



UNIVERSITY OF ALASKA FAIRBANKS

1990-91

UNDERGRADUATE
CATALOG

Fairbanks Campus Academic Calendar

| Fall Semester | 1990 | 1991 |
|---|----------------------------|---|
| Labor Day | Mon., Sept. 3 | Mon., Sept. 2 |
| Early Orientation for New Students | Tues.-Wed., Sept. 4-5 | Tues.-Wed., Sept. 3-4 |
| Registration materials and advisers available | Tues.-Wed., Sept. 4-5 | Tues.-Wed., Sept. 3-4 |
| Registration: course selection | Thurs.-Fri., Sept. 6-7 | Thurs.-Fri., Sept. 5-6 |
| Registration: fee payment | Mon.-Fri., Sept. 10-14 | Mon.-Fri., Sept. 9-13 |
| First day of instruction | Mon., Sept. 10 | Mon., Sept. 9 |
| Last day of late registration | Fri., Sept. 14 | Fri., Sept. 13 |
| Last day to apply for fall graduation | Mon., Oct. 15 | Tues., Oct. 15 |
| Mid-term grades for freshmen due | Oct. 17-31 | Oct. 16-30 |
| Last day for student-initiated withdrawals | Tues., Nov. 6 | Tues., Nov. 5 |
| Thanksgiving holidays | Thurs.-Sun., Nov. 22-25 | Thurs.-Sun., Nov. 28-Dec. 1 |
| Last day of instruction | Tues., Dec. 11 | Tues., Dec. 10 |
| Study day | None | Wed., Dec. 11 |
| Final examinations | Wed.-Sat., Dec. 12-15 | Thurs.-Fri., Mon.-Tue., Dec. 12-13, 16-17 |
| Grades due to Admissions and Records | 3 p.m., Wed., Dec. 19 | 3 p.m., Wed., Dec. 20 |
| Spring Semester | 1991 | 1992 |
| Early Orientation for New Students | Mon.-Tues., Jan. 14-15 | Mon.-Tues., Jan. 13-14 |
| Registration materials and advisers available | Mon., Jan. 14 | Mon., Jan. 13 |
| Registration: course selection | Tues.-Wed., Jan. 15-16 | Tues.-Wed., Jan. 14-15 |
| Registration: fee payment | Thurs.-Wed., Jan. 17-23 | Thurs.-Wed., Jan. 16-22 |
| First day of instruction | Thurs., Jan. 17 | Thurs., Jan. 16 |
| Last day of late registration | Wed., Jan. 23 | Wed., Jan. 22 |
| Last day to apply for spring graduation | Fri., Feb. 15 | Fri., Feb. 14 |
| Mid-term grades for freshmen due | Feb. 25-Mar. 9 | Feb. 24-Mar. 6 |
| Spring recess | Mon.-Sun., Mar. 11-17 | Mon.-Sun., Mar. 9-15 |
| Last day for student-initiated withdrawal | Fri., Mar. 22 | Fri., Mar. 20 |
| All Campus Day (no classes) | Fri., Apr. 19 | Fri., Apr. 17 |
| Last day of instruction | Fri., Apr. 26 | Fri., Apr. 24 |
| Final examinations | Mon.-Thurs., Apr. 29-May 2 | Mon.-Thurs., Apr. 27-30 |
| Commencement | Sun., May 5 | Sun., May 3 |
| Grades due to Admissions and Records | 3 p.m., Wed., May 8 | 3 p.m., Wed., May 6 |

Academic calendars for UAF's branch campuses can be found on Page 8.



1990-91

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
- Council on Social Work Education
- National Association of Schools of Music
- National Council for Accreditation of Teacher Education

How to Use this Catalog

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

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

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

Questions? Call or write

Information 474-7211

| | |
|--|---------------|
| Academic Affairs, 3rd floor Signers' Hall..... | 474-7096 |
| Academic Computing, 403 Library..... | 474-7191 |
| Administration, Vice Chancellor for, 310 Signers' Hall..... | 474-7340 |
| Admissions and Records, 1st floor Signers' Hall..... | 474-7521 |
| From within Alaska..... | (800)478-1UAF |
| 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 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 the University of Alaska Fairbanks, Wood Center..... | 474-7355 |
| Athletics and Recreation, Patty Center..... | 474-7205 |
| Bookstore, 2nd floor Constitution Hall..... | 474-7348 |
| Bristol Bay Campus, Box 1070, Dillingham, AK 99576..... | 852-5483 |
| Business Office, 1st floor Signers' Hall..... | 474-7551 |
| Career and Continuing Education, School of, Downtown Center..... | 451-7223 |
| Career Planning and Placement, 5th floor Gruening..... | 474-7596 |
| Chancellor's Office, 3rd floor Signers' Hall..... | 474-7112 |
| Chukchi Campus, Box 297, Kotzebue, AK 99752..... | 442-3400 |
| Clubs and Organizations, Wood Center..... | 474-6027 |
| Conferences and Institutes, 117 Eielson..... | 474-7800 |
| Cooperative Extension Service, Arctic Health Research Building..... | 474-7246 |
| Delta Greely Center, Box 412, Delta Junction, AK 99737..... | 895-4292 |
| Development, Office of, 210 Signers' Hall..... | 474-7581 |
| Developmental Studies, Downtown Center..... | 451-7223 |
| Distance Education, Center for, 129 Red Building..... | 474-5353 |
| Downtown Center, 510 Second Ave., Fairbanks, AK 99701..... | 451-7223 |
| Eielson Center, Building 2266, Eielson Air Force Base, AK 99702..... | 377-1396 |
| Elderhostel, 118 Red Building..... | 474-5359 |
| Employee Relations, 101 Eielson..... | 474-7349 |
| Engineering, School of, 539 Duckering..... | 474-7330 |
| Environmental Health and Safety, 101 Eielson..... | 474-6206 |
| Equal Employment Opportunity, 101 Eielson..... | 474-7919 |
| Faculty Senate, 312 Signers' Hall..... | 474-7056 |
| Financial Aid, 5th floor Gruening..... | 474-7256 |
| Fisheries and Ocean Sciences, School of, 217 O'Neill..... | 474-7531 |
| Fishery Industrial Technology Center, 202 Center St., Room 201, Kodiak, AK 99615..... | 486-6034 |
| Fort Wainwright Center, Building 1065, Fort Wainwright, AK 99703..... | 353-6809 |
| Fort Yukon Center, Box 194, Ft. Yukon, AK 99740..... | 662-2521 |
| Galena Center, Box 181, Galena, AK 99741..... | 656-1280 |
| Geophysical Institute, Elvey Building..... | 474-7558 |
| GNOSIS (Library Computing System), 409 Library..... | 474-6310 |
| Graduate School, 305 Signers' Hall..... | 474-7464 |
| Health and Counseling, Center for, 2nd floor HS&S Building..... | 474-7043 |

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| Honors Program, 515 Copper Lane..... | 474-66 |
| Housing Office, M-B-S Complex..... | 474-724 |
| Hutchison Career Center, 3750 Geist Road, Fairbanks, AK 99701..... | 479-226 |
| Interior Campus, Red Building..... | 474-543 |
| International Student Adviser, 5th floor Gruening..... | 474-731 |
| Juneau Center for Fisheries and Ocean Sciences, 11120 Glacier Hwy, Juneau, AK 99801..... | 789-444 |
| KSUA-FM, 303 Constitution Hall..... | 474-705 |
| KUAC-FM and -TV, 208 Fine Arts/Theater..... | 474-741 |
| Kuskokwim Campus, Box 368, Bethel, AK 99559..... | 543-450 |
| Learning Resource Center, Downtown Center..... | 451-722 |
| Liberal Arts, College of, 405 Gruening..... | 474-723 |
| Library, Rasmuson..... | 474-740 |
| Management, School of, 107 Bunnell..... | 474-746 |
| Marine Advisory Program, 2221 E. Northern Lights Blvd., Suite 220, Anchorage, AK 99508..... | 274-969 |
| Marine Science, Institute of, 217 O'Neill..... | 474-753 |
| McGrath Center, Box 269, McGrath, AK 99627..... | 524-307 |
| Mineral Engineering, School of, 208 Brooks..... | 474-736 |
| Mineral Industry Research Laboratory, 210 O'Neill..... | 474-713 |
| Moose Creek Center, 3481 Old Richardson Hwy, North Pole, AK 99702..... | 488-442 |
| Museum, UA..... | 474-750 |
| NANA House..... | 474-528 |
| Native Studies, 5th floor Gruening..... | 474-718 |
| Natural Sciences, College of, 465 Duckering..... | 474-794 |
| Nenana Valley Center, Box 489, Nenana, AK 99760..... | 832-557 |
| Newspaper, Sun Star, Wood Center..... | 474-754 |
| North Slope Higher Education Center, Box 69, Barrow, AK 99723..... | 852-733 |
| Northern Engineering, Institute of, 539A Duckering..... | 474-777 |
| Northwest Campus, Box 400, Nome, AK 99762..... | 443-220 |
| Patty Center..... | 474-505 |
| Petroleum Development Laboratory, 425 Duckering..... | 474-774 |
| Polar Ice Coring Office, 205 O'Neill..... | 474-558 |
| Pub, Wood Center..... | 474-776 |
| Research, Vice Chancellor for, 306 Signers' Hall..... | 474-731 |
| Residence Life, 5th floor Gruening..... | 474-731 |
| Rural Alaska Honors Institute, 508 Gruening..... | 474-718 |
| Rural College, 708 Gruening..... | 474-710 |
| Rural Student Services, 5th floor Gruening..... | 474-787 |
| Sea Grant, 138 Irving II..... | 474-708 |
| Security, HS&S Building..... | 474-772 |
| Small Business Development Center, Downtown Center..... | 456-170 |
| Student Affairs, 5th floor Gruening..... | 474-731 |
| Student Development and Learning Center, Downtown Center..... | 451-722 |
| Summer Sessions, 2nd floor Signers' Hall..... | 474-702 |
| Sun Star, Wood Center..... | 474-754 |
| Testing Services, 514 Gruening..... | 474-527 |
| Tok Center, Box 464, Tok, AK 99780..... | 883-561 |
| University Relations, 210 Signers' Hall..... | 474-758 |
| Veterans' Information, 1st floor Signers' Hall..... | 474-752 |
| Wood Center..... | 474-721 |

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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Each winter, engineering students take advantage of the cool temperatures and their classroom lessons to build an ice arch on the main UAF campus.

The University of Alaska Fairbanks Experience

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

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

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

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

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

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

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

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

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

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

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

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

Today, UAF continues to grow, both in size and stature. In addition to the main campus in Fairbanks, UAF has branch campuses in Bethel, Dillingham, Kotzebue and Nome. UAF provides an important resource to rural Alaskans with its education centers in Delta Junction, Fort Yukon, McGrath, Nenana, Tok and Unalakleet. And military education is offered at Eielson and Galena Air Force bases, and Fort Wainwright and Fort Greely Army posts.

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

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

As it expands the frontiers of knowledge, UAF will continue to play a major role in making Alaska, and the world, a better place to live, to learn and to prosper.

Students

UAF students aren't afraid to be different. The University of Alaska Fairbanks isn't the right school for everyone, but if it is

for you, you can take advantage of small classes, first-rate faculty and access to hands-on research—not to mention some of the most breathtaking scenery in the world.

UAF's students come from all 50 states and 25 foreign countries, which can make for an exciting educational environment. A freshman from an Alaska village may share insights with a classmate from Tallahassee or even Tokyo in one year, and take advantage of a UAF exchange program located in Canada, China, Denmark, Korea or Japan the next.

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

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

UAF's enrollment in the fall of 1989 was 7,592 students; of these, about 3,500 were full-time students. Many of UAF's students are "non-traditional." They study at night or after work, and juggle family responsibilities and class studies. Recognizing their needs, UAF offers a wide variety of night and weekend classes.

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

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

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

56 percent are female, 44 percent are male

74 percent are white, 12 percent are Alaska Native, 14 percent are other minorities

30 is the average age

89 percent are Alaska residents, 9 percent are from other states, 2 percent are from foreign countries

93 percent are undergraduate students, 7 percent are graduate students

Faculty

UAF's 607 faculty members are among the best in the country, and with a 13:1 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 inter-collegiate athletics teams in men's and women's basketball, men's and women's cross-country running and skiing, co-ed riflery, men's ice hockey and women's volleyball.

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

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

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

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

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

Fairbanks Area

Fairbanks, Alaska's second largest city, is located in the heart of Alaska. Situated on the banks of the Chena River, Fairbanks is easily accessible by both land and air. Anchorage is only 365 miles away via the Parks Highway or the Alaska

Railroad, and Seattle is 2,300 miles away via the Alaska Highway. Major airlines offer several daily flights to Anchorage and Seattle, as well as to many other destinations.

The UAF campus is only four miles from the downtown business district, and the university is easily accessible via the local bus system and a network of bike trails.

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

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

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

Branch Campuses

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

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

Bristol Bay Campus in Dillingham — The Bristol Bay Campus serves 32 villages in an area of approximately 55,000 square

miles, with boundaries that stretch south as far as Ivanof Bay, north to Lake Clark and west to Togiak. The campus is located in Dillingham, the region's hub, 322 air miles from Anchorage and 570 air miles from Fairbanks.

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

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

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

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

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

Branch Campus Academic Calendars

Bristol Bay Campus

1990 Fall Semester

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

1991 Spring Semester

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

Chukchi and Northwest Campuses

1990 Fall Semester

| | |
|-------------------------------|-----------------------|
| Early Registration | Mon.-Fri., Aug. 27-31 |
| Registration..... | Tue.-Fri., Sept. 4-7 |
| First day of classes | Mon., Sept. 10 |
| Last day of instruction | Fri., Dec. 21 |

1991 Spring Semester

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

Kuskokwim Campus

1990 Fall Semester

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

1991 Spring Semester

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

(Note: Dates are subject to change.)

1990

| August | | | | | | | September | | | | | | |
|--------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|
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| | | | | 1 | 2 | 3 | | | | | | | 1 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | | 2 | 3 | 4 | 5 | 6 | 7 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | | 9 | 10 | 11 | 12 | 13 | 14 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | | 16 | 17 | 18 | 19 | 20 | 21 |
| 26 | 27 | 28 | 29 | 30 | 31 | | | 23 | 24 | 25 | 26 | 27 | 28 |
| | | | | | | | | 30 | | | | | |

| October | | | | | | | November | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|
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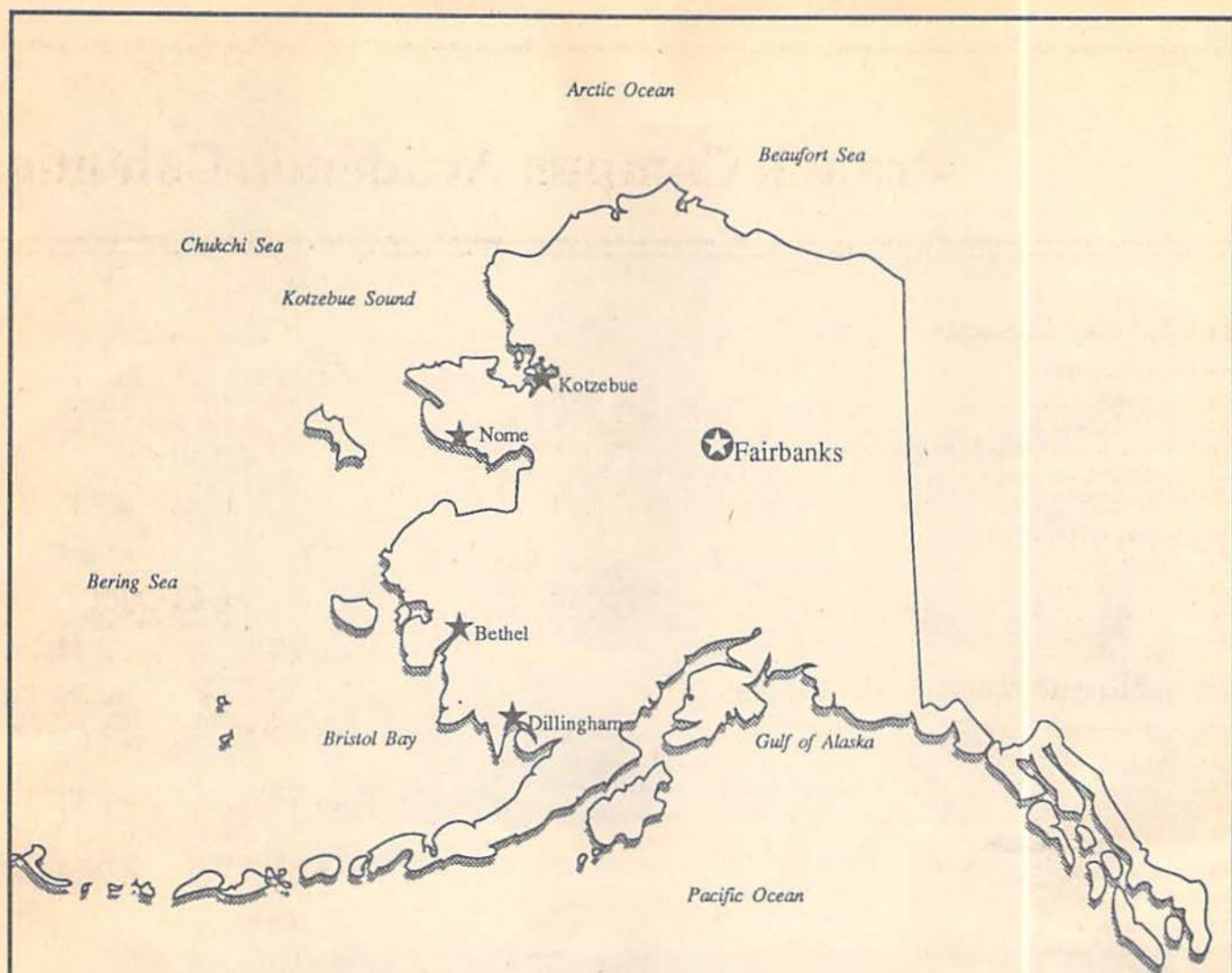
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1991

| January | | | | | | | February | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|
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| 20 | 21 | 22 | 23 | 24 | 25 | 26 | | 17 | 18 | 19 | 20 | 21 | 22 |
| 27 | 28 | 29 | 30 | 31 | | | | 24 | 25 | 26 | 27 | 28 | |

| March | | | | | | | April | | | | | | |
|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|
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| 10 | 11 | 12 | 13 | 14 | 15 | 16 | | 14 | 15 | 16 | 17 | 18 | 19 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | | 21 | 22 | 23 | 24 | 25 | 26 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | | 28 | 29 | 30 | | | |
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| May | | | | | | |
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| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 31 | |



UAF Campus Locations



Main Campus



Branch Campuses

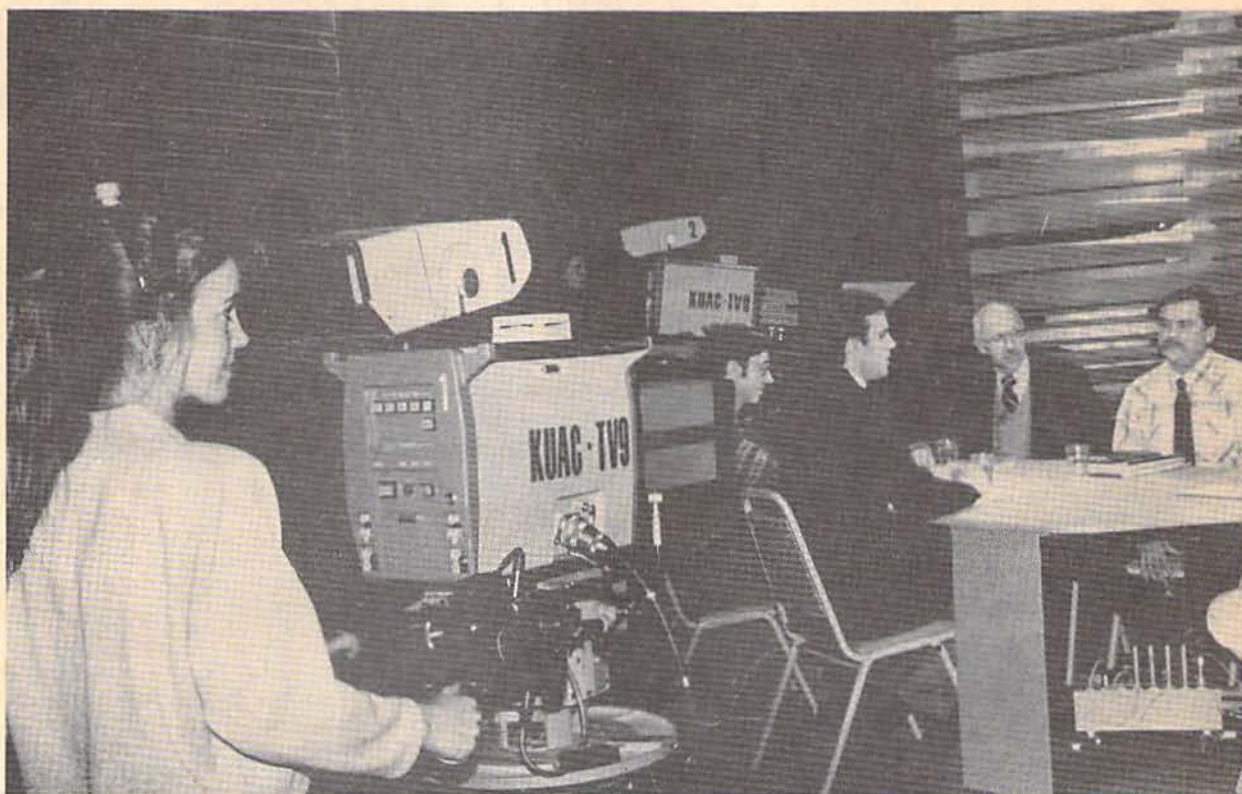
In addition, UAF has rural education centers, research centers, Cooperative Extension Service offices, Marine Advisory Program offices and Cross-Cultural Education Development Program offices located throughout the state.

UNIVERSITY OF ALASKA FAIRBANKS





The fall semester starts with plenty of sunshine and smiles as students make their way to class.



Journalism and broadcasting major Kristin Kramer gets hands-on experience operating a camera for "Top Story", a program aired live from the KUAC-TV studios on campus.

How to Enroll

Applying for Admission

When to Apply

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

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 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 \$20 processing fee for a bachelor's degree or \$10 for an associate degree or certificate must accompany your application.

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

If you've attended other colleges and/or universities, you must request official transcripts from each college or university you attended. The transcripts must 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. Follow the instructions above for having official transcripts sent from your high school and other colleges and/or universities.

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 or certificate program, you must submit the results of the SAT, ACT or ASSET test.

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

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

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

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

Immunization Policy

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

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

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

Admission Requirements

Freshman

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

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

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

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

In addition, you must complete, with a minimum grade point average of 2.0, a high school core curriculum of at least 11 credits, including at least three credits in English, two in mathematics, two in social sciences, and two in natural or physical sciences (including at least one laboratory course if offered by your high school). Effective in fall 1991, the high school core curriculum requirement will be 16 credits. See the section on the next page for those requirements.

Your test results from the ACT or SAT must be submitted before you can be admitted.

- C. If you've graduated from high school, but don't meet minimum high school entrance requirements for the baccalaureate degree, you may be provisionally accepted for up to one calendar year. You may be admitted later as an unrestricted baccalaureate degree candidate provided you make up deficiencies by earning at least a "C" grade in each of the appropriate developmental or university courses, and complete nine credits of general baccalaureate degree requirements with a grade of "C" in each course.
- D. If you haven't graduated from high school and are at least 21 years old, but do not meet minimum entrance requirements, you may be considered on a case-by-case basis for unrestricted admission as an "undeclared" student by completing either the ACT or SAT with sufficiently high scores.

Effective September 1991— High School Entrance Requirements

If you're planning to apply to UAF for the fall of 1991 as a freshman in a bachelor's degree program, you must have a cumulative high school GPA of 2.0 and a 2.5 average in a core curriculum consisting of at least 16 academic units. The units must include four credits in English, three in college preparatory mathematics (selected from Algebra I, II, geometry, trigonometry, elementary functions, precalculus or calculus), three in social sciences and three in natural or physical sciences (including at least one laboratory course in biology, chemistry or physics). Two years of study in a non-English language are strongly recommended.

Transfer Students

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

International Students

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

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

TOEFL Test Requirements

1. If you're from a country where English is not the native language, you must present a satisfactory score on the Test of English as a Foreign Language (TOEFL). You can't use any other proof of English competency (such as English credits from other schools).
 2. If you're a permanent resident on an immigrant visa, a TOEFL score is required if all your formal education is from a country where English is not the primary language, or when the documents presented for admission don't clearly indicate your proficiency in English.
 3. You must present a TOEFL score of at least 550.
- B. **Other Requirements**
1. When preparing the I-20 form that is necessary to obtain an F-1 (student) visa, the university must certify to the Immigration and Naturalization Service that you have

been accepted for full-time enrollment and that you have funds to meet estimated expenses for one academic year. If you're in the U.S. on an F-1 visa, you must maintain a full-time course load; you may not enroll as a part-time student (less than 12 credits per semester).

2. You must sign a statement that funds are available to pay all expenses while you attend UAF, as well as the amount needed for round trip transportation between your home and Alaska. The minimum cost for attending UAF for one school year is \$8,000. This amount covers university fees, room and board on campus, and a reasonable amount of personal expenses including transportation. It does not include summer living or 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 visa to be issued. You can't reserve on-campus housing until your application for admission has been accepted. If you're interested in single student housing, you should file your application materials at least eight months before you plan to enroll.

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

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

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

| | English | Math | Social Science | Natural/Phys. Sci. |
|--|---------|------------------------------------|----------------|---|
| H.S. Core Courses: | | | | |
| Required for all freshmen (2.00 GPA in core-11 credit total) | 3 | 2 | 2 | 2 (Incl. 1 cr. lab. sci.) |
| College of Liberal Arts: | | | | |
| Applied Statistics, | 3 | Algebra-2 | 2 | Nat. Science-1 |
| Computer Science or Mathematics majors | | Geometry-1 Trig-½ Adv Math-½ | | Physics or Chemistry-1 |
| Physical Educ. majors | 3 | Algebra-2 | 2 | Biology-1 Physics or Chemistry-1 |
| All Other Liberal Arts majors | | Same as Core | | |
| College of Natural Sciences: | | | | |
| All majors | 3 | Algebra-2 Geometry-1 Trig-½ | 2 | Physics or Chemistry-1 Biology or Elective-1 |
| Rural College: | | | | |
| All majors | | Same as Core | | |
| School of Agriculture and Land Resources Management: | | | | |
| Land Resources Mgt. majors | 2 | Algebra-2 Geometry-1 Trig-½ | 2 | Physics or Chemistry-1 Biology or Elective-1 |
| School of Engineering: | | | | |
| All majors | 3 | Algebra-2 Geometry-1 Trig-½ | 2 | Chemistry-1 Physics-1 |

School of Fisheries and Ocean Sciences:

| | | | | |
|------------|---|------------------------------------|---|---|
| All majors | 3 | Algebra-2 Geometry-1 Trig.-½ | 2 | Physics or Chemistry-1 Biology or Elective-1 |
|------------|---|------------------------------------|---|---|

School of Management:

| | | | | |
|-------------|---|------------------------------------|---|--|
| All majors* | 3 | Algebra-2 Geometry-1 Trig.-½ | 2 | Physics or Chemistry-1 Nat. Sci.-1 |
|-------------|---|------------------------------------|---|--|

*Two years Foreign Language highly recommended.

School of Mineral Engineering:

| | | | | |
|------------|---|------------------------------------|---|--|
| All majors | 3 | Algebra-2 Geometry-1 Trig.-½ | 2 | Physics or Chemistry-1 Nat. Sci.-1 |
|------------|---|------------------------------------|---|--|

Non-Degree Students

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

High School Students

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

Students with Bachelor's Degrees

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

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

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

Academic Bankruptcy for Returning Students

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

When you want to resume your college work but find your previous UAF academic record an obstacle, you may apply for readmission on the basis that your prior academic record be

disregarded. You begin your college study again with no credits attempted, no credits earned and no quality points reflected in subsequent grade point average calculations. You may use academic bankruptcy only once. You may request academic bankruptcy for records from present UAF units which were not part of UAF prior to fall 1987.

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

Your prior academic record remains a part of your overall academic record and appears on your transcript, but none of the credits 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 ACT English and composite scores are 16 or above, or with a SAT English score of 350 or above and a combined SAT score of 720 or above.

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

| ACT 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 (460-530) with | 6-8 | MATH 107, 161, 171 |
| 21 to 25 (460-530) with | less than 6 | See Math Department |
| 19 to 20 (430-450) with | 7-8 | MATH 107, 161, 171 |
| 19 to 20 (430-450) with | less than 7 | See Math Department |
| 17 to 18 (400-420) with | 8 | MATH 107, 161, 171 |
| 17 to 18 (400-420) with | 4-7 | See Math Department |
| 17 to 18 (400-420) with | less than 4 | DEVM 070 |
| 13 to 16 (360-390) with | 1-8 | DEVM 070 |
| 12 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, although not a prerequisite to further study, will carry no credit.

Transfer of Credit

Credit accepted for transfer to UAF which has been earned at other regionally accredited institutions, through military

educational experiences or credit accepted by special approval, is considered transfer credit. Where possible, transfer credit is equated with UAF courses.

The following regulations apply to transfer of credit:

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

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

Undergraduate Admission Requirements in Brief

| <i>Admission Category</i> | <i>Admission Requirements (through Spring 1991)</i> |
|--|--|
| BACCALAUREATE | |
| Freshman* | High school graduation and GPA of 2.0 (C) Completion of 11 credit core with 2.0 (C) GPA |
| Transfer Student — Less than 30 semester hours of credit* | Same requirements as for freshman (above) 2.0 (C) GPA in previous college work |
| Transfer Student — More than 30 semester hours of credit | 2.0 (C) GPA in previous college work |
| ASSOCIATE | |
| Freshman and Transfer* | High school graduation or at least 18 years old |
| Non-High School Graduate* | GED or at least 18 years old |
| Non-Degree Student | High school graduation, GED or at least 18 years old |
| Auditor | Same requirements as for appropriate category above (freshman, transfer, non-degree, etc.) |
| International Student | Same requirements as for appropriate category above (freshman, transfer, etc.) Acceptable TOEFL examination scores Acceptable financial statement |

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

Alternative Ways to Earn Credit

Advanced Placement Credit

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

Local Advanced Placement Credit

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

Foreign Language — If you have previous exposure to a language outside of college, and want to continue studying that language, you will need to take a placement test.

After completing the course and earning a grade of "C" or higher, you will be given credits for that course and, in addition, for the two immediately preceding prerequisite courses, if any, unless you have received university credit for these already. A native speaker may not receive credit for 101 and 102 levels.

This policy doesn't apply to special topics courses, individual study courses, literature or civilization courses.

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

College Board Advanced Placement

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

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

Credit by Examination

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

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

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

A. CLEP (College Level Examination Program)

CLEP is a national testing program that awards college credit for some introductory courses. The exams cost \$35 each, and are administered once a month. To register for a CLEP exam or to receive more information, contact Testing Services.

The following criteria apply to CLEP General Exams:

1. If you've earned as many as six semester credits in an area covered by a CLEP General Exam, no credit will be awarded for successfully completing that exam.
2. UAF currently accepts credit for all five CLEP General Exams listed below.
English Composition w/Essay — Three ENGL 111 credits are granted for a 500 score.
Humanities — Six humanities elective credits are granted for a 500 score.
Mathematics — Three mathematics elective credits are granted for a 500 score.
Natural Sciences — Six natural science elective credits are granted for a 500 score.
Social Sciences/History — Six social science elective credits are granted for a 500 score.

The following criteria apply to CLEP Subject Exams:

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

CLEP Subject Exams Currently Accepted

| Test Name | UAF Course | |
|----------------------------|------------|-----------|
| Biology | BIOL 105 | 4 credits |
| Principles of Economics | ECON 201 | 3 credits |
| Principles of Economics | ECON 202 | 3 credits |
| Educational Psychology | ED 330 | 3 credits |
| Western Civilization | HIST 101 | 3 credits |
| Western Civilization | HIST 102 | 3 credits |
| History of the U.S. I | HIST 131 | 3 credits |
| History of the U.S. II | HIST 132 | 3 credits |
| General Psychology | PSY 101 | 3 credits |
| Human Growth & Development | PSY 240 | 3 credits |

B. DANTES-DSST (Standardized Subject Tests)

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

Local Credit by Exam Program

You can be awarded credit through the local credit by exam program if you're currently enrolled. Subject to departmental approval, most courses are available for credit by exam, except those with numbers ending -90 through -99 (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 \$15 per credit hour. Contact the Testing Services Office to obtain credit by examination forms or for more information on challenging a course.

Correspondence Study

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

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

A catalog detailing policies regarding correspondence study course enrollment, transfer, withdrawal, extension, reinstatement, fees, materials and course descriptions is available from

the Center for Distance Education and Independent Learning, 130 Red Building, (907) 474-5353; FAX (907) 474-5402; BITNET:SYCDE@ALASKA.

Credit for Prior Learning

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



Artists get plenty of experience at UAF. Senior Stephen Whipple and art professor Terry Choy discuss Whipple's oil painting, *The Shape of Pain*.

How to Register

Registration

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

Placement Tests

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

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

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

Registration Drop Policy

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

At the Fairbanks campus, the class schedule provides information on which courses use the registration drop policy. After the first class session, lists of the names of the students who are to be dropped from classes are forwarded by the 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 111, 211, 213, 313, or 414), or the first two meetings of a basic speech course (SPC 121, 131, or 141), you will be dropped from the class even if you preregistered.

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

Credit-No-Credit Option

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

You may elect the credit-no-credit option for one 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 Student Affairs. After 60 percent of the semester or session has passed, a total withdrawal can only be initiated by the dean of the college/school in which your major is located or, if you're undeclared or non-degree, by the Vice Chancellor for Student Affairs.

Instructor signatures aren't required for any drop or withdrawal. Your instructors will be notified of your drop or withdrawal by the Office of Admission and Records. Advisers'

signatures aren't required when non-degree students add classes or drop or withdraw from classes. When you drop or withdraw from a class or classes, your signature is required.

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

Registration Changes

| 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 (<i>Course does not appear on transcript</i>) | 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 (<i>Class appears on transcript with a "W" grade</i>) | 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 (<i>student initiated</i>) | 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 (<i>dean initiated</i>) | 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 Vice Chancellor for Student Affairs 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.



Head resident Jennie Anderson and resident assistant Larry Kairavak look over their Bartlett Hall newsletter.



UAF has one of only a handful of student-staffed university fire departments in the United States. Students Jaimee Binder and Tim Dungan train at West Valley High School during one of their many exercises.

Academic Regulations

Academic Honors

To be eligible for academic honors at the end of a semester, you must be a full-time undergraduate degree or certificate student who has completed at least 12 UAF credits that are graded with the letter grades A, B, C, D or F. If you have received an Incomplete or Deferred grade, your academic honors cannot be determined until those grades have been changed to permanent grades. The academic honors are recorded on your permanent record.

Chancellor's List — You will make the Chancellor's List with a semester GPA of 4.0

Dean's List — A GPA of 3.5 or higher earns you a place on the Dean's List.

Academic Progress

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

Academic Standards

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

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

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

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

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

Attendance

You are expected to regularly attend classes; unexcused absences may result in a failing grade. You are responsible for 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 satisfy general degree requirements (e.g., Social Science Elective, Written Communication, etc.) are identified in the course description section of the catalog by the following designators:

| | |
|---------------------|---------------------------|
| h - Humanities | o - Oral Communication |
| m - Mathematics | s - Social Science |
| n - Natural Science | w - Written Communication |

For example, you may use HIST 341, History of Alaska, (3+0) s, to satisfy the "social science elective" requirement. You can use ENGL 111, Methods of Written Communication, (3+0) w, to meet the written communication general degree requirement. Note: Special topics courses are not given course classifications.

Full-, Part-time Status/Study Load

If you're an undergraduate student registered for 12 or more semester credits, you are classified as a full-time student. In order to complete an undergraduate program in four years, you must earn 16 or 17 credits each semester. You may enroll in up

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

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

Grade Point Average (GPA) Computation/Grading System

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

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

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

A (including -)

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

B (including +/-)

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

C (including +/-)

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

D (including +/-)

The lowest passing grade, indicates work of below average quality and performance (one grade point per credit).

F (including +/-)

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

P Pass — The grade "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.

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

I Incomplete — A temporary grade used to indicate that you've satisfactorily completed (C or better) the majority of the work in a course, but for personal reasons beyond your control, haven't been able to complete the course during the regular semester. Normally, an incomplete is assigned when you've been in class until at least the last three weeks of the semester or session. Negligence or indifference aren't acceptable reasons for an "I" grade. The deferred grade (DF) may be used for those cases when you're unable to complete a course due to institutional reasons, such as a breakdown of laboratory equipment.

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

You must make up an incomplete within one year or it will automatically be changed to an "F" grade. The "I" grade is not computed in your GPA until it has been changed to a regular letter grade by the instructor or until one year has elapsed, at which time it will be computed as an "F." Seniors cannot graduate with an "I" grade in either a UAF or major course requirement. To determine a senior's GPA at graduation, an "I" grade will be computed as a failing grade.

NB No Basis — Instructors may award a No Basis (NB) grade if there is insufficient student progress and/or attendance for evaluation to occur. No credit is given, nor is "NB" calculated in the GPA. This is a permanent grade and may not be used to substitute for the Incomplete (I). It can't be removed by later completing outstanding work.

Honor Code

As a UAF student, you're subject to the Honor Code. The university assumes that the integrity of each student and of the student body as a whole will be upheld. Honesty is a primary responsibility of you and every other UAF student. It is your responsibility to help maintain the integrity of the student community. UAF's Honor Code is as follows:

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

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

Instructors can either deal with suspected violations of the Honor Code themselves or refer such matters to the University

Disciplinary and Honor Code Committee (UDHCC). If the instructor believes that a student should be suspended or expelled from the university for an Honor Code violation, the instructor must request a hearing before the UDHCC. The UDHCC shall decide if the Honor Code has been violated. If it has not been violated, the instructor will evaluate the assignment according to his or her normal procedures. If it has been violated, the instructor will determine how this violation affects the student's grade for the course; the UDHCC will recommend to the Vice Chancellor for Student Affairs whether the student should be dismissed from UAF. The UDHCC operates under procedures outlined in the "A" Book.

Student Behavioral Standards

Education at the university is conceived as training for citizenship as well as for personal self-improvement and development.

Generally, UAF behavioral regulations are designed to help you work efficiently in courses and live responsibly in the campus environment. They are not designed to ignore your individuality but rather to encourage you to exercise self-discipline and accept your social responsibility. These regulations, in most instances, were developed jointly by staff and students. You should become familiar with campus policies and regulations as published in the student handbook, *The A Book*, which is available at the Student Activities Office in Wood Center.

Information Release

Access to Records

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

Directory Information

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

The following is considered directory information:

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

Majors

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

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

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

Petitions

Deviations from academic requirements and regulations for undergraduate students must be approved by academic petition. Petition forms, which require the signatures of your 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 Vice Chancellor for Academic Affairs, but you should first submit them to the Office of Admissions and Records.

Reserving Courses for Graduate Programs

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

Students' Rights and Responsibilities

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

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

General University Requirements for Undergraduate Degrees

| REQUIREMENTS | ASSOCIATE DEGREE | BACHELOR'S DEGREE |
|--|---|--|
| Minimum Number of Credits Required | 60 credits | 120 credits |
| Credits that Must be Earned at UAF (<i>residence credit</i>) | 15 of the last 30 credits | 30 of the last 36 credits |
| Upper Division Credit (<i>Courses with numbers between 300 and 499</i>) | | 42 credits total (some degrees require more); of the 42 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 catalog in effect when admitted to the major or when graduating - 5 year limit on catalog year | May use catalog in effect when admitted to the major or when graduating - 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 |

How to Earn a Degree

Requirements

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

General University Requirements

You must earn at least 60 semester hours for an associate degree, and 120 semester hours for a bachelor's degree, including transfer credits, to earn a UAF degree. You must earn at least 42 upper division credits for bachelor's degrees.

At least 15 of your final 30 semester hours applicable to any associate degree must be earned at UAF. If you're a bachelor's degree student, you must earn at least 24 upper-division credits and at least 30 of 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 211 and 213 are writing courses, either will satisfy the second half of the requirement in written communication for the bachelor's degree. But you can't enroll in ENGL 211 or 213 without first fulfilling the ENGL 111 requirement in one of these ways: complete the course with a passing grade; successfully challenge the course; earn an English ACT score of 26 or higher; or present a CEEB APT score in English of 3 or higher.

What catalog are you under?

You may graduate under the requirements of the UAF catalog in effect the year you graduate, or the catalog in effect the year you originally enrolled in the major, as long as not more than seven years have passed for a baccalaureate degree and

five years for an associate degree. Only one catalog can be used for each degree.

Residence Credit

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

Graduation

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

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

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

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

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

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

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

Degree Requirements

Certificate Programs

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

Requirements

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

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

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, Office Professions.

Associate Degrees

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

ASSOCIATE OF ARTS REQUIREMENTS

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

Distribution of Credits

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

| Communication (9 credits): | Credits |
|------------------------------------|---------|
| ENGL 111 and ENGL 211 or 213 | 6 |
| SPC 111 or 121 or 131 or 141 | 3 |

| Mathematics and Logic (9 credits): | Credits |
|---|---------|
| Mathematics and Logic electives | 3 |
| Natural Science electives | 3 |
| An additional 3 credits in either Mathematics or Logic or Natural Science | 3 |

Humanities (9 credits):

Any combination of courses classified as Humanities.....9

Social Sciences (9 credits):

Any combination of courses classified as Social Science9

General Electives (24 credits):

Any combination of courses, including courses classified as Applied Studies.....24

Total Credits.....60

Course Classifications — Associate Degree Program

Humanities:

American Sign Language

Art

English

Humanities

Languages

Literature

Philosophy

Religion (selected courses)

Theater

Dance

History*

Journalism

Linguistics

Music

Photography

Speech and Public

Communication

Social Sciences:

Anthropology

Business Law

Geography

Paraprofessional Counseling

Psychology

Behavioral Science

Economics

History

Political Science

Sociology

*History may be applied to either Social Science or Humanities for the associate degree, but not both. It counts only as a social science for the baccalaureate degree.

Mathematics and Logic:

All mathematics, statistics and logic courses.

Natural Sciences:

Biology, Biological Science

Geology

Physical Geography

Physics

Chemistry

Physical Anthropology

Physical Sciences

Applied Studies

Accounting

Airframe and Powerplant

Aviation Technology

Computer

Applications

Diesel/Heavy Equipment

Early Childhood

Development

Agriculture

Alaskan Studies

Business Administration

Construction

Culinary Arts

Drafting Technology

Education

Electronics

Fire Science

Home Economics

Library Science

Mechanics

Military Science

Nursing/Health Science

Office Professions

Petroleum

Public Safety**

Waste Water Technology

Emergency Medical

Training

Fisheries/Wildlife Mgmt

Justice

Management

Meteorology

Mining

Nutrition

Paraprofessional Counseling

Personal Development

Phys. Educ./Recreation

Trade and Technology

Welding

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

ASSOCIATE OF APPLIED SCIENCE REQUIREMENTS

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

| | Credits |
|---|-------------|
| Written Communication | 6 |
| (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which your degree is earned.) | |
| Oral Communication | 3 |
| Select a total of 6 credits from humanities, social science, mathematics or natural science | 6 |
| (At least 3 credits must be math or natural science at the 100 level or above.) | |
| Major Specialty | at least 30 |
| Electives to total | 60 |

Majors Available for A.A.S. Degree: Airframe and Powerplant, Applied Accounting, Applied Business, Aviation Technology, Community Health Practitioner, Culinary Arts, Early Childhood Development, Early Childhood Education, Financial Institutions Management, Office Professions, Paraprofessional Counseling, Public Safety-Fire Science.

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

Baccalaureate Degrees

BACHELOR OF ARTS REQUIREMENTS

| Communication: | Credits |
|--|---------|
| ENGL 111 or equivalent, and ENGL 211 or 213† | 6 |
| Speech Communication | 3 |

Humanities:†

Any combination of courses at the 100 level or above, selected from at least 3 disciplines exclusive of major/minor, with a maximum of 9 credits from any one discipline18

Social Sciences:

Any combination of courses at the 100 level or above, selected from at least 3 disciplines exclusive of major/minor, with a maximum of 9 credits from any one discipline18

Mathematics and Logic:

Any combination of courses at the 100 level or above from the Department of Mathematical Sciences (Mathematics, Computer Science and Statistics), or Philosophy 2046

Natural Sciences:

Any combination of courses at the 100 level or above which includes at least one laboratory course7

Major Complex* At least 30**

Minor Complex* At least 12**

Minimum credits required for degree 120***

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

Of the above, at least 48 credits must be earned in upper division (300 level or higher) courses.

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

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

***Most degree programs require 130 credits. See specific requirements listed in Degree Programs section of this catalog.

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, Biological Sciences, Business Administration, Chemistry, Citizens' Law, Computer Information Systems, Computer Science, Economics, Secondary Education, Elementary Education, English, Eskimo, French, Geography, Geology, German, History, Humanities, Human Services, Japanese, Journalism, Justice, Linguistics, Mathematics, Military Science, Music, Natural Resources Management, Philosophy, Physical Education, Physics, Political Science, Psychology, Russian, Russian Studies, Sociology, Spanish, Speech Communication, Statistics, Theater, Travel Industry Management.

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

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

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. You may use the catalogs in effect when you officially declare the majors or the catalogs in effect the year you graduate. In other words, for two degrees that you complete at the same time, you may follow requirements from two different catalogs.

BACHELOR OF SCIENCE REQUIREMENTS Credits

Communications

ENGL 111 or equivalent and
ENGL 211 or 213† 6
Speech Communication 3

Mathematics

One semester of college-level Calculus, MATH 203, or STAT 301 3 or more

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

Natural Science

Chemistry, Biology, Geoscience (Solid Earth Sciences), or Physics (minimum of 6 credits each in two disciplines), including 2 credits of laboratory 16

Social Science/Humanities†

Social Science (minimum of 3 credits) and Humanities (minimum of 3 credits), exclusive of 9-credit communications requirement 15

Major Complex (see departmental curricula for specific requirements and for Minor Complex, if required) at least 30*

Minimum credits required for degrees 120**

Of the above, at least 42 credits must be obtained in upper division (300 level or higher) courses.

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

**Most degree programs require 130 or more credits. See specific requirements listed in Degrees and Programs sections of the catalog.

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

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

Double Major — As a Bachelor of Science degree candidate, you may complete a double major instead of a single major. Your majors must be selected from those approved for the Bachelor of Science degree. You'll need to complete all general requirements plus all requirements for both majors. If you're completing a double major, you need to officially declare both majors either when you're admitted and/or through the change of major procedure. You'll need to follow the degree requirements in the catalog in effect when you officially declared the first major, or from the catalog in effect the year you graduate.

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

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

BACHELOR OF TECHNOLOGY REQUIREMENTS Credits

*You must have completed an associate degree in a technical specialty (Associate of Technology, Associate of Applied Science). If you hold an associate degree of less technical depth (Associate of Arts), you must make up the equivalent technical deficiencies before you will be admitted to the Bachelor of Technology degree program 60 or more

Communication (may have been taken as part of the associate degree):

ENGL 111 and ENGL 211 or 213†6
 Oral Communication3

General Education (courses taken as part of the associate program are acceptable):

12 credits in one area, 6 credits in a second area and 3 credits in each of the two other areas: Social Sciences, Humanities, Natural Science, Mathematical Science (Mathematics, Computer Science, Statistics)†24

Major Complex (must be beyond associate degree major, 30 credits):

Upper-division credits in technical specialty 0-12
 Complementary area 24-30

Minimum credits required for degree130

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

Major Complex Available for the B.T. Degree: Education.

The following technical specialties have been approved as associate degree programs for admission to the Bachelor of Technology degree program in Education:

Aviation Technology Culinary Arts
 Electronics Technology

BACHELOR OF BUSINESS ADMINISTRATION REQUIREMENTS

| Communications | Credits |
|------------------------|---------|
| ENGL 111 | 3 |
| ENGL 211 or 213† | 3 |
| SPC Elective | 3 |

| | |
|--------------------------|---|
| Social Science | |
| PSY 101 or SOC 101 | 3 |

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

Natural Science & Mathematics

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

Humanities

| | |
|----------------------------|---|
| Humanities elective† | 6 |
|----------------------------|---|

(In addition to 3 credits of speech elective taken under "Communications" above)

Major Complex and Common Body of Knowledge

See the Degrees and Programs section for specific requirements.

Minimum Credits Required for Degree 120**

**Most degree programs require 130 credits. See specific requirements listed in the Degrees and Programs section of the catalog.

Majors Available for B.B.A. Degree: Accounting, Business Administration (Finance, Human Resource Management, International Business, Management, Management Information Systems, 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.

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



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

BACCALAUREATE DEGREE REQUIREMENTS IN BRIEF

| ACADEMIC DISCIPLINE | Bachelor of Arts | Bachelor of Science | Bachelor of Bus. Admin. | Bachelor of Education | Bachelor of Music | Bachelor of Technology | ACADEMIC DISCIPLINE |
|----------------------------|---|--|--|---|---|--|----------------------------|
| Written Communication | Engl 111 - 3 cr Engl 211 or 213 - 3 cr | Engl 111 - 3 cr, Engl 211 or 213 - 3 cr | Engl 111 - 3 cr Engl 211 or 213 - 3 cr | Engl 111 - 3 cr Engl 211 or 213 - 3 cr | Engl 111 - 3 cr Engl 211 or 213 - 3 cr | Engl 111 - 3 cr Engl 211 or 213 - 3 cr | Written Communication |
| Oral Communication | Sp.C. elective - 3 cr | Sp.C. elective - 3 cr | Sp.C. elective - 3 cr | Sp.C. elective - 3 cr | Sp.C. elective - 3 cr | Sp.C. elective - 3 cr | Oral Communication |
| Humanities | 18 credits in any combination of courses at the 100 level or above selected from at least 3 disciplines with a maximum of 9 credits from any one discipline in both humanities and social science areas - 36 cr | 15 credits including at least 3 credits from each area | Electives - 6 cr | Electives - 9 cr Ling. 101 or ANL 215 or 216 - 3 cr | Non-Music elect - 15 cr | Gen. Educ. - 24 cr (12 cr in one area, 6 cr in 2nd area, and 3 cr in each of other two areas) Courses taken as part of associate program are accepted. | Humanities |
| Social Science | | | History - 3 cr Psy 101 or Soc 101 - 3 cr P.S. 101 or 102 - 3 cr Econ 201, 202 - 6 cr Electives - 3 cr | Anth. 242 - 3 cr Hist. 131 or 132 - 3 cr Hist. Elect. - 3 cr P.S. 101 - 3 cr P.S. 263 or ANS 310 - 3 cr Psy 101 - 3 cr Psy 240 - 3 cr Elective - 3 cr | Electives - 15 cr (Psy 101 - 3 cr required for Mus. Educ.) | | Social Science |
| Natural Science | | | Nat. Sci. - 4 cr (including 1 cr of lab) | Elementary: Math 205 - 3 cr Math Elect. - 6 cr Science Elect. - 7 cr (incl. lab science) | | | Natural Science |
| Mathematics | | | Math 161-162 - 7 cr | Secondary: Math Elective - 6 cr Science Elect. - 7 cr (incl. lab science) Math or Science Elective - 3 cr | | | Mathematics |
| Other | Of the total credits required for the degree, 48 must be upper-division (300 or 400 level) courses | 42 cr must be upper-division (300-400 level) courses | 42 cr must be upper-division (300-400 level) courses Common body of knowledge - 33 cr | Education and other - 42-51 cr 42 cr must be upper-division (300-400 level) courses | | 65 cr must be earned beyond assoc. degree, including a minimum of 30 cr in major complex. 42 cr must be upper-division (300-400 level) courses | Other |
| Major Complex or Specialty | At least 30 credits | Variable | 33-42 cr | Elementary concentration - 24 cr or more | Variable | | Major Complex or Specialty |
| Minor Complex | At least 12 credits | | | Secondary integrated major/minor - 45 - 48 cr | | | Minor Complex |

Financial aid administrative clerk Carrie Green gives student Paul Riley an application for the upcoming school year.



Fees and Financial Aid

Fees are for the Fairbanks campus only

Tuition

| Total Credit Hours | Resident Student | Non-resident Student |
|--------------------|------------------|----------------------|
| 1 | \$ 46 | \$ 46 |
| 2 | 92 | 280 |
| 3 | 138 | 420 |
| 4 | 184 | 560 |
| 5 | 230 | 700 |
| 6 | 276 | 840 |
| 7 | 322 | 980 |
| 8 | 368 | 1120 |
| 9 | 414 | 1260 |
| 10 | 460 | 1400 |
| 11 | 506 | 1540 |
| 12 | 552 | 1680 |
| 13 or more | 598 | 1820 |

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

Definition: Alaska Resident

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

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

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

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

Other Fees Associated with Registration

(per semester unless otherwise indicated)

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

All fees are subject to change.

Definitions: Other Fees Associated with Registration

Course Fees — Not all courses have course fees associated with them. Fees for courses range from \$3 to \$125. See the course description section of the catalog to check on fees for individual courses.

Deferred Fee Charge — A processing fee of \$10 is added to the total amount due when you're approved for deferred fee payment. See **Paying Fees**.

Graduate Extended Registration Fee — Graduate students extending registration from the previous semester must pay a graduate extended registration fee of \$150 to \$225.

Health Center Fee — The \$45 Health Center fee provides basic medical and counseling services at the Student Health and Counseling Center. All students enrolled in 12 or more credits (including any combination of on- and off-campus courses), or living in university housing, must pay the Health Center fee. Students purchasing the Student Health Insurance Plan must pay the Health Center fee when enrolling for the insurance. Active duty military students have the option of paying the Health Center fee.

If you're a full-time student not taking any courses which meet on the main campus, are not enrolled in the student health insurance program and are not living in university housing, you may obtain a Health Center fee waiver. You need to present the approved waiver when you pay your fees.

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

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

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

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

Housing Fees — When applying for housing, you need to send a \$50 reservation **damage deposit** to the Housing Office with your completed application. **Room rent**, along with all other fees, is due in full at registration (see Payment of Fees). When registering, each residence hall student is required to buy a **board plan** for cafeteria meals. Meal tickets become effective at the evening meal of the first day of registration each semester. For more information, see Housing.

Late Registration Fee — If you register later than the day designated for that purpose, you'll have to pay a late registration fee of \$15 for the first working day, plus \$5 for each succeeding working day to a maximum of \$65. This fee is refunded only if all classes for which you'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 \$75 annual fee or a \$40 semester fee is charged for on-campus automobile parking.

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

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

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

Paying the campus activity fee entitled you to use the Patty Center recreational facilities, and be admitted at student prices

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

Other General Fees

(per use unless otherwise indicated)

| | |
|---|---------------|
| Admission Processing Fee | |
| Certificate or Associate Degree Application..... | \$ 10 |
| Baccalaureate or Graduate Degree Application..... | 20 |
| Credit by Examination fee | 15/credit |
| Late Placement and Guidance 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 \$20 processing fee with your application for admission to a baccalaureate, master's or doctoral degree. A \$10 fee is required with your application to a certificate or associate degree program.

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

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

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

Records Duplication Charge — You may obtain copies of documents in your file in the Admissions and Records Office (excluding transcripts from any school) if time permits, by making a written request, for a cost of \$2 per page to a maximum charge of \$10 per request. These copies are unofficial and bear a statement to that effect. Mailing copies of documents provided through this service is not available.

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

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

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

Paying Fees

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

Registration is not complete until you have paid your fees.

If you're unable to pay all charges at the beginning of the semester, you may apply for deferred fee payment. The Office of Student Affairs and the Financial Aid Office provide applications and approval for deferred fee payment. Approval is based on your expected 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 a minimum of 50 percent (50%) of all assessed fees at fee payment unless payment is guaranteed by the Financial Aid Office.
2. 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 Affairs and you will be informed of these due dates when the deferred payment is approved.
3. A \$10 processing fee is added to the total amount due.
4. Each delinquent payment is subject to a \$25 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 may be canceled at any time if you fail to meet installment contract payments or financial obligations. The registration process is not complete until you have paid all fees and charges due the university.

Refunds —

General University Tuition and Fees

| Course Length | 100% Refund | 50% Refund | 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 days 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 official academic calendar.

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

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

it in at the Office of Admissions and Records. Full or partial refund of undergraduate and graduate credit hour fees, and the non-resident tuition and fees will be made under the following circumstances:

1. If the courses you registered for are canceled by UAF, your tuition and fees will be refunded in full.
2. If you formally withdraw from a course, a refund will be made according to the following schedule as determined by the date of the formal withdrawal action.
 - A. For semester-length courses:
 1. 100 percent refund of tuition and fees — withdrawal prior to and during the first five days of instruction for the semester.
 2. 50 percent refund of tuition only — withdrawal on or after the sixth day through the tenth day of instruction for the semester.
 3. No refund — withdrawal on or after the eleventh day of instruction for the semester.
 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 academic calendar.
 - B. For courses meeting more than one week but less than a semester:
 1. 100 percent refund of tuition and fees — withdrawal prior to and during the first seven calendar days of the course.
 2. 50 percent refund of tuition only — withdrawal on or after the eighth calendar day through the fourteenth calendar day of the course.
 3. No refund — withdrawal on or after the fifteenth calendar day of the course or after 60 percent of the course has passed.
 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 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. 100 percent refund of tuition and fees — withdrawal on or before the first day of the course.
 2. No refund — withdrawal after the first day of the course.
 3. For the purpose of the refund policy in C. 1. and 2., the first day of the course is the course start date as indicated in the semester 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.
7. Housing refunds: see the housing section of this catalog.

Financial Aid

What is Financial Aid?

Financial aid helps make college affordable by paying for college and university costs. Financial aid can help pay for tuition and fees, books and supplies and living expenses. The

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

Who Can Apply?

You can apply for financial aid if you're a U.S. citizen or eligible non-citizen and are admitted or plan to be admitted to the university. You shouldn't assume that you won't be eligible for financial aid. Clarifications about student eligibility based on citizenship and residency can be obtained at the financial aid office.

Who Receives Financial Aid?

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

To receive any financial aid, you must:

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

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

Where is the Financial Aid Office Located?

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

How Do Students Apply?

1. Complete the financial aid form to apply for all financial aid programs except the Alaska Student Loan Program.
2. Mail it, with the correct fee, to College Scholarship Service, P.O. Box 6351, Princeton, NJ 08541. The University of Alaska Fairbanks CSS code number is 4866.
3. Complete a UAF Financial Aid Application and return it to the UAF Financial Aid Office.

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

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

How is Eligibility Determined?

Residence and physical presence in Alaska for at least two years immediately before applying establishes eligibility for the Alaska Student Loan program. Residency and eligibility requirements are explained in greater detail in "The Alaska Student Loan Program" brochure available from the Alaska Commission on Postsecondary Education, P.O. Box FP, Juneau, Alaska 99811.

Submitting a completed application, along with necessary documents, begins the process of determining who will get federal aid. An analysis of your ability to pay is compared with

UAF's standard expense budget. If the amount of money available is less than total college expenses, you have a financial need and are eligible for aid.

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

| | Married Couple or Single Parent | Single Student Lives Alone | Single Student Lives in UAF Residence Hall |
|-----------------|---------------------------------|----------------------------|--|
| Tuition, fees* | \$ 1,616 | \$ 1,616 | \$ 1,616 |
| Books, supplies | 500 | 500 | 500 |
| Food, housing | 6,345 | 4,770 | 3,246 |
| Transportation | 1,017 | 1,017 | 324 |
| Misc./personal | 1,188 | 1,188 | 1,188 |
| TOTAL | \$10,666 | \$9,091 | \$6,874 |

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

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

What Types of Aid are Available?

Grants and scholarships

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

The **Pell Grant** is a federal grant for undergraduates to help start paying college costs. Since this grant is based on financial need, every undergraduate should apply for it. Once you have applied, the federal processor will send you a Student Aid Report (SAR) indicating whether you qualify for a Pell Grant. Send the SAR to the Financial Aid Office. Pell Grants range up to \$2,300 for the 1990-91 school year. Eligible students enrolled in four-year degree programs can receive a Pell Grant for no more than five years; no more than six years of Pell Grant are available for students in five-year programs.

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

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

The **Bureau of Indian Affairs (BIA)** offers federal grants to undergraduate full-time students. You must be at least one-quarter American Indian or Alaskan Native to apply. These grants are based on financial need and supplement other financial aid. Grants range from \$50 to \$3,000 or more each year. The average grant at UAF is \$1,600. Further information on BIA grants can be obtained from the BIA Regional Office, 1675 "C" Street, Anchorage, Alaska, 99501-5198, telephone (907) 271-4115.

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

Scholarships are administered by the **UA Foundation**, the and the **Financial Aid Office** as well as various academic departments on campus. Separate applications are generally required for each scholarship. You can apply for most UA Foundation and UAF Financial Aid scholarships by submitting a single application available in late January at the Financial Aid Office. Scholarship amounts depend on the funding source and vary greatly among scholarships. More information can be obtained from the University of Alaska Foundation, 208 Butrovich Building, Fairbanks, Alaska 99775, telephone (907) 474-7687.

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

Work

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

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

Loans

A loan for college costs is money that must be repaid. Loans represent a major source of assistance you should consider as you try to meet the full costs of your education. Educational loans generally have long-term repayment schedules, offer 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. Undergraduate and vocational students may borrow up to \$5,500 each school year. Graduate students may borrow up to \$6,500 each school year. The Alaska Student Loan, combined with estimated income for the school year, cannot exceed estimated cost of education as determined by the Alaska Student Loan Office. Repayment begins no later than one year after the borrower's studies are terminated. The finance charge is eight percent interest a year on the outstanding balance. The state of Alaska will pay the interest for students during qualifying 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 FP, Juneau, Alaska 99811, telephone (907) 465-2962 or (907) 465-2990. The Alaska Commission on Postsecondary Education provides access to information about your Alaska Student Loan after you have submitted the application. Access is by way of a computer terminal located in the UAF Rasmuson Library. It is available to the public during normal library hours; you may get answers to questions about the processing of your loan application.

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

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

The Stafford Student Loan Program provides federally subsidized student loans from a participating lender, such as a bank, credit union or savings and loan association. First- and second-year students may borrow up to \$2,625 each year. Upper level undergraduates may borrow up to \$4,000 each year with a total cumulative maximum of \$17,250. Graduate students may borrow up to \$7,500 each year up to a total, including all prior Stafford Loans, of \$54,750. Since this loan is based on financial need, a FAF must be filed before the application can be certified by the Financial Aid Office.

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

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

Parent Loan for Undergraduate Students (PLUS) is a program for the parents of dependent students. Parents can borrow up to \$40,000 each school year on behalf of an eligible student.

A variable interest rate or finance charge, not to exceed 12 percent, is determined each year for SLS and PLUS programs.

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

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

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

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

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

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

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

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

What are the Application Deadlines?

| Applications | Priority deadlines |
|---------------------|--------------------------------------|
| Alaska Student Loan | May 15 |
| Financial Aid Form | May 1 |
| Pell Grant | Apply anytime during the school year |
| UAF scholarships | February 15 |

What Does it Take to Remain Eligible?

To continue to receive financial aid, you must be "in good standing" which means undergraduates must earn a cumulative 2.0 or higher grade point average for all course work for which financial aid was paid; graduate students must maintain at least a 3.0 GPA to be eligible. The semester GPA must be 1.5 for undergraduates or 2.5 or higher for graduate students. The Financial Aid Office monitors the academic progress of aid recipients. Both semester and cumulative GPA must be maintained for continued eligibility. You can receive aid for a maximum of 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 amount due UAF at the time of disbursement should be paid before the proceeds of your financial aid is released. Disbursement is usually in equal amounts, one-half of total award, at the beginning of each semester. All financial aid checks are released to students at the Business Office in Signers' Hall. Proper identification with photograph must be presented before checks will be released.

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

According to the Tax Reform Act of 1986, all scholarships, fellowships and federal financial aid grants are counted as

taxable income to the extent these awards, either individually or together, exceed the cost of tuition and related expenses. It is your responsibility to report all such aid on your tax return.

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

What are the Rights and Responsibilities of Accepting Financial Aid?

Your rights

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

Your responsibilities

To receive financial aid at UAF, you must:

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

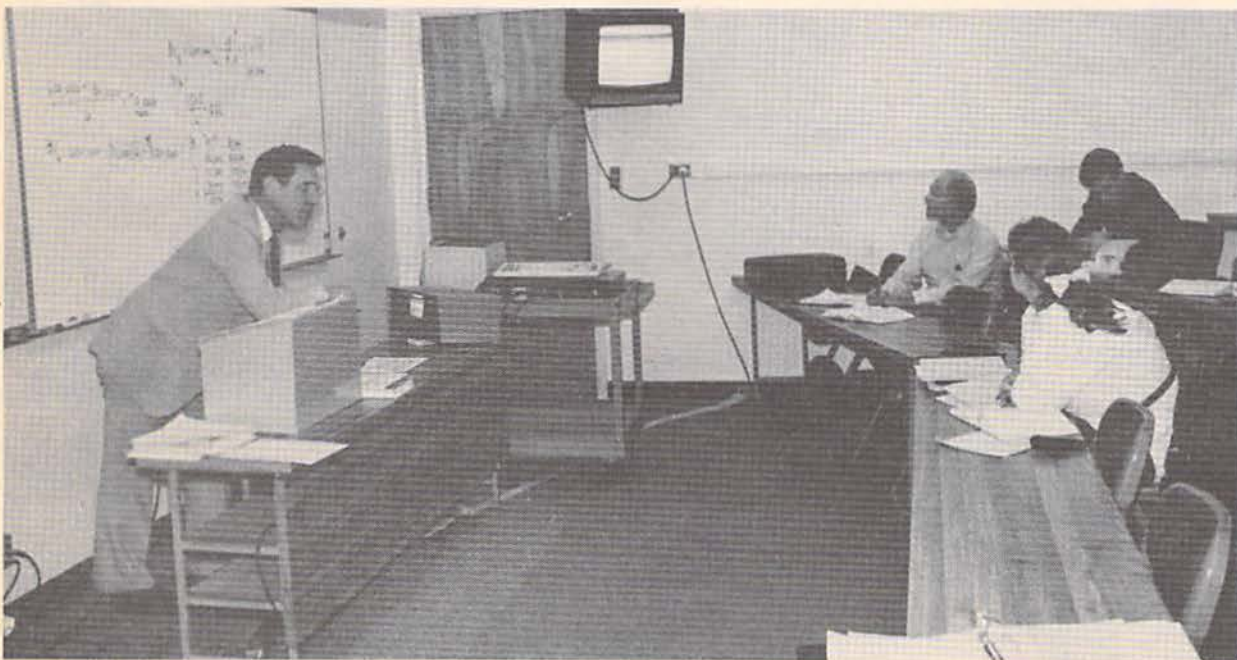
For more information on financial aid at UAF, contact: Financial Aid Office, University of Alaska Fairbanks, Fifth Floor, Gruening Building, Fairbanks, Alaska 99775, telephone (907) 474-7256.

Financial Aid in Brief

| Eligibility Requirements | Pell Grants | BIA Grants | Supple- mental Ed- ucational Opportuni- ty Grants (SEOG) | College Work Study (CWS) | UAF Schol- arships | Guaranteed Student Loans (Renamed Stafford Loans) | Alaska Stu- dent 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 satisfacto- ry 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



Professor Lawrence Bennett, head of the engineering and science management department, puts his ideas to work as he instructs a night class via a closed circuit television system.



The leaves are turning, and so are the hamburgers, as the residents of the co-ed Skarland Residence Hall enjoy a warm fall day.



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

Housing

Residence Halls

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

Who is Eligible?

In general, you must maintain full-time status (12 credits for undergraduate and nine credits for graduate students) to qualify for student housing. Graduate student extended registration is considered full time for purposes of housing allocation. Students already living on campus renew their contracts each semester in order to maintain eligibility for the following semester. You should consult the housing staff about regulations concerning maximum terms of occupancy. Since housing applications are mailed to students with acceptance letters from the Office of Admissions and Records, you should plan to complete your enrollment application well in advance.

How do Students Apply?

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

What Does it Cost?

Room Rent — Along with all other fees, room rent is due in full at registration. Current semester room charges are \$570 per person in double rooms; \$690 for single rooms; \$760 per person in apartments; and \$800 for double/single rooms (when available). These rates are subject to change prior to July 1. Room fees permit the use of hall services such as lounge and recreation rooms, non-pay laundry areas and local telephone service.

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

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

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

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

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

What about Meals?

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

There are 19 scheduled meals per week (breakfast, lunch and dinner are served Monday through Friday and brunch and dinner are served Saturday and Sunday). Three different board plan options are available to students. Full service at **19 meals per week costs \$775**. You may purchase the **14 meals per week program at \$750**. The third option costs **\$725 and includes seven meals per week plus a \$200 credit at campus outlets** operated by the contractor.

If you don't live on campus, you may be authorized by the Director of Residence Life to purchase a board program. The cost includes the price of the board program selected plus a board net charge of \$110. This additional charge is used to maintain the dining facilities and equipment. Board net costs are paid by residential students as part of their rent.

What Facilities are Available?

Bartlett Hall houses 322 male and female students in double and single rooms on eight floors.

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

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

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

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

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

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

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

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

What are the Rooms Like?

Student rooms are equipped with a bed, desk, chair, mirror and closet space for each resident. You'll need to provide your own bedding (sheets, pillows, blankets), towels and face 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.

What about Room Assignments?

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

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

Student Family Housing

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

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

Who is Eligible?

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

How do Students Apply?

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

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

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

What Facilities are Available?

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

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

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

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

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

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



Academic adviser Sophie Shields helps Simeon Lincoln sort through his spring semester opportunities.

Student Services: Helping You Stay on Track

Academic Advising and Career Development

Academic Advising and the Advising Center

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

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

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

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

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

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

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

Alaska Teacher Placement

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

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

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

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

Career Development Center

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

A specialized library of occupational and educational information, a computerized career guidance system, software and individual consultations at various stages of the career development process are available. The center assists students in gaining the information and experience needed for effective

career planning, as well as the continuing process of career changes. The goal of the center is to assist students in identifying satisfying career choices based on a realistic assessment of themselves, accurate knowledge of the world of work and experience with ways to activate career plans.

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

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

Career Planning and Placement

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

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

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

Developmental Studies

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

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

International Student Advising

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

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

Rural Student Services

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

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

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

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 satellite centers at Hutchison Career Center and Moose Creek Center. LRC staff help students improve and expand skills needed to be successful in university classes. The center provides individualized instruction and tutoring in mathematics, writing, reading, grammar, spelling and study skills.

LRC staff help students identify problem areas in courses and assist in developing personal study plans/skills. Students may work with course materials or LRC resources.

A variety of learning options are available, including tutoring, lab courses, workshops, independent and small group study and computer assisted learning programs. Students may use the audiovisual aids, typewriters, computers, quiet study carrels and other resource materials. For more information, call the Learning Resource Center at (907) 451-7223.

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

The **Writing Center** is staffed by English graduate students and upper class English majors. It is open Monday through Friday and is available to all enrolled students. The staff can help you improve your general grammar usage and writing techniques. They also review student writing projects during the successive draft process. For more information, contact the English department, (907) 474-7193.

Veterans' Training

The university is approved for veterans' training in degree and certificate programs. Although UAF does not have a veterans' office on campus, the Office of Admissions and Records

can provide general information about educational benefits for veterans. Counseling is available through the Veterans' Administration. At UAF, veterans class attendance and academic progress are monitored to ensure compliance with VA policies.

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

Bookstore

The UAF Bookstore provides books and supplies required for course work, but it also maintains wide selections of general reading books, college supplies, soft goods, calculators, personal care items, greeting cards and other merchandise which contribute to the overall educational experience offered by the university.

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

Disabled Student Services

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

The University of Alaska Fairbanks is committed to equal opportunity for the disabled. Students with disabilities are encouraged to contact the Disabled Student Services Adviser at the Center for Health and Counseling (907) 474-7043, or the Section 504 coordinator at Employee Relations, 101 Eielson Building (907) 474-7919, as early as possible to get assistance. If students are not satisfied with actions taken by the University of Alaska Fairbanks in response to requests for assistance or accommodation, they may obtain a copy of the university's grievance procedures from either the Disabled Student Services Adviser or the Section 504 coordinator.

Health Center

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

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

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

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

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

Military Education Programs

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

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

Orientation Programs

Adult Re-Entry Services

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

For information on Adult Re-Entry Services, contact the Career Planning and Placement Office, (907) 474-7596.

Early Orientation for New Students (EONS)

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

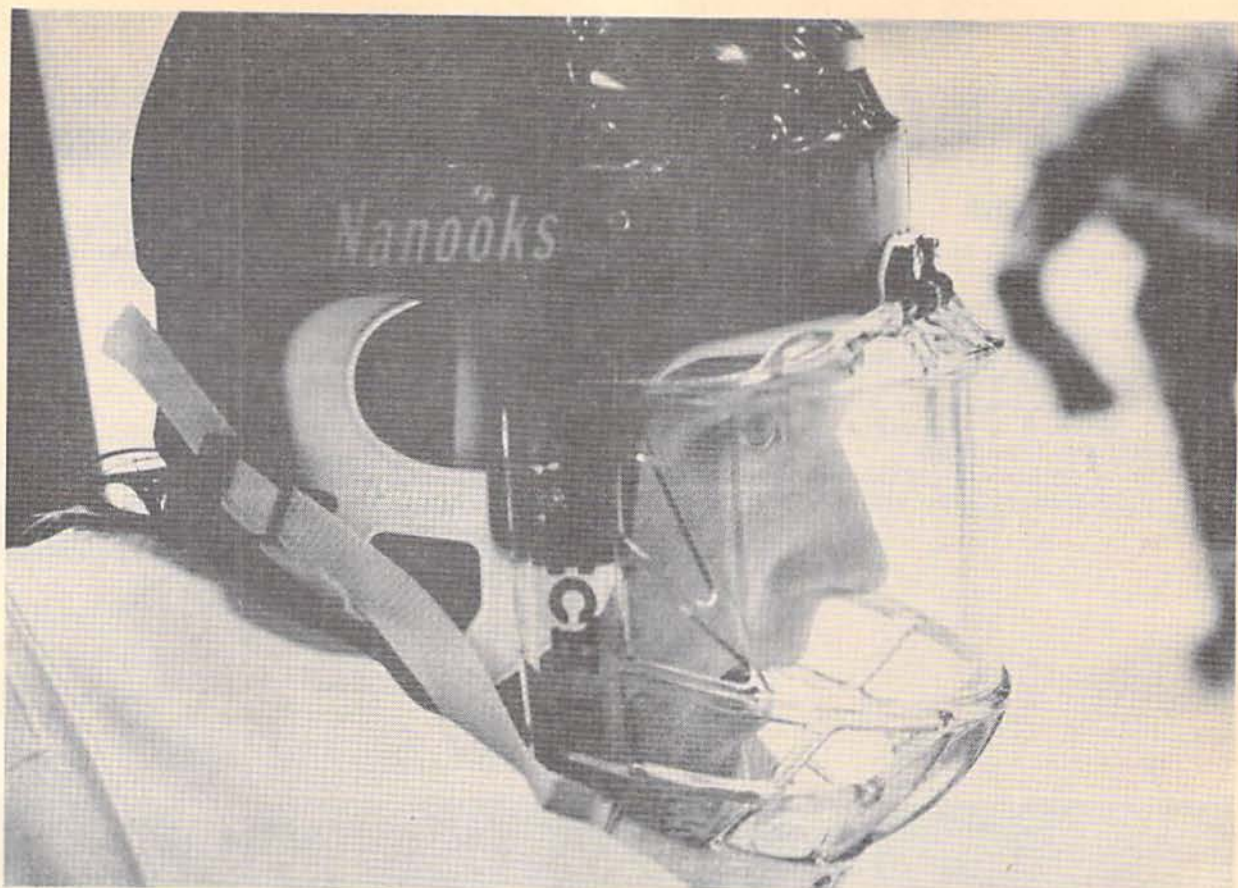
For information, contact the Wood Center Student Activities Office, (907) 474-6025.

Wood Center

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



The architecturally-striking Wood Center is the home of the student activities office, the *Sun Star* student newspaper, and the student government--as well as a cafeteria, pizza restaurant, game rooms and a bowling alley.



Hockey captain Matt Koleski keeps a close eye on the action from the penalty box during a game in the UAF Ice Arena.



Lady Nanooks basketball coach Todd Mezzulo gives his players a halftime chaltalk during a game against Eastern Montana.

Campus Resources: What's Available

ASUAF

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

Academic Computing

Academic Computing is UAF's student resource for computing facilities. The staff provide consulting services, access to documentation, seminars and classes, and acts as a "one stop" source for all academic user help. Academic Computing supports over 500 terminals and microcomputers installed on the UAF campus. Dial-up ports are used by many students to access the systems from their homes and each residence hall is equipped with at least one terminal for student use.

Primary academic computing support for UAF is provided through a Digital Equipment Corporation VAX 8800. This system is currently configured with 32 megabytes of main memory, 3.2 gigabytes of disc storage, 128 user-accessible ports, and the VMS operating system. Similar VAX systems are located at the university's Juneau and Anchorage locations, and are accessible through the UACN multiplexing and DECNET data communication facilities. The VAX 8800 is also connected to both BITNET and NorthWestNet, facilitating data transfer with several thousand other academic and research computers worldwide.

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

Academic Computing is located in the Rasmuson Library, (907) 474-7191.

Alumni Relations

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

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

Athletics and Recreation

Facilities

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

Intercollegiate Athletics

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

For information on athletics and recreation, call (907) 474-7205.

Intramural Sports

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

Continuing Education

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

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

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

Exchange Programs in the U.S. and Abroad

Study Abroad Programs

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

the language is often required. UAF offers study abroad opportunities in the Pacific Rim nations as well as Europe and Canada.

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

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

Gifu University, Gifu, Japan — Gifu is an excellent national university. Students with a year of Japanese language preparation may continue language study at Gifu through a program that requires students to take responsibility for the pace of study. Students with advanced Japanese language ability may enroll in regular courses; science and engineering are especially strong at Gifu and internships can be arranged in appropriate laboratories. Mombusho Fellowships are available for graduate study in a variety of fields. The international student housing on Gifu campus is outstanding.

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

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

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

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

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

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

Study in the People's Republic of China — UAF is currently negotiating with institutions in China to provide opportunities

for foreign language study. Some language preparation will be required of students.

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

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

Western Undergraduate Exchange

UAF participates in the Western Undergraduate Exchange (WUE) administered by the Western Interstate Commission for Higher Education (WICHE). Residents of Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah and Wyoming may enroll in designated degree programs at a reduced tuition rate (the in-state tuition plus 50 percent of that amount). For a complete list of 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.

Westfield State College, Massachusetts

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

Honor Societies

The following honor societies are active at UAF.
Alpha Phi Sigma (for criminal justice students)
Psi Chi (for psychology students)
Phi Kappa Phi (national honor society for students in all fields of study)
Sigma Xi (for science students)
Tau Beta Pi (for engineering students)

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 two sciences, a calculus course, English composition, two or more courses from the social sciences and humanities plus one or more courses from business, engineering science, education, etc.

A summer honors reading course is offered each year.

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

Library

The Rasmuson Library is the largest in the state, with more than a million volumes. The library's collection of Alaska and Polar Regions materials is one of the largest of its kind, and attracts scholars from all over the world.

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

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

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

The Western Library Network database, called LaserCat, provides access to more than 2.6 million titles held by nearly 400 libraries located from Alaska to Arizona. Interlibrary loan services enable students to borrow, at no charge, materials held by other libraries. GNOSIS, the library's on-line computer system, provides access to the holdings of Rasmuson and other

libraries in the UA system. Public GNOSIS terminals are available in the library and on a dial-up basis to those with personal computers and modems.

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

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

A variety of computers and software is available in the library. The Fairbanks Node of the University of Alaska Computer Network (UACN) is also located here. Typewriters and calculators are provided, and a study area is open 23 hours a day during semesters.

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

For information, contact the Rasmuson Library, (907) 474-7224.

Museum

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

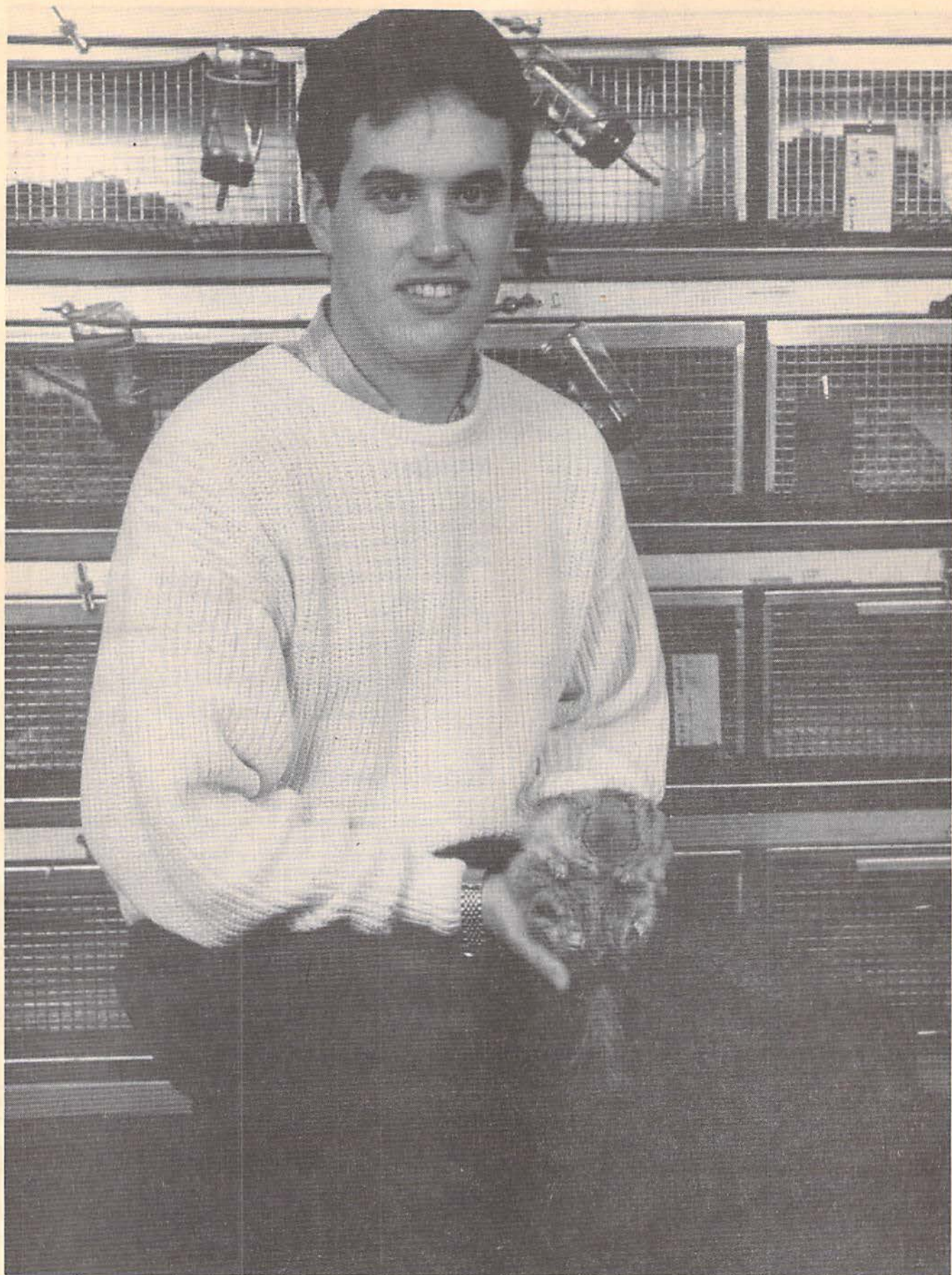
Resources at the museum include the aquatic collection, the archaeological collection, the ethnographic collection, the art collection, the herbarium, the geology collection, the Tephrochronology Center, the terrestrial vertebrate collection, the Alaska Native Heritage Film Project and the Alaska Quaternary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

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

Summer Sessions

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

Summer Sessions faculty include members of the regular teaching staff, supplemented by outstanding visiting instructors. For more information contact Summer Sessions, 2nd floor Signers' Hall, (907) 474-7021.



UAF scientists discovered the first mammals able to hibernate with below freezing core body temperatures. Graduate student Mark Reed holds one of the "supercooling" arctic ground squirrels.

Graduate School

Programs of Study

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

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

Financial Aid

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

Cost of Living

Campus housing available to graduate students includes residence hall accommodations (\$520 to \$720 per semester) and family housing apartments (\$280 to \$490 per month); housing scholarships may be available. The cost of living in the Fairbanks area is generally higher than the national average.

Student Group

There are about 600 graduate students at UAF. About 40 percent of the graduate students at UAF are women, and about 55 percent attend part time. Graduate students are enrolled from 30 states and more than 20 foreign countries.

Admission to Graduate Study

Admission to graduate degree programs is open to persons holding bachelor's degrees from accredited institutions who have at least 3.0 (B) averages in their majors and the majors are deemed suitable for continuation of studies in the fields of choice. Equivalent accomplishments at a foreign university may be substituted. For the purposes of admission to graduate study, all grades, including those generated from retaking a course, are included in calculating the grade point average.

Many degree programs require GRE or GMAT tests. All applicants must submit (or arrange to have sent) to the Office of

Admissions and Records: graduate application for admission, cover letter indicating area of interest, nonrefundable \$20 application fee, three letters of reference, and official transcripts from each college or university attended. Interdisciplinary applicants should contact the Graduate School office for information on application requirements.

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

Qualified applicants can be accepted for admission while enrolled in their last semester of college. However, the acceptance may be conditional upon receipt of official transcripts indicating satisfactory completion of the work in progress at the time of acceptance and completion of graduation requirements. Final acceptance to the university for the 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, arctic engineering, atmospheric sciences, biology, botany, fisheries, geology, geophysics, marine biology, mining engineering, natural resources management, oceanography, space physics, wildlife management and zoology.

Correspondence and Information

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

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

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

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

Graduate Degree Programs

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

Anthropology

M.A. Anthropology*
 Ph.D. Anthropology

Behavioral Sciences/Human Services

M.A. Community Psychology
 M.Ed. Guidance/Counseling (elementary or secondary)

Biology and Wildlife

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

Business Administration

M.B.A.

Chemistry

M.A. Chemistry*
 M.S. Chemistry*
 M.A.T. Chemistry

Civil Engineering

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

Economics

M.S. Resource Economics*

Education

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

Electrical Engineering

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

Engineering and Science Management

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

English

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

Geology and Geophysics

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

History

M.A.T. History

Marine Science and Limnology

M.S. Marine Biology*
 M.S. Fisheries*
 M.S. Oceanography*
 Ph.D. Oceanography

Interdisciplinary Studies

M.A.*
 M.S.*
 Ph.D.*

Mathematical Sciences

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

Mechanical Engineering

M.S. Mechanical Engineering

Mining and Geological Engineering

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

Music

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

Natural Resources Management

M.S. Natural Resource Management*

Petroleum Engineering

M.S. Petroleum Engineering

Physics

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

* GRE required for admission

** GMAT required for admission

Research

The research programs at UAF take advantage of the university's unique location in the subarctic of interior Alaska, with easy access to the Pacific Ocean, the Arctic Ocean, glaciers and permafrost areas.

In addition to research carried out in its academic departments, the university has a number of research centers that focus upon problems of the Arctic. These include the environmental impact of human activities, the development of renewable and non-renewable resources, energy sources and the cultural understanding and preservation of peoples of the North.

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

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

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

Institutes, Stations and Centers

Agricultural and Forestry Experiment Station

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

Alaska Cooperative Fishery and Wildlife Research Units

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

Alaska Native Language Center

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

Center for Cross-Cultural Studies

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

Fishery Industrial Technology Center

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

Geophysical Institute

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

Institute of Arctic Biology

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

Institute of Marine Science

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

Institute of Northern Engineering

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

Juneau Center for Fisheries and Ocean Sciences

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

Mineral Industry Research Laboratory

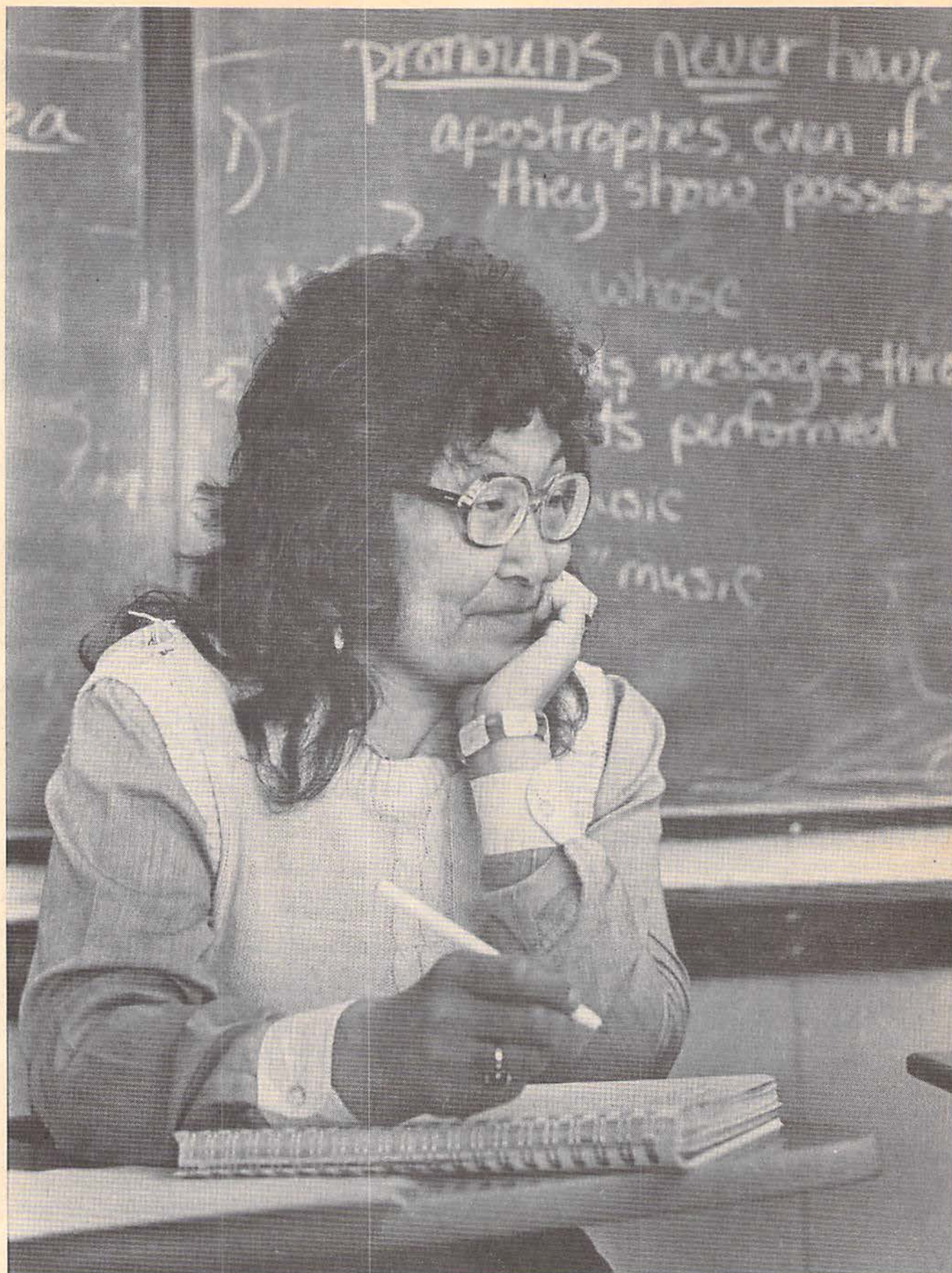
MIRL conducts basic and applied research to aid in the development of Alaska's mineral and energy resources.

Petroleum Development Laboratory

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

University of Alaska Museum

The major objective of the museum is the continuing development of systematic collections that are available for research and educational purposes.



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

Colleges and Schools

Three colleges and six schools offer degrees in more than 70 fields of study with a host of options within many of the degree programs, as well as a wide range of technical/vocational programs.

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

Colleges

Liberal Arts, College of

Anne D. Shinkwin, Dean

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

Natural Sciences, College of

Kolf Jayaweera, Dean

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

Rural College

Gerald V. Mohatt, Dean

The Rural College gives particular consideration to Alaska's rural residents and students in non-traditional settings. This college offers programs in the behavioral sciences, social work and education. Alaskan trained teachers and social workers are

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

Schools

Agriculture and Land Resources Management, School of

James V. Drew, Dean

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

Career and Continuing Education, School of

Patricia A. Book, Dean

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

Engineering, School of

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

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

Fisheries and Ocean Sciences, School of

Vera Alexander, Dean

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

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

Management, School of

Michael L. Rice, Dean

School of Management undergraduate programs in economics, accounting and business administration provide the foundation for professional careers in private and public organizations of all sizes. The school's objective is to prepare literate, articulate and broadly educated business specialists who are sensitive to interpersonal relationships and the dignity of the

individual. The Bachelor of Business Administration and the Master of Business Administration degree programs are nationally accredited and place UAF among 77 of 1,200 schools across the nation with similar accreditation. All of the degree programs emphasize problems and circumstances unique to Alaska, including entrepreneurship, venture management, international business, regional economic development, regulation, financial institutions and markets, transportation, natural resource economics, travel industry management and a comprehensive professional program in accounting.

Mineral Engineering, School of

Russell J. Ostermann, Acting Dean

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



It's time for Kayia Smith to put on her "stage face" in preparation for her performance in *Little Shop of Horrors*.

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 Business, A.A.S.
Applied General Business, A.A.S.
Applied Mining Technology, Cert.
Applied Physics, B.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.
- Biological Sciences, B.A., B.S.**
Biology, M.S., M.A.T., Ph.D.
Botany, M.S.
Business Administration, B.B.A.
 Finance
 International Business
 Management
 Marketing
 Travel Industry Management
Business Administration, M.B.A.
 (see also *Applied Business*)
- Chemistry, B.A., B.S., M.A., M.S., M.A.T.**
Citizens' Law (minor only)
Civil Engineering, B.S., M.C.E., M.S.
Community Health Aid, 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.
- 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, B.Ed.
 Elementary
 Secondary
Education, B.T.
 Secondary
Education, M.Ed.
 Cross-Cultural
 Curriculum and Instruction
 Leadership Development
 Educational Leadership (Type B Cert.)
 Language and Literacy
 Distance Education
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
- Financial Institutions Management, A.A.S.**
Fire Science, Cert., A.A.S.
Fisheries, B.S.
 Research
 Management
Fisheries Science, M.S.
Foreign Languages, B.A.
 French
 German
 Russian
 Spanish
- 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.
Geology, M.S.
 Economic Geology
 General Geology
 Petroleum Geology
Geology, Ph.D.
Geophysics, M.S.
 Snow, Ice and Permafrost
 Geophysics
 Solid Earth Geophysics
Geophysics, Ph.D.
Guidance and Counseling, M.Ed.
 Elementary
 Secondary
- History, B.A., M.A.T.**
Humanities, B.A.
Human Services, B.A.
- Interdisciplinary Studies Option, B.A., B.S., M.A., M.S., Ph.D.**
- Journalism, B.A.**
 Broadcast
 News-Editorial
Justice, B.A.
- 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.
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.
- Natural Resources Management, B.S.**
 Agriculture
 Forestry
Natural Resources Management, M.S.
Northern Studies, B.A.
- Oceanography, M.S., Ph.D.**
Office Professions, Cert., A.A.S.
- Paraprofessional Counseling, A.A.S.**
Petroleum Engineering, B.S., M.S.
Philosophy, B.A.
Physical Education, B.A., B.S.
Physics, B.A., B.S., M.S., M.A.T., Ph.D.
Political Science, B.A.
Psychology, B.A., B.S.
- Resource Economics, M.S.**
Rural Development, B.A.
 Applied Land Management
 Community Organizations and Services
 Community Research and Cultural Documentation
 Local Government Administration
 Village Corporation 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.
- Theater, B.A.**
- Wildlife Management, B.S.**
 Management Biology
 Research Biology
Wildlife Management, M.S., Ph.D.
- Zoology, M.S., Ph.D.**

Accounting

School of Management Department of Accounting

(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.

Requirements

Accounting — B.B.A. Degree

1. Complete general university requirements and B.B.A. degree requirements.
2. Complete the following statistics requirements:

| | |
|--|---|
| ECON 226 — Intro. to Statistics for Economics and Business..... | 3 |
| ECON 227 — Intermediate Statistics for Economics and Business..... | 3 |

3. Complete the following program (major) requirements:

| Common Body of Knowledge Requirements | Credits |
|--|---------|
| ACCT 101, 102 — Elementary Accounting..... | 6 |
| ACCT 316 — Acct. Information Systems..... | 3 |
| BA 101 — Intro. to Management Information Systems..... | 3 |
| BA 325 — Financial Management..... | 3 |
| BA 331 — Business and Law..... | 3 |
| BA 343 — Principles of Marketing..... | 3 |
| ECON 324 or 350 — Intermediate Macroeconomics/ Money & Banking..... | 3 |
| BA 360 — Operations Management..... | 3 |
| BA 390 — Organizational Behavior..... | 3 |
| BA 462 — Administrative Policy..... | 3 |

Accounting — General Requirements

| | |
|---|---|
| Any upper level economics course..... | 3 |
| BA 332 — Advanced Topics in Business and Law..... | 3 |

Accounting — Major 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 |

Two of the following:

| | |
|---|---|
| ACCT 403 — Advanced Taxes..... | 3 |
| ACCT 404 — Advanced Cost Accounting and Controllershship..... | 3 |
| ACCT 405 — Contemp. Issues in Accounting..... | 3 |
| ACCT 472 — Computer Control and Adv. Auditing..... | 3 |
| ACCT 473 — Applied Systems Design..... | 3 |

Free Electives.....14

(of which a maximum of 3 credits may be taken in accounting and 6 credits in business administration or economics.)

4. 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

School of Career and Continuing Education Trade and Industry Department

(907) 474-5081

Certificate in Airframe and Powerplant; Degree: A.A.S.

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

The airframe and powerplant department offers an associate of applied science degree (A.A.S.) and three certificate programs. Students may choose to earn a certificate in airframe, powerplant, or

airframe and powerplant. Admission to this program is at the discretion of the program faculty and requires an interview with the faculty adviser.

After receiving an airframe and powerplant certificate, students may elect to complete the associate of applied science degree in airframe and powerplant. In order to enhance employability, students are encouraged to complete the associate degree program.

Requirements

Airframe and Powerplant — A.A.S. Degree

1. Complete the following general degree requirements:

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

Oral Communication.....3

Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science.....6

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

Subtotal.....15

2. Complete the following major degree requirements:

| | |
|--|----|
| Same as Airframe and Powerplant Certificate Program..... | 49 |
| Degree Total | 64 |

Airframe and Powerplant — Certificate

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

While this program covers many major subject areas, special emphasis is placed on those skills most sought after in the Alaska job market. This intensive curriculum uses classroom and "hands on" laboratory instruction to prepare students for entry into the aviation field. After completing the program, students are eligible to take the Federal Aviation Administration examinations for the airframe and powerplant ratings. This qualifies program graduates for entry level positions in the maintenance, repair, overhaul and modification of aircraft. A student may request credit by examination for any AFPM course. 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 | Credits |
|---|---------|
| 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 | Credits |
|--|---------|
| 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 | 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 |
| Total | 8.5 |

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

Central Yupik Eskimo is spoken by the largest number of people, and Inupiaq by the next largest. In these two languages major and minor curricula are now offered. Courses are also regularly offered in Koyukon Athabaskan. For work in all other languages, individual or small-group instruction is offered under special topics. Thus there have 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 has been principally designed to offer a second major or a minor for many bachelor's degree candidates. It seeks students from many fields of specialization who anticipate either direct or indirect professional involvement in Alaskan Native communities specifically and in multicultural settings generally. Only under special circumstances reviewed by the head of the program will students be advised to consider Native studies as a sole major, and they will be required to have a substantial minor in a specialized discipline.

Requirements

Alaska Native Studies — B.A. Degree

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

| Prerequisites | 12 Credits |
|--|------------|
| ANS 101 — Introduction to Alaska Native Studies..... | 3 |
| (Select 3 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 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 120 — Cultural Differences in Institutional Settings..... | 3 |
| ANS 160 — Alaska Native Dance..... | 1 |
| ANS/THR 161 — Introduction to Tuma Theater..... | 3 |
| MUS 223 — Native Alaskan Music..... | 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 Tuma Theater..... | 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 101, ANS 401 and at least 3 credits at the 300-400 level. All minor programs must be approved by the Head, Alaska Native studies.

Anthropology

College of Liberal Arts
Department of Anthropology

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

Cross-Cultural Communications Program — Cross-cultural communications is an innovative program designed to serve the needs of Alaska Native and rural students at UAF. Recognizing that the transition to university communication patterns presents challenges which vary in type as well as degree, depending on a student's cultural background, CCC offers several courses designed to capitalize on the similarities of experience brought to the University of Alaska Native and rural students. It aims to enable such students to make the transition more quickly than might otherwise be the case.

CCC courses which are not listed under Cross-Cultural Communications designators may be found under Developmental Studies, English and Mathematics, where they can be recognized by -CC# and -CCC section "numbers."

Requirements

Anthropology — B.S. or B.A. Degree

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

| Required Anthropology Courses: | Credits |
|--|---------|
| ANTH 103 — Human Evolution and World Prehistory..... | 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 — History of Social/Cultural Anthropology..... | 3 |

| Social Science: | |
|---|---|
| (Select 6 credits from the following group) | |
| ANTH 300 — Religion..... | 3 |
| ANTH 306 — Economic Anthropology..... | 3 |
| ANTH 307 — Kinship and Social Organization..... | 3 |
| ANTH 320 — Language and Culture..... | 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) | |

| | |
|---|---|
| A. ANTH 301 — World Ethnography: region*..... | 3 |
| B. 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

School of Career and Continuing Education Business Systems and Technology Department

(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 degree requirements:

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

2. Complete the following major degree requirements:

| | |
|--|----|
| ACCT 101 — Elementary Accounting 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 |
| OP 203 — Calculating Machines | 2 |
| Subtotal | 41 |

3. Complete a total of 4 general electives credits

Degree Total

Applied Business

School of Career and Continuing Education Business Systems and Technology Department

(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 Business — A.A.S. Degree

1. Complete the following general degree requirements:

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

2. Complete the following major degree requirements:

| | |
|---|----|
| ACCT 101 — Elementary Accounting | 3 |
| ACCT 102 — Elementary Accounting | 3 |
| BA 151 — Introduction to Business | 3 |
| ABUS 154 — Human Relations | 3 |
| ABUS 241 — Business Law | 3 |
| CAPS 150 — Computer Business Applications | 3 |
| Economics Elective | 3 |
| ABUS 155 — Business Math | 2 |
| OP 231 — Business Communications | 3 |
| Subtotal | 26 |

3. Complete the following major specialty electives:

Select 15 credits from the following:

| | |
|---|----|
| ABUS 221 — Microcomputer Accounting | 3 |
| ABUS 179 — Fundamentals of Supervision | 3 |
| ABUS 231 — Introduction to Personnel | 3 |
| ABUS 253 — Principles of Retailing | 3 |
| ABUS 254 — Salesmanship | 3 |
| ABUS 273 — Managing a Small Business | 3 |
| ABUS 130 — Real Estate | 3 |
| ABUS 160 — Principles of Banking | 3 |
| ABUS 261 — Analyzing Financial Statements | 3 |
| ABUS 224 — Money and Banking | 3 |
| or any other ABUS, BA or ACCT courses | 3 |
| Subtotal | 15 |

4. Complete a total of 4 general electives credits

Degree Total

Applied General Business

Rural College Northwest Campus

(907) 443-2201

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

Requirements

Applied General Business — A.A.S. Degree

1. Complete the following general degree requirements:

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

2. Complete the following Applied Studies courses:

| | |
|--|----|
| ACCT 101 and 102 — Elementary Accounting | 6 |
| BA 151 — Introduction to Business | 3 |
| BA 100 — Introduction to Data Processing and BASIC | 3 |
| ABUS 250 — Introduction to Managerial Accounting | 3 |
| ECON 201 — Principles of Economics-Micro | 3 |
| ABUS 241 — Business Law I | 3 |
| ABUS 179 — Fundamentals of Supervision | 3 |
| ABUS 232 — Fundamentals of Management | 3 |
| ABUS 233 — Financial Management | 3 |
| 3. Electives | 15 |
| Degree Total | 60 |

Applied Mining Technology

School of Mineral Engineering Department of Mineral Exploration and Mining Technology

(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.

Arctic Engineering

School of Engineering Department of Civil Engineering

(907) 474-7241

Degree: M.S.

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

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

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

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

Art

College of Liberal Arts Department of Art

(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.

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 161, 162 or 163 — Design and Color Theory | 6 |
| (2 out of 3 courses) | |
| ART 261-262 — History of World Art | 6 |
| ART 211 — Beginning Sculpture | 3 |
| ART 213 — Beginning Oil Painting | 3 |
| One elective chosen from: | 3 |
| ART 201 — Beginning Ceramics | |
| ART 207 — Beginning Printmaking | |

ART 209 — Beginning Metalsmithing**B. Upper Division (12 credits)**

Nine (9) credits in upper-division courses in one subject area, selected from one of these major concentrations:.....9

Drawing Sculpture
Painting Ceramics
Printmaking Metalsmithing

Upper-division Art History

or Humanities 332 or Art 365.....3

Minimum Required Credits for major.....39

3. Minimum Credits Required.....130

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

Art — B.F.A. Degree

1. Complete general university requirements and B.A. degree requirements; a non-art minor is not required for this degree.

2. Complete the following program (major) requirements:

A. Lower Division (27 Credits)**Credits**

ART 105 — Beginning Drawing.....3

ART 205 — Intermediate Drawing.....3

ART 161, 162 — 2-D Design, Color and Design
or ART 163 — 3-D Design (two of the three).....6

ART 261, 262 — History of World Art.....6

ART 211 — Beginning Sculpture.....3

ART 213 — Beginning Painting.....3

One of the following.....3

ART 201 — Beginning Ceramics

or ART 207 — Beginning Printmaking

or ART 209 — Beginning Metalsmithing

or ART 268 — Beginning Native Art Studio

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

3. Minimum Credits Required.....130

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

Minors available for the BFA are painting, drawing, printmaking, sculpture, ceramics, metalsmithing and Native Art.

*HUM 332 or ART 365 may apply toward this requirement.

MINOR in Art:

A minor in Art for the B.A. or B.S. degree is available only to non-art majors and requires 12 credits from at least 3 subject areas in Art.

Art Program for Teachers

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

Asian Studies**Interdisciplinary**

(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**Rural College****Chukchi Campus****Kuskokwim Campus****Northwest Campus****School of Career and Continuing Education****Degree: A.A.****Minimum Requirements for Degree: 60 credits**

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

Requirements**Associate of Arts Degree**

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

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

Written Communication.....6

Oral Communication.....3

Math/Natural Science.....9

Humanities.....9

Social Science.....9

Subtotal.....24

3. Electives.....24

Total.....60

Course Classifications

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

Humanities:

Alaska Native Language, American Sign Language, Art, Foreign Language, History*, Humanities, Journalism, Languages, Linguistics, Literature, Philosophy, Music, Religion (selected courses), Speech and Public Communications and Theater.

Mathematics and Logic:

Logic, Mathematics and Statistics, Natural Sciences:

Biological Sciences, Biology, Chemistry, Geology, Physical Anthropology, Physical Geology, Physical Sciences and Physics.

Applied Studies:

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

Social Sciences:

Anthropology, Behavioral Science, Business Law, Counseling, Economics, Geography, History*, Political Science, Psychology and Sociology.

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

Athletic Coaching**College of Liberal Arts****Department of Physical Education**

(907) 474-7382

Minor only

A minor in athletic coaching (18 credits) is available for those students more interested in the coaching of athletic teams, in schools or

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

Degrees: M.S., Ph.D.

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

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

(See also "Space Physics".)

Aviation Technology

School of Career and Continuing Education Trade and Industry Department

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

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

- Complete the following general degree requirements:

| | |
|--|----|
| Written Communication | 6 |
| (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.) | |
| Oral Communication | 3 |
| Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science | 6 |
| (At least 3 credits shall be math or natural science at the 100 level or above.) | |
| Subtotal | 15 |
- 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 |
- 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 Flight Instructor | 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 Navigation | 1 |
| AVTY 239 — Aircraft Dispatcher..... | 4 |
| FSCI 117 — Rescue Practices | 3 |
| Subtotal | 15 |
| 4. General Electives | 4 |
| Degree Total | 60 |

Biological Sciences

College of Natural Sciences Department of Biology and Wildlife

Degrees: B.A., B.S.

Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 130 credits

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:

Core Requirements: BIOL 105-106, 239, 271, 342, 362, MATH 200 or 272, STAT 301, CHEM 105-106, 321-322, and at least two courses in addition to those listed above, chosen from Statistics, Chemistry (200 level or above), Geosciences, Mathematics (200 level or above), Physics, Marine Science, and/or Space Physics and Atmospheric Sciences. At least 21 credits in Biology must be upper division (300-400) level courses. A maximum of 6 credits of independent study (-97) may be applied to this requirement.

Foreign Language is encouraged.

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

b. For Botany Option complete the following requirements in addition to the 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, 333 or 476), and plant ecology (BIOL 474). Two additional upper division (300-400) level courses in biology (including but not restricted to BIOL 308, BIOL 331, 333, 475, 476, ALR 313, 380, 411, or 451).*

3. Minimum credits required..... 130

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

Biology

College of Natural Sciences

Department of Biology and Wildlife

(907) 474-7542

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

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

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

Botany

College of Natural Sciences

Department of Biology and Wildlife

(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 training in the field of management, finance, marketing and travel industry management to those individuals interested in entering industry or government upon graduation. The objective of the program is to prepare men and women to meet the complex problems of the political, economic, and social environment and to enable them to give efficient service to industry and government on the basis of their academic training. BA 151 is an overview and is recommended as an introductory course for persons with a potential interest in a business major or minor who are either undecided or perhaps unclear about the nature of the various functions performed in the administration of organizations.

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

Requirements

Business Administration — B.B.A. Degree

1. Complete general university requirements and B.B.A. degree requirements including 6 credits humanities electives (in addition to 9 credit written and oral communication requirement).

2. Complete the following statistics requirements:

ECON 226 — Intro. to Statistics for Economics and Business..... 3
ECON 227 — Intermediate Statistics for Economics and Business..... 3

3. Complete the following Common Body of Knowledge requirements:

ACCT 101 and 102 — Elementary Accounting 6
BA 101 — Intro. to Management Information Systems 3
BA 310 — Management Information Systems 3

BA 325 — Financial Management 3
BA 331 — The Legal Environment of Business 3
BA 343 — Principles of Marketing 3
ECON 324 or 350 — Inter. Macroeconomics/Money & Banking 3
BA 360 — Operations Management 3
BA 390 — Organizational Theory and Behavior 3
BA 462 — Administrative Policy 3

4. Complete the following Business Administration general requirements:

Credits
BA 301 — Processes of Management 3
BA 332 — Business Law 3
ACCT 352 — Management Accounting 3
ECON 321 or 322 — Intermediate Microeconomics/Managerial Economics 3
BA 460 — International Business 3

5. Free Electives (Upper Division) 11
(Maximum of 5 credits may be taken in School of Management, or transferred courses in Accounting, Business Administration, or Economics.)

6. Complete one of the following areas:

Finance

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

Finance Requirements: Credits
BA 423 — Investment Management 3
BA 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 major advisor 9

Human Resource Management

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

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

International Business

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

International Business Requirements: Credits
BA 443 — International Marketing 3
BA 461 — International Finance 3
ECON 463 — International Economics 3
Two academic years of one foreign language 12-18
(German, Japanese, Russian, Spanish, French)
PS 321 or 322 — International Politics 3
PS 437 — U.S. Foreign Policy 3
PS 481 — The UN, Model UN, and Intern'l Admin. (optional) 0-1

Complete one of the following courses (appropriate to language concentration):

GEOG 305 — Geography of Europe (Except USSR) or
GEOG 306 — Geography of the Soviet Union or
GEOG 311 — Geography of Asia or
GEOG 405 — Political Geography 3
Complete one additional history course appropriate to language concentration 3

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

Management

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

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

Marketing

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

| Marketing Requirements: | Credits |
|---|---------|
| BA 326 — Principles of Advertising | 3 |
| 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 |
| Upper-division electives approved in writing by major advisor | 3 |

Management Information Systems (MIS):

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

| Management Information Systems Requirements: | Credits |
|---|---------|
| BA 201 — COBOL (optional but recommended) | 3 |
| BA 220 — Basic Programming Languages (optional) | 3 |
| ACCT 316 — Accounting Information Systems | 3 |
| BA 410 — Systems Analysis and Program Design | 3 |
| BA 412 — MIS Project | 3 |
| BA 414 — Database Design for Management Information | 3 |
| Upper Division electives approved in writing | 9 |

Travel Industry Management:

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

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

6. Minimum credits required.....130

MINOR in Business Administration*:

| | |
|---|---|
| ACCT 101 — Elementary Accounting | 3 |
| BA 101 — Introduction to Management Information Systems | 3 |
| BA 325 — Financial Management | 3 |
| BA 343 — Principles of Marketing | 3 |
| BA 307 — Personnel Management or | |
| BA 327 — Collective Bargaining and Labor Relations | 3 |
| BA 301 — Processes of Management | 3 |
| Prerequisites: BA 101; ACCT 101, 102; ECON 201, 202, 226, 227; MATH 161, 162. | |

Total 18

MINOR in Travel Industry Management*:

| | |
|---|---|
| BA 151 — Introduction to Business | 3 |
| BA 160 — Tourism Principles and Practices | 3 |

| | |
|---|---|
| BA 372 — Hotel Administration or BA 377 — Food and Beverage Management | 3 |
| BA 378 — Passenger Transportation Management | 3 |
| BA 465 — Tourism Destination Planning and Development | 3 |
| BA 471 — Tourism Seminar | 3 |
| Prerequisites: BA 101; ACCT 101, 102; ECON 201, 202, 226, 227; MATH 161, 162. | |

Total 18

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

Business Administration — M.B.A. Degree

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

Chemistry**College of Natural Sciences
Department of Chemistry**

(907) 474-7525

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

Minimum Requirements for Degrees: B.A., B.S. — 130 credits; M.A., M.S. — 30 additional credits; M.A.T. — 36 additional credits

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

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

Faculty from many departments and research institutes in the university participate in the department's Program in Biochemistry and Molecular Biology. This program, which emphasizes an understanding of the molecular principles involved in life processes, provides academic and research experience for both undergraduate and graduate students 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 scintillation counters are available in cooperation with other departments and institutes at UAF.

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

Requirements**Chemistry — B.A. Degree**

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

| | 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 433 — Analytical Instrumental Lab | 3 |
| CHEM 434 — Physical Instrumental Lab | 3 |
| CHEM 492 — Seminar (seniors) | 2 |
| CS 201 — 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 412 — Instrumental Analytical Methods | 3 |
| *CHEM 498 — Research | 4 |
| *One additional 400 or 600 level chemistry course | 3 |
| 3. Total Credits Required | 130 |

Suggested Curriculum for a B.S. Degree in Chemistry:**First Year**

| | |
|---|------------|
| <i>Fall Semester</i> | 15 credits |
| CHEM 105 — General Chemistry I | 4 |
| MATH 200 — Calculus | 4 |
| ENGL 111 — Methods of Written Communication | 3 |
| Elective | 4 |

Spring Semester

| | |
|--|---|
| CHEM 106 — General Chemistry II | 4 |
| ES or CS 201 — Comp. Tech./Comp. Programming | 3 |
| MATH 201 — Calculus II | 4 |
| Speech Communications Elective | 3 |
| Social Science/Humanities Elective | 3 |

Second Year

| | |
|--|------------|
| <i>Fall Semester</i> | 15 credits |
| CHEM 212 — Chemical Equilibrium and Analysis | 3 |
| CHEM 213 — Quantitative Analysis Laboratory | 1 |
| MATH 202 — Calculus III | 4 |
| PHYS 103 or 211 — General Physics | 4 |
| ENGL 213 — Intermediate Exposition | 3 |

Spring Semester

| | |
|--|---|
| CHEM 202 — Basic Inorganic Chemistry | 3 |
| CHEM 321 — Organic Chemistry | 3 |
| PHYS 104 or 212 — General Physics | 4 |
| Social Science/Humanities Elective | 3 |
| Elective | 4 |

Third Year

| | |
|--|------------|
| <i>Fall Semester</i> | 16 credits |
| CHEM 322 — Organic Chemistry | 3 |
| CHEM 324 — Organic Laboratory | 3 |
| CHEM 331 — Physical Chemistry | 3 |
| Humanities/Social Science Elective | 3 |
| Electives | 4 |

Spring Semester

| | |
|---|---|
| CHEM 332 — Physical Chemistry | 3 |
| *CHEM 412 — Instrument Analysis Methods | 3 |
| CHEM 433 — Analytical Instrumental Lab. | 3 |
| Humanities/Social Science Elective | 3 |
| Electives | 5 |

Fourth Year

| | |
|---|------------|
| <i>Fall Semester</i> | 17 credits |
| *CHEM 402 — Inorganic Chemistry | 3 |
| CHEM 434 — Physical Instrumental Laboratory | 3 |
| CHEM 492 — Seminar | 1 |
| *CHEM 498 — Research | 2 |
| Social Science/Humanities Elective | 3 |
| Electives | 5 |

Spring Semester

| | |
|---------------------------------|----|
| *Other Advanced Chemistry | 3 |
| CHEM 492 — Seminar | 1 |
| *CHEM 498 — Research | 2 |
| Electives | 10 |

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

The electives must include at least 6 credits at the upper division level (to satisfy the UAF general degree requirements for 42 upper division credits).

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

*Advanced courses in the physical or biological sciences or mathematics may be substituted with 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 | 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 433 — Analytical Instrumental Laboratory* | 3 |
| 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 |

Suggested Curriculum for a B.S. Degree in Chemistry: with Biochemistry/Molecular Biology Option**First Year**

| | |
|--|------------|
| <i>Fall Semester</i> | 15 credits |
| CHEM 105 — General Chemistry I | 4 |
| BIOL 105 — Fundamentals of Biology I | 4 |
| MATH 200 — Calculus I | 4 |
| ENGL 111 — Methods of Written Comm. | 3 |

Spring Semester

| | |
|---|---|
| CHEM 106 — General Chemistry II | 4 |
| BIOL 106 — Fundamentals of Biology II | 4 |
| MATH 201 — Calculus II | 4 |
| Speech Communications Elective | 3 |
| Elective | 3 |

Second Year

| | |
|--|------------|
| <i>Fall Semester</i> | 15 credits |
| CHEM 212 — Chemical Equilibrium and Analysis | 3 |
| CHEM 213 — Quantitative Analysis Laboratory | 1 |
| CHEM 321 — Organic Chemistry | 3 |
| MATH 202 — Calculus III | 4 |
| PHYS 103 or 211 — General Physics | 4 |

Spring Semester

| | |
|---|---|
| CHEM 322 — Organic Chemistry | 3 |
| BIOL 342 — Microbiology | 4 |
| PHYS 104 or 212 — General Physics | 4 |
| ENGL 211 or 213 — Intermediate Exposition | 3 |
| Humanities/Social Science Elective | 3 |

Third Year

| | |
|--|------------|
| <i>Fall Semester</i> | 17 credits |
| CHEM 324 — Organic Laboratory | 3 |
| CHEM 331 — Physical Chemistry | 3 |
| CHEM 451 — Biochemistry | 3 |
| BIOL 362 — Principles of Genetics | 4 |
| Humanities/Social Science Elective | 4 |

Spring Semester

| | |
|--|---|
| CHEM 332 — Physical Chemistry | 3 |
| BIOL 361 — Cell Biology | 4 |
| ***Electives | 6 |
| Humanities/Social Science Elective | 3 |

Fourth Year

| | |
|--|------------|
| <i>Fall Semester</i> | 16 credits |
| CHEM 433 — Analytical Instrumental Laboratory | 3 |
| or CHEM 434 — Physical Instrumental Laboratory | 3 |
| CHEM 492 — Seminar | 1 |
| Humanities/Social Science Elective | 3 |
| ***Electives | 9 |

Spring Semester

| | |
|--|---|
| CHEM 452 — Biochemistry Laboratory | 3 |
| CHEM 492 — Seminar | 1 |
| Major Electives | 6 |
| Humanities/Social Science Elective | 3 |
| ***Elective | 3 |

*This course requires CHEM 412 as a prerequisite.

**9 of these credits must be 300 level or above.

MINOR in Chemistry

A minor in chemistry requires 12 credits above the foundation courses (CHEM 105-106) approved by the head of the Chemistry Department.

Chemistry — M.A.T. or M.S. Degree

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

Citizens' Law**College of Liberal Arts****Department of Political Science**

(907) 474-7609

Minor Only

The program in Citizens' Law will give students not planning to go to law school the opportunity to become familiar with legal ideals, legal institutions and the legal process. The student is provided with tools for reasoned appraisal of how the law works and of the policies that underlie it. The minor concentration is based firmly on the view that the study of law has a rich humanistic tradition and that its pursuit can encourage sustained reflection of fundamental values.

Requirements**MINOR in Citizens' Law**

(Not available with Justice major.)

| Foundation Courses: | Credits |
|--|---------|
| JUST 110 — Introduction to Justice | 3 |
| PS 101 — Introduction to American Government and Politics..... | 3 |

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

Elective Courses: (6 credits)

Choose 6 credits from the following courses. Must include two different programs or disciplines.

| | |
|---|---|
| ANS 425 — Federal Indian Law and Alaskan Natives..... | 3 |
| BA 331 — The Legal Environment of Business | 3 |
| BA 332 — Business Law | 3 |
| JB 413 — Mass Media Law and Regulation | 3 |
| JUST 352 — Criminal Law | 3 |
| JUST 354 — Procedural Law | 3 |
| PS 302 — Congress and Public Policy | 3 |
| PS 322 — International Law and Organization..... | 3 |
| PS 435 — Supreme Court and American Legal System..... | 3 |
| PS 436 — Courts and Civil Liberties..... | 3 |

Civil Engineering**School of Engineering****Department of Civil Engineering**

(907) 474-7241

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

Minimum Requirements for Degrees: B.S. — 133 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 | Credits |
|--|---------|
| Fall Semester | |
| ENGL 111 — Methods of Comm..... | 3 |
| MATH 200 — Calculus | 4 |
| ES 101 — Descriptive Geometry for Engineers..... | 2 |
| CHEM 105 — General Chemistry | 4 |
| Social Science/Humanities Elective | 3 |

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

| Second Year | Credits |
|--|---------|
| Fall Semester | |
| MATH 202 — Calculus | 4 |
| PHYS 211 — General Physics | 4 |
| ENGL 211, 213, 211 or 312..... | 3 |
| ES 209 — Statics | 3 |
| Social Science/Humanities Elective | 3 |

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

| Third Year | Credits |
|--|---------|
| Fall Semester | |
| 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 | Credits |
|--|---------|
| ES 346 — Basic Thermodynamics..... | 3 |
| CE 326 — Intro. to Geotech. Engineering..... | 4 |
| CE 441 — Environ. Engineering..... | 4 |
| CE 431 — Structural Engineering I..... | 3 |
| Social Sciences/Humanities Elective..... | 3 |

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

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

*The technical electives must include 12 credits of CE or EQE courses and three credits of approved technical courses. The student should consult his/her advisor. Four out of five electives must be taken from the list of approved CE electives or EQE elective graduate courses. Only one graduate level course may

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.

Of the 16 social science/humanities credits, at least 6 must be above the 100 level or advanced courses in a 100-level sequence and must be approved by the student's faculty advisor for credit toward a degree in Civil Engineering.

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, see the UAF Graduate Catalog.

Community Health Aide/Practitioner

Rural College Kuskokwim Campus

(907) 543-4500

Northwest Campus

(907) 443-2201

Certificate I: Community Health Practitioner; **Certificate II:** Community Health Practitioner Certification; **Degree:** A.A.S.
Minimum Requirements for Certificate — 29 credits; for Degree — 60 credits

The Community Health Aide/Practitioner Program is a specialized multiagency paraprofessional health career program in Alaska's 171 rural villages. The mission of this educational program is to prepare Native residents to provide primary health care in remote villages under the supervision of a referral physicians. The curriculum includes the knowledge and skills necessary to provide acute care for common medical problems, emergency care, well-child and prenatal care and follow-up for patients with chronic illnesses.

CHA Basic Training consists of three training sessions conducted at a CHAP Training Center, 600 hours of field work experience in the village clinic and a two-week preceptorship conducted by the Regional Health Corporation. Upon successful completion of CHA Basic Training, the Community Health Aide will be titled Community Health Practitioner and is eligible to receive a certificate from the CHAP Training Center and UAF.

After completing the Certificate I level, "certification" is issued by the CHAP Training Center. The "certification" process includes the CHP Statewide Written and Practical Examination and the CHP Field Evaluation by a health professional.

Admission to the Community Health Aide Certificate I Program requires that the student be employed by a Regional Health Corporation prior to entry into the program. A high school diploma and/or previous training or work experience in the health field is recommended, but not required. Community Health Aides are selected by the villages with the concurrence of the Regional Health Corporation.

The CHA curriculum is taught by three Training Centers located in Anchorage, Bethel and Nome. The Seward Training Center currently teaches Session I and Emergency Trauma Training. The formal CHA academic and clinical training is done in three sessions. CHA field experience consists of on-the-job experience during which time the CHA puts into practice the knowledge and skills learned in formal training. The Field Component of training includes a learning contract for each session and the practice and evaluation of CHA skills while working with a variety of health professionals. A two week preceptorship is provided following Session III.

The Coordinator-Instructor (C-I) or Supervisor-Instructor (S-I) from the Regional Health Corporation, who gives the on-site instruction in the village, is usually a C.H.P., an R.N., or a Midlevel Practitioner. The village physician emphasizes acute care, emergency care, and follow-up of patients with chronic illnesses. The visiting Public Health Nurse emphasizes well-child care, health education, surveillance and promotion. The Maternal Child Health Nurse emphasizes prenatal care and family planning.

The requirements for the CHP Certificate, CHP Certification, and the CHP A.A.S. Degree are kept uniform throughout the state by the UAF CHAP Academic Review Committee which is advisory to the Dean of the Rural College, the CHAP Training Centers and the Community Health Aide Program Directors in the Regional Native Health Corporations. The CHAP Directors and C-I's/S-I's in the Regional Native Health Corporations assist the CHA in meeting these requirements.

Requirements

Community Health Practitioner — Certificate I

Prior to admission to the Certificate level curriculum, Community Health Aide Pre-session I is strongly recommended if available within the first month of hire. This can be waived if Session I is available within the same time period. The CHP Certificate level or basic training courses equal 29-31 hours of UAF credit. Community Health Aide (CHA) training consists of the following courses:

| | Credits |
|--|---------|
| CHP 082 — CHA Pre-session I (optional)..... | 1-3 |
| EMTT 103 — Emergency Trauma Training First Responder | 3 |
| CHP 110 — CHA Session I | 4 |
| CHP 111 — CHA Session II | 3-4 |
| CHP 112 — CHA Session III | 3-4 |
| CHP 113 — CHA Field Work Experience..... | 14 |
| CHP 114 — CHA Preceptorship | 2 |

Total 29-31

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

CHAP Training Center

1. Sessions I, II and III.

Regional Health Corporations

1. 600 hours of field work experience.
2. CHA learning reinforcement and evaluation following each session in which the CHA Skills List and learning contracts are completed.
3. A two week preceptorship consisting of at least 30 hours of supervised clinical experience.
4. CHA Skills List.

Community Health Practitioner — Certification

Requirements for CHP "certification", meaning competency to practice, are:

1. A CHP Certificate I from an approved CHAP Training Center.
2. Statewide written and practical CHP certification examination score of 80% or higher.
3. Satisfactory field evaluation by the C-I/S-I of the CHA's job performance in the village clinic.

Completion of the academic and field components of the CHP Certificate Program currently requires 30-36 months. All of these credits may be applied to the CHP Associate of Applied Science Degree.

Currently, the Training Centers in Anchorage, Bethel and Nome provide CHP certification.

Community Health Practitioner — A.A.S. Degree

The curriculum for this program is built upon the Community Health Practitioner Certificate I Program and the Associate of Applied Science Degree requirements. Completion of the CHP Certificate I Program is an entrance requirement for the Community Health Practitioner Associate of Applied Science Degree Program.

Because Community Health Practitioners are employed in rural communities, a special office has been created within the Rural College to service their needs. UAF employs a CHAP Academic Coordinator to represent this program within the university and to relate to the many agencies involved in this training throughout the state.

The Alaska Area Native Health Service and the Regional Native Health Corporations may, with university approval, offer health related courses for credit. The Community Health Practitioners entering the degree program may take courses from any of the units within the university, including distance education.

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

| 1. Major Specialty Requirements: | Credits |
|--|---------|
| EMTT 103 — Emergency Trauma Training First Responder | 3 |
| CHP 110 — CHA Session I | 4 |
| CHP 111 — CHA Session II | 3-4 |
| CHP 112 — CHA Session III | 3-4 |
| CHP 113 — CHA Field Work Experience..... | 14 |
| CHP 114 — CHA Preceptorship | 2 |

Select six credits from the CHP Advanced courses listed below:

| | |
|---|-----|
| CHP 202 — Emergency Care for Comm. Health Practitioners..... | 1-3 |
| CHP 203 — Clinical Update for Community Health Practitioners..... | 1-3 |
| CHP 206 — Mental Health/Substance Abuse | 1-3 |
| CHP 207 — Maternal and Infant Health | 1-3 |
| CHP 208 — Communicable Disease | 1-3 |
| CHP 211 — Health Education..... | 1-3 |

2. General Degree Requirements:

| | Credits |
|-----------------------------|---------|
| Written Communication | 6 |

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

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

Credits awarded with the CHP Certificate may be used as the applied studies requirement in the Associate of Arts (A.A.) degree. For students interested in becoming primary health care professionals, two years of clinical experience are needed as a CHA for application to the University of Washington Medex Northwest Physician Assistant Program.

Community Psychology

Rural College

Department of Behavioral Sciences and Human Services

(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

School of Career and Continuing Education

Department of Business Systems and Technology

(907) 451-7223

Special training programs

A wide array of computer courses are offered by SCCE. Computer application courses, programming courses and special user seminars are offered regularly. Special emphasis is placed on popular business application programs for both the Apple and IBM-compatible 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 Business Administration

(907) 474-7253

Minor only

The computer information systems minor is designed to permit students in bachelor of arts and bachelor of science degree programs to study a particular field of computer systems and to be introduced to a reasonable segment of information systems relating to the business enterprise.

Requirements

MINOR in Computer Information Systems

| | |
|--|---|
| ACCT 101 — Elementary Accounting I..... | 3 |
| ACCT 102 — Elementary Accounting II..... | 3 |

Credits

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

Total 21

Computer Science

College of Liberal Arts

Department of Mathematical Sciences

(907) 474-7332

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

1. Complete the general university requirements and B.S. degree requirements.

2. Complete the following mathematics requirement: Credits

| | |
|--|---|
| MATH 200 — Calculus..... | 4 |
| MATH 201 — Calculus..... | 4 |
| MATH 210 — Calculus and the Computer..... | 1 |
| MATH 211 — Linear Algebra and the Computer..... | 1 |
| MATH 307 — Discrete Mathematical Structures..... | 3 |

One of the following:

| | |
|--|---|
| MATH 302 — Differential Equations (3 credits) | |
| MATH 308 — Abstract Algebra (3 credits) | |
| MATH 310 — Numerical Analysis (3 credits) | |
| MATH 314 — Linear Algebra (3 credits) | |
| MATH 371 — Probability (3 credits) | |
| MATH 408 — Mathematical Statistics (3 credits) | |
| MATH 460 — Mathematical Modeling (3 credits) | |
| STAT 301 — Elementary Probability and Statistics (3 credits) | |
| STAT 400 — Statistics (3 credits)..... | 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 |
| CS 301 — Assembly Language Programming..... | 3 |
| CS 311 — Data Structures and Algorithms or..... | |
| CS 321 — Operating Systems..... | 3 |

Elective selected from the following:
 Any CS course (except CS 101) or
 MATH 210 and MATH 211 — Calculus/Linear Algebra & Computer or
 EE 341 — Computer Organization I or
 BA 201 — COBOL
 or BA 310 — Management Information Systems
 or ACCT 316 — Accounting Information Systems
 or Other elective approved by advisor.....2-3

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, see the UAF Graduate Catalog.

Culinary Arts

School of Career and Continuing Education Service Industry Department

(907) 474-5074

Certificate; Degree: A.A.S.
 Minimum Requirements for Certificate — 32 credits; for Degree — 63 credits

The Culinary Arts Program prepares students for a career in the expanding field of culinary arts. Graduates can seek employment in food production or in the management of restaurants, bakeries, hotels, hospitals, camps or any facility that requires food service as part of its operation. This department offers both an associate degree and certificate programs. Note: additional fees covering a uniform and supplies will be charged when students enroll in CAH 140 or CAH 240 level classes.

Requirements

- Complete the following general degree requirements: Credits
 Written Communication 6
 (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.)
 Oral Communication 3
 Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science 6
 (At least 3 credits shall be math or natural science at the 100 level or above.)
 Subtotal 15
- Complete the following major degree requirements: Credits
 CAH 105 — Principles of Food Service 3
 CAH 150 — Food Service Sanitation 1
 CAH 152 — Supervisory Skills 2
 CAH 154 — Dining Room Service 2
 CAH 242 — Food Production I 4
 CAH 243 — Food Production II 4
 CAH 247 — Bakery Production II 4
 CAH 248 — Bakery Production III 4
 CAH 250 — Garde Manger 2
 Subtotal 26
- Select 18 credits from the following:
 CAH 140 — Principles of Cooking 6
 CAH 141 — Food Production I 6
 CAH 145 — Principles of Baking 6
 CAH 146 — Bakery Production I 6
 Subtotal 18
- Major specialty electives:
 Select at least 4 credits from the following:
 CAH 170 — Gourmet Cooking 2
 CAH 171 — Gourmet Baking 2
 CAH 199 — Externship 1-12
 CAH 253 — Storeroom: Purchasing and Receiving 2
 CAH 255 — Food Service Management 2
 CAH 256 — Food Service Accounting 2
 CAH 257 — Oenology and the Hospitality Industry I 1
 Subtotal 4-12

Degree Total 63

Culinary Arts Certificate Program and Suggested Course Sequence:

| First Year/Fall Semester | Credits |
|--|---------|
| CAH 105 — Principles of Food Service | 3 |
| CAH 140 — Principles of Cooking | 6 |
| CAH 145 — Principles of Baking | 6 |
| CAH 150 — Food Service Sanitation | 1 |
| Subtotal | 16 |

| First Year/Spring Semester | Credits |
|-------------------------------------|---------|
| CAH 141 — Food Production I | 6 |
| CAH 146 — Bakery Production I | 6 |
| CAH 152 — Supervisory Skills | 2 |
| CAH 154 — Dining Room Service | 2 |
| Subtotal | 16 |
| Certificate Total | 32 |

Diesel/Heavy Equipment Mechanics

School of Career and Continuing Education Trade and Industry Department

(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 | Credits |
|---|---------|
| Fall Semester | |
| DSL 150 — Diesel Mechanics I | 7 |
| DSL 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

School of Career and Continuing Education Trade and Industry Department

(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

School of Career and Continuing Education Academic Programs

(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 degree requirements: | Credits |
| Written Communication..... | 6 |
| (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.) | |
| Oral Communication..... | 3 |
| Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science..... | 6 |
| (At least 3 credits shall be math or natural science at the 100 level or above.) | |
| Subtotal..... | 15 |
| 2. Complete the following major degree requirements: | Credits |
| *PSY 101 — Introduction to Psychology..... | 3 |
| PSY 245 — Child Development..... | 3 |
| ECHD 100 — Introduction to Early Childhood..... | 3 |
| ECHD 105 — Survey of Programs for Young Children..... | 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 — Developing Programs for Infants/Toddler Care..... | 2 |
| ECHD 250 — Practicum I..... | 3 |
| ECHD 251 — Practicum II..... | 3 |
| ECHD 255 — Activities for Young Children..... | 3 |
| ECHD 260 — Introduction to the Exceptional Child..... | 3 |
| ECHD 265 — Culture Learning and the Young Child..... | 2 |
| SOC 242 — The Family..... | 3 |
| Subtotal..... | 45 |

3. Complete 15 credits of general electives..... 15
Degree Total..... 60
Recommended Electives: Any ECHD catalog or special topics (ECHD 193 or 293) courses. Courses from Applied Business or Counseling programs which have been approved by the ECHD adviser.

Early Childhood Development — Certificate

| | |
|--|---------|
| 1. Complete the following required courses | Credits |
| ENGL 111 — Methods of Written Communication..... | 3 |
| PSY 101 — Introduction to Psychology..... | 3 |
| PSY 245 — Child Development..... | 3 |
| ECHD 100 — Introduction to Early Childhood Development..... | 3 |
| ECHD 105 — Survey of Programs for Young Children..... | 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 — Developing Programs for Infants/Toddler Care..... | 2 |
| ECHD 250 — Practicum I..... | 3 |
| ECHD 255 — Activities for Young Children..... | 3 |
| Subtotal..... | 28 |
| 2. Complete 2 credits of general electives..... | 2 |
| Certificate Total..... | 30 |

*Can be used to meet general degree requirements.

Early Childhood Education

Rural College 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 degree requirements: | Credits |
| Written Communication..... | 6 |
| (ENGL 111 plus any 200-level written communications course or applied written communications course as approved by the head of the program in which the degree is earned.) | |
| Oral Communication..... | 3 |
| Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science..... | 6 |
| (At least 3 credits shall be math or natural science at the 100 level or above.) | |
| Subtotal..... | 15 |
| 2. Complete the following major specialty requirements: | Credits |
| 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 211 — Developing Positive Self-Concepts 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 |
| PSY 101 — Introduction to Psychology | 3 |
| PSY 245 — Child Development | 3 |
| 3. Complete 9 credits from the following courses of early childhood electives: | |
| ECDD 109 — Introduction to Child Development Associate | 1 |
| ECDD 231 — Screening | 1 |
| ECDD 232 — Assessment/Recording | 1 |
| ECDD 233 — Mainstreaming Preschool Children with Special Needs | 1 |
| ECDD 299 — Practicum in Early Childhood | 1-3 |
| ED 304 — Literature for Children | 3 |
| ED 220 — Culture and Learning | 3 |
| Degree 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 one semester of college chemistry (CHEM 103 recommended) or one semester of college physics (PHYS 103 recommended)
 - C. Complete one semester of computer science approved by major subject emphasis program head.

(NOTE: A. and B. may be used to meet general degree requirements, but C. is in addition to the 6 credit mathematics/logic degree requirements.)
3. 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): ALR 101, 310, 380, 400, 401, 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 three-fold: (1) to provide students with basic tools of analysis, and factual, statistical, and descriptive materials which will assist them in discharging their duties as citizens; (2) to introduce students majoring in this department to the various fields of economics in order to prepare them for positions in business, government, and graduate study; and (3) to offer a course of study suitable for a minor in economics.

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

Requirements

Economics — B.A. Degree

1. Complete general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements:
Foundation courses (may be used to meet B.A. general degree requirements where applicable):

| | Credits |
|--|---------|
| ACCT 101 — Elementary Accounting | 3 |
| ECON 201-202 — Principles of Economics I & II | 6 |
| MATH 161 — Algebra for Business and Economics | 3 |
| MATH 162 — Calculus for Business and Economics | 4 |
| PS 101 — American Government and Politics | 3 |
| PS 102, 202, 211 or 301 — | 3 |
| BA 101 — Intro. to Management Information Systems or | |
| CS 201 — Computer Programming I | 3 |

| Complete 30 additional credits in Economics including: | Credits |
|--|---------|
| ECON 226 — Introduction to Statistics for Economics & Business | 3 |
| ECON 227 — Intermediate Statistics for Economics and Business | 3 |
| ECON 321 — Intermediate Microeconomics | 3 |
| ECON 324 — Intermediate Macroeconomics | 3 |
| *Electives in Economics | 18 |

*Must be 300-level or higher in which 6 credits of the following courses may be included: BA 325, 343, 360, 423, 425, 480; and ANS 415.

3. Minimum credits required

Economics — B.B.A. Degree

1. Complete general university requirements and B.B.A. degree requirements. The 6 credit humanities electives shall include a combination of courses (classified as humanities) in which 3 credits shall be selected from either philosophy, English (other than composition) or foreign language at the 200 level or above.
2. Complete the following statistics requirements:

| | |
|--|---|
| ECON 226 — Intro. to Statistics for Economics and Business | 3 |
| ECON 227 — Intermed. Statistics for Economics and Business | 3 |

3. Complete the following program (major) requirements:

| Common Body of Knowledge (CBK) Requirements | 33 Credits |
|---|------------|
| ACCT 101 and 102 — Elementary Accounting | 6 |
| BA 310 — Intermed. Management Information Systems or | |
| ACCT 316 — Accounting Information Systems | 3 |
| (For those students pursuing a double major in accounting and economics.) | |
| BA 101 — Intro. to Management Information Systems | 3 |
| BA 325 — Financial Management | 3 |
| BA 331 — Business and Law | 3 |
| BA 343 — Principles of Marketing | 3 |
| ECON 324 or 350 — Intermediate Macroeconomics | |
| or Money and Banking | 3 |
| BA 360 — Operations Management | 3 |
| BA 390 — Organizational Behavior | 3 |
| BA 462 — Administrative Policy | 3 |

Economics Major Requirements

27 Credits

| | |
|---|-----|
| A. General Requirements | |
| PS 102 (only if PS 101 is also taken), PS 201, 211, 263, or 302 | 3 |
| B. Economics Requirements | |
| ECON 321 — Intermediate Microeconomics | 3 |
| ECON 324 — Intermediate Macroeconomics | |
| (if not taken in CBK) | 0-3 |
| ECON 463 — International Economics | 3 |

Nine hours from the following courses (At least three hours must be at the 400 level): ECON 335, 350, 351, 409, 420, 436, 437, 438, 451, and ANS 415.....6-9*

Electives approved by major advisor.....9**

C. Free Electives

These credits may be used for an optional minor or second BBA Major. (At least 3 credits must be in courses offered outside of School of Management.).....20 Credits

3. Minimum credits required.....130

*Only six credit hours of electives in this category are required if Econ 350 is taken as part of the CBK.

**Courses in this category must be at the upper division level and may be accounting, business, or economics courses, where three (3) credits must be taken in either accounting or business administration. Courses in this category may be utilized to satisfy the requirements of other BBA degree majors.

MINOR in Economics:

All minor programs must be approved by the head of the Economics Department.

A minor in Economics requires:

ECON 201 — Principles of Economics I.....3 Credits

ECON 202 — Principles of Economics II.....3

9 credits in approved economics courses at the 300-level or above.....9

Total 15

Education

Rural College Department of Education

(907) 474-7341

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

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

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

Cross-Cultural Education Development Program — The X-CED program is the teacher education program delivered through the University of Alaska Fairbanks' rural campuses to serve the unique educational needs of Alaska's village residents. Full-time education faculty members are responsible for coordinating program activities within each region through the regional campuses located in Barrow (North Slope), Bethel (Kuskokwim), Dillingham (Bristol Bay), Fairbanks, Kotzebue (Chukchi), and Nome (Northwest). The X-CED program offers full-time undergraduate coursework in education for students seeking a B.Ed. degree. Available degree majors, minors and concentration areas are limited by faculty resources. Priority for enrollment in field-based courses is given to students formally admitted to the program, but are available to other students on a space-available basis and with permission of the instructor. Applicants for admission to the program are reviewed and recommended by regional panels.

In addition, the program provides supplemental services including workshops, technical assistance and other support services as time and resources permit.

All inquiries should be addressed to the program coordinator's office at each campus, or the Chairman, Department of Education, Fairbanks campus.

Teachers for Alaska Program

This program is designed to provide teaching certification to students with a baccalaureate degree who want to teach at the secondary school level either in small rural schools or in Alaska's urban multicultural secondary schools. The program offers two options: 1) secondary certification in a subject area, or 2) K-12 small schools certification. Students participate in a full-time program that features small seminars, an apprenticeship, a cohort student group, and a graduate level approach to preparation for teaching.

Students enroll in a fall and spring/late spring block of integrated, tightly sequenced courses. The fall program consists of ED 582 — Teaching as Reflective Inquiry, ED 583 — Teaching as Decision-Making and Invention, and ED 584 — Practicum. The spring/late spring block consists of ED 453 or ED 455 — Student Teaching, ED 619 —

Reflective Inquiry into Multi-Cultural Classrooms and Communities, and ED 692 — Designing Learning Environments. The K-12 certification option requires additional course work.

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

Acceptance to Teacher Education

Any student wishing to become certified for teaching through the University of Alaska Fairbanks must formally apply for admission and be accepted to the teacher education program. The application process must be completed during enrollment in ED 201 or, for transfer students and in other special cases, at least during the semester prior to enrolling in any methods courses. **Acceptance to teacher education must occur before enrolling in education methods courses (ED 381, 419, 421 and 452 for elementary education and ED 402, 407, 424, 425, 430 and 453 for secondary education).** Continuation in teacher education is based upon the maintenance of satisfactory performance in all areas of the program.

Criteria for Admission to Teacher Education

The Admissions Committee will consider a variety of information, including the following:

A. Academic competence

B. Successful experiences in one or more of the following contexts:

1. public school classrooms
2. other settings with children
3. rural Alaska

C. Interpersonal, intercultural, and communication skills

D. Any and all additional standards set by the State

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

Requirements

Education — B.Ed. Degree

1. Complete general university requirements.

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

| | Credits |
|--|---------|
| A. Communication..... | 9 |
| ENGL 111 — Methods of Written Communication..... | 3 |
| ENGL 211 — Intermediate Exposition with Modes of Literature or | |
| ENGL 213 — Intermediate Exposition..... | 3 |
| Speech Communication Elective..... | 3 |
| B. Humanities..... | 12 |
| LING 101 — Nature of Language or | |
| ANL 215 or 216 — Alaska Native Languages..... | 3 |
| Electives..... | 9 |
| (Upper division American Literature recommended) | |
| C. Social Sciences..... | 24 |
| ANTH 242 — Native Cultures of Alaska..... | 3 |
| HIST 131 or 132 — History of the U.S..... | 3 |
| History Elective..... | 3 |
| PS 101 — Intro. to Amer. Government and Politics..... | 3 |
| PS 263 — Alaska Native Politics or | |
| ANS 310 — The Political Economics of ANCSA..... | 3 |
| PSY 101 — Introduction to Psychology..... | 3 |
| PSY 240 — Devel. Psychology in Cultural Perspective..... | 3 |
| Elective..... | 3 |
| D. Mathematics and Natural Science..... | 16 |
| For Elementary Education: | |
| MATH 205 — Math. for Elementary School Teachers..... | 3 |
| Math Electives..... | 6 |
| Science Electives (including laboratory science)..... | 7 |
| For Secondary Education: | |
| Math Electives..... | 6 |
| Science Electives (including laboratory science)..... | 7 |
| Math or Science Elective..... | 3 |
| E. Education | |
| ED 201 — Introduction to Education..... | 3 |
| ED 330 — Diagnosis and Evaluation of Learning..... | 3 |
| ED 350 — Communications in Cross-Cultural Classrooms..... | 3 |
| ED 375 — The Exceptional Learner..... | 3 |
| Education Foundation Elective..... | 3 |
| Approved Health/Nutrition Elective..... | 3 |

For Elementary Education:

| | |
|---|---|
| ED 304 — Literature for Children..... | 3 |
| ED 310 — Modes of Creative Expression in Education | |
| or MUS 309 — Elementary School Music Methods..... | 3 |
| ED 381 — Foundations of Literacy Development..... | 3 |
| ED 419 — Integ. Meth. and Curriculum Development..... | 6 |
| ED 421 — Strategies for Reading and Writing Instruction | |
| in Multicultural Classrooms..... | 3 |
| PE 327 — Movement Activity for Children | |

or Approved Elective 2-3
 ED 452 — Elementary Student Teaching 12
 (Candidates who have taught successfully two years in the public elementary schools may request a reduced student teaching experience. Candidates wishing to so petition should see the coordinator of the Office of Practica Experience.)

Complete one of the concentrations listed below:

Elementary Education Concentrations: Each concentration must have a minimum of 12 upper division credits. General education requirements (not including Communication requirements) may be counted toward these concentrations.

1. Humanities 24
 At least 12 credits from one of the following subjects:

Art
 English
 Music

2. Social Sciences 36

At least 12 credits concentrated in one subject area

3. Math and/or Science 28

At least 15 credits concentrated in math or in one natural science

4. ESL/Applied Linguistics 21

ENGL 318 — Modern English Grammar 3

ENGL 462 — Applied English Linguistics 3

ANS 320 — Language and Ethnicity 3

6 Credits in a Language 6

Approved Linguistics 6

5. Alaska Native Language/Bilingual 25-27

16-18 credits in one Alaska Native Language 16-18

ANL 387-388 — Bilingual Meth. and Materials 6

ANL 215 — Alaska Native Language or

ANL 216 — Alaska Native Language 3

6. Early Childhood Development 18

12 credits of approved Early Childhood Development courses

6 upper division credits from one of the following:

Art
 English
 Music
 Physical Education
 Speech
 Theater

Minimum Credits Required 130

For Secondary Education:

ED 407 — Reading Strat. for Secondary Teachers 3

ED 424 — Small High School Programs or

ED 425 — Community as an Educational Resource 3

ED 402 — Methods of Teaching in Secondary School

or Approved Substitute 3

ED 430 — Multicultural Teaching Techniques 3

ED 490 — Curriculum Development 3

ED 453 — Secondary Student Teaching 12

(Candidates who have taught successfully two years in the public secondary schools may request a reduced teaching experience. Candidates wishing to so petition should see the coordinator of the Office of Practica Experience.)

Complete one of the interdisciplinary major/minors listed below:

1. Language Arts/Humanities 48

(must include a minimum of 12 upper division credits)

ENGL 111 — Methods of Communication 3

ENGL 211 — Intermediate Exposition with Modes of Literature or

ENGL 213 — Intermediate Exposition 3

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 12

2. Math/Science 45

(Must include a minimum of 12 upper division credits)

HUM 202 — Unity in the Sciences 3

Math Electives (minimum 6 credits upper division) 15

Science electives (minimum 6 credits upper division) 27

A minimum of 6 credits from each of the following fields:

Biology, Chemistry, Physics, Geoscience

3. Social Sciences 48

History Electives 12

(Recommended: HIST 101-102 — Western Civilization, HIST 131-

132 — History of the U.S.)

Anthropology Electives 6

(Recommended: ANTH 200 — Social/Cultural Anthropology,

ANTH 242 — Native Cultures of Alaska)

Political Science Electives 6

(Recommended: PS 101 — Introduction to Amer. Govt. and Politics,

PS 263 — Alaska Native Politics)

Geography Electives 6

(Recommended: GEOG 101 — Introductory Geography or GEOG

103 — World Economic Geography)

Economics Electives 6

(Recommended: ECON 202 — Principles of Economics I, ECON 201 — Principles of Economics II or ECON 137 — The Alaskan Economy or ECON 235 — Intro. to Natural Resource 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.

Minimum Credits Required 130

MINOR in Education — With or Without Teacher Credential Endorsement

Bachelor of arts and bachelor of science degree candidates may use the credential endorsement requirement as a minor in Education. STUDENTS MAY HAVE A MINOR IN EDUCATION WITHOUT STUDENT TEACHING BUT THEY MUST HAVE STUDENT TEACHING IF THEY WISH TO MEET CERTIFICATION REQUIREMENTS FOR TEACHING.

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

MINOR in Elementary Education (WITH credential endorsement):

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

ED 381 — Foundations of Literacy Development 3

ED 419 — Integrated Methods and Curriculum Development 6

ED 421 — Strategies for Reading and Writing Instruction in Multicultural Classrooms 3

ED 452 — Elementary Student Teaching* 12

* A minimum of 6 credits of math is required for admission to methods. (MATH 205 is required; MATH 206 is recommended.)

One course from the following:

ANS 430 — Alaska Native Education 3

ED 345 — Sociology of Education 3

ED 346 — Structure of American Education 3

ED 350 — Communication in Cross-Cultural Classrooms 3

ED 380 — Cultural Influences in Education 3

ED 450 — Education and Cultural Transmission 3

MINOR in Elementary Education (WITHOUT credential endorsement):

Complete the Elementary Education minor requirements excluding ED 452 — Elementary Student Teaching.

MINOR in Secondary Education (WITH credential endorsement):

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

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

ED 453 — Secondary Student Teaching 12

One course from the following:

ANS 430 — Alaska Native Education 3

ED 345 — Sociology of Education 3

ED 346 — Structure of American Education 3

ED 350 — Communication in Cross-Cultural Classrooms 3

ED 380 — Cultural Influence in Education 3

ED 450 — Education and Cultural Transmission 3

MINOR in Secondary Education (WITHOUT credential endorsement):

Complete the Secondary Education minor requirements excluding ED 453 — Secondary Student Teaching.

Admission to Student Teaching

Retention in the teacher education program is contingent upon a second formal review prior to student teaching. This review will involve assessment of all criteria used for admission with the expectation that

continued acceptable performance and/or appropriate growth will be noted in all areas. Applications for student teaching are due by October 1 or February 15 during the semester previous to the planned semester of student teaching. Placement for student teaching will proceed upon the determination that the application is acceptable.

Criteria for Admission to Student Teaching

1. Elementary School — kindergarten through eighth grade:

- Acceptance to the teacher education program.
- A formal application on file with the director of the Office of Clinical Practice by **October 1** for student teaching in the following spring semester and by **February 15** for student teaching in the following fall semester.
- A completed physical examination.
- Completion of 100 credits leading to a bachelor's degree with a minimum g.p.a. of 2.00.
- Completion of six credits in mathematics, including MATH 205; PSY 240, ED 330, 381, 419, and 421.
- A minimum grade of "C" in required math courses and in each required education course.
- Approval of Committee on Admission to Teacher Education to enter student teaching.
- A maximum of 15 credits is permitted while enrolled in student teaching. These 15 credits include the 12 credits granted for student teaching.
- Those students who meet all of the above requirements at another university must take at least 9 credits of education courses at UAF.
- Students who feel they have experience comparable to Student Teaching must demonstrate their competence. See the coordinator of the Office of Practica Experience regarding this procedure.

2. Secondary Schools — seventh through twelfth grades:

- Acceptance to the teacher education program.
- A formal application on file with the director of the Office of Clinical Practice by **October 1** for student teaching in the following spring semester and by **February 15** for student teaching in the following fall semester.
- A completed physical examination.
- Completion of 100 credits leading to a bachelor's degree with a minimum g.p.a. of 2.00.
- Completion of a minimum of 24 approved credits in an approved teaching major with a g.p.a. of 2.00 or more.
- Completion of PSY 240, ED 330, 402, 407, 424, 425 and 430.
- A maximum of 15 credits is permitted while enrolled in student teaching. These 15 credits include the 12 credits granted for student teaching.
- A minimum grade of "C" in each education course.
- Approval of Committee on Admission to the Teacher Education Program to enter student teaching.
- Those students who meet all of the above requirements at another university must take at least 9 credits of education courses at UAF.
- Students who feel they have experience comparable to Student Teaching must demonstrate their competence. See the coordinator of the Office of Practica Experience regarding this procedure.

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

Education — B.T. Degree

A certifiable secondary education program in the technical areas of: food services technology, aviation technology and electronics technology.

- Complete general university requirements and B.T. degree requirements.
- Complete the following major complex requirement beyond the associate degree major:

| | Credits |
|--|---------|
| A. Upper-division credit in technical specialty..... | 0-6 |
| B. Complementary area: Education | |
| 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 |
| ED 402 — Methods of Teaching in the Secondary School or Subject Area Methods course..... | 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 |
| ED 453 — Secondary Student Teaching..... | 12 |
| Education Foundation Elective..... | 3 |

3. Minimum credits required for degree 130

M.Ed. Degree

This program offers several options from which a person selects an area of specialization. Inquiries concerning options and the specific requirements of each option should be directed to the Department of Education.

Electrical Engineering

School of Engineering

Department of Electrical Engineering

(907) 474-7137

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

Minimum Requirements for Degrees: B.S. — 133 credits; M.S. — 30 additional credits; M.E.E. — 32 additional credits

Electrical engineering encompasses the areas of computer applications and design, electrical power transmission and distribution, telecommunications and electronics. The electrical engineer designs and oversees the construction, installation and maintenance of electrical systems providing light, heat and power. Engineers design the communication systems of telephone, radio and television as well as the transistors and integrated circuits used in these systems. People trained in computer engineering automate businesses, factories, pipelines and refineries; and design control systems and computers which guide trains, planes and space vehicles. Even the test devices and tools of investigation — 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, magnetohydrodynamics, integrated circuits, satellites, and mini and microcomputers. The process controls in the extraction, transmission and refining of petroleum products are largely the responsibility of the electrical and computer engineer. Development of techniques for utilizing new energy sources presents a challenge, requiring much imagination and resourcefulness. Advanced training in engineering science and mathematics is required for creative work in these areas.

The curriculum is designed to insure that basic fundamentals are learned, as well as specialized skills. The practical needs of engineers who plan to enter practice immediately upon graduation, as well as the theoretical background needed for individuals planning to pursue graduate studies, have been taken into account in our program. Candidates for the bachelor of science degree will be required to take the State of Alaska Engineer-In-Training Examination in their general field.

Requirements

Electrical Engineering — B.S. Degree

- Complete the general university requirements.
- Complete the following degree and program (major) requirements. Students must plan their elective courses in consultation with their electrical engineering faculty advisor, and all elective courses must be approved by their electrical engineering faculty advisor. At least 6 of the 16 social science and humanities elective credit must be: (a) above the 100 level; or (b) advanced courses in a 100 level sequence. Sufficient depth in at least one of the areas must be demonstrated by evidence of a sequence of courses. This sequence must be approved by the students' departmental advisor.

First Year

| Fall Semester | 16 credits |
|--|------------|
| ENGL 111 — Methods of Written Comm. | 3 |
| MATH 200 — Calculus | 4 |
| ES 101 — Descriptive Geometry for Engineers..... | 2 |
| Social Science or Humanities Elective* | 3 |
| CHEM 105 — General Chemistry | 4 |

Spring Semester

| Speech Communication Elective | 17 credits |
|--|------------|
| MATH 201 — Calculus | 3 |
| EE 102 — Intro. to Electrical Engineering..... | 4 |
| CHEM 106 — General Chemistry | 3 |
| Social Science or Humanities Elective | 3 |

Second Year

| Fall Semester | 15 credits |
|----------------------------------|------------|
| MATH 202 — Calculus | 4 |
| PHYS 211 — General Physics | 4 |

| | |
|---|---|
| ES 201 — Computer Techniques..... | 3 |
| EE 203 — Fund. of Elec. Engineering | 4 |

| | |
|---|-------------------|
| Spring Semester | 15 credits |
| MATH 302 — Differential Equations..... | 3 |
| PHYS 212 — General Physics..... | 4 |
| ES 208 — Mechanics..... | 4 |
| EE 204 — Fund. of Elec. Engineering | 4 |

| | |
|--|-------------------|
| Third Year | |
| Fall Semester | 17 credits |
| EE 333 — Physical Electronics | 4 |
| EE 353 — Circuit Theory I..... | 3 |
| Approved Math Elective**..... | 3 |
| Social Science or Humanities elective..... | 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 |
| ENGL 211 — Intermediate Exposition, with Modes of Literature or | |
| ENGL 213 — Intermediate Exposition | 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 |
| Social Science or Humanities Elective | 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..... | 3 |
| EE 461 — Communications Systems | 4 |

| | |
|--|-------------------|
| Spring Semester | 17 credits |
| ESM 450 — Economic Analysis and Operation | 3 |
| Social Science or Humanities Electives..... | 4 |
| 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 | |

*Social Science/Humanities elective 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, ES 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., M.A., M.F.A.

Minimum Requirements for Degrees: B.A. — 130 credits; M.A. — 30 additional credits; M.F.A. — 45 additional credits

The work of the Department of English includes the two functions traditionally associated with the discipline — teaching basic and advanced courses in writing and offering survey and advanced courses in English, American and world literature both to English majors and minors and to students in other fields who may choose the courses as electives. In addition, the department offers courses in English linguistics and Alaskan literature.

Requirements

English — B.A. Degree

A. Emphasis: Literature

1. Complete the general university requirements and B.A. degree requirements.
2. Complete the following program (major) requirements: 36 credits in English besides English 111 and English 211 or 213, including:

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 111 and English 211 or 213 including:

- a, b, c, and d as listed in the requirements for a major with emphasis on literature..... Credits 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 111 and English 211 or 213, including:

- a. Same as listed under a, b, and d for literature emphasis..... Credits 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, b, c, and d as listed in the requirements for a major with emphasis on literature..... 21

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

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

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

Environmental Quality Engineering and Science

School of Engineering Department of Civil Engineering

(907) 474-6129

Degree: 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 387 — Bilingual Methods and Materials..... | 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 Yupik Eskimo..... | 10 |
| ESK 201-202 — Intermediate Yupik Eskimo..... | 6 |

| | |
|---|---|
| ESK 301 — Advanced 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 387 — Bilingual Methods and Materials..... | 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.

Financial Institutions Management

School of Career and Continuing Education Business Systems and Technology Department

(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 degree requirements:

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

2. Complete the following major degree requirements:

| | |
|---|----|
| ABUS 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..... | 3 |
| OP 231 — Business Communications..... | 3 |
| Subtotal..... | 32 |

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 Credit..... | 1 |
| Degree Total..... | 60 |

Fire Science

School of Career and Continuing Education Service Industry Department

(907) 474-5264

Certificate; Degree: A.A.S.

Minimum Requirements for Certificate — 30 credits; for Degree — 60-61 credits

The Fire Science Program gives students a fundamental working knowledge of the various aspects of fire prevention and protection in both urban and wildlife areas. It also serves as an in-service program for personnel already employed by fire protection agencies and enhances their opportunities for advancement. Associate degrees and certificate programs in municipal fire control and wildlands fire control are offered.

Requirements

Municipal Fire Control — A.A.S. Degree

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

2. Complete the following major degree requirements:

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

3. Complete 6 credits from the following major specialty electives:

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

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

Degree Total 60-61

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

Municipal Fire Control — Certificate

Suggested Course Sequence

| | |
|--|---------|
| Fall Semester | Credits |
| FSCI 101 — Introduction to Fire Science..... | 3 |
| FSCI 105 — Fundamentals of Fire Prevention..... | 3 |
| FSCI 107 — Fire Tactics and Strategy..... | 3 |
| EMTT 103 — Emergency Trauma Training (ETT) First Responder..... | 3 |
| or | |
| EMTT 119 — Emergency Medical Technician I..... | 4 |
| Major specialty electives..... | 3 |
| Subtotal..... | 15-16 |

Spring Semester

| | |
|--|-------|
| FSCI 111 — Fire Company Organization and Management..... | 3 |
| FSCI 117 — Rescue Practices..... | 3 |
| FSCI 202 — Fire Hydraulics..... | 3 |
| FSCI 204 — Hazardous Materials I..... | 3 |
| Major specialty electives..... | 2-3 |
| Subtotal..... | 14-15 |
| Certificate Total | 30 |

Wildlands Fire Control — A.A.S. Degree

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

2. Complete the following major degree requirements:

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

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

| | |
|--|---|
| EMTT 102 — Emergency Medical Technician Refresher..... | 1 |
| EMTT 121 — Emergency Medical Technician II..... | 2 |
| FSCI 161 — Fire Logistics Functions..... | 3 |
| FSCI 163 — Wildland Air Attack..... | 3 |
| FSCI 256 — Fire Planning and Multiple Use Management..... | 3 |
| FSCI 258 — Prescribed Burning and Fuels Management..... | 3 |
| FSCI 266 — Wildland Fire Environmental Considerations..... | 3 |
| Subtotal..... | 6 |

| | |
|---|-------|
| 4. Complete 15 general electives credits..... | 15 |
| Degree Total | 60-61 |

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

Wildlands Fire Control — Certificate**Suggested Course Sequence**

| | |
|---|---------|
| Fall Semester | Credits |
| EMTT 103 — Emergency Trauma Training (ETT) First Responder..... | 3 |
| or | |
| EMTT 119 — Emergency Medical Technician I..... | 4 |
| FSCI 151 — Wildfire Control I..... | 3 |
| FSCI 153 — Fire Organization and Management..... | 3 |
| FSCI 161 — Fire Logistics Functions..... | 3 |
| Major electives..... | 3 |
| Subtotal..... | 14-15 |
| Spring Semester | |
| FSCI 155 — Fire Behavior I..... | 3 |
| FSCI 157 — Air Operations Management..... | 3 |
| FSCI 252 — Enforcement and Investigation..... | 3 |
| FSCI 254 — Wildland Fire Business Management..... | 3 |
| Major electives..... | 2-3 |
| Certificate Total | 30 |

Fisheries**School of Fisheries and Ocean Sciences
Program in Fisheries**

(907) 474-7289

Degrees: B.S., M.S.

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

The fisheries undergraduate curriculum program is intended to provide broad basic education and training. Holders of the bachelor's degree will be qualified to enter the management, law enforcement, and public information-education phases of fisheries work. Students

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

The geographic location of UAF is advantageous for the study of interior Alaska aquatic habitats. A number of subarctic streams and lakes are within easy reach. Main access to the marine environment from the Fairbanks campus is in Prince William Sound and Cook Inlet.

The Juneau Center for Fisheries and Ocean Science houses the UAF Fisheries Science Program in southeast Alaska.* JCFO has well-equipped labs and a 42-foot research vessel. It is located near the Aupe Bay National Marine Fisheries Laboratory. Faculty with JCFO were associated with the University of Alaska Juneau (now the University of Alaska Southeast) prior to this year. Students matriculating at Juneau can also register for UAS courses.

Students from both locations have an opportunity for association with personnel of federal and state conservation agencies and these agencies hire a number of students for summer field work.

* Juneau students should also reference the University of Alaska Southeast catalog.

Requirements**Fisheries — B.S. Degree****1. Complete the general university requirements including:**

| | |
|--|---------|
| | Credits |
| ENGL 111 and 213..... | 6 |
| Speech Communication (SPC 131 or 141)..... | 3 |
| Social Science and Humanities (excluding social science and humanities courses in program requirements)..... | 15 |

2. Complete the following degree and program (major) requirements:**A. Core Courses:****General (32 credits)**

| | |
|---|---|
| ALR 101 — Conservation of Natural Resources..... | 3 |
| ENGL 414 — Research Writing..... | 3 |
| STAT 301 — 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 Programming I..... | 3 |
| GEOG 205 — Elements of Physical Geography..... | 3 |
| Biology (24 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 384 — Biol. of Freshwater Fish of Alaska..... | 3 |
| BIOL 423 — Ichthyology..... | 4 |
| Fisheries (12 credits) | |
| BIOL 473 — Limnology..... | 3 |

| | |
|---|---|
| or | |
| BIOL 328 — Biology of Marine Organisms..... | 3 |
| FISH 429 — Intro. to Fisheries Science..... | 3 |
| FISH 430 — 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) | 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 |
| ALR 370 — Introduction Watershed Management..... | 3 |

C. Option — Complete the requirements for one of the following options:**Research Option:**

Credits

Choose 6-8 credits from the courses listed below:

STAT 401 — Intro. to Exp. Design (4 credits)
 STAT 402 — Scientific Sampling (3 credits)
 CHEM 212 — Intro. Quant. Analysis (4 credits)
 CHEM 321-322 — Organic Chem. (3/3 credits)
 CHEM 324 — Organic Lab. (3 credits)
 CS 202 — Computer Programming II (3 credits)
 GEOS 304 — Geomorphology (3 credits)
 PHYS 103-104 — College Physics (4/4 credits)
 In addition, any electives needed to bring total credits to 130.

Management Option:

1. Take one of the following: (3 credits) Credits
 ALR 400 — Natural Resources Policies.....3
 ALR 401 — Natural Resources Legislation.....3
 2. Take four courses from the following: (12 credits)
 GEOG 302 — Geography of Alaska.....3
 GEOG 402 — Man and Nature.....3
 **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 301 — Processes of Management.....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. Degree

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

Foreign Languages**College of Liberal Arts
Department of Foreign Languages and Literatures**

(907) 474-7396

Degree: B.A.

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

In a shrinking world Americans increasingly need to communicate directly with other peoples in order to achieve mutual understanding. Whether it be Japanese or English, the language of a people embodies its unique culture and its way of thinking and feeling. Therefore, to know only one language is to think in only one way.

The study of foreign languages and literatures liberates the student from the confines of one culture.

Requirements**Foreign Language — B.A. Degree**

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

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
 HUM 201 — Unity in the Arts.....3
 HUM 202 — Unity in the Sciences.....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
 HIST 101, 102 — Western Civilization.....3
 HIST 315 — Europe 1914-1945.....3
 ART 261 or 262 — History of World Art.....3
 GEOG 305 — Geography of Europe (except U.S.S.R.).....3
 GEOG 402 — Man and Nature.....3

Option B (Career-oriented Option)

- a. LING 101 The 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 specified by the advisor according to the student's career preferences).....21

II. Major Requirements (two languages required) First Language (French, German or Spanish) (above 100 level).....24**Complete the following courses:**

201 — 3 credits 387 — 2 credits
 202 — 3 credits 432 — 3 credits
 288 — 2 credits 487 — 2 credits
 301 — 3 credits 488 — 3 credits
 303 — 3 credits

Second Language (French, German, Russian or Spanish) (above 100 level).....13**Complete the following courses:**

201 — 3 credits 301 or 303 — 3 credits
 202 — 3 credits 387 — 2 credits
 288 — 2 credits

Second Language (Japanese) (above 100 level).....14**Complete the following courses:**

201 — 4 credits 202 — 4 credits
 301 — 3 credits 302 — 3 credits

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

4. Minimum credits required.....130**MINOR in Foreign Languages**

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

General Science**College of Natural Sciences
Department of Physics**

(907) 474-6198

Degrees: B.S., M.S.

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

The B.S. in General Science has been designed to provide a broad background in the Natural Sciences and to allow for specialization in at least two of the disciplines within the Natural Sciences as well as an additional area of associated interest. This degree offers more breadth in the Natural Sciences than the other degree programs and may be classified as an interdisciplinary degree. Thus, one option available to a student in this program would be to select a minor in Education which would allow the student to earn a teaching certificate in General Science.

Requirements**General Science — B.S. Degree**

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

First Year

Fall Semester 17 credits
 ENGL 111 — Methods of Written Comm.....3
 MATH 107-108 — Elementary Functions and Trigonometry.....6
 CHEM 105* — General Chemistry
 or PHYS 103* — College Physics.....4
 BIOL 105 — Fundamentals of Biology.....4

| | |
|--|-------------------|
| Spring Semester | 15 credits |
| Speech Communication Elective | 3 |
| MATH 200 — Calculus | 4 |
| CHEM 106* — General Chemistry | |
| or PHYS 104* — College Physics | 4 |
| BIOL 106 — Fundamentals of Biology | 4 |

| | |
|---|-------------------|
| Second Year | |
| Fall Semester | 17 credits |
| PHYS 104* — College Physics | |
| or CHEM 105* — General Chemistry | 4 |
| ECON 201 — Principles of Economics I | 3 |
| GEOS 101 — The Dynamic Earth | 4 |
| PSY 101 — Introduction to Psychology | 3 |
| ENGL 211 — Intermediate Exposition with Modes of Literature | |
| or ENGL 213 — Intermediate Exposition | 3 |

| | |
|--|-------------------|
| Spring Semester | 16 credits |
| PHYS 104* — College Physics | |
| or CHEM 106* — General Chemistry | 4 |
| GEOS 112 — Historical Geology | 4 |
| SOC 101 — Intro. to Sociology | |
| or ANTH 101 — Introduction to Anthropology | 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 in social science must be chosen from the following disciplines and must be classified as social science: Anthropology (except Archeology); Economics; History; Political Science; Sociology.
5. A student does not need to take MATH 107-108 if he/she successfully completes MATH 200 with a grade of "C" or better.

General Science — M.S. Degree

1. Complete the general University and Master's Degree requirements.
2. Complete a minimum of 30 credits of approved courses. At least 24 credits, including thesis and/or research, must be at the 600 level.

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, see the 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 credits in geography as follows:

| | |
|---|---|
| GEOG 101 — Introductory Geography or | |
| GEOG 103 — World Economic Geography | 3 |
| GEOG 205 — Elements of Physical Geography | 3 |
| GEOG 339 — Advanced Physical Geography or | |
| GEOG 401 — Weather and Climate | 3 |
| GEOG 492 — Seminar | 3 |

Select three of the following regional courses:

| | |
|--|---|
| GEOG 202 — Geography of the U.S. and Canada (3) | |
| GEOG 302 — Geography of Alaska (3) | |
| GEOG 305 — Geography of Europe (Except U.S.S.R.) (3) | |
| GEOG 306 — Geography of the Soviet Union (3) | |
| GEOG 311 — Geography of Asia (3) | |
| GEOG 327 — Cold Lands (3) | 9 |

Select two of the following cultural courses:

| | |
|--|---|
| GEOG 402 — Man and Nature (3) | |
| GEOG 404 — Urban Geography (3) | |
| GEOG 405 — Political Geography (3) | 6 |

Select one of the following technique courses:

| | |
|---|---|
| GEOG 309 — Cartography (3) | |
| GEOG 408 — Quantitative Research Techniques (3) | 3 |
| Geography elective | 3 |

B. Approved electives to complete 120 credits.

Geography — B.S. Degree

1. Complete general university requirements and B.S. degree requirements, pages 25 and 26.
2. Complete the following program (major) requirements:

A. Complete 33 credits in geography as follows:

| | |
|---|---|
| GEOG 101 — Introductory Geography or | |
| GEOG 103 — World Economic Geography | 3 |
| GEOG 205 — Elements of Physical Geography | 3 |
| GEOG 309 — Cartography | 3 |
| GEOG 339 — Advanced Physical Geography | 3 |
| GEOG 401 — Weather and Climate | 3 |
| GEOG 402 — Man and Nature | 3 |
| GEOG 408 — Quantitative Research Techniques | 3 |
| GEOG 492 — Seminar | 3 |

Select two of the following regional courses:

| | |
|--|---|
| GEOG 202 — Geography of the U.S. and Canada (3) | |
| GEOG 302 — Geography of Alaska (3) | |
| GEOG 305 — Geography of Europe (Except U.S.S.R.) (3) | |
| GEOG 306 — Geography of the Soviet Union (3) | |
| GEOG 311 — Geography of Asia (3) | |
| GEOG 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 103 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. — 131 credits plus 6 credits field course; M.S. — 30-33 additional credits.

Geological engineering is a branch of engineering dealing with the application of geology. Geological engineers work with the environment in the true sense of the word. Properties of earth materials exploration activities, geophysical and geochemical prospecting, site investigations and engineering geology are all phases of geological engineering.

Candidates for the bachelor of science degree in geological engineering will be required to take a comprehensive exam in their general field (completion of the State of Alaska Engineering-in-Training examination will satisfy the requirement). The State of Alaska Engineering-in-Training examination is a first step toward registration as professional engineers.

Graduates of the program are employed by industry, consulting companies, and government agencies.

Students may initiate their geological engineering program in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years. Such students should be in communication with a faculty member of the Department of Mining and Geological Engineering, UAF.

Requirements

Geological Engineering — B.S. Degree

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

| First Year | 17 Credits |
|--|------------|
| Fall Semester | |
| GE 101 — Introduction to Geological Engineering..... | 1 |
| ENGL 111 — Methods of Written Communications..... | 3 |
| MATH 200 — Calculus..... | 4 |
| CHEM 105 — General Chemistry..... | 4 |
| ES 101 — Descriptive Geometry for Engineers..... | 2 |
| Social Science or Humanities**..... | 3 |

| Spring Semester | 17 Credits |
|---|------------|
| Speech Elective..... | 3 |
| MATH 201 — Calculus..... | 4 |
| GE 261 — General Geology for Engineers..... | 3 |
| CHEM 106 — General Chemistry..... | 4 |
| Social Science or Humanities**..... | 3 |

| Second Year | 18 Credits |
|--|------------|
| Fall Semester | |
| MATH 202 — Calculus..... | 4 |
| GEOS 213 — Mineralogy..... | 4 |
| PHYS 211 — General Physics..... | 4 |
| ENGL 211 or 213 — Intermediate Exposition..... | 3 |
| MIN 202 — Mine Surveying..... | 3 |

| Spring Semester | 17 Credits |
|---|------------|
| ES 201 — Computer Techniques..... | 3 |
| PHYS 212 — General Physics..... | 4 |
| ES 208 — Mechanics..... | 4 |
| GEOS 214 — Petrology and Petrography..... | 3 |
| MATH 302 — Differential Equations..... | 3 |

| Third Year | 16 Credits |
|--|------------|
| Fall Semester | |
| 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 | 16 Credits |
|------------------------------------|------------|
| GEOS 314 — Structural Geology..... | 4 |
| GE 372 — Rock Engineering..... | 3 |

| | |
|---|-----|
| MIN 370 — Rock Mechanics* or | |
| CE 326 — Intro to Geological Engineering..... | 3-4 |
| STAT 301 — Elementary Probability & Statistics..... | 3 |
| Social Science or Humanities Elective**..... | 3 |

| Summer | Credits |
|-------------------------------|---------|
| GEOS 351 — Field Geology..... | 6 |

| Fourth Year | 15 Credits |
|---|------------|
| Fall Semester | |
| GE 471 — Remote Sensing for Engineering..... | 3 |
| Social Sciences or Humanities Elective**..... | 7 |
| Technical Elective***..... | 5 |

| Spring Semester | 15 Credits |
|--|------------|
| GE 405 — Exploration Geophysics..... | 4 |
| GE 420 — Subsurface Hydrology..... | 3 |
| MIN 408 — Mineral Valuation and Economics..... | 2 |
| GE 480 — Geological Engineering II..... | 2 |
| Technical Elective***..... | 3 |

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

**Of the 16 social science/humanities credits, at least 6 must be at/or above the 200 level or advanced courses in a 100 level sequence. Sufficient depth in at least one of the areas must be demonstrated by evidence of a sequence of courses. This sequence must be approved by the students' departmental advisor.

***Technical electives are dependent upon professional interest and selected by the student in conference with his or her advisor and approved by the department. Technical electives are selected from a list 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

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

Minimum Requirements for Degrees: B.S. — 136-136 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 111 — Methods of Written Communication..... | 3 |
| ENGL 211 — Intermed. Expos. with Modes of Literature or ENGL 213 — Intermed. Exposition..... | 3 |
| Speech Communications Elective..... | 3 |
| Social Science (minimum of 3 credits) and Humanities (minimum of 3 credits), exclusive of 9 credit communications requirement..... | 15 |
| Mathematics (Select appropriate series)..... | 11 or 15 |
| For Geology options: MATH 200-201-Calculus (8), and STAT 400- Statistics (3) | |
| For Geophysics Option: MATH 200, 201, 202-Calculus (11), MATH 302-Differential Equations (3) | |
| PHYS 211-212 — General Physics (PHYS 103-104 may be taken for General Geology Option)..... | 8 |
| CHEM 105-106 — 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:

| Core Courses: | Credits |
|--|---------|
| GEOS 101 — The Dynamic Earth..... | 4 |
| GEOS 112 — Historical Geology..... | 4 |
| GEOS 213 — Mineralogy..... | 4 |
| GEOS 214 — Petrology and Petrography..... | 4 |
| GEOS 304 — Geomorphology..... | 3 |
| GEOS 314 — Structural Geology..... | 3 |
| GEOS 322 — Stratigraphy and Sedimentation..... | 4 |
| GEOS 351 — Field Geology..... | 6 |
| GEOS 401 — Invertebrate Paleontology..... | 4 |
| GEOS 430 — Statistics and Data Analysis..... | 3 |

General Geology Option: Credits

Complete at least 5 credits from the courses listed below:

| | |
|--|--------|
| 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: Credits

| | |
|--|--------|
| 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: Credits

| | |
|---|---|
| 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:

| | Credits |
|---|---------|
| GEOS 101 — The Dynamic Earth..... | 4 |
| GEOS 213 — Mineralogy..... | 4 |
| GEOS 418 — Basic Geophysics..... | 3 |
| GEOS 419 — Continuum Mechanics..... | 4 |
| MATH 211 — Linear Algebra and the Computer..... | 1 |
| 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 112 — 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 |

*Strongly recommended for students interested in exploration geophysics.

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 | |

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

Rural College

Department of Behavioral Sciences and Human Services

(907) 474-7240

Degree: M.Ed.

Minimum Requirements for Degree: M.Ed. 42 additional credits

For complete information on the graduate program in Guidance and Counseling, see the UAF Graduate Catalog.

Health Sciences

Preprofessional Curricula

(907) 474-6396

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

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

History

College of Liberal Arts Department of History

(907) 474-7126

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

Minimum Requirements for Degrees: B.A. — 130 credits; M.A.T. — 36 additional credits

The history department seeks to make the student aware of the human cultural heritage, the great problems that have faced humans throughout history and how we have sought to solve them.

The department also trains the student in applying the historical method which offers analysis based on the dimension of time. Discussion, focused on concrete, specific events, persons and judgments explains why things are as they are. Students will learn effective historical research and writing.

Through the study of history, students may prepare for careers in public service agencies; as members of management teams, particularly in the area of policy analysis; for careers in teaching, or for advanced work in history and other social sciences.

Requirements

History — B.A. Degree

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

| Complete any four of the following: | Credits |
|---|---------|
| HIST 101-102 — Western Civilization..... | 6 |
| HIST 121-122 — East Asian Civilization..... | 6 |
| HIST 131-132 — History of the U.S..... | 6 |

Complete 21 upper-division credits in history, including:

HIST 475-476 — Historiography and Intro. to Historical

| | |
|----------------------------------|-----|
| Method..... | 6 |
| 3. Minimum credits required..... | 130 |

MINOR in History:

A minor in history requires the completion of 18 credits in history, six of which must be at the 300 level or above.

History — M.A.T. Degree

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

Humanities

College of Liberal Arts

Department of Philosophy and Humanities

(907) 474-7398

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

Rural College

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 |
| 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 | 3 |
| for SOC 335 — Sociology of Deviant Behavior | 3 |
| SOC 408 — American Minority Groups | 3 |
| PSY 101 — Introduction to Psychology | 3 |

Departmental core

| | |
|--|----|
| (These courses also may be applied to fill general distribution requirements.) | 15 |
| 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 |
| 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.

Interdisciplinary Studies

Degrees: B.A., B.S., M.A., M.S., Ph.D. *BT+AAE*

Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 130 credits; M.A. and M.S. — 30 or more credits; Ph.D. — open

Undergraduate —

The exceptional student with well-defined goals which do not fit into the established bachelor's program of the university should have an opportunity to achieve baccalaureate recognition for carrying out an approved interdisciplinary program which approximates the requirements for a baccalaureate degree in an established discipline. For this

purpose the bachelor of arts or bachelor of science degree in interdisciplinary studies is offered.

Upon completion of 15 credits at UAF and at least 60 credits prior to graduation, a student may submit to the vice chancellor for Academic Affairs, an interdisciplinary curriculum leading to a B.A. or B.S. degree in interdisciplinary studies. The proposed curriculum must differ significantly from established degree programs at UAF and will require evidence that the necessary facilities and faculty are available to ensure an approximation of a normal bachelor's degree. All general requirements for the B.A. or B.S. degree must be met.

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

Graduate —

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

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

Journalism and Broadcasting

College of Liberal Arts

Department of Journalism and Broadcasting

(907) 474-7761

Degree: B.A.

Minimum Requirements for Degree: 130 credits

The curriculum in Journalism and Broadcasting offers a balance of professional and theory courses for majors and non-majors. Majors are able to take a variety of skills and theory courses while acquiring a strong liberal arts background. Non-majors, including those 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 | 3 |
| or JB 102 — Broadcasting and Society | 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:

18 Credits

| | |
|--|---|
| News-Editorial | |
| JB 444 — Advanced Newsgathering and Processing | 4 |
| One of the following: | |
| JB 204 — Basic Photojournalism | 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 204 — Basic Photojournalism | 3 |
| JB 240 — International Communications | 3 |
| JB 317 — Broadcast Journalism | 3 |
| *JB 326 — Principles of Advertising | 3 |
| JB 340 — Approaches to the Study of Mass Communication | 3 |
| JB 372 — Instructional Television | 3 |
| JB 407 — Programming and Production | 3 |
| JB 415 — News/Documentary Television Production | 3 |
| JB 416 — Advanced Broadcast Production | 3 |
| JB 433 — Public Relations | 3 |
| JB 492 — Seminar | 2 or 3 |

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

Economics Sociology
Political Science History
Psychology

D. Although not required, it is strongly recommended that every journalism student study another language, both to help gain a better perspective of English and to better comprehend the changing world.

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

3. Minimum credits required..... 130

*Cross-listed with BA 326, Principles of Advertising.

**Note: It should be understood that this broadcast option is primarily a news and production curriculum and is not intended as a dramatic or performing arts option.

MINOR in Journalism and Broadcasting:

Complete at least 16 credits of approved journalism and/or broadcasting courses, including the following:

| | |
|--|---------|
| JB 101 — Introduction to Mass Communications | Credits |
| or JB 102 — Broadcasting and Society | 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. — 130 credits

It has been said that the quality of a nation's civilization can be largely measured by the methods it uses to enforce its criminal law.

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 | 21 |
| JUST 110 — Introduction to Justice | 3 |
| JUST 221 — Justice Organization and Management | 3 |
| JUST 250 — Development of Law | 3 |
| JUST 251 — Criminology | 3 |
| JUST 330 — Justice and Society | 3 |
| JUST 451 — Research, Planning and Policy Analysis <i>method</i> | 3 |
| JUST 460 — Justice Processes | 3 |

Justice Emphasis Area Requirements:

15 credits in justice courses of which at least 12 credits must be upper division. Possible special emphasis areas might include:

Justice Administration Security Administration
Corrections General Justice
Legal Studies

3. Minimum credits required..... 130

MINOR in Justice:

Complete 18 credits in justice, including JUST 110, 9 of which must be upper division.

Justice

School of Career and Continuing Education Service Industry Department

(907) 474-5264

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

This degree program is presently suspended.

Linguistics

College of Liberal Arts Department of Linguistics

(907) 474-6886

Degree: B.A.

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

Linguistics is the scientific study of language and covers a variety of subjects from theories of grammar and how we produce language to applications of linguistic knowledge in areas such as language teaching. The Linguistics Program offers undergraduate courses and seeks to give an overview of the discipline to make students aware of the many aspects of that uniquely human phenomenon, language.

Requirements

Linguistics — B.A. Degree

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

| | |
|---|----------------|
| | Credits |
| A. Background-related Requirements | 15-18 |
| 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 or LING 216 — Languages of the World | 3 |

B. Major requirements..... 30

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:

| | |
|---|---|
| LING 410 — Second Language Teaching | 3 |
| LING 482 — Topics in Linguistics | 3 |
| (can be taken twice) | |
| LING 216 — Languages of the World | 3 |
| LING/ED 303 — Language and Literacy Development | 3 |
| LING 450 — Language Policy and Planning | 3 |
| 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..... 130

MINOR in Linguistics:

A minor in linguistics requires 12 credits in linguistics.

Marine Biology

School of Fisheries and Ocean Sciences

Graduate Program in Marine Sciences and Limnology

(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 the organisms, while biological oceanography focuses on how biological processes influence and are influenced by the ocean environment.

Graduate students are afforded excellent opportunities for laboratory and field research through the Institute of Marine Science. Laboratory facilities are available at Fairbanks, the Seward Marine Center, the Juneau Center for Fisheries and Ocean Science, the Fishery Industrial Technology Center at Kodiak, and at a number of coastal field sites. Opportunities for field work are available on the R/V *Alpha Helix*, which operates along the Alaskan Coast and in the Bering Sea, on the R/V *Little Dipper*, which operates in Resurrection Bay, and on the R/V *Maybeso*, which operates in Southeast Alaska.

Students are admitted to the Graduate Program in Marine Sciences and Limnology on the basis of their ability and the capability of the program to meet their particular interests and needs. Requests for admission are considered continuously and each application is reviewed by the department faculty. Stipends for financial support are awarded competitively. Limited fellowship support is available. Most students are supported on research projects that relate directly to their degree research.

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

Mathematics

College of Liberal Arts

Department of Mathematics

(907) 474-7332

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

Minimum Requirements for Degrees: B.A. — 120 credits; B.S. — 120 credits; M.A.T. — 36 additional credits; M.S. — 30-35 additional credits.

The number of new fields in which professional mathematicians find employment grows continually. A variety of programs are offered by the Department of Mathematical Sciences for students majoring in mathematics. Options exist for those who are planning careers in industry, government, or education. The Department of Mathematical Sciences also offers degree programs in statistics and computer science which are described elsewhere in this catalog.

In addition to the major programs, the department provides a number of service courses in support of other programs within the university. Current and detailed information on mathematics degrees and course offerings is available from the department.

Requirements

In addition to meeting all the general requirements for the specific degree, certain mathematics courses are required of all mathematics

majors. (At least 12 approved mathematics credits at the 300 level or above must be taken while in residence on the Fairbanks campus.) All electives must be approved by the department. (All mathematics majors — including double majors — must have an adviser from the Department of Mathematical Sciences.) Students preparing to teach mathematics in secondary schools should contact the Department of Education for a list of mathematics and education courses necessary to obtain an Alaskan teaching certificate.

Mathematics — B.A. or B.S. Degree

1. Complete the general university requirements and requirements for a B.A. or B.S. degree.

2. Complete the following program (major) requirements:

Complete the following courses:

| | |
|--|-----------|
| MATH 200, 201, 202 — Calculus sequence..... | 12 |
| MATH 210 — Calculus and the Computer | 1 |
| MATH 211 — Linear Algebra and the Computer | 1 |
| MATH 215 — Intro. to Mathematical Proofs..... | 2 |
| MATH 314 — Linear Algebra | 3 |
| MATH 308 — Abstract Algebra..... | 3 |
| MATH 401 — Advanced Calculus | 3 |
| MATH 492 — Senior Seminar | 1 |
| TOTAL | 26 |

Complete an elective package in the Mathematical Sciences consisting of at least 18 credits. This package must be approved by a Mathematical Sciences adviser and must include at least 12 credits at the 300-level or above. Students who are obtaining a single B.S. or B.A. with mathematics as a second major may substitute up to 9 credits of approved courses with strong mathematical content for Mathematical Sciences electives.

3. Minimum credits required..... 120

The following 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 301 | 6 |
| TOTAL | 20 |

C. Secondary Education

| | |
|---|-----------|
| STAT 301 — Elementary Probability and Statistics | |
| or STAT 400 — Statistics..... | 3 |
| MATH 305 — Geometry..... | 3 |
| CS 201 — Computer Programming I..... | 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 301 — Elementary Probability and Statistics | |
| or STAT 400 — Statistics..... | 3 |
| STAT 401 — Experimental Design & Regression | 3 |
| Approved elective..... | 3 |
| TOTAL | 18 |

MINOR in Mathematics:

A minor in Mathematics requires completion of Math 200-201-202, 210, 211 in addition to six departmentally approved credits at the- 300 level or above.

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

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

Mechanical Engineering

School of Engineering Department of Mechanical Engineering

(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 engineering consisting of 12 credit hours. Six of these credit hours can be used to fulfill the elective credit requirement in the mechanical engineering curriculum.

Because of the unique location of the University of Alaska Fairbanks, special emphasis is placed on cold regions engineering problems. This fact is highlighted in the mechanical engineering program by the technical elective, arctic engineering.

Candidates for the bachelor of science degree in mechanical engineering will be required to take the State of Alaska Engineer-in-Training Examination in their general field.

Requirements

Mechanical Engineering — B.S. Degree

1. Complete the general university requirements.
2. Complete the following degree and program (major) requirements. Students must plan their elective courses in consultation with their mechanical engineering faculty advisor, and all elective courses must be approved by their mechanical engineering faculty advisor. At least 6 of the 16 social science and humanities elective credit must be: (a) above the 100 level; or (b) advanced courses in a 100 level sequence. Sufficient depth in at least one of the areas must be demonstrated by evidence of a sequence of courses. This sequence must be approved by the student's departmental advisor.

First Year

| | |
|---|------------|
| Fall Semester | 16 credits |
| ENGL 111 — Methods of Written Comm | 3 |
| MATH 200 — Calculus | 4 |
| ES 101 — Descriptive Geometry for Engineers | 2 |
| Chemistry Elective | 4 |
| Humanities/Social Science Elective | 3 |

Spring Semester

| | |
|--|---|
| Speech Comm. Elective | 3 |
| MATH 201 — Calculus | 4 |
| ES 201 — Computer Techniques | 3 |
| Chemistry Elective | 4 |
| Humanities/Social Science Elective | 3 |

Second Year

| | |
|--|------------|
| Fall Semester | 17 credits |
| PHYS 211 — General Physics | 4 |
| MATH 202 — Calculus | 4 |
| ES 209 — Statics | 3 |
| ME 321 — Industrial Processes | 3 |
| ENGL 213 — Intermediate Exposition | 3 |

Spring Semester

| | |
|--------------------------------------|---|
| PHYS 212 — General Physics | 4 |
| MATH 302 — Differen. Equations | 3 |
| ES 210 — Dynamics | 3 |

| | |
|--------------------------------------|---|
| ES 346 — Thermodynamics | 3 |
| Humanities/Social Science Elec. | 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 |
| Humanities/Social Science Elective | 3 |

Spring Semester

| | |
|--|---|
| 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 |
| Humanities/Social Science Elec. | 3 |

Fourth Year

| | |
|---|------------|
| Fall Semester | 16 credits |
| ME 403 — Mechanical Design II | 4 |
| ME 415 — Thermal Systems Lab | 2 |
| ME Elective** | 3 |
| ES 334 — Elements Material Science Engr | 3 |
| Technical Elective* | 3 |
| Humanities/Social Science Elective | 1 |

Spring Semester

| | |
|---|---|
| ME 487 — Design Project | 3 |
| ME 408 — Dynamics of Systems | 3 |
| ME Elective** | 3 |
| ESM 450 — Econ. Analysis and Operations | 3 |
| Approved Elective | 4 |

*Engineering Course at 400 level or above

**Mechanical Engineering Course at 400 level or above

Selection of the elective courses must be made in consultation with ME advisor.

Mechanical Engineering — M.S. Degree

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

Medical Technology

University of Alaska Fairbanks/University of Washington Cooperative Program

(907) 474-6396

Students may enroll for four semesters at UAF completing requirements noted below, then apply for acceptance into the professional phase of the medical technology program at the University of Washington for an additional seven quarters. Up to four bona fide Alaska resident students will be accepted into the professional phase each year, if they qualify for admittance to the program. The B.S. degree is granted from the University of Washington.

Requirements

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

| | Credits |
|---|---------|
| BIOL 105-106 — Fundamentals of Biology I and II | 8 |
| BIOL 111-112 — Human Anatomy and Physiology | |
| or BIOL 210 — Animal Physiology | |
| and BIOL 317 — Comp. Anatomy of Vertebrates | 8 or 9 |
| BIOL 442 — Bacteriology and Immunology | 5 |
| CHEM 105-106 — General Chemistry | 8 |
| CHEM 212 — Quantitative Analysis | 4 |
| CHEM 321-322-324 — Organic Chemistry and lab | 9 |
| MATH 271-272 or STAT 301 — Calculus; Statistics | 7 or 8 |
| ENGL 111-211 or 213 — Written Communication | 6 |
| SPC 121 — Fundamentals of Oral Comm: Interpersonal | 3 |
| Social Studies elective — 3 credits, Humanities elective — 3 credits, | |
| other electives — 8-9 credits | |

For information on application procedures to the University of Washington and the Medical Technology Program contact the Health Professions Adviser, University of Alaska Fairbanks, Fairbanks, Alaska 99775.

Military Science

*College of Liberal Arts
Department of Military Science*

(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. — 134 credits; M.S. — 30-36 additional credits; E.M. — thesis and 5 years of experience

In the mining engineering curriculum, particular emphasis is placed upon engineering as it applies to the exploration and development of mineral resources and upon the economics of the business of mining. The program allows the student the choice of technical electives to develop in areas of exploration, mining or mineral beneficiation.

Candidates for the bachelor of science degree in mining engineering will be required to take a comprehensive examination in their general field (completion of the State of Alaska Engineer-in-Training examination will satisfy this requirement). The state of Alaska 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

| | |
|--|-------------------|
| <i>Fall Semester</i> | 17 Credits |
| ENGL 111 — Methods of Written Communications | 3 |
| MATH 200 — Calculus | 4 |
| CHEM 105 — General Chemistry | 4 |
| MIN 103 — Introduction to Mining Engineering | 2 |
| MIN 104 — Mining Safety and Operations Lab | 1 |
| Social Sciences or Humanities Elective ¹² | 3 |

Spring Semester

| | |
|---|---|
| CHEM 106 — General Chemistry | 4 |
| SPC Elective | 3 |
| MATH 201 — Calculus | 4 |
| ES 101 — Descriptive Geometry for Engineering | 2 |
| GE 261 — General Geology for Engineers | 3 |

Second Year

| | |
|---|-------------------|
| <i>Fall Semester</i> | 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

| | |
|--|---|
| PHYS 212 — General Physics..... | 4 |
| ES 208 — Mechanics..... | 4 |
| ES 201 — Computer Techniques..... | 3 |
| ENGL 211 or 213 — Intermediate Exposition..... | 3 |
| MATH 302 — Differential Equations..... | 3 |

Third Year

| | |
|---|-------------------|
| <i>Fall Semester</i> | 17 Credits |
| ES 331 — Mechanics of Materials | 3 |
| ES 341 — Fluid Mechanics | 4 |
| STAT 400 — Statistics | 3 |
| ES 307 — Elements of Electrical Engineering | 3 |

| | |
|---|-------------------|
| Social Sciences or Humanities**12 | 4 |
| Spring Semester | 15 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 |
| 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 |
| Social Sciences or Humanities12 | 6 |
| Spring Semester | 17 Credits |
| MIN 408 — Mineral Valuation and Economics | 3 |
| MIN 409 — Operations Research & Computer Appl. in Min. Ind. | 3 |
| MIN 490 — Mine Design Project | 2 |
| Technical Electives2 | 6 |
| Social Sciences or Humanities**12 | 3 |

Notes:

1. Of the 16 social science/humanities credits, at least 6 must be at or above the 200 level or advanced courses in a 100 level sequence. Sufficient depth in at least one of the areas must be demonstrated by evidence of a sequence of courses. This sequence must be approved by the student's departmental advisor.

2. Students must plan their elective courses in consultation with their mining engineering faculty advisor. Technical electives are selected from the list of the approved technical electives for mining engineering program and other programs course listing. All elective courses must be approved by the department head.

* On alternate years, a social science or humanities elective should be taken.

** On alternate years, GEOS 262 should be substituted.

*** On alternate years, GEOS 332 should be substituted.

*** Recommended Technical Electives for B.S. in Mining Engineering**

1. MIN 472 — Design, Construction and Stability of Mining Openings.
2. GE 405 — Exploration Geophysics
3. GE 440 — Slope Stability
4. MIN 410 — Surface Materials Handling Systems

At least three out of the six technical elective credits must be taken from the above list of the approved technical electives. The other three credits should be chosen in consultation with the advisor and subject to approval by the department head.

Mining Engineering — M.S. Degree

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

Museum Studies**College of Natural Sciences**

(907) 474-7505

The Museum Studies courses provide students with an understanding of the functions and roles of museums in contemporary society, with 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:

| | Credits |
|--|---------|
| 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 |

3. 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 |
|--|---------|
| ENGL 111 or equivalent and 211 or 213 | 6 |
| Speech Communications | 3 |
| Humanities (non-music) | 15 |
| Mathematics (including Computer Science) | |
| Natural Science, Social Science | 15 |

Required Music Courses:

| | Credits |
|--------------------------------------|---------|
| *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:

| | Credits |
|---|---------|
| MUS 124 — Music in World Cultures | 3 |
| *MUS 153 — Functional Piano | 1 |
| *MUS 161-162, 261-262, 361-362, 461-462 — Applied Music (Secondary Performance Area) | 2 or 4 |
| MUS 223 — Alaskan Native Musics | 3 |
| *MUS 307 — Chamber Music | 1 |
| *MUS 313 — Opera Workshop | 1-3 |
| *MUS 317 — Arctic Chamber Orchestra | 1 |
| *MUS 331 — Form and Analysis | 3 |
| *MUS 421-424 — Period History | 6 |
| *MUS 431 — Counterpoint | 3 |
| *MUS 432 — Orchestration | 3 |
| *MUS 433 — Composition | 3 |
| *MUS 493 — Special Topics | Arr. |

| | |
|--------------------------------------|---|
| **MUS 190 — Recital Attendance | 0 |
| MUS 253 — Piano Proficiency | 0 |

3. Minimum credits required for degree

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

Required Music Courses:

| | Credits |
|--|---------|
| *MUS 161-462 — 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 Department of Education before beginning education courses):

| | |
|--|----|
| MUS 405 — Secondary School Music Methods | 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 | 3 |
| 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 |

3. Minimum credits required

- 136
 *The applied music credit minimums defined for the major area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.

Music — B.M. Degree

(Music Education — Elementary)

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

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

Required Music Courses:

| | |
|--|----|
| *MUS 161-462 — 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 | 3 |
| Ensembles (1 per semester) | 8 |
| **MUS 190 — Recital Attendance | 0 |
| MUS 253 — Piano Proficiency | 0 |

Required education courses (Contact education department before beginning education courses):

| | |
|--|----|
| 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 |

3. Minimum credits required

- 142
 *The applied music credit minimums defined for the major area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.

Music — B.M. Degree

(Music Education — K-12)

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

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

Required Music Courses:

| | |
|---|----|
| 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 351 — Conducting | 3 |
| MUS 331 — Form and Analysis | 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:

| | Credits |
|--|---------|
| PSY 240 — Developmental Psychology | 3 |
| ED 330 — Diagnosis and Evaluation of Learning | 3 |
| ED 201 — Introduction to Education | 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 |

3. Minimum credits required..... 131

*The applied music credit minimums defined for the major area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.

MINOR in Music:

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

| | |
|---|----|
| Music Theory, History and Appreciation (courses to be selected with approval of department head)..... | 12 |
| MUS 151, 153, 161-462..... | 4 |
| MUS 101, 203, 205, 211 | 2 |

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

Music — M.A. or M.A.T. Degree

Each graduate student's program is individually tailored and designed to meet the student's professional interests and aspirations, consistent with university principles and procedures.

Students may select from the following areas of specialization for the M.A. degree: performance, music education, music theory/composition, music history, and Alaskan ethnomusicology.

The master of arts in teaching is designed primarily as a functional program for the public school music teacher. Areas of specialization are instrumental, vocal, music supervision, and elementary specialist. The program is determined by the student and his/her committee.

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

Natural Resources Management

School of Agriculture and Land Resources Management Division of Resources Management

(907) 474-5550

Degrees: B.S., M.S.

Minimum Requirements for Degree: B.S. — 130 credits; M.S. — 30-35 credits

The basic natural resources management curriculum is designed to provide students with a broad education in the various natural resources and their related applied fields. Programs can be tailored to specific interests of students and can combine the natural resources basic program with such fields as education, communications or political science or with greater depth in natural science and resources. The program is designed for students desiring a career in resource management or in other fields in which knowledge of resource management is useful, students planning to proceed to advanced study, and students of many plans who wish to be better informed citizens about today's important resource issues. The curricula for the B.S. in natural resources management/forestry and the B.S. in natural resources management/agriculture degrees are designed to provide the same basic science background and much the same basic resource background as the general degree, but, in addition, include greater depth in either forestry or agriculture. (The NRM/forestry degree is not equivalent to an accredited B.S. in forestry degree.) The emphasis in aviation integrates specialized aircraft use in resource management through courses in Aviation Technology available in the School of Career and Continuing Education.

Practical experience, "hands on" field and laboratory activities and applied aspects are stressed throughout the program. Internships and work-study arrangements are often available—with or without credit, with or without pay—for qualified students.

Requirements

Courses required for the majors may also be used to satisfy the general university requirements as appropriate.

Natural Resources Management — B.S. Degree

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

| | Credits |
|--|---------|
| BIOL 105-106 — Fundamentals of Biology, I and II..... | 8 |
| BIOL 271 — Principles of Ecology..... | 4 |
| CHEM 105-106 — General Chemistry..... | 8 |
| ECON 235 — Intro. to Nat. Resource Econ. | 3 |
| ECON 335 — Intermediate Natural Resource Econ..... | 3 |
| GEOS 101 — The Dynamic Earth..... | 4 |
| ALR 101 — Conservation of Natural Resources..... | 3 |
| ALR 201 — Processes of Natural Resources Management..... | 3 |
| ALR 251 — Silvics and Dendrology..... | 3 |
| ALR 310 — Agricultural Concepts and Techniques..... | 3 |
| ALR 340 — Natural Resources Measurements..... | 3 |
| ALR 370 — Introduction to Watershed Management..... | 3 |
| ALR 380 — Soils..... | 3 |
| ALR 400 — Natural Resource Policies | |
| or ALR 401 — Natural Resource Legislation..... | 3 |
| ALR 430 — Land Use Planning..... | 3 |
| ALR 460 — Outdoor Recreation..... | 3 |
| WLF 201 — Wildlife Management Principles..... | 3 |

3. Plus at least 12 credits from the following courses in the environment and/or resources. Approved courses not listed here may at times be applied toward this requirement.

| | Credits |
|--|---------|
| ALR 102 — Practicum in Natural Resources..... | 1-3 |
| ALR 211 — Introduction to Agronomy and Horticulture..... | 3 |
| ALR 320 — Introduction to Animal Science..... | 3 |
| ALR 360 — Outdoor Recreation Planning..... | 3 |
| ALR 411 — Plant Propagation..... | 3 |
| ALR 450 — Forest Management..... | 3 |
| ALR 461 — Interpretive Services..... | 3 |
| BIOL 471 — Population Ecology..... | 3 |
| BIOL 472 — Communities and Ecosystems..... | 3 |
| BIOL 480 — Water Pollution Biology..... | 2 |
| EQS 603 — Solid Waste and Air Pollution..... | 3 |
| ECON 437 — Regional Economic Development..... | 3 |
| FISH 430 — Fisheries and their Management..... | 3 |
| GEOG 327 — Cold Lands..... | 3 |
| GEOG 402 — Man and Nature..... | 3 |
| GEOS 304 — Geomorphology..... | 3 |
| MIN 101 — Minerals and Man..... | 3 |
| MIN 407 — Mineral Industry and Environment..... | 2 |
| SOC 307 — Demography..... | 3 |
| WLF 417 — Forest and Tundra..... | 2 |
| WLF 419 — Wetlands..... | 2 |
| Any ALR course not used in the above categories. | |

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

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

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

6. Minimum credits required..... 130**Natural Resources Management/Forestry — B.S. Degree**

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

| | Credits |
|--|---------|
| BA 101 — Introduction to Management Information Systems or Approved Elective..... | 3 |
| BIOL 105-106 — Fundamentals of Biology, I and II..... | 8 |

| | |
|--|---|
| BIOL 271 — Principles of Ecology..... | 4 |
| CHEM 105-106 — General Chemistry..... | 8 |
| ECON 235 — Intro. to Nat. Resource Econ..... | 3 |
| ECON 335 — Intermediate Natural Resource Econ..... | 3 |
| GEOS 101 — The Dynamic Earth..... | 4 |
| ALR 101 — Conservation of Natural Resources..... | 3 |
| ALR 201 — Processes of Natural Resources Management..... | 3 |
| ALR 251 — Silvics and Dendrology..... | 3 |
| ALR 340 — Natural Resources Measurements..... | 3 |
| ALR 370 — Introduction to Watershed Management..... | 3 |
| ALR 380 — Soils..... | 3 |
| ALR 400 — Natural Resource Policies..... | 3 |
| or ALR 401 — Natural Resource Legislation..... | 3 |
| ALR 430 — Land Use Planning..... | 3 |
| ALR 460 — Outdoor Recreation..... | 3 |
| WLF 201 — Wildlife Management Principles..... | 3 |

3. Complete the following courses:

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

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

| | |
|--|-----|
| GEOS 422 — Geoscience Applications of Remote Sensing..... | 3 |
| GEOS 408 — Map and Airphoto Analysis..... | 2 |
| FISH 430 — Fisheries Management..... | 3 |
| WLF 303 — Wildlife Management Techniques..... | 3 |
| WLF 417 — Wildlife Management — Forest and Tundra..... | 2 |
| BA 301 — Processes of Management..... | 3 |
| BA 350 — Introduction to Real Estate and Land Economics..... | 3 |
| BIOL 331 — Systematic Botany..... | 4 |
| ALR 300 — Internships in Natural Resources Management..... | 1-6 |
| (Must Be Forestry Related) | |
| ALR 310 — Agricultural Concepts and Techniques..... | 3 |
| ALR 312 — Intro. to Range Management..... | 3 |

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

6. Minimum credits required..... 130

Preforestry Program

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

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

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

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

Natural Resources Management/Agriculture—B.S. Degree

1. Complete the general university requirements and B.S. degree requirements.
2. Complete the following core (major) requirements for the agriculture option:

| | Credits |
|--|---------|
| BIOL 105-106 — Fundamentals of Biology, I and II..... | 8 |
| BIOL 271 — Principles of Ecology..... | 4 |
| CHEM 105-106 — General Chemistry..... | 8 |
| CHEM 321 — Organic Chemistry..... | 3 |
| ECON 235 — Intro. to Nat. Resource Econ..... | 3 |
| ECON 335 — Intermediate Natural Resource Econ..... | 3 |
| STAT 301 — Applied Statistics..... | 3 |
| ALR 101 — Conservation of Natural Resources..... | 3 |
| ALR 102 — Practicum in Natural Resources..... | 1-3 |
| ALR 211 — Introduction to Agronomy & Horticulture..... | 3 |

| | |
|---|---|
| ALR 310 — Agricultural Concepts & Techniques..... | 3 |
| ALR 320 — Introduction to Animal Science..... | 3 |
| ALR 380 — Soils..... | 3 |
| ALR 480 — Soil Conservation..... | 3 |

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

| | Credits |
|---|---------|
| GEOS 101 — The Dynamic Earth..... | 4 |
| ALR 201 — Processes of Natural Resources Management..... | 3 |
| ALR 251 — Dendrology and Silvics..... | 3 |
| ALR 300 — Internship in Natural Resources Management..... | 1-6 |
| ALR 312 — Introduction to Range Management..... | 3 |
| ALR 313 — Introduction to Plant Pathology..... | 4 |
| ALR 321 — Applied Animal Nutrition..... | 3 |
| ALR 340 — Natural Resources Measurements..... | 3 |
| ALR 370 — Introduction to Watershed Science..... | 3 |
| ALR 400 — Natural Resources Policies..... | 3 |
| ALR 401 — Natural Resources Legislation..... | 3 |
| ALR 403 — Managing Food Production Systems..... | 4 |
| ALR 411 — Plant Propagation..... | 3 |
| ALR 412 — Field Crop Production..... | 3 |
| ALR 420 — Animal Nutrition and Metabolism..... | 3 |
| ALR 425 — Alaska's Reindeer Industry..... | 3 |

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

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

| | Credits |
|---|---------|
| BIOL 210 — Animal Physiology..... | 4 |
| BIOL 239 — Plant Form and Function..... | 4 |
| BIOL 342 — Introductory Microbiology..... | 4 |
| BIOL 362 — Principles of Genetics..... | 4 |
| BIOL 331 — Systematic Botany..... | 4 |
| BIOL 406 — Entomology..... | 4 |
| BIOL 416 — Plant Physiology..... | 3 |

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

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

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

7. Minimum credits required..... 130

MINOR in Natural Resources Management

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

Natural Resources Management — M.S. Degree

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

Northern Studies**Interdisciplinary**

Degree: B.A.

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

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

peoples, and problems. The major in northern studies is interdisciplinary.

The northern studies curriculum is centered around an interdisciplinary seminar, the Northern Studies Seminar, History 484, which is taken in the senior year. Students also must complete 10 courses, constituting a core program and select an additional two courses of their choice from the disciplines represented in the core curriculum.

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the U.S.S.R., see Study Abroad.

Requirements

Northern Studies — B.A. Degree

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

| | Credits |
|--|---------|
| Core: | |
| BIOL 104 — 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 or | |
| ANTH 245 — Circumpolar Cul Traditions and Transformations or | |
| ANTH 329 — Peoples of the Russian North | 3 |
| GEOG 327 — Cold Lands | 3 |
| HIST 384 — History of the Circumpolar North | 3 |
| NS 484 — Northern Studies Seminar..... | 3 |

Select 15 credits from two of the following groups:*

Anthropology:

| | |
|--|---|
| ANTH 242 — Native Cultures of Alaska or | |
| ANTH 245 — Circumpolar Cul Traditions and Transformations or | |
| ANTH 329 — Peoples of the Russian North | 3 |
| (May not use the same course selected for the core.) | |
| ANTH 309 — Arctic Prehistory..... | 3 |
| ANS/ANTH 320 — Lang and Culture: Appl to Alaska | 3 |
| ANTH 321 — Physical Anthropology of the Americans..... | 3 |
| ANTH 350 — Russian Period in Alaska 1974—1867 | 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 the Soviet Union..... | 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 | 3 |
| 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 |
| 3. Minimum credits required..... | 130 |

*Students are encouraged to use the major in conjunction with a discipline-based major. Double majors linking Northern Studies with, for example, Alaska Native studies, anthropology, geography, history or political science 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 NS 484, for a total of 18 credits.

Nursing

(907) 474-7764

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

With this situation in mind, the curriculum at the College of Nursing has been developed to foster creativity and independent judgement as part of the role of professional nurse. The first three semesters provide the general education foundation for the nursing courses. Five clinical courses, each building upon the previous one, follow over the next five semesters. The first two courses deal with nursing care of the essentially well and at risk client. The student learns basic theory and physical assessment, communication, nursing process and community health concepts, as well as screening procedures, health teaching and well child care. The third and fourth clinical courses are the only courses not available on the UAF campus. The third course deals with nursing care of clients experiencing temporary disruptions of health, primarily in the hospital setting. During the fourth course the student focuses on nursing care of clients experiencing long-term disruptions of health in both hospital and community settings. Theory and practice include working with groups of clients and community planning programs. The final course synthesizes the principles and practice learned in the previous courses. The student spends a concentrated amount of time in a clinical area of professional interest or need, integrating, expanding and practicing concepts and skills learned throughout the nursing curriculum. The College of Nursing has received full national accreditation for this program.

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

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

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, a variety of alpha, gamma and beta counting equipment, a flow cytometer facility, and a variety of gas and liquid chromatography equipment. Mainframe and

personal computing facilities are readily accessible to graduate students.

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

Office Professions

School of Career and Continuing Education Business Systems and Technology Department

(907) 451-7223

Certificate; Degree: A.A.S.

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

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

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

Requirements

Office Professions — A.A.S. Degree

1. Complete the following general degree requirements: Credits

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

Oral Communication 3

Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science 6
(At least 3 credits shall be math or natural science at the 100 level or above.)

Subtotal 15

2. Complete the following major degree requirements:

ACCT 101 — Elementary Accounting 3

or

ABUS 142 — Office Accounting I 4

and

ABUS 143 — Office Accounting II 4

OP 105 — Keyboarding II/Intermediate Typewriting 3

OP 106 — Keyboarding III/Advanced Typewriting 3

OP 131 — Business English 3

OP 151 — Microcomputer Word Processing/WordPerfect or

OP 152 — Microcomputer Word Processing/Displaywrite 4 2

OP 203 — Calculating Machines 2

OP 207 — Machine Transcription 2

OP 221 — Filing/Records Management 3

OP 231 — Business Communications 3

OP 244 — Office Procedures 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

OP 100 — Alphabetic Shorthand 3

OP 101 — Shorthand Principles I 4

OP 102 — Shorthand Principles II 4

OP 201 — Shorthand Principles III 3

OP 210 — Legal Typewriting 3

OP 219 — Legal Machine Transcription 1

OP 211 — Medical Typewriting 2

OP 214 — Medical Machine Transcription 1

Any other CAPS, ABUS or OP course 1-6

4. Complete 7 general electives credits 7

Degree Total 60

Office Professions — Certificate

1. Complete the following major specialty requirements: Credits

Acct. 101 — Elementary Accounting 3

or

OP 142 — Office Accounting I 2

OP 105 — Keyboarding II/Intermediate Typewriting 3

OP 106 — Keyboarding III/Advanced Typewriting 3

OP 131 — Business English 3

OP 151 — Microcomputer Word Processing/Word Perfect or
OP 152 — Microcomputer Word Processing/Displaywrite 4 2
OP 203 — Calculating Machines 2
OP 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

OP 100 — Alphabetic Shorthand 3

OP 101 — Shorthand Principles I 4

OP 102 — Shorthand Principles II 4

OP 210 — Legal Typewriting 2

OP 219 — Legal Machine Transcription 1

OP 211 — Medical Typewriting 2

OP 214 — Medical Machine Transcription 1

OP 231 — Business Communications 3

OP 244 — Office Procedures 3

3. Any other CAPS, ABUS or OP course 3

Certificate Total 30-32

Paraprofessional Counseling

School of Career and Continuing Education Academic Programs

(907) 474-6658

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

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

Program Requirements

1. A personal interview with the advisor of the Paraprofessional Counseling program.

2. Three letters of recommendation, submitted to the program advisor prior to the second year.

3. A minimum grade of "C" in all courses required for the PPC degree.

Requirements

Paraprofessional Counseling — A.A.S. Degree

1. Complete the following general degree requirements: Credits:

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

Oral Communication 3

Select a total of 6 credits from the following areas: humanities, social science, mathematics or natural science 6
(At least 3 credits shall be math or natural science at the 100 level or above.)

(NOTE: PSY 101 is a prerequisite for required PPC courses. SOC 101 is recommended.)

Subtotal 15

2. Complete the following major degree requirements:

PPC 101 — Models of Human Personality and Counseling I 3

PPC 102 — Models of Human Personality and Counseling II 3

PPC 105 — Basic Helping Skills 3

PPC 201 — Principles of Group Counseling 3

PPC 205 — Advanced Helping Skills 3

PPC 206 — Paraprofessional Roles and Ethics 3

PPC 208 — Human Problems and Evaluation I 3

PPC 209 — Human Problems and Evaluation II 3

PPC 289 — Practicum I and II 6

Subtotal 30

3. Complete 9 credits from the following major specialty requirements:

PPC 203 — Substance Abuse Counseling I (3)

PPC 204 — Working with Marriage and Family Problems (3)

PPC 207 — Personal Awareness and Growth (3)

PPC 212 — Counseling Children (3)

PPC 215 — Working with People of Other Cultures (3)

SOC 242 — The Family (3)

PPC — Special Topics (6)

Subtotal 9

| | |
|----------------------------|----|
| 4. General Electives | 6 |
| Degree Total | 60 |

Petroleum Engineering

School of Mineral Engineering Department of Petroleum Engineering

(907) 474-7734

Degrees: B.S., M.S.**Minimum Requirements for Degrees:** B.S. — 133 credits; M.S. — 30-33 additional credits.

Petroleum engineering at UAF offers a unique look at the challenging problems confronting the petroleum industry. Both the bachelor of science and the master of science degrees are available. Requirements for the degrees focus on many disciplines, including mathematics, physics, chemistry, geology and engineering science. In addition, courses in petroleum engineering deal with drilling, formation evaluation, production, reservoir engineering, computer simulation and enhanced oil recovery.

The curriculum at UAF was designed to prepare graduates to meet the demands of modern technology while emphasizing, whenever possible, the special problems encountered in Alaska. Located in one of the largest oil producing states in the nation, the Department of Petroleum Engineering offers one of the most modern and challenging degree programs available.

Requirements

Petroleum Engineering — B.S. Degree

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

| | |
|--|------------|
| First Year | |
| <i>Fall Semester</i> | 16 Credits |
| PETE 103 — Survey of the Energy Industry | 2 |
| MATH 200 — Calculus I | 4 |
| CHEM 105 — General Chemistry | 4 |
| ENGL 111 — Methods of Written Communication | 3 |
| Humanities or Social Science Elective ¹ | 3 |

| | |
|--|------------|
| <i>Spring Semester</i> | 17 Credits |
| ES 201 — Computer Techniques | 3 |
| MATH 201 — Calculus II | 4 |
| GE/GEOS 261 — Geology for Engineers ² | 3 |
| CHEM 106 — General Chemistry II | 4 |
| *Speech Communication Elective | 3 |

| | |
|--|------------|
| Second Year | |
| <i>Fall Semester</i> | 17 Credits |
| PETE 205 — Introduction to Petroleum Drilling and Production | 3 |
| MATH 202 — Calculus III | 4 |
| PHYS 211 — General Physics I | 4 |
| ENGL 211/213 — Intermediate Exposition | 3 |
| Humanities or Social Science Elective ¹ | 3 |

| | |
|--|------------|
| <i>Spring Semester</i> | 17 Credits |
| ES 208 — Mechanics | 3 |
| MATH 302 — Differential Equations | 3 |
| PHYS 212 — General Physics II | 4 |
| ES 346 — Basic Thermodynamics | 3 |
| Humanities or Social Science Elective ¹ | 3 |

| | |
|--|------------|
| Third Year | |
| <i>Fall Semester</i> | 16 Credits |
| PETE 301 — Reservoir Rock Properties | 3 |
| MATH 310 — Numerical Analysis | 3 |
| ES 331 — Mechanics of Materials | 3 |
| ES 341 — Fluid Mechanics | 4 |
| Humanities or Social Science Elective ¹ | 3 |

| | |
|---|------------|
| <i>Spring Semester</i> | 18 Credits |
| PETE 302 — Well Logging | 3 |
| PETE 305 — Underground Fluid Behavior and Lab | 4 |
| PETE 426 — Drilling Engr. & Lab | 4 |
| ME 441 Heat and Mass Transfer | 3 |
| GEOS 370 — Struct. Geol. for Petr. Engr | 4 |

| | |
|--|------------|
| Fourth Year | |
| <i>Fall Semester</i> | 18 Credits |
| PETE 407 — Production Engr. & Lab | 4 |
| PETE 421 — Subsurface Engineering | 3 |
| PETE 431 — Natural Gas Engineering | 2 |
| PETE 476 — Reservoir Engineering | 3 |

| | |
|--|---|
| *Engineering Elective (e.g. ME 416 or ES 307) | 3 |
| *Technical Elective (e.g. CE 603 Arctic Engr.) | 3 |

| | |
|---|------------|
| Spring Semester | 14 Credits |
| PETE 456 — Pet. Eval. and Econ. Dec. | 3 |
| PETE 466 — Petroleum Recovery Meth. | 3 |
| PETE 478 — Well Test Analysis | 2 |
| PETE 489 — Reservoir Simulation | 2 |
| Humanities or Social Science Elect ¹ | 4 |

Notes:

¹ Sixteen credits in humanities and social sciences are required. All electives must be approved by the petroleum engineering faculty advisor. At least 6 of the 16 credits must be (a.) above the 100-level or (b) advanced courses in a 100-level sequence; and at least 3 credits must be in the humanities and 3 in the social science designation.

² GEOS 101 may be taken in a fall semester in place of GE 261.

* As approved by advisor.

³ As approved by the Board of Architects, Engineers and Land Surveyors, students are required to take the EIT exam as a condition of graduation.

Petroleum Engineering — M.S. Degree

The M.S. program is intended to provide the student with an advanced treatment of petroleum engineering concepts. Both a thesis and non-thesis option are available. A number of generous research assistantships are available. Applicants should possess a B.S. degree in engineering or the natural sciences.

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

Philosophy

College of Liberal Arts

Department of Philosophy and Humanities

(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.

| | |
|-----------------------------------|-----|
| 5. Minimum credits required | 130 |
|-----------------------------------|-----|

MINOR in Philosophy:

A minor in philosophy requires 18 credits of approved philosophy courses including:

| | Credits |
|---|---------|
| PHIL 201 — Introduction to Philosophy..... | 3 |
| PHIL 351-352 — History of Philosophy and Science..... | 6 |
| PHIL 471 — Contemp. Philosophical Problems..... | 3 |

Choose six credits from the following:

| | |
|--|---|
| PHIL 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

College of Liberal Arts

Department of Physical Education

(907) 474-7382

Degrees: B.A., B.S.

Minimum Requirements for Degrees: B.A. — 130 credits; B.S. — 130 credits

The curriculum in physical education encompasses three programs of instruction: an academic discipline, a teacher certification specialty, and a program for individual development in physical activities.

1. The academic discipline of physical education, which can be a major or minor area of study for a bachelor's degree, is the study of human beings engaged in sport and physical activities which serve as expressions of their physical and competitive natures.
2. Courses which relate to teaching physical education or coaching athletic teams in school or recreation programs can be added to academic discipline courses to complete a teaching or coaching specialty for state certification.
3. Finally, a program of courses is provided for the general and professional student to acquire individual skills, attitudes, knowledge, and physical fitness for participation in selected sports and physical activities.

Requirements

Physical Education — B.A. or B.S. Degree

1. Complete the general university requirements and B.A. or B.S. degree requirements.
2. Complete the following background requirements:

| | Credits |
|---|---------|
| CHEM 103 or 104 — Contemporary Chemistry..... | 4 |
| BIOL 111-112 — Human Anatomy and Physiology I and II..... | 8 |
| MATH 107 — Elementary Functions or | |
| MATH 161 — Algebra for Business and Economics or | |
| MATH 171 — Mathematics for Life Sciences..... | 3 |

3. Complete the following program (major) requirements:

| | |
|--|---|
| <i>Required Courses (22 Credits)</i> | |
| 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..... | 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 Courses (select a minimum of 8 credits)

For Elementary, Secondary, or K-12 Teaching Certification, students are required to complete one winter sport, one individual sport, one team sport, and five electives from the 200 fundamentals series.

| | |
|---|-----|
| 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 Courses (select a minimum of 4 courses.)

| | |
|--|-----|
| 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 Courses (select a minimum of 7 credits)

| | |
|--|-----|
| PE 317 — Motor Learning..... | 3 |
| PE 321 — Practicum in Physical Education..... | 1* |
| PE 327 — Movement Activities for Children..... | 2* |
| PE 401 — Theory of Basketball..... | 2 |
| PE 406 — Methods of Teaching P.E..... | 3* |
| PE 411 — Sports & Physical Activity in American Society..... | 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 Education..... | 3* |

4. Minimum credits required..... 130

*Required by the physical education department for those majors who wish to be considered for Elementary, Secondary or K-12 Teaching Certification.

**Required for K-12 Certification.

Elementary or Secondary Teaching Certification:

In addition to the 22 required, 8 elective credits from the 200 (Fundamentals) series, and 4 elective classes from the 300-310 series, students working toward teacher certification with the B.S. or B.A. in Physical Education must complete:

| | |
|--|-----------|
| PE 321 — Practicum in Physical Education..... | 1 |
| PE 327 — Movement Activities for Children..... | 2 |
| PE 406 — Methods and Materials in Teaching P.E..... | 3 |
| PE 425 — Administration of P.E. and Athletics..... | 3 |
| PE 442 — Measurement and Evaluation in Physical Education..... | 3 |
| Total | 12 |

AND the required courses from the Education Department.

K-12 Teaching Certification:

In addition to the 22 required credits, 8 elective credits from the 200 (Fundamentals) series, and 4 elective classes from the 300-310 series, students working toward K-12 teacher certification with the B.S. or B.A. in Physical Education must complete:

| | |
|---|----|
| PE 306 — Techniques in Teaching Creative Dance..... | 1 |
| PE 307 — Techniques in Camping and Outdoor Recreation..... | 1 |
| PE 321 — Practicum in Physical Education..... | 2* |
| PE 327 — Movement Activities for Children..... | 2 |
| PE 406 — Methods of Teaching Physical Education..... | 3 |
| PE 411 — Sports and Physical Activity in American Society..... | 3 |
| PE 425 — Administration of P.E. and Athletics..... | 3 |
| PE 442 — Measurements and Evaluation in Physical Education..... | 3 |

*Students are required to complete one semester (1 credit) in an approved practicum with elementary school children and one semester (1 credit) of an approved practicum on campus.

AND the following courses required by the Department of Education for certification:

| | |
|---|----|
| PSY 240 — Developmental Psychology in Cross-Cultural Perspective..... | 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 |

MINOR in Physical Education:

For a minor in P.E. for a B.A. degree, complete 18 approved credits in Physical Education at the 200-level or above.

Physics

College of Natural Sciences Department of Physics

(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 211-212 — 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. | |

3. Minimum credits required..... 130

Physics — B.S. Degree

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

2. Complete the following program (major) requirements:

| | |
|---|--|
| MATH 200-201-202, 302 and 9 additional credits at the 300-level or above. | |
| PHYS 113, 211-212, 213, 311-312-313, 331-332, 411-412, 381, 382, 445 and 462. | |

3. Minimum credits required..... 130

Suggested Curriculum for B.S. Degree

First Year

| Fall Semester | 16 credits |
|--|------------|
| ENGL 111 — Methods of Written Communication..... | 3 |
| MATH 200 — Calculus..... | 4 |
| CHEM 105 — General Chemistry..... | 4 |
| BIOL 105 or GEOL 101..... | 4 |
| PHYS 113..... | 1 |

Spring Semester

| | |
|-------------------------------------|---|
| Speech Communication Elective | 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 211 — Intermediate Exposition with Modes of Literature or ENGL 213 — Intermediate Exposition..... | 3 |
| GEOL 101 or BIOL 105..... | 4 |
| Humanities/Social Science elective..... | 3 |

Spring Semester

| | |
|---|---|
| MATH 302 — Differential Equations..... | 3 |
| PHYS 213 — Elementary Modern Physics..... | 3 |

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

Third Year

| Fall Semester | 16 credits |
|---|------------|
| MATH 421 — Applied Analysis I..... | 4 |
| PHYS 311 — Mechanics..... | 4 |
| PHYS 331 — Electricity and Magnetism..... | 3 |
| PHYS 381 — Physics Laboratory..... | 2 |
| Humanities/Social Science electives..... | 3 |

Spring Semester

| | |
|---|---|
| MATH 422 — Applied Analysis II..... | 4 |
| PHYS 312 — Mechanics..... | 4 |
| PHYS 332 — Electricity and Magnetism..... | 3 |
| PHYS 382 — Physics Laboratory..... | 2 |
| Humanities/Social Science electives..... | 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

| | |
|--|---|
| PHYS 412 — Modern Physics | 4 |
| PHYS 445 — Solid State Physics | 4 |
| ES 308 — Instrumentation and Measurement | 3 |
| Free electives | 6 |

MINOR in Physics:

A minor in Physics requires 12-16 credits.

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

Graduate work is offered in various areas of physics and applied physics including many of the research areas found at the UAF Geophysical Institute. The research program of the Geophysical Institute currently emphasizes investigations of auroral, ionospheric, magnetospheric and space plasma physics, the physics and chemistry of the upper and middle atmosphere, radio wave propagation and scattering, solar-terrestrial relations, and polar meteorology.

A graduate student may designate his/her major field as physics, space physics or atmospheric sciences. He/she will pursue his/her studies under the supervision of an advisory committee which will advise on the course of study to be followed.

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

Political Science

College of Liberal Arts Department of Political Science

(907) 474-7609

Degree: B.A.

Minimum Requirements for Degree: 130 credits

The study of political science is the study of man's efforts to create social organizations and processes compatible with our environment. Political science is related to all of the social science disciplines. It is the study of the dynamics of human behavior in the various cultural, national and international spheres.

Students of political science may prepare for teaching or for advanced study in law and the social sciences, or prepare themselves for careers in public service.

Requirements

Political Science — B.A. Degree

1. Complete general university requirements and B.A. degree requirements.
2. Complete the following social science distribution requirements. (May be used to meet general B.A. requirements):

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

| | |
|---|-----|
| or SOC 101 — Introduction to Sociology..... | 3 |
| 3. Complete 30 credits in political science, beyond PS 101 including: | |
| Three Credits in Policy & Administration from: | |
| PS 102 — Introduction to American Government and Politics..... | 3 |
| PS 210 — Alaska Government and Politics..... | 3 |
| PS 211 — State and Local Government..... | 3 |
| PS 212 — Introduction to Public Administration..... | 3 |
| PS 263 — Alaska Native Politics..... | 3 |
| Six Credits in Comparative Politics as follows: | |
| PS 201 — Comparative Politics: Methods of Political Analysis..... | 3 |
| Choose one of the following: | |
| PS 202 — Comparative Politics: Contemporary Doctrines and Structures..... | 3 |
| PS 310 — The Politics of Post-Industrial States..... | 3 |
| PS 311 — Government and Politics of the Soviet Union..... | 3 |
| PS 312 — Government and Politics of China..... | 3 |
| Six Credits in International Politics from: | |
| PS 321 — International Politics..... | 3 |
| PS 322 — International Relations..... | 3 |
| PS 437 — American Foreign Policy and National Security..... | 3 |
| PS 480 — The United Nations, Model United Nations and International Administration..... | 1-3 |
| PS 481 — Geopolitics and the International Environment..... | 3 |
| Three credits in Law and National Government Institutions from: | |
| PS 301 — American Presidency..... | 3 |
| PS 302 — Congress and Public Policy..... | 3 |
| PS 435 — The Supreme Court and the American Legal System..... | 3 |
| PS 436 — The Courts and Civil Liberties..... | 3 |
| Six credits in Political Theory from: | |
| PS 315 — American Political Thought..... | 3 |
| PS 411 — Classical Political Theory..... | 3 |
| PS 412 — Modern Political Theory..... | 3 |
| PS 415 — Contemporary Political Theory..... | 3 |
| Six credits in Political Behavior as follows: | |
| PS 400 — Political Science Research Methods..... | 3 |
| Choose one of the following: | |
| PS 401 — Political Behavior: Organizations..... | 3 |
| PS 402 — Political Behavior: Individuals..... | 3 |
| PS 403 — Public Policy..... | 3 |

MINOR in Political Science

A minor in Political Science requires 15 credits distributed as follows:

| | |
|--|---------|
| | 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

Rural College 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.

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, see the UAF Graduate Catalog.

Rural Development

Rural College 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.*

*The B.A. general degree requirements of 18 credits in any combination of courses at the 100 level or above in both humanities and social sciences, selected from at least three disciplines in each area, with a maximum of 9 credits from any one discipline must contain the following courses:

| | |
|--|---|
| Social Sciences: | |
| ANTH 242 — Native Cultures of Alaska..... | 3 |
| ANS 310 — Political Economy of ANCSA..... | 3 |
| SOC 405 — Social Change or | |
| ANS 475 — Alaska Native Social Change..... | 3 |
| 2. Complete the following program (integrated major/minor) requirements: | |

| | Credits |
|---|---------|
| Rural Development Core (30 credits): | |
| RD 300 — Rural Development in a Global Perspective | 3 |
| RD 325 — Community Organization and Dev. Strategies | 3 |
| ED 338 — Education and Economic Development | 3 |
| RD 350 — Community Research and Planning | 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 and logic, or natural science general requirements for the B.A. degree.)

Applied Land Management Emphasis

Designed for individuals interested in becoming involved in the management of village corporation lands.

| | |
|---|-----------|
| ALR 101 — Conservation of Natural Resources | 3 |
| ALR 251 — Introduction to Forest Systems | 3 |
| ALR 380 — Soils | 3 |
| ALR 401 — Natural Resources Legislation | 3 |
| ALR 430 — Land Use Planning | 3 |
| ALR 450 — Forest Management | 3 |
| ANS 425 — Federal Indian Law and Alaska Natives | 3 |
| BIOL 104 — Natural History of Alaska | 3 |
| BIOL 271 — Principles of Ecology | 4 |
| BA 100 — Introduction to Data Processing and BASIC | 3 |
| ECON 235 — Intro. to Natural Resource Economics | 3 |
| GEOS 101 — The Dynamic Earth | 4 |
| WLF 417 — Wildlife Management — Forest and Tundra | 2 |
| WLF 419 — Waterfowl and Wetlands Ecology and Management | 2 |
| 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.

| | |
|--|-----------|
| ACCT 101 — Elementary Accounting I | 3 |
| ACCT 303 — Governmental Accounting | 3 |
| ANS 120 — Cultural Differences in Institutional Settings | 3 |
| ANS 425 — Federal Indian Law and Alaska Natives | 3 |
| ANS 475 — Alaska Native Social Change | 3 |
| ANTH 305 — Comparative Political and Legal Systems | 3 |
| BA 100 — Introduction to Data Processing and BASIC | 3 |
| BA 301 — Processes of Management | 3 |
| PS 101 — Intro. to American Government and Politics | 3 |
| PS 210 — Alaska Government and Politics | 3 |
| PS 212 — Introduction to Public Administration | 3 |
| SOC 407 — Formal Organizations | 3 |
| SPC 330 — Intercultural Communication | 3 |
| SPC 335 — Organizational Communication | 3 |
| Approved electives | 3 or more |

Village Corporation Management Emphasis

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

| | |
|--|-----------|
| ACCT 101 — Elementary Accounting I | 3 |
| ACCT 102 — Elementary Accounting II | 3 |
| ANTH 306 — Economic Anthropology | 3 |
| ANS 415 — Comparative Economic Development Processes | 3 |
| ANS 425 — Federal Indian Law and Alaska Natives | 3 |
| ANS 475 — Alaska Native Social Change | 3 |
| BA 100 — Introduction to Data Processing and BASIC | 3 |
| BA 151 — Introduction to Business | 3 |
| BA 331 — The Legal Environment of Business | 3 |
| ECON 111 — Economics of Rural Alaska (offered only through off-campus program) | 3 |
| ECON 137 — The Alaskan Economy | 3 |
| SPC 330 — Intercultural Communication | 3 |
| SPC 335 — Organizational Communication | 3 |
| SOC 407 — Formal Organizations | 3 |
| Approved electives | 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.

| | |
|--|---|
| ANS 120 — Cultural Differences in Institutional Settings | 3 |
| ANS 301 — Native Cultural Heritage Documentation | 3 |
| ANS 320 — Language & Culture: Application of Alaska | 3 |
| ANS 351 — Practicum in Native Cultural Expression | 3 |

| | |
|---|-----------|
| ANS 401 — Knowledge of Native Elders | 3 |
| ANS 421 — Analytical Techniques | 3 |
| BA 100 — Intro. to Data Proc. & BASIC Lang | 3 |
| ED 311 — Audio-Visual Methods and Materials | 3 |
| JB 204 — Basic Photojournalism | 3 |
| JB 372 — Methods of Instructional Broadcasting | 3 |
| LS 201 — Information Resources & Strategies | 3 |
| SOC 250 — Intro. Statistics for Behavioral Sciences | 3 |
| SOC 473 — Social Science Research Methods | 3 |
| SPC 330 — Intercultural Communication | 3 |
| SPC 335 — Organizational Communication | 3 |
| Approved Electives | 3 or More |

Community Organization and Service

Designed for individuals who are interested in becoming involved with community level service organizations and programs.

| | |
|---|-----------|
| ANS 120 — Cultural Differences in Institutional Settings | 3 |
| ANS 425 — Federal Indian Law and Alaska Natives | 3 |
| BA 301 — Processes of Management | 3 |
| HMSV 201 — Introduction to Human Services | 3 |
| HMSV 350 — Foundations of Counseling | 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 Perspectives | 3 |
| SOC 101 — Introduction to Sociology | 3 |
| SOC 201 — Social Problems | 3 |
| SOC 242 — The Family: A Cross-Cultural Perspective | 3 |
| SPC 330 — Intercultural Communication | 3 |
| Approved electives | 3 or more |
| Minimum credits required | 120 |

Russian Studies

Interdisciplinary

Degree: B.A.

Minimum Requirements for Degree: 130 credits

Requirements

Russian Studies — B.A. Degree

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

| Core courses (21-24 credits): | Credits |
|---|---------|
| Approved Anthropology Elective | 3 |
| GEOG 306 — Geography of the Soviet Union | 3 |
| HIST 344 — Modern Russia | 3 |
| RUSS 301 — Advanced Russian* | 3 |
| RUSS 303 — Advanced Russian* | 3 |
| RUSS 432 — Studies in Russian Lit. and Culture (twice - 6 cr.) or | |
| RUSS 432 — Studies in Russian Lit. and Culture (once - 3 cr.) and | |
| RUSS 387 — Semantics (2 cr.) and | |
| RUSS 487 — Translation (2 cr.) | 6-7 |

Complete at least 12 credits from the following courses or alternatives as approved by the program advisor:

| | |
|--|---|
| 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 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 301-303.

MINOR in Russian:

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

Science Management

School of Engineering

Department of Engineering and Science Management

(907) 474-6121

Degrees: M.S.

Minimum Requirements for Degrees: 33 credits (beyond a bachelor's degree in a scientific field)

The science management curriculum is designed for graduate scientists who will hold executive or managerial positions in engineering, construction, industrial, or governmental organizations. It includes human relations, financial, economic, quantitative, technical and legal subjects useful in solving problems of management.

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

Social Work

Rural College Department of Behavioral Sciences and Human Services

(907) 474-7240

Degrees: B.A.

Minimum Requirements for Degrees: B.A. — 120 credits

Graduates in social work qualify for beginning practice positions in child welfare, mental health, services to the aged, family agencies, youth programs, health services, Native corporations, and various other social agencies. Students learn to work with people on a personal level and are placed in a social agency as part of their course work during the senior year. Social work applies knowledge in the behavioral sciences to deal with the emotional and social problems of individuals, families, and communities. The program is offered at the Fairbanks, Chukchi and Northwest campuses.

The curriculum includes a liberal arts base, foundation requirements in the behavioral sciences, and 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 103 or BIOL 111 must be taken to meet natural science requirement.)

2. Complete the following departmental core requirements:

| | |
|--|---|
| *PSY 101 — Introduction to Psychology | 3 |
| *SOC 101 — Introduction to Sociology | 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 352 — 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 |
| Minimum credits required for degree | 120 |

*May be used toward general degree requirements where applicable.

Sociology

Rural College Department of Behavioral Sciences and Human Services

(907) 474-7240

Degrees: B.A., B.S.

Minimum Requirements for Degrees: 120 credits

Sociology is the study of groups and their influence on personal behavior and culture. It is concerned with social processes that give rise to and shape human language, experience, perception, meaning, and behavior.

Requirements

Sociology — B.A. or B.S. Degree

1. Complete the general university requirements and B.A. or B.S. degree requirements.

2. Complete the following departmental core requirements:

| | |
|--|---|
| *PSY 101 — Introduction to Psychology | 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 general degree requirements where applicable.

**Courses from this group not used toward the major may be applied toward general degree requirements where applicable.

MINOR in Sociology:

A minor in Sociology requires 18 credits in sociology including Soc. 101 and 102.

Space Physics

College of Natural Sciences Department of Physics

(907) 474-7339

Degrees: M.S., Ph.D.

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

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

Speech Communication

College of Liberal Arts Department of Speech Communication

(907) 474-7751

Degree: B.A.

Minimum Requirements for Degree: 130 credits

→ HMSV 356

Course work in Speech Communication prepares an individual to handle the challenges of communicating effectively in a rapidly changing world. The major and minor program in Speech Communication provide the student with a comprehensive background in the discipline in preparation for employment or further education. Individuals majoring in a wide variety of other disciplines will also find Speech Communication electives to be valuable additions to their programs.

Requirements

Speech Communication — B.A. Degree

1. Complete the general university degree requirements and B.A. degree requirements, including one of the following three courses for the Oral Communication requirement: SPC 121, SPC 131, or SPC 141. The course completed to meet the University Oral Communication requirement may not be used to meet the requirements of the Speech Communication Major listed in section 2.
2. Complete a minimum of 30 credits in approved Speech Communication courses.

The courses must be distributed as follows:

| | |
|------------------------|------------|
| 100 level courses..... | 3 credits |
| 200 level courses..... | 6 credits |
| 300 level courses..... | 12 credits |
| 400 level courses..... | 9 credits |

COURSES

100 Level

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

200 Level

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

300 Level*

| | |
|---|---|
| SPC 320 — Communication and Language..... | 3 |
| SPC 321 — Nonverbal Communication..... | 3 |
| SPC 322 — Interpersonal Communications..... | 3 |
| SPC 330 — Intercultural Communication..... | 3 |
| SPC 331 — Group Communication..... | 3 |
| SPC 335 — Organizational Communication..... | 3 |
| SPC 342 — Advanced Public Speaking..... | 3 |

400 Level*

| | |
|---|---|
| SPC 425 — Communication Theory..... | 3 |
| SPC 441 — Persuasion..... | 3 |
| SPC 443 — Rhetorical Theory..... | 3 |
| SPC 475 — Speech Communication in Education and Training..... | 3 |
| SPC 482 — Seminar in Speech Communication..... | 3 |

3. Minimum credits required..... 130

*With approval of advisor, an appropriate level Speech Communication course (3 credits) may be used to meet this requirement.

MINOR in Speech Communication:

A minor in Speech Communication requires the completion of 15 credits in Speech Communication courses beyond the courses taken to satisfy the university oral communication requirement. At least 6 of the credits must be at the 300 level or higher. A minor program requires the approval of the Speech Communication faculty in advance of declaring the minor, preferably no later than the first semester of the student's junior year.

Statistics

College of Liberal Arts

Department of Mathematical Sciences

Degree: B.S.

Minimum Requirements for Degree: 120 credits

(907) 474-7332

Statistics is a collection of methods for making decisions or estimating unknown quantities from incomplete information. Statistical techniques are useful, for example, in estimating plant, animal and mineral abundances; forecasting social, political and economic trends; planning field plot experiments in agriculture; performing clinical trials in

medical research; and maintaining quality control in industry. Employment opportunities are excellent for statisticians in many of these areas of application.

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

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

Requirements

Statistics — B.S. Degree

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

| | |
|--|-------------------|
| A. Statistics Core | 44 Credits |
| MATH 200, 201, 202 — Calculus..... | 12 |
| MATH 210 — Calculus and the Computer..... | 1 |
| MATH 211 — Linear Algebra and the Computer..... | 1 |
| MATH 314 — Linear Algebra..... | 3 |
| MATH 371 — Probability..... | 3 |
| MATH 408 — Mathematical Statistics..... | 3 |
| CS 201 — Computer Programming..... | 3 |
| STAT 301 — Elementary Probability and Statistics..... | 3 |
| STAT 351 — Statistical Computing Packages..... | 2 |
| STAT 401 — Analysis of Experimental Design and Regression..... | 4 |
| STAT 498 — Senior Project..... | 3 |

Choose two of the following:

6 Credits

| | |
|--|---|
| STAT 431 — Applied Nonparametric Statistics..... | 3 |
| STAT 461 — Applied Multivariate Statistics..... | 3 |
| MATH 460 — Mathematical Modeling..... | 3 |
| STAT 402 — Scientific Sampling..... | 3 |
| STAT, MATH or statistical discipline oriented course approved by the statistics program chairperson..... | 3 |

Area of Application

24 Credits

A minimum of 24 credits, including 6 upper division, in a single discipline in which a UAF undergraduate degree is offered (excluding mathematics). Joint approval in writing is required from the department head in the area of application and the statistics adviser.**

3. Minimum credits required..... 120

*Credits received in the area of application may reduce the number of required credits in the general distribution requirements of humanities/social science and science. ENGL 312 must be completed as the second course in the written communication requirement.

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

Minor in Statistics:

Complete the following:

| | |
|---|---|
| STAT 301 — Elementary Probability and Statistics..... | 3 |
| STAT 401 — Experimental Design and Regression..... | 3 |
| MATH 371 — Probability..... | 3 |
| MATH 408 — Mathematical Statistics..... | 3 |
| Approved credits..... | 3 |

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

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

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

Theater

College of Liberal Arts

Department of Theater

Degree: B.A.

Minimum Requirements for Degree: 130 credits

(907) 474-7751

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 331 — Fundamentals of Stage Direction | 3 |
| THR 354 — Costume Construction and Design | 3 |
| THR 411 — Theater History I or | |
| THR 412 — Theater History II | 3 |
| 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 | |
| ART 262 — History of World Art | |
| MUS 123 — Experiencing Music | |
| MUS 124 — Music in World Cultures | |
| *5. A minimum of one course from: | 2-3 |
| ART 105 or 106 — Beginning Drawing | |
| JB 215 — Audio Production | |
| JB 316 — Television Production | |
| ES 101 — Graphics (2 cr.) | |
| PER 100 — Modern Dance, Fencing, Gymnastics (1 cr. each) | |
| SPC 261 — Oral Interpretation | |
| SPC 211 — Voice and Diction | |
| FL 110 — Pronunciation of French, German, Italian | |
| and Spanish | |
| 6. A minimum of two courses from: | 6 |
| 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 | |
| 7. Minimum credits required | 130 |

*May be used to meet 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 | |
| THR 211 — Theater Appreciation | |
| THR 241 — Basic Stagecraft | |

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.

Welding

School of Career and Continuing Education Department of Trade and Industry

(907) 474-5264

Special training programs

Welding is an important industrial skill with applications in agriculture, mining, transportation, aviation, oil and gas, and construction. Training ranges from welding basics to advanced pipe and metal plate fabrication. Classes are kept small in order to offer hands-on training and maximum student-instructor interaction. Advanced students may work toward A.W.S. certification or pursue advanced projects. A student may request credit by examination for any WMT class. See the department for details.

Wildlife Management

College of Natural Sciences Department of Biology and Wildlife

(907) 474-7671

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

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

The undergraduate curricula in the program in wildlife are intended to provide basic education and training. Two options are available: a wildlife research biologist option and a wildlife management biologist option. The research biologist option is designed for those students whose objective is to undertake the field and laboratory research needed to provide additional information on the workings of wild animal populations, the condition of their habitat, and habitat-animal relationships. The management biologist option is designed for those students whose primary interests involve the interpretation, application, or dissemination of research findings, rather than their acquisition. That option is appropriate for those students contemplating careers in wildlife agency administration, in developing and implementing wildlife management plans and in public information and education. The curricula in both options provide a solid foundation for graduate study.

The geographic location of the university is particularly advantageous for the study of wildlife management. Spruce forest, aspen-birch forest, alpine tundra, bogs and several types of aquatic habitats are within easy reach. Studies can be made in many other habitats ranging from the dense forests of Southeastern Alaska to the arctic coast.

Adequate study collections of plants and animals are available, and a 2,000-acre study area is near the campus. Undergraduates have ample opportunity for close association with the personnel of the Alaska Cooperative Wildlife Research Unit, the Alaska Cooperative Fishery Research Unit and several local offices of the federal and state conservation agencies. These agencies usually hire a number of students for summer field work. Thus, an unusually good opportunity is available for students to gain experience and to make job connections.

Requirements

Wildlife Management — B.S. Degree (Research Biologist Option)

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

| Courses | Credits |
|--|---------|
| ALR 101 — Conservation of Natural Resources | 3 |
| ALR 380 — Soils | 3 |
| ALR 400 — Natural Resource Policies or | |
| ALR 401 — Natural Resource Legislation | 3 |
| STAT 301 — Elementary Probability and Statistics | 3 |
| STAT 402 — Scientific Sampling | 3 |
| BIOL 105-106 — 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 105-106 — General Chemistry..... | 8 |
| ENGL 111 — Methods of Written Communication..... | 3 |
| ENGL 213 — Intermediate Exposition..... | 3 |
| ENGL 314 — Technical Writing or ENGL 414 — Research Writing..... | 3 |
| MATH 272-273 — Introduction to Calculus for the Life Sciences..... | 6 |
| PHYS 103 — College Physics..... | 4 |
| SPC 141 — Fund of Oral Comm: Public Speaking..... | 3 |
| WLF 101 — Survey of Wildlife Sciences..... | 1 |
| WLF 201 — Wildlife Management Principles..... | 3 |
| WLF 303 — Wildlife Management Techniques..... | 3 |
| WLF 360 — Nutrition and Physiol Ecology of Wildlife..... | 3 |
| WLF 410 — Wildlife Populations and Their Management..... | 3 |
| BIOL 473 — Limnology..... | 3 |
| WLF 420 — Wildlife Policy and Administration..... | 3 |
| CS 201 — Computer Programming..... | 3 |

Take at least 2 of the following:

| | |
|--|---|
| WLF 305 — Concepts of Animal/Wildlife Diseases..... | 3 |
| WLF 417 — Wildlife Management: Forest and Tundra..... | 2 |
| WLF 419 — Waterfowl and Wetlands Ecology and Management..... | 4 |
| BIOL 472 — Communities and Ecosystems..... | 2 |

In addition:

1. Complete the remainder of the B.S. social sciences/humanities requirement, 9 credits. **12**
2. Complete sufficient electives to bring total to 130 credits.
3. Bachelor of science candidates are strongly urged to obtain work experience in wildlife-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers.

*Note prerequisite.

Wildlife Management — B.S. Degree
(Management Biologist Option)

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

| Courses | Credits |
|---|---------|
| ALR 101 — Conservation of Natural Resources..... | 3 |
| ALR 380 — Soils..... | 3 |
| ALR 400 — Natural Resource Policies or ALR 401 — Natural Resource Legislation..... | 3 |
| ALR 430 — Land-Use Planning..... | 3 |
| STAT 301 — Elementary Probability and Statistics..... | 3 |
| STAT 402 — Scientific Sampling..... | 3 |
| BIOL 105-106 — Fundamentals of Biology..... | 8 |
| BIOL 205 — Vertebrate 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 or BIOL 426 — Ornithology..... | 3 |
| BIOL 471 — Population Ecology..... | 3 |
| CHEM 105-106 — General Chemistry..... | 8 |
| ECON 235 — Introduction to Natural Resource Economics..... | 3 |
| ENGL 111 — Methods of Written Communication..... | 3 |
| ENGL 213 — Intermediate Exposition..... | 3 |
| ENGL 314 — Technical Writing or ENGL 414 — Research Writing..... | 3 |
| MATH 272-273 — Introduction to Calculus for the Life Sciences..... | 6 |
| PHYS 103 — College Physics..... | 4 |
| SPC 141 — Fund of Oral Comm: Public Speaking..... | 3 |
| WLF 101 — Survey of Wildlife Sciences..... | 1 |
| WLF 201 — Wildlife Management Principles..... | 3 |

| | |
|--|---|
| WLF 410 — Wildlife Populations and Their Management..... | 3 |
| WLF 303 — Wildlife Management Techniques..... | 3 |
| BIOL 473 — Limnology..... | 3 |

In addition:

1. At least 9 credits must be completed from this group:

| | |
|--|---|
| GEOG 302 — Geography of Alaska..... | 3 |
| GEOG 402 — Man and Nature..... | 3 |
| **JB 102 — Broadcasting and Society..... | 3 |
| **JB 301 — Basic Newsgathering and Processing..... | 3 |
| **JB 203 — Basic Photography..... | 3 |
| JB 311 — Magazine Article Writing..... | 3 |

*Note prerequisite.

**Maximum of 3 credits may be included in the required 9.

| | |
|---|---|
| PHIL 322 — Ethics..... | 3 |
| PS 101 — Introduction to American Government..... | 3 |
| PS 201 — Comp. Politics: Methods of Political Analysis..... | 3 |
| PS 263 — Alaska Native Politics..... | 3 |
| PS 301 — Public Admin. in Political Process..... | 3 |
| PSY 101 — Introduction to Psychology..... | 3 |
| SOC 101 — Introduction to Sociology..... | 3 |
| SOC 102 — Introduction to Sociology..... | 3 |
| SOC 309 — Urