 3 Credits Alternate Years**
**Business and Professional Communication (3+0) s**
Designed to provide the student with practical applications of communication in organizations. Includes superior-subordinate communication, conference and meeting management, oral presentation of written proposals, and the examination of information flow through organizational networks. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: 1993-94.)

**SPC 251 3 Credits Alternate Years**
**Argumentation and Debate (3+0)**
Principles and practices in contemporary debate. Review and analysis of relevant argumentation principles as applied to a debate situation. Practice in preparation, defense, and refutation of cases developed in reference to a given debate resolution. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: 1994-95.)

**SPC 280 3 Credits Spring**
**Communication and Diversity (3+0) s**
Provides students with a cognitive and experiental foundation for understanding how the communication process works in the context of diversity. Includes an in-depth examination of those processes and products of processes that lead communicators to devalue differences in one another.

**SPC 320 3 Credits Alternate Years**
**Communication and Language (3+0)**
Examination of the nature of language and its place in human communication, with special attention to the creation of meaning in conversation. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1993-94.)

**SPC 321 3 Credits Alternate Years**
**Nonverbal Communication (3+0) s**
Non-lexical behavior in human communication, including consideration of space, physical environment, physical appearance and dress, kinesics, facial expression, and non-lexical vocal behavior. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1994-95.)

**SPC 330 3 Credits Alternate Years**
**Intercultural Communication (3+0) s**
The nature and the sources of problems in communication that may arise when persons with different cultural backgrounds interact. Emphasis on problems in intercultural communication in Alaska. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: 1994-95.)

**SPC 331O(g) 3 Credits Alternate Years**
**Advanced Group Communication (3+0) s**
Current research and theory in intergroup and intragroup relations. Topics include the study of leadership, power, group structure, participation, and conflict. (Prerequisite: Any 100 level speech communication course or permission of instructor. Next offered: 1993-94.)

**SPC 335O 3 Credits Alternate Years**
**Organizational Communication (3+0) s**
Examines current theoretical and methodological approaches undergirding the construction of organizations via the communication process. Includes functional (message flow, load and network analysis) as well as interpretive (metaphors, narratives and organizational culture) approaches to the study of organizational communication. (Prerequisite: Completion of one lower division speech communication course or permission of the instructor. Next offered: 1994-95.)

**SPC 342O(p) 3 Credits Alternate Years**
**Advanced Public Speaking (3+0) s**
Advanced opportunities to study and critique speeches delivered by persons with diverse backgrounds and beliefs. Performance of original speeches to develop understanding of sophisticated techniques of public discourse. (Prerequisite: Any lower division speech communication course or permission of the instructor. Next offered: 1994-95.)

**SPC 343WO(t) 3 Credits Alternate Years**
**Rhetorical Theory (3+0) s**
Critical analysis of Plato, Aristotle and Sophists on rhetoric, tracing the development of rhetorical theory from inception in 500 B.C. to current practices. Significant contributions by important scholars of rhetoric studied. (Prerequisite: Any lower level oral communication course or permission of the instructor. Next offered: 1993-94.)

**SPC 351 3 Credits Alternate Years**
**Communication and Women (3+0) s**
**(Same as WMS 351)**
Communication of women in Western culture both as senders and receivers, with emphasis on the three main areas of the discipline: public address, interpersonal and organizational. (Prerequisite: Any lower division speech communication course or permission of the instructor. Next offered: 1993-94.)

**SPC 352 3 Credits Alternate Years**
**Family Communication (3+0) s**
Exploration of the functions of communication in marriage and the family, sequences and patterns of family communication, family communication as a continual process of coping with dialectical tensions, and the complexity of changing family life in Western societies. (Prerequisite: Any lower division speech communication course or permission of the instructor. SPC 222 recommended. Next offered: 1993-94.)

**SPC 401 3 Credits Alternate Years**
**Communication Research Methods (3+0)**
Empirical and rhetorical-critical research methodologies employed in the conduct of research on communication phenomena. (Prerequisite: Two upper level courses in speech communication or permission of instructor. Next offered: 1993-94.)

**SPC 422 3 Credits Alternate Years**
**Advanced Interpersonal Communication (3+0) s**
Approaches to interpersonal communication. Emphasis on dialogic/transactive communication within two-person situations. In-depth exploration of theoretical materials related to relational interchanges. (Prerequisite: SPC 222 or permission of instructor. Next offered: 1994-95.)

**SPC 425 3 Credits Alternate Years**
**Communication Theory (3+0) s**
Theories of human communication, as well as of the nature of inquiry into human communication phenomena. Issues include the nature of communication as a discipline, critical and scientific inquiry, and major paradigms or perspectives within which communication theories are created. (Prerequisite: Any 300 level speech communication course or permission of the instructor. Next offered: 1994-95.)

**SPC 441 3 Credits Alternate Years**
**Persuasion (3+0) s**
Examination of communication situations which involve attempts to modify the beliefs, attitudes, values, intentions, or behaviors of another individual or group of individuals. Explores the process, methods, and ethics of attempts to affect change via persuasive communication. (Prerequisite: Any 300 level speech communication course or permission of the instructor. Next offered: 1994-95.)

**SPC 451 3 Credits Alternate Years**
**Rhetorical Analysis (3+0) s**
**(Same as WMS 451)**
Examination of theories and methods used to evaluate and understand rhetorical artifacts (speeches, movements, etc.). Theories include both historical (neo-Aristotilian) and contemporary (feminist) approaches. Emphasis on examination of material by and about women. (Prerequisite: SPC 141X recommended but any 300 level oral communication course is accepted or permission of instructor. Next offered: 1994-95.)

**SPC 475 3 Credits Alternate Years**
**Applied Communication in Training and Development (3+0)**
Applies communication theory and research to organizational settings. Includes the identification and assessment of problems and opportunities that would benefit from the application of communication interventions including training, development and transformation technologies. (Prerequisite: Any 300 level speech communication course or permission of instructor. Next offered: 1994-95.)

**SPC 482 3 Credits Alternate Years**
**Seminar in Speech Communication (3+0)**
Current trends and theory in key areas of speech communication are examined. Students concentrate research in their speciality area while examining selected topics in all the areas. (Prerequisite: Any 300 level Speech Communication course or permission of instructor. Next offered: 1993-94.)

# Statistics

**STAT 200 3 Credits Fall, Spring**
**Elementary Probability and Statistics (3+0)**
Descriptive statistics, frequency distributions, sampling distributions, elementary probability, estimation of population parameters, hypothesis testing (one and two sample problems), correlation, simple linear regression, and one-way analysis of variance. Parametric and nonparametric methods. Materials fee: $10.00. (Prerequisites: MATH 107, 161, 181 or consent of instructor)

**STAT 300 3 Credits Fall**
**Statistics (3+0)**
A calculus-based course emphasizing applications. Topics include probability, point and interval estimation including maximum likelihood, one and two sample hypothesis tests including likelihood ratio tests, simple linear regression, and one-way analysis of variance. A student may not use STAT 200 and 300 to meet the requirement of a year's sequence course in statistics. (Prerequisite: MATH 200, 262, or 272.)

**STAT 351 2 Credits Spring**
**Statistical Computing Packages (1+3)**
A study of the use of SAS, SPSS, MINITAB, and other miscellaneous statistical computing packages. Comparison of output for similar analyses. Materials fee: $10.00. (Prerequisite: CS 103 and STAT 200 or 300 or consent of instructor.)

**STAT 401 4 Credits Fairbanks, Fall and Spring**
**Regression and Analysis of Variance (3+3) Juneau, As Demand Warrants**
A thorough study of multiple regression including multiple and partial correlation, the extra sum of square principle, indicator variables, and model selection techniques. Analysis of variance and covariance for multifactor studies in completely random, randomized complete block, nested designs, multiple comparisons and orthogonal contrasts. Materials fee: $10.00. (Prerequisite: STAT 200 [STAT 373-J] or STAT 300.)

**STAT 402 3 Credits Fall, Spring**
**Scientific Sampling (2+3)**
Sampling methods, including simple random, stratified and systematic; estimation procedures, including ratio and regression methods; special area and point sampling procedures; optimum allocation. Materials fee: $10.00. (Prerequisite: STAT 200 or 300.)

**STAT 461 3 Credits Alternate Spring**
**Applied Multivariate Statistics (3+0)**
Estimation and hypothesis testing, multivariate normality and its assessment, multivariate one and two sample tests, confidence regions, multivariate analysis of variance, discrimination and classification, principal components, factor analysis clustering techniques, and graphical presentation. Statistical computing packages utilized in assignments. Materials fee: $10.00. (Prerequisite: STAT 401 or consent of instructor. Next offered: 1993-94.)

**STAT 602 3 Credits Fairbanks and Juneau**
**Experimental Design (3+0) As Demand Warrants**

**STAT 621 3 Credits Fairbanks, Alternate Fall**
**Distribution-Free Statistics (3+0)**
**Juneau, As Demand Warrants**

**STAT 640 3 Credits Fairbanks and Juneau**
**Exploratory Data Analysis (2+2) As Demand Warrants**

**STAT 661 3 Credits Fairbanks and Juneau**
**Sampling Theory (3+0) As Demand Warrants**

**STAT 680 3 Credits Alternate Fall**
**Data Analysis in Biology (2+3)**
**(Same as BIOL 680)**
Note: The following courses are statistical in orientation. A description and listing of prerequisites for undergraduate courses may be found in the appropriate departmental course listings.
ANTH 421 - Analytical Techniques
BA 360 - Production/Operations Management
BA 606 - Quantitative Analysis
BA 684 - Quantitative Methods for Management
GEOS 430 - Statistical and Data Analysis in Geology
ECON 227 - Intermediate Statistics for Economics and Business
ECON 626 - Econometrics
ESM 621 - Operations Research
MATH 371 - Probability
MATH 408 - Mathematical Statistics
PSY 250 - Introductory Statistics for Behavioral Sciences
FISH 601 - Quantitative Fisheries Science

# Theatre

**THR 101, 201**
**THR 301, 401 1-3 Credits Fall, Spring**
**Theatre Practicum (0+Var.) h**
Participation in drama workshop or lab production as performer or technical staff member. Credit in this course may not be applied to a major program in theatre.

**THR 121 3 Credits Fall, Spring**
**Fundamentals of Acting (3+0) h**
Basic stage acting techniques for persons with little or no prior acting experience. Emphasis on physical, emotional and imaginative awareness. Scene work fundamentals introduced.

**THR 161 3 Credits Fall**
**Introduction to Tuma Theatre (2+3) h**
**(Same as ANS 161)**
For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from the Alaska Native heritage.

**THR 200X 3 Credits Fall, Spring**
**Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h**
**(Same as ART 200X and MUS 200X)**
Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends. Materials fee: $20.00. (Prerequisite: Sophomore standing or permission of instructor.)

**THR 211 3 Credits Fall, Spring**
**Theatre Appreciation (3+0) h**
A guide to the richer appreciation of theatre through a study of the main periods, styles and playwrights from the classical period to the present.

**THR 212 3 Credits As Demand Warrants**
**Russian Theatre and Culture (3+0) h**
Classes in Russian art and theatre; tour of St. Petersburg museums; attendance of theatre performances, workshops and lectures given by leading figures in the theatre and arts in Russia. Translation provided for lectures and workshops. (Prerequisites: Basic course in theatre and/or a background working in theatre. Letter of application and resume required. Russian language desirable but not necessary. Next offered: Summer 1993.)

**THR 215 3 Credits Fall**
**Dramatic Literature (3+0) h**
Studies of drama and forms of plays such as tragedy, comedy, melodrama, farce, tragic comedy. Reading plays of the classic theatre designed to give basic knowledge of masterpieces of the world drama.

**THR 220 3 Credits As Demand Warrants**
**Voice and Diction for the Theatre (2+2)**
Development of fluency and clarity in the voice, study and practice to improve speech and eliminate faults of articulation and pronunciation. Emphasis on preparing the student for vocal work in theatre, radio, and television, including individual analysis and tape recordings. (Prerequisite: Any 100 level oral communication course or permission of instructor.)

**THR 221 3 Credits Spring**
**Intermediate Acting (1+4) h**
Continued development of physical, emotional and imaginative awareness. Text and character analysis, scene and monolog study and presentation. Introduction to improvisation. (Prerequisite: THR 121 or permission of the instructor.)

**THR 225 3 Credits Alternate Spring**
**Movement for the Actor (1+4) h**
Principles of stage movement, body awareness, and control as explored through analysis, exercise, study of historical dance and scene work. (Next offered: 1993-94.)

**THR 241 3 Credits Fall**
**Basic Stagecraft (2+2) h**
Materials of scene construction and painting and their use.

**THR 245 3 Credits Fall**
**Stage Management (3+0) h**
Organizational skills for a successful stage manager, completion of a prompt script including creating all forms and schedules necessary, working with actors, directors and designers. (Prerequisites: THR 121, THR 211, THR 241 or permission of instructor.)

**THR 254 3 Credits Fall, Spring**
**Beginning Costume Design and Construction (3+0) h**
Introduction to theory and practice of costume design for the theatre, methods used to make costumes out of a variety of media. Projects include simple hatmaking, maskmaking, stenciling, hot glueing and body padding.

**THR 311 3 Credits Alternate Spring**
**Theatre Management (2+3) h**
Introduction to the organizational, economic, and administrative aspects of theatre. Focus on ticket sales, budgeting, and promotion. (Prerequisite: 6 credits in theatre and completion of MATH 131. Next offered: 1993-94.)

**THR 312W 3 Credits As Demand Warrants**
**Moscow-St. Petersburg: Russian Theatre Today (3+0) h**
Introduction to the present state of theatre in Russian; study of performances of theatre by companies in Russian; meet producers, directors, designers, actors. Master classes and workshops with leading Russian theatre professionals and scholars. (Prerequisite: THR 200x or THR 211 or demonstrated equivalent experience in theatre study. Next offered: Summer 1993.)

**THR 321 3 Credits Alternate Fall**
**Advanced Acting I (1+4) h**
Refinement of physical, emotional and imaginative awareness. Introducing a variety of character building methods. Study and performance of scenes and short plays. Introduction of audition techniques. (Prerequisite: THR 221, or permission of the instructor. Next offered: 1993-94.)

**THR 325 3 Credits Alternate Fall**
**Theatre Speech (2+2) h**
Vocal techniques for actors. Standard stage diction and foreign dialects. (Prerequisite: THR 221 or permission of instructor. Next offered: 1993-94.)

**THR 329 3 Credits Fall**
**Children's Theatre (1+6) h**
Rehearsal and performance of children's plays. Rehearsals during the first half of the semester will be followed by performances. Emphasis on audience-actor interaction and performance style for the child audience. (Prerequisites: Audition, THR 121, THR 221, or permission of instructor.)

**THR 331 3 Credits Alternate Spring**
**Fundamentals of Stage Direction (1+4) h**
Introduction to the history, theory, basic concepts of stage direction, interpretative script analysis, creative visualization, conceptualization, use of space, working with actors and designers. Direction of short scenes and plays. (Prerequisite: THR 221 or permission of instructor. Next Offered: 1994-95.)

**THR 341 3 Credits Spring**
**Intermediate Stagecraft (2+2) h**
An examination of the less common scenic materials with methods and techniques for their use. Students will spend approximately $40 for materials. (Prerequisite: THR 241 or permission of instructor.)

**THR 343 3 Credits Alternate Fall**
**Scene Design (3+0) h**
Principles and techniques of theatrical scene design. Includes designing projects directed at solving particular scenic problems or in a specific scenic style with specific physical limitations. Materials fee: approximately $40. (Prerequisite: THR 241 or permission of the instructor. Next offered: 1993-94.)

**THR 347 3 Credits Alternate Spring**
**Lighting Design (3+0) h**
Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained from the experiments. Materials fee: approximately $40. (Prerequisite: THR 343 or permission of the instructor. May be taken concurrently with THR 343. Next offered: 1993-94.)

**THR 348 3 Credits Alternate Spring**
**Sound Design in the Theatre (2+2)**
Exploration and application of the elements of design as they relate to sound for theatre, dance, other art forms, and life in American and other cultures. Production work is required. (Prerequisite: THR 241 or permission or the instructor. Next offered: 1994-95.)

**THR 351 3 Credits Spring**
**Makeup for Theatre (1+4) h**
Theatrical makeup for actors, teachers, directors, and other theatre workers; makeup materials and use, straight and character makeup, illusory and plastic relief, national types, and influence of lighting. Materials fee: approximately $85. (Prerequisite: Any lower division theatre course or permission of the instructor.)

**THR 355 3 Credits Fall**
**History of Fashion and Dress (3+0) s**
Social history of costume in Western Civilization, from Ancient Greece to the present time. Includes instruction in the methods of research used to find visual source material, and assignments that exercise these research skills. (Prerequisite: HIST 101 or HIST 102 or permission of the instructor.)

**THR 361 3 Credits Spring**
**Advanced Alaska Native Performance (2+3) h**
**(Same as ANS 361)**
In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester. (Prerequisite: ANS/THR 161.)

**THR 380 3 Credits Alternate Years**
**Film and Video Directing (1+6) h**
Introduction to the history, theory, basic concepts of film and video direction, script preparation, story board, blocking actors and staging the camera, sound, editing. Direction and shooting short videos. (Prerequisite: THR 331 or ENGL 217 or permission of instructor. Next offered: 1994-95.)

**THR 411 3 Credits Alternate Years**
**Theatre History I (3+0) h**
Theatrical form and practice from its origins in storytelling and ritual through the French Neo-classic Theatre. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1993-94.)

**THR 412 3 Credits Alternate Years**
**Theatre History II (3+0) h**
Theatrical form and practice from the English Restoration through the present. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1993-94.)

**THR 413 3 Credits Alternate Fall**
**Playscript Analysis (3+0) h**
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: 1993-94.)

**THR 416W 6 Credits As Demand Warrants**
**Lab Theatre I "Write Theatre" (3+9) h**
An intensive course for actors, directors and playwrights interested in script development/training with the participation of Russian professionals. Experience working in a multi-cultural environment developing new scripts up to stage readings. Selected dramatic material will be workshopped under Russian and/or American directors. Work required: dramatic scenes, writing, acting, keeping a journal. (Prerequisites: Basic theatre classes/training. Letter of application and resume. Russian language desired but not necessary. Next offered: Summer 1993.)

**THR 418 6 Credits As Demand Warrants**
**Lab Theatre II "Do Theatre" (3+6) h**
Production oriented course for actors, directors, stage managers, technical directors, and designers. Hands-on experience in a professional environment for a multi-cultural audience, with a mixed Russian and American cast and crew. Exposure to new artistic concepts and production traditions through search for theatricality and visualization in performance. Includes a one week run of each show within a repertory season. (Prerequisites: Basic acting and/or technical courses. Letter of application and resume. Russian language desired but not necessary. Next offered: Summer 1993.)

**THR 421 3 Credits Alternate Spring**
**Advanced Acting II (1+4) h**
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: 1993-94.)

**THR 435 3 Credits Alternate Spring**
**Advanced Stage Direction (1+4) h**
Major theories and current trends in stage direction including 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: 1993-94.)

**THR 447 3 Credits Alternate Fall**
**Lighting Design II (2+2)**
Further exploration and application of elements of design (color, texture, intensity, line, composition) as they relate to lighting for theatre, dance, other art forms, and life. Production work required. (Prerequisite: THR 347 or permission of the instructor. Next offered: 1993-94.)

**THR 456 3 Credits Spring**
**Advanced Costume Design and Construction (3+0) h**
Examination of the methods and materials used in the design and construction of costumes for the theatre. Special projects in design, pattern drafting, and advanced construction. (Prerequisite: THR 254 or permission of instructor.)

**THR 461 3 Credits Spring**
**Tuma Theatre Seminar (2+4) h**
Advanced study and application of Alaska Native Performance techniques. Active participation in playwriting, acting, directing or designing in the development and performance of either a workshop or fully mounted Tuma Theatre production. (Prerequisites: ANS/THR 161, ANS/THR 361 or permission of instructor.)

**THR 480 3 Credits As Demand Warrants**
**Thesis in Northern Theatre (2+4) h**
Specialized and applied research may include Tuma Theatre play direction, playwrighting, design, acting in a major role, or other research relevant to the study of Northern Theatre. (Prerequisites: ANS/THR 161 and ANS/THR 361; permission of instructor. Next offered: Spring 1993.)

**THR 481 3 Credits As Demand Warrants**
**Thesis Project (1+4) h**
Final step in acting/directing/design or playwright training which involves performing a leading role on main stage, or a one-person show, or a directing/designing/writing project for the UAF season. (Prerequisites: THR 221, THR 421 (for performers), THR 331, THR 435 (for directors), THR 343, THR 347 (for scene designers), THR 354, THR 456 (for costume designers), THR 413, THR 495 (for playwrights) or by permission.

# Trades and Technology

**TTCH 101 2 Credits As Demand Warrants**
**Machine Woodworking I (2+0)**
Introduction to woodworking power machines (circular saw, jointer, radial arm saw), joints, fasteners, and different stains and finishes used on wood.

**TTCH 105 1 Credit As Demand Warrants**
**Basic Electrical Wiring (1+0)**
Familiarizes the student with fundamental skills and career opportunities in electrical wiring.

**TTCH 106 3 Credits As Demand Warrants**
**Residential Electrical Systems (3+0)**
Provides basic electrical theory and technical skills for installation and service of electrical equipment commonly found in the home.

**TTCH 113 3 Credits As Demand Warrants**
**Basic Plumbing (3+0)**
Introduction to methods and materials used in household plumbing. Topics includes pipe fittings and valves, pipe hangers and brackets, copper and plastic pipe fitting and plumbing fixtures.

**TTCH 117A 1 Credit As Demand Warrants**
**Four-Cycle Engine Repair (1+0)**
Covers four-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly of a four-cycle engine.

**TTCH 117B 1 Credit As Demand Warrants**
**Two-Cycle Engine Repair (1+0)**
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.

**TTCH 120 4 Credits As Demand Warrants**
**Refrigeration and Air Conditioning (4+0)**
Introduces fundamentals of refrigeration and air conditioning theory for preparation of further study. Topics include compressors, condensers, evaporators, metering devices and related components. Assumes no previous knowledge on part of student.

**TTCH 130 3 Credits As Demand Warrants**
**Blueprint and Schematic Reading (3+0)**
Basic blueprint and schematic reading skills used by building maintenance personnel. Introduction to machine drawings, building drawings, hydraulic and pneumatic drawings, electrical schematics and symbols, air conditioning and refrigeration drawings, welding and joining symbols.

**TTCH 131 3 Credits As Demand Warrants**
**Maintenance Mathematics (3+0)**
Practical application of mathematics for industry, including arithmetic review, ratios and proportion, powers and roots, algebra, geometry and trigonometry. Mathematical applications of basic physics with reference to units of measurement, use of precision measuring tools, measurement of forces, temperature, fluids and electricity.

**TTCH 132 3 Credits As Demand Warrants**
**Building Maintenance Materials (3+0)**
Basic properties, processes and uses of metals and non-metals in tools, machines and building materials. Practical application to building maintenance situations will be emphasized.

**TTCH 133 3 Credits As Demand Warrants**
**Basic Hand and Power Tools (3+0)**
Uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.

**TTCH 134 1 Credit As Demand Warrants**
**Maintenance Safety (1+0)**
Industrial safety including recognizing safety hazards, working safely, handling materials safely, using machinery safely, personal protective equipment, electrical safety, fire protection and government safety regulations.

**TTCH 135 1 Credit As Demand Warrants**
**Basic Maintenance Troubleshooting (1+0)**
Systematic approaches to troubleshooting, scheduled and unscheduled maintenance of plant equipment and systems.

**TTCH 136 3 Credits As Demand Warrants**
**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 welder positions. No previous knowledge of welding required.

**TTCH 146 2 Credits As Demand Warrants**
**Furnace Repair (2+0)**
Theory of operation, maintenance and repair of oil burning furnaces, both forced air and radiant. Routine maintenance and upkeep of a furnace and trouble shooting procedures for emergency servicing for the homeowner.

**TTCH 147 1 Credit As Demand Warrants**
**Burner Maintenance and Repair (1+2)**
Instruction in troubleshooting 10 common problems, reading manuals, changing parts, setting electrodes, changing nozzles, understanding controls and ordering replacement parts.

**TTCH 214 3 Credits As Demand Warrants**
**Heating Systems Design (3+0)**
Comprehensive instruction in installation and systems approach to design of heating systems including installation procedures of current systems, heat loss calculation, heat distribution through hydronic and air systems, and boiler and furnace sizing.

**TTCH 300 1-3 Credits Fall, Spring**
**Internship in Technology (0+12)**
Supervised practical experience working with private industry, government units or agencies in technologies. Opportunities to apply theories and practical application and to observe procedures and operations of the businesses or agencies. (Prerequisites: Upper division standing and permission of instructor.)

**TTCH 301 3 Credits Fall**
**Technology and Society (3+0)**
Concepts of social change related to the effects of technology on society and application of the concepts and processes of technology as they evolve from ideas to implementation. Emphasis on the expanded study of the creation, utilization, adaptation of tools, machines, materials, and systems to the solutions of problems and the extension of the human potential. (Prerequisites: Upper division standing and permission of instructor.)

**TTCH 485 1-6 Credits Fall, Spring**
**Advanced Technical Experiences: Discipline Area (variable)**
Formal technical up-grade training provided by various agencies, manufacturers, businesses, or industries which are evaluated on an individual basis and must support the student's professional objectives. For Bachelor of Technology students only. The National Guide to Educational Credit for Training Programs used. (Prerequisites: Upper division standing and permission of instructor.)

**TTCH 099, 199, 299 1-3 Credits**
**As Demand Warrants**
**Practicum**
Individual work and development of skills learned in prior courses.

## Welding and Materials Technology

**WMT 101 3 Credits As Demand Warrants**
**Introduction to Welding (2+2)**
Introduction and orientation to the processes and procedures involved in the welding field with a "hands-on" approach.

**WMT 102 3 Credits As Demand Warrants**
**Intermediate Welding (2+2)**
Continuation of WMT 101. (Prerequisite: WMT 101.)

**WMT 103 3 Credits As Demand Warrants**
**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.

**WMT 105 3 Credits As Demand Warrants**
**Welding II (3+0)**
Arc welding techniques and basic MIG and TIG welding. Materials fee: $200.00. (Prerequisite: WMT 103 or permission of instructor.)

**WMT 110 1-3 Credits As Demand Warrants**
**Oxy-Acetylene Welding (OAW)**
A maximum of three credits awarded for successful completion of any of the four sections; 110A-Certif OAW (1G); 110B-Certif OAW (2G); 110C-Certif OAW (3G); 110D-Certif OAW (4G). Presented in competency-based manner.

**WMT 115 1 Credit As Demand Warrants**
**Bronze Gas Welding (OAW Bronze) (1+0)**
Credit is granted for successful completion of the certification test. WMT 115A-Certif OAW (1G). Presented in competency-based manner.

**WMT 117 3 Credits As Demand Warrants**
**Ocy-Acetylene Welding and Cutting (2+5)**
Safe oxy-acetylene welding techniques and procedures of common metals. Welding of these metals taught in flat, horizontal, vertical and overhead positions. Attendance at first two class meetings is mandatory.

**WMT 130 1-3 Credits As Demand Warrants**
**Shielded Metal Arc Welding (SMAW)**
All positions emphasized for multiple pass fillet welds. A maximum of three credits are awarded for successful completion of any of the four sections; 130A-Certif SMAW (1F); 130B-Certif SMAW (2F); 130C-Certif SMAW (3F); 130D-Certif SMAW (4F). Presented in competency-based manner.

**WMT 150 1-3 Credits As Demand Warrants**
**Gas Tungsten Arc Welding (GTAW)**
Use of tungsten and argon gas for aluminum and stainless steel gas welding (formerly called Heliarc). A maximum of three credits are awarded for successful completion of any of the four sections; 150A-Certif GMAW Alum (1F);150B-Certif GMAW Alum (2F);150C-Certif GMAW Alum (3F);150D- Certif GMAW ALum (4F). Presented in competency-based manner.

**WMT 160 1-3 Credits As Demand Warrants**
**Gas Metal Arc Weld Alum (GMAW)**
Prepare student to work on microwire processes. A maximum of three credits awarded 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). Presented in competency-based manner.

**WMT 241 3 Credits Fall**
**Gas Tungsten Arc and Gas Metal Arc Welding (1.5+5.5)**
Entry-level gas tungsten arc welding concentrating on aluminum. Materials will be welded in all positions. Gas metal arc welding focuses on ferrous and nonferrous metals welded in all positions. Materials fee: $250.00.

**WMT 261 3 Credits As Demand Warrants**
**Aviation Welding (2+2)**
Tungsten inert gas and oxyacetyene are used to weld Moly steel aircraft structural parts. Basic aircraft joints and sheet metal joints are welded. Recommended as a review for licensed Aircraft and Power mechanics as well as those contemplating an A & P license.

## Wildlife

**WLF 101 1 Credit Spring**
**Survey of Wildlife Science (1+0)**
Major aspects of wildlife biology and management, research of local wildlife biologists and programs of management agencies. (Prerequisite: Completion of a course emphasizing the biology of non-human organisms.)

**WLF 201 3 Credits Spring**
**Wildlife Management Principles (2+3)**
Application of ecological principles to the study and management of wildlife populations and habitats. Laboratory work in information retrieval from biological and resource management literature. (Prerequisites: BIOL 271, familiarity with computer usage desirable.)

**WLF 303W 3 Credits Fall**
**Wildlife Management Techniques (2+3)**
Study of procedures used by wildlife biologists and managers to collect, analyze, and disseminate information. Topics include using wildlife literature and scientific writing; behavioral sampling; nomenclature, identification, and sexing and aging of wildlife; census methods; habitat evaluation and manipulation; biotelemetry; home range; food habits and modeling; and necropsy procedures, animal condition, and wildlife diseases. Term paper required. Laboratory fee: $30.00. (Prerequisites: WLF 201 or equivalent, BIOL 271.)

**WLF 304 1-3 Credits Fall, Spring**
**Wildlife Internships**
Practical experience in wildlife management in public or private agencies. Projects are approved by faculty member and supervised by professional agency staff. May not be substituted for courses required for major. (Prerequisite: Permission of instructor.)

**WLF 305 3 Credits Alternate Spring**
**Wildlife Diseases (2+3)**
Basic concepts of parasitic, infectious, environmental, and nutritional diseases. Specific study of Alaskan wildlife diseases. Basic necropsy technique and chemical immobilization. Laboratory fee: $30.00. (Prerequisites: BIOL 105, 106 or equivalent and permission of instructor. Recommended: BIOL 205 or 222 and BIOL 210. Next offered: 1993-94.)

**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. Measures of abundance, dispersal, fecundity and mortality, population modeling, competition and predation, and the management of rare species and their habitats. Laboratory fee: $30.00. (Prerequisites: BIOL 271, WLF 303 and an introductory statistics course.)

**WLF 419 4 Credits Alternate Fall**
**Waterfowl and Wetlands Ecology and Management (3+3)**
Ecology of waterfowl and associated wetland habitats. Management of populations, including harvest and manipulation of habitats. Distribution, abundance, taxonomy and identification of North American waterfowl. Laboratory fee: $30.00. (Prerequisite: BIOL 271, 426, and WLF 201 or permission of instructor. Next offered: 1993-94.)

**WLF 431 3 Credits Spring**
**Wildlife Policy and Administration (3+0)**
**(Same as NRM 431)**
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 460 3 Credits Fall**
**Nutrition and Physiological Ecology of Wildlife (3+0)**
Concepts and techniques used by wildlife biologists to understand relationships between wild animals and their habitats. Techniques for constructing energy and nutrient budgets of wild animals and applications of these budgets to population level processes and habitat management. (Prerequisites: BIOL 210, 271, WLF 201.)

**WLF 603 3 Credits Alternate Fall**
**Biotelemetry (2+3)**

**WLF 611 Credits Arr. As Demand Warrants**
**WLF 612 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, Spring**
**Graduate Seminar (0+0+1)**

## Women's Studies

**WMS 201 3 Credits Fall**
**Introduction to Women's Studies (3+0)**
An interdisciplinary introduction to the field of women's studies, exploring its development, subject matter, and methodology. Readings of studies which have become classic examples of the importance of gender in research in many disciplines is examined. (Prerequisite: Sophomore standing.)

**WMS 202 3 Credits Alternate Spring**
**History of Women in America (3+0) s**
**(Same as HIST 202)**
A chronological approach to the history of women in America. Introduction to major issues of concern to historians of women, as well as different approaches utilized in analysis of women's past; consideration of multi-racial backgrounds of American women. (Next offered: 1993-94.)

**WMS 303 3 Credits Alternate Spring**
**Gender in a Cross-Cultural Perspective (3+0) s**
**(Same as ANTH 303)**
Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding women's experiences in their cultural variety are presented. Materials fee: $5.00. (Next offered: 1993-94.)

**WMS 308 3 Credits Alternate Spring**
**Language and Gender (3+0) s**
**(Same as ANTH 308)**
Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism. Materials fee: $5.00.

**WMS 331 3 Credits Alternate Spring**
**Women's Voices in Japanese Literature (3+0) h**
**(Same as JPN 331)**
A close reading of selected novels, short stories, poems, and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society, the role of women writers as social critics, and cross-cultural differences and similarities in women's issues. (Prerequisites: ENGL 211X or 213X, ENGL/FL 200x; HIST 121, 122 or 331 recommended. Next offered: 1993-94.)

**WMS 333 3 Credits Spring**
**Women's Literature (3+0) h**
**(Same as ENGL 333)**
Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period, or genre, but readings will include both primary and secondary texts. (Prerequisite: ENGL 111X; ENGL 211X recommended.)

**WMS 335 3 Credits Spring**
**Women, Crime and Justice**
**(Same as JUST 335)**
Interaction of women with the American justice system focusing on women as victims, offenders and working professionals in justice agencies. Materials fee: $10.00. (Prerequisites: JUST 110 and junior standing.)

**WMS 351 3 Credits Alternate Years**
**Communication and Women (3+0) s**
**(Same as SPC 351)**
Communication of women in Western culture both as senders and receivers, with emphasis on the three main areas of the discipline: public address, interpersonal and organizational. (Prerequisite: Any lower division speech communication course or permission of the instructor. Next offered: 1993-94.)

**WMS 360O(t) 3 Credits Alternate Spring**
**Psychology of Women Across Cultures (3+0) s**
**(Same as PSY 360)**
Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1993-94.)

**WMS 375 3 Credits As Demand Warrants**
**Women and Development (3+0) s**
**(Same as RD 375)**
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.

**WMS 380 3 Credits Fall**
**Women, Minorities and the Media (3+0)**
**(Same as JB 380)**
Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how accurately the media reflects our society demographically. Presented from a feminist, multi-culturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age, and sexual orientation. (Prerequisite: Junior standing.)

**WMS 410W 3 Credits Alternate Spring**
**Women in Music History (3+0) h**
**(Same as MUS 410)**
Lives and works of female musicians, composers, and performers will be traced from the earliest days of the ancient and mythological through the medieval, Baroque Classical, and Romantic periods with special emphasis on composers of the 20th century. (Prerequisite: Junior standing or permission of instructor. Next offered: 1993-94.)

**WMS 424 3 Credits Alternate Spring**
**Topics in Women's History (3+0) s**
**(Same as HIST 424)**
An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present. (Prerequisites: A lower division history course and junior standing or permission of instructor. Next offered: 1993-94.)

**WMS 440 3 Credits Alternate Spring**
**Gender and Education (3+0)**
**(Same as ED 440 and ED 640)**
Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender; patterns of access and achievements; gender as an organizing principle in schools and classrooms; and feminist agendas and strategies for change. (Prerequisite: SOC 101 or ED 201 or permission of instructor. Next offered: 1993-94.)

**WMS 451 3 Credits Alternate Years**
**Rhetorical Analysis (3+0) s**
**(Same as SPC 451)**
Examination of theories and methods used to evaluate and understand rhetorical artifacts (speeches, movements, etc.). Theories include both historical (neo-Aristotilian) and contemporary (feminist) approaches. Emphasis on examination of material by and about women. (Prerequisite: SPC 141X recommended but any 300 level oral communication course is accepted or permission of instructor. Next offered: 1994-95.)



A totem pole figure of "Women of Alaska" by Alaskan sculptor Liz Biesiot stands in front of Wickersham Hall.



UAF ski team member Amy Ritchie pauses on the ski trail behind the UAF Geophysical Institute. The Synthetic Aperture Radar facility sits atop the institute building.

# Register

## UA Board of Regents

**Virginia W. Breeze** (1989-1997)
520 Ocean View Drive, Anchorage, AK 99515
**Mary Jane Fate** (1993-2001)
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**Susan A. Stitham** (1987-1995)
P.O. Box 80913, Fairbanks, AK 99708
**Lew M. Williams Jr.** (1991-1999)
755 Grant Street, Ketchikan, AK 99901

## UAF Administration

**Executive Officers**
Chancellor, Joan K. Wadlow
Vice Chancellor for Academic Affairs, Janice M. Reynolds
Vice Chancellor for Administrative Services, Michael L. Rice

**Research and Graduate Studies**
Chancellor's Faculty Associate for Graduate Studies, Edward Murphy
Chancellor's Faculty Associate for Research, Thomas Royer

**Associate Vice Chancellors, Deans and Directors**
College of Liberal Arts, Gorden Hedahl, Dean
College of Natural Sciences, Paul Reichardt, Dean
College of Rural Alaska, Ralph Gabrielli, Acting Executive Dean
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Geophysical Institute, Syun-Ichi Akasofu, Director
Institute of Arctic Biology, Robert White, Director
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School of Agriculture and Land Resources Management, James V. Drew, Dean
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School of Fisheries and Ocean Sciences, Vera Alexander, Dean
School of Management, John Lehman, Acting Dean
School of Mineral Engineering, Scott Huang, Acting Dean
Student Services, Carla Kirts, Acting Dean
University Relations and Institutional Advancement, Karen L. Cedzo, Associate Vice Chancellor

**Governance**
ASUAF, Henrik Wessel, President
Faculty Senate, Dave Spell, President
Staff Council, Mike Mayberry, President

## 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 |
| ANHRDP | Alaska Native Human Resource Development Program |
| ATHREC | Athletics and Recreation |
| BB | Bristol Bay Campus |
| C&SE | Conferences and Special Events |
| CC | Chukchi Campus |
| CES | Cooperative Extension Service |
| CLA | College of Liberal Arts |
| CNS | College of Natural Sciences |
| CRA | College of Rural Alaska |
| FITC | Fishery Industrial Technology Center |
| GI | Geophysical Institute |
| IAB | Institute of Arctic Biology |
| IC | Interior Campus |
| IMS | Institute of Marine Science |
| INE | Institute of Northern Engineering |
| JCFOS | Juneau Center for Fisheries and Ocean Sciences |
| KUC | Kuskokwim Campus |
| LIB | Elmer Rasmuson Library |
| MAP | Marine Advisory Program |
| NWC | Northwest Campus |
| PC&IS | Planning, Computing & Information Systems |
| SALRM | School of Agriculture and Land Resources Management |
| SOE | School of Engineering |
| SOED | School of Education |
| SFOS | School of Fisheries and Ocean Sciences |
| SG | Alaska Sea Grant College Program |
| SME | School of Mineral Engineering |
| SOM | School of Management |
| STUSVC | Student Services |
| TVC | Tanana Valley Campus |
| UAM | University of Alaska Museum |
| VCAA | Vice Chancellor for Academic Affairs |
| VCAS | Vice Chancellor for Administrative Services |

**Abrahams, Sherry** — 1964 — Associate Professor of Library Science (1975).LIB. Bowling Green State University '58, B.A.; University of Illinois '59, M.S.L.S.

**Adams, Gail** — 1990 — Assistant Student Activities Coordinator (1990), STUSVC. University of Alaska Fairbanks '90, B.B.A.

**Adams II, Joe S.** — 1991 — Director, Risk Management Department (1991), VCAS. Ohio University '68, B.S.I.T.; Embry-Riddle Aero University '76, B.S.A.S.; '80, M.B.A.

**Akasofu, 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. Moravian College, Pennsylvania '26, B.A.; Moravian Theological Seminary '28, B.D.; Jefferson Medical College '32, M.D.

**Alexander, Barbara** — 1977 — Associate Professor of Humanities, (1985), CLA; University of Zurich '75, Ph.D.

**Alexander, Vera** — 1962 — Dean, School of Fisheries and Ocean Sciences (1989); Director, Institute of Marine Science (1979); and Professor of Marine Science (1974), SFOS/IMS. University of Wisconsin '55, B.A.; '62, M.S.; University of Alaska '65, Ph.D.

**Alexie, Oscar** — 1983 — Adjunct Faculty/ Research Associate, (1989), KUC/CRA. University of Zurich '75, Ph.D.

**Allen, Jane B.** — 1989 — Instructor of Developmental Studies (1989), KUC/CRA. Indiana University '72, A.B.; '75, M.S.

**Alton, Tom** — 1989 — Editor, Alaska Native Language Center (1989), CLA. University of Alaska Fairbanks '74, B.A.; University of Montana '83, M.A.

**Amason, Alvin** — 1992 — Assistant Professor of Art (1992), CLA. Central Washington University '74, M.A.; Arizona State University '76, M.F.A.

**Anderl, Robert** — 1990 — Associate Professor of Library Science (1990), LIB. Syracuse University '62, B.S.; '65, M.S.L.S.

**Anderson, Betty** — 1985 — Instructor of Biology, Independent Learning Program, (1985), CRA. University of Arizona, Tucson '76, B.S.; '78, B.S.; University of Alaska Fairbanks '83, M.S.

**Anderson, Candice M.** — 1971 — Coordinator (1986), VCAS. Western Washington State University '70, B.A.

**Anderson, James H.** — 1970 — Research Associate (1976), IAB. University of Washington '63, B.S.; Michigan State University '70, Ph.D.

**Anderson, Lydia M.** — 1974 — Assistant Director, Wood Center Student Activities (1992), STUSVC, Cuesta College, A.A.

**Andes, 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 '88, M.A.

**Andresen, Patricia A.** — 1967 — Director, Honors Program (1990), CLA. University of Illinois '55, B.S.; University of Missouri '58, M.A.; University of California at Santa Barbara '76, Ph.D.

**Andrew, Eileen** — 1990 — Instructor, Community Health Aid Program (1989), KUC/CRA. MEDEX Northwest, University of Washington '87, Physician Assistant.

**Andrews, Susan B.** — 1989 — Assistant Professor of General Studies and Assistant Professor of Journalism and Broadcasting (1989), CC/CRA. Smith College '81, B.A.; University of Oregon '83, M.A.

**Anelon Jr., Greg** — 1989 — Coordinator of Adult Basic Education (1990), KUC/CRA. University of Alaska '87, B.A.; '90, M.Ed.

**Angaiak, Andrew P.** — 1978 — Director, Upward Bound Program (1982), STUSVC. Washington State University '76, B.A.; University of Washington '78, M.S.W.

**Antohin, Anatoly** — 1989 — Associate Professor of Theatre (1989), CLA. Institute of Cinematography, U.S.S.R. '75, M.F.A.

**Antonius, Otto** — 1992 — Research Associate (1992), GI. Diploma (Germany) '83, Bochum '87, Ph.D.

**Apple, David Charles** — 1991 — Assistant Professor/Theatre Scenographer (1991), CLA. Oregon State University '74, B.S.; University of Oregon '87, M.F.A.

**Argall, Marcia C.** — 1987 — Assistant Director of Rural Alaska Health Education Center (1990), CRA. University of Washington '79, B.A.

**Armbruster, W. Scott** — 1980 — Professor of Botany (1992), 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.

**Arvey, Martha M.** — 1988 — Visiting Assistant Professor of Library Science (1989), LIB. Scripps College '63, B.A.; University of California, Los Angeles '64, M.L.S.

**Aspnes, John D.** — 1978 — Professor of Electrical Engineering (1981), and Head, Department of Electrical Engineering (1983), SOE. University of Wisconsin '65, M.S.; Montana State University '76, Ph.D.; P.E.

**Ayagarak, Nancy** — 1989 — Instructor of Developmental Studies (1989), KUC/CRA. University of Washington, B.A.; Western Oregon State '83, M.S.

**Bachner, Nancy** — 1974 — Conference Coordinator (1981), C&SE.

**Bader, Harry R.** — 1990 — Assistant Professor of Natural Resource Policy (1990), SALRM. Washington State University '85, B.A.; Drake Law School '86, C.L.E.; Harvard Law School '88, J.D.

**Badger, Mark O.** — 1982 — Director of Production (1988), KUAC. Cambridge University '90, M.Phil.

**Bailey, Regina L.** — 1990 — Coordinator (1990), VCASA. SUC Geneseo '73, B.S.; Troy State University '81, M.S.

**Baker, Elisha R.** — 1989 — Associate Professor of Engineering and Science Management (1990), SOE. Clemson University '70, B.S.; '72, M.S.; '75, Ph.D.

**Baker, Grant C.** — 1988 — Assistant Professor of Mechanical Engineering (1990), SOE. University of Washington, B.S.; University of Alaska Fairbanks, M.S.; Ph.D.

**Baker, Jill H.** — 1988 — Assistant Professor of Social Work (1988), CRA. University of Texas '68, B.A.; University of Hawaii '81, M.S.W.

**Baldridge, James N.** — 1969 — Senior Programmer/Analyst (1976), GI.

**Bandopadhyay, Sukumar** — 1982 — Professor of Mining Engineering and Acting Head, Department of Mining and Geological Engineering (1992), SME. Banaras Hindu University, India, '70, B.Sc.; '75, M. Tech.; Pennsylvania State University '79, M.S.; '81, Ph.D.

**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.

**Bargar, Harold E. (Ed)** — 1990 — Project Engineer-Mechanical (1990), VCAS. University of Nebraska '77, B.S.M.E.; P.E.

**Barker, Robin E.** — 1990 — Clinical Practice/Instructor of Education (1990), SOED. Tufts University '73, B.S.

**Barnes, Brian M.** — 1986 — Associate Professor of Zoophysiology (1991), IAB, CNS. University of California, Riverside '77, B.S.; University of Washington '83, Ph.D.

**Barnes, Sophie** — 1983 — Adjunct Faculty and Research Associate (1989), KUC/CRA. Kuskokwim Community College '78, A.A.; University of Alaska Fairbanks '83, B.Ed.

**Barnhardt, Carol A.** — 1991 — Instructor of Education (1991), SOED. North Dakota State University '65, B.S.; University of Alaska Fairbanks '81, M.A.

**Barnhardt, Raymond J.** — 1970 — Professor of Cross-Cultural Education and Rural Development (1980), SOED. North Dakota State University '65, B.S.; John Hopkins University '67, M.Ed.; University of Oregon '70, 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.

**Barry, Ronald** — 1991 — Assistant Professor of Statistics (1991), CLA. University of Alaska Fairbanks '85, B.S.; '87, M.S.; University of California- Irvine '91, Ph.D.

**Barsi, Mary** — 1986 — Associate Professor of Business Administration (1987); and Director, M.B.A. Program (1991), SOM. Augustana College '72, B.A.; University of Illinois at Urbana-Champaign '74, M.S.; '75, Ph.D.

**Bartlett, DorisAnn** — 1982 — Instructor of English (1985), CLA. Middlebury College '55, B.A.; University of Alaska-Anchorage '73, M.A.; University of Oregon '77, Ph.D.; '81, M.A.

**Bartlett, Thomas E.** — 1974 — Associate Professor of Accounting Information Systems (1979), SOM. Southwestern at Memphis '67, B.A.; Emory University '69, M.B.A.; State of Georgia '73, C.P.A.; State of Alaska '78, C.P.A.

**Basham, Charlotte S.** — 1983 — Associate Professor of Anthropology, Cross- Cultural Communication and Linguistics, CLA. Arizona State University '67, B.A.; San Jose State University '77, M.A.; University of Michigan '86, Ph.D.

**Basham, Lynn** — 1986 — Instructor of Cross Cultural Communication (1988), CLA. San Jose State University '66, B.A.; '76, M.A.

**Batten, Alan R.** — 1976 — Research Associate (1976), UAM. Colorado State University, Fort Collins '66, B.S.; University of Alaska Fairbanks '77, M.S.

**Bauer, Timothy** — 1980 — Business Manager (1992), VCAS. Central Michigan University '69, B.S.; University of Alaska Fairbanks '85, M.B.A.; CPA; CIA.

**Beberg, Paul J.** — 1990 — Cross Country Running Coach (1990), ATHREC. University of New Mexico '86, B.U.S.

**Beget, James E.** — 1984 — Assocate Professor of Geology (1991), CNS. Columbia University '74, B.S.; University of Washington '77, M.S.; '81, Ph.D.

**Benesch, Walter J.** — 1963 — Professor of Philosophy (1973); and Head, Department of Philosophy/Humanities, CLA. University of Denver '55, B.A.;University of Montana '56, M.A.; Leopold Franzens Universitat, Innsbruck '63, Dr. Phil.

**Benevento, John** — 1979 — Supervisor, Electronics Shop, (1979), GI. Massachusetts Institute of Technology '63, A.E.

**Benner, Richard L.** — 1991 — Assistant Professor of Chemistry (1991), CNS, GI. State University of New York '81, B.S.; Washington State University '84, M.S.; University of Denver '91, Ph.D.

**Bennett, F. Lawrence** — 1968 — Professor of Engineering Management (1974); and Head, Department of Engineering Management (1983), SOE. Rensselaer Polytechnic Institute '61, B.C.E.; Cornell University '63, M.S.; '66, Ph.D.; P.E.; L.S.

**Berman, Gerald S.** — 1980 — Professor of Sociology and Social Work (1992), CLA. University of Michigan '56, B.A.; Case Western Reserve University '63, M.S.W.; '70, Ph.D.

**Berry, Kathryn A.** — 1991 — Public Information Officer (1991), GI. Wittenberg University '80, B.A.; Indiana University '83, M.S.

**Bigjim, Fred** — 1988 — Instructor of Alaska Native Politics, Independent Learning Program (1988), CRA. University of Alaska Fairbanks '72, B.A.; Harvard University '73, M.Ed.

**Billington, Margaret M.** — 1970 — Coordinator (1989), SFOS/IMS. University of California, Berkeley '66, B.A.; University of Alaska Fairbanks '81, M.S.

**Bird, Roy K.** — 1984 — Professor of English (1991), CLA. Brigham Young University '72, B.A.; '74 M.A.; William Marsh Rice University '82, Ph.D.

**Birklid, Cathy A.** — 1979 — Research Assistant (1981), SALRM. University of Alaska '77, A.A.; '77, B.A.

**Bischak, Diane** — 1991 — Assistant Professor of Business Administration (1992), SOM. University of Michigan '79, B.A.; '83, M.S.; '88, Ph.D.

**Bishop, Suzanne Stolpe** — 1990 — Public Information Officer (1990). Lewis and Clark College '82, B.S.

**Biswas, Nirendra N.** — 1971 — Professor of Geophysics (1983), CNS. Geophysical Institute, Indian Institute of Technology, India '55, B.Sc.Hons. '57, M. Tech; University of California, Los Angeles '71, Ph.D.

**Black, Lydia T.** — 1984 — Professor of Anthropology (1985), CLA. Northeastern University '69, B.S.; Brandeis University '71, M.A.; University of Massachusetts, Amherst '73, Ph.D.

**Blake, John** — 1988 — Assistant Professor of Veterinary Science (1987), CNS, IAB. University of Saskatchewan '87, M.S.; '80, D.V.M. '87, M.V.Sc.

**Blalock, Susan Elizabeth** — 1986 — Assistant Professor of English (1989); and Director of the Writing Center (1986), CLA. Louisiana State University '68, B.A.; New York University '70, M.A.; University of Texas '83, Ph.D.

**Blurton, David M.** — 1989 — Assistant Professor of Rural Development and Field Coordinator (1990), CRA; and Assistant Professor of Justice (1992), CLA. Humboldt State University, California '75, B.S.; University of Montana '85, J.D.

**Borchert, Mary Ann** — 1971 — Assistant to the Vice Chancellor for Research/Dean of Graduate School (1987), VCR. Denison University '62, B.S.;Ohio State University '64, M.S.; University of Alaska Fairbanks '88, M.S.

**Borgeson, Cory** — 1983 — Adjunct Assistant Professor of Business Administration (1985), SOM. Oakland University '78, B.A.; Drake University School of Law '81, J.D.

**Bowling, Sue Ann** — 1970 — Assistant Professor of Geophysics (1972), CNS. Radcliffe '63, A.B.; University of Alaska '67, M.S.; '70, Ph.D.

**Bowyer, R. Terry** — 1986 — Associate Professor of Wildlife Ecology (1988), CNS, IAB. Humboldt State University '70, B.S.; '76, M.S.; University of Michigan '85, Ph.D.

**Box, Mark A.** — 1990 — Assistant Professor of English (1990), CLA. Northern Illinois University '74, B.A.; '78, M.A.; University College, Oxford University '85, Ph.D.

**Boyce, John** — 1988 — Assistant Professor of Economics (1988), SOM. Montana State University '82, B.A.; University of California, Davis '90, Ph.D.

**Boyer, Bert B.** — 1992 — Assistant Professor of Molecular Biology (1992), CNS, IAB. Texas Tech University '82, B.A.; Louisiana State University Medical Center '88, Ph.D.

**Braddock, Joan Forshaung** — 1990 — Assistant Professor of Biology (1990), CNS, IAB, WRC. University of Alaska Fairbanks '77, B.S.; '83, M.S. '89, Ph.D.

**Bradley, Claudette** — 1989 — Assistant Professor of Education (1989), SOED. University of Connecticut '64, B.A.; '67, M.S.; Harvard Graduate School of Education '87, Ed.D.

**Brashear, James** — 1992 — Assistant Professor of Art (1992), CLA. Indiana University of Pennsylvania '87, B.F.A.; Louisiana State University '90, M.F.A.

**Brelsford, Taylor W.** — 1988 — Instructor of Rural Development (1988), CRA. University of Alaska Anchorage '77, B.A.; McGill University '83, M.A.

**Brennen, E. Clifford** — 1984 — Professor of Social Work (1984), CLA. San Francisco State University '56, B.A.; University of California, Berkeley '58 M.S.W.; '68, D.S.W.

**Brigham, Jerry C.** — 1989 — Associate Professor of Broadcasting (1989), Head, Department of Journalism and Broadcasting (1991), CLA; and Instructor of Journalism/ Broadcasting, Independent Learning Program (1989), CRA. University of Oklahoma '66, B.F.A.; '71, M.F.A.

**Brody, Arthur W.** — 1967 — Professor of Art (1984), CLA. Harvey Mudd College '65, B.S.; Claremont Graduate School '67, M.F.A.

**Brown, Cindy** — 1990 — Assistant Director, Alaska Teacher Placement (1990), STUSVC. Southwest Missouri State University '76, B.S.; University of Missouri '81, M.Ed.

**Brown, Neal** — 1966 — Assistant Professor of Geophysics (1969), CNS. Washington State University '61, B.S.; University of Alaska '66, M.S.

**Brown, Steve W.** — 1992 — Research Associate (1992), VCASS. University of Alaska Fairbanks '87, B.S.

**Brown, Timothy** — 1991 — Head Women's Volleyball Coach (1991), ATHREC. Indiana University Perdue University of Indianapolis '81, B.S.

**Browne, Dauna B.** — 1989 — Coordinator and Associate Professor of Guidance and Counseling (1989), and Head, CLA. University of North Dakota, Ellendale '64, B.S.; University of Northern Colorado '67, M.A.Ed.; '70, Ed.D.

**Bruce, Leroy Ben** — 1984 — Associate Professor of Animal Science (1989), SALRM. New Mexcio State University '73, B.S.; '77, M.S.; '79, Ph.D.

**Bruder, John A.** — 1991 — Instructor of Mathematics (1991), BBC/CRA. University of Colorado '75, B.A.; University of Montana '91, M.A.

**Bryant, John P.** — 1985 — Professor of Plant Ecology (1992), IAB, CNS. Colorado State University '66, B.A.; University of Calgary '68, M.S.; University of Alaska Fairbanks '84, Ph.D.

**Bublitz, Christopher G.** — 1981 — Program Coordinator (1981), SFOS/FITC. Bowling Green State University '75, B.S.; University of Alaska '81, M.S.

**Bundschuh, Paul A.** — 1989 — ASF VAX System Manager (1990), GI. University of Notre Dame '87, B.S.E.E.

**Burchfield, Jennifer E.** — 1987 — Financial Analyst (1990), PC&IS. University of Alaska Fairbanks '90, B.B.A.

**Burns, Cooper G.** — 1990 — Assistant Professor of English (1990), CLA. Yale University '83, B.A.; University of Texas '86, M.A.; '89, Ph.D.

**Burns, Laurel** — 1986 — Affiliate Assistant Professor of Geology (1986), CNS. University of Alaska '78, B.S.; Stanford University '81, M.S.; '83, Ph.D.

**Burris, Frank A.** — 1991 — Assistant Professor (1991), CES. University of Allaska Fairbanks '86, B.S.; '91, M.S.

**Bush, Anita** — 1990 — Instructor of Psychology, Independent Learning Program (1990), CRA. University of the State of New York '81, A.S.; '89, B.S.

**Butcher, Barbara** — 1980 — Associate Professor of Extension, Home Economics (1987), CES. Indiana University '63, B.S.; '70, M.S.

**Butler-Hopkins, Kathleen M.** — 1979 — Professor of Music (1990), CLA. Trinity College of Music, London, England, '71, F.T.C.L.; The Juilliard School '75, B.M.; '76, M.M.; Yale University School of Music '78, M.M.A., D.M.A., 1982.

**Button, Don K.** — 1964 — Professor of Marine Science and Biochemistry (1973), SFOS/IMS, CNS. Wisconsin State College '55, B.S.; University of Wisconsin '61, M.S.; '64, Ph.D.

**Buttrey, Lisa** — 1993 — Assistant Professor of Chemistry (1993), CNS. State University of New York at Buffalo '86, B.S.; '92, Ph.D.

**Byers, Kurt M.** — 1988 — Communications Manager/Editor (1988), SFOS/SG. University of Michigan '85, B.S.

**Byrne, Jonathan** — 1987 — Instructor of English (1987), CC/CRA. University of Minnesota '83, B.A.

**Cain, Seth** — 1987 — Buyer (1988), VCAS.

**Caldwell, Patt** — 1985 — Instructor of Education and Clinical Experience Coordinator (1990), SOED. Winthrop College '64, B.S.; Memphis State University '70, M.Ed.

**Calkins, Harry** — 1988 — Visiting Instructor of Art (1988), CLA. San Jose State College '65, B.A.; '67, M.A.

**Callahan, Thomas J.** — 1988 — Master, *R/V Alpha Helix* (1988), SFOS/IMS. Loras College '65, B.A.

**Candler, Rudolph J.** — 1974 — Supervisor Soil and Plant Analysis Laboratory (1988), SALRM. Colorado State University '67, B.S.; '74, M.S.; '87, Ph.D.

**Cangello, Mary Beth** — 1990 — Buyer (1992), VCAS. University of California '86, B.S.

**Carling, Donald E.** — 1981 — Professor of Horticulture (1991), SALRM. St. Cloud State '67, B.A.; University of Missouri-Columbia '69, M.S.; '75, Ph.D.

**Carlson, Robert F.** — 1965 — Acting Head, Department of Civil Engineering (1991); and Professor of Civil Engineering (1974), SOE. University of Wisconsin '61, B.S.; '63, M.S.; '67, Ph.D.; P.E.

**Carroll, JoLynn** — 1990 — Postdoctoral Fellow (1990), SFOS/IMS. New College of USF '83, B.S.; University of South Carolinia '86, M.S.; '90, Ph.D.

**Castellini, Michael A.** — 1989 — Assistant Professor of Marine Science (1989), SFOS/ IMS. University of California, San Diego '75, B.A.; Scripps Institution of Oceanography '81, Ph.D.

**Caulfield, Richard A.** — 1985 — Instructor of Rural Development (1985), CRA. University of California, Berkeley '73, B.S.; '73, B.A.; University of Alaska Fairbanks '85, M.Ed.; University of East Anglia (United Kingdom) '93, Ph.D.

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Chancellor Joan Wadlow discusses university issues with students in the Lola Tilly Commons. Seated next to the chancellor is Henrik Wessel, president of the Associated Students of the University of Alaska Fairbanks (ASUAF).

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UAF student Andy Lester walks across the main campus on a snowy day.

**oto Credits**

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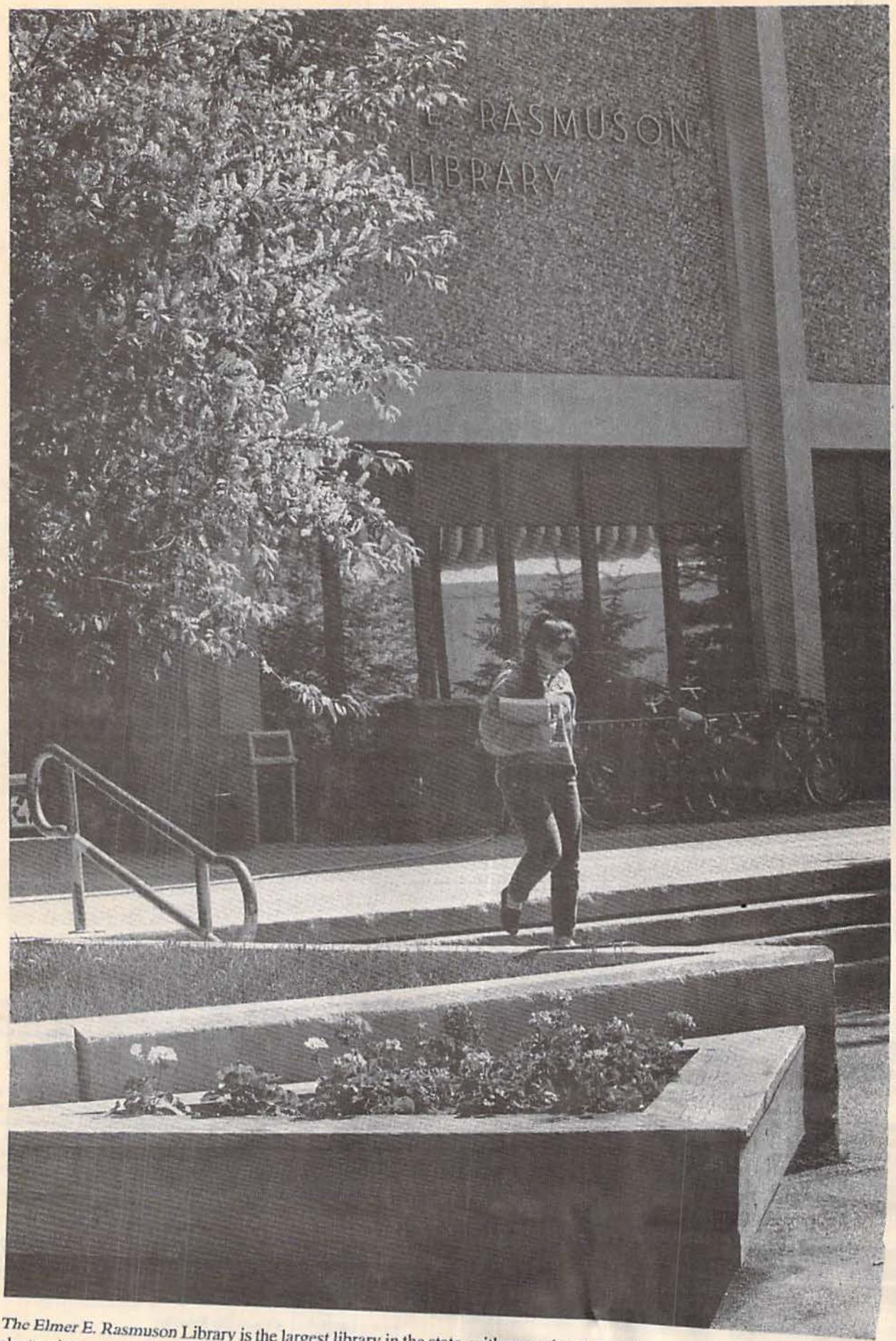
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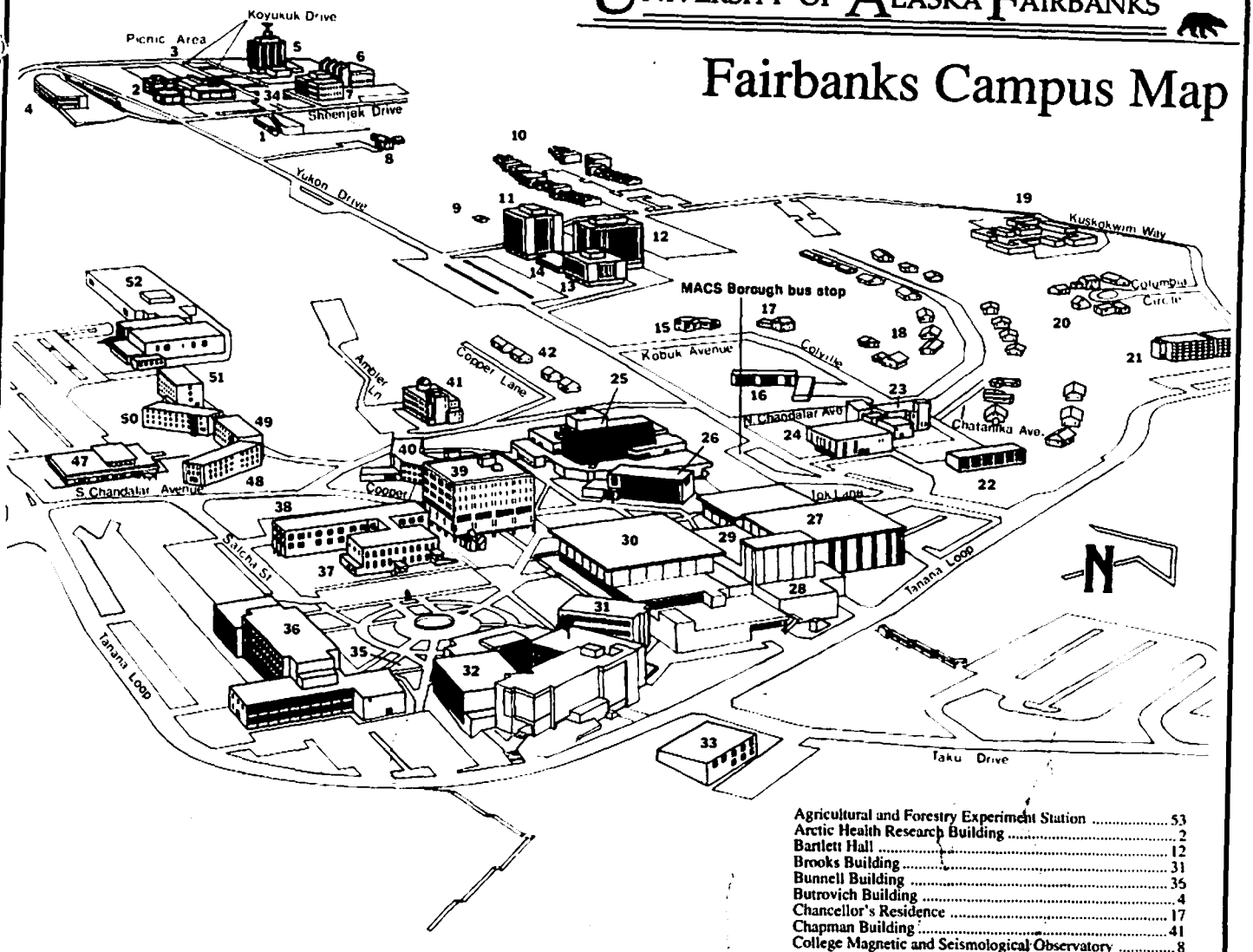
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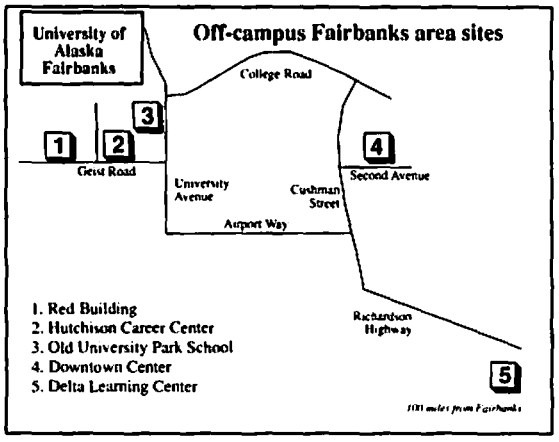
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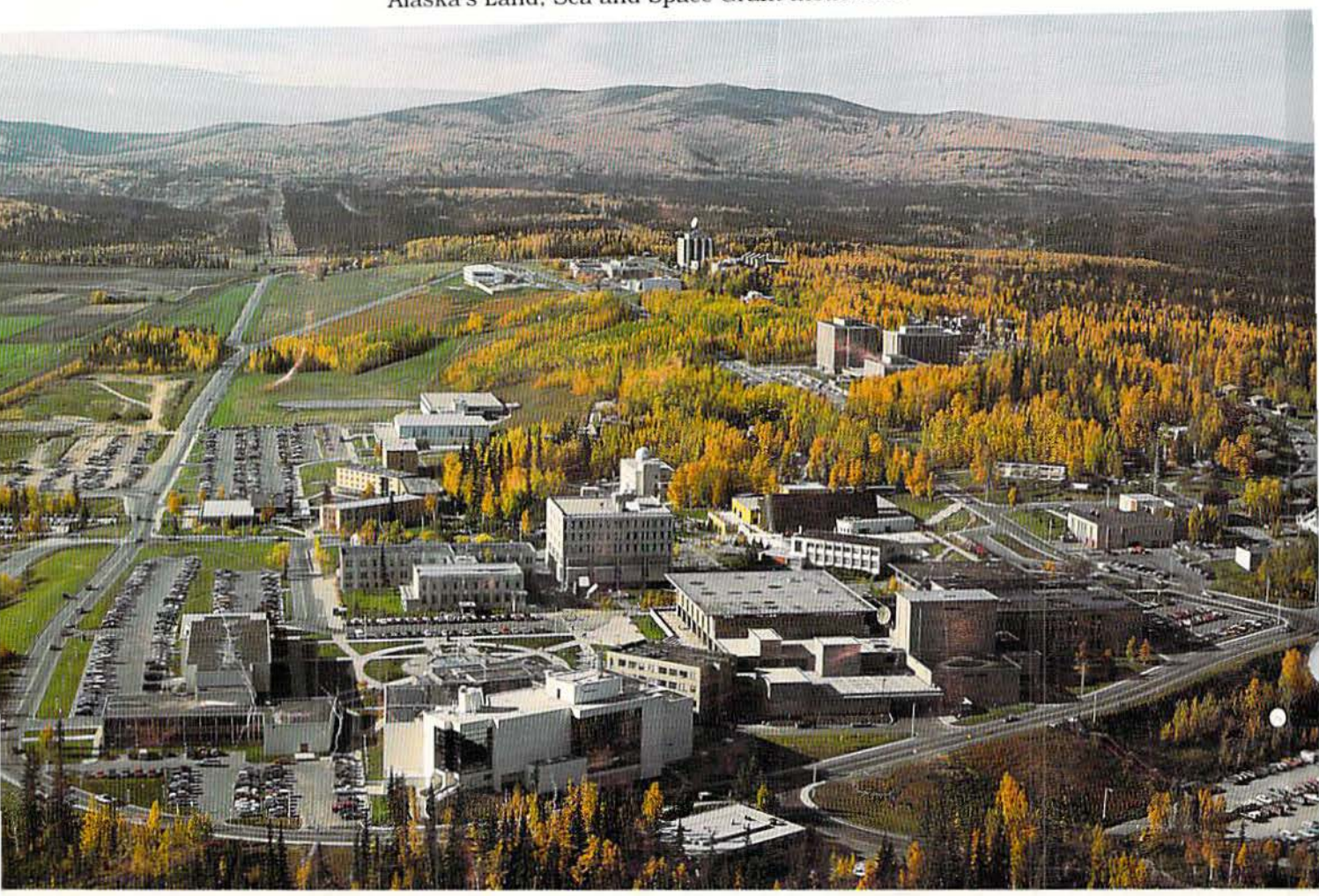
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***A shuttle bus connecting the Lower Campus with West Ridge leaves Wood Center at regular intervals. The center is one of several stops. Schedules can be obtained at Wood Center.***



# University of Alaska Fairbanks

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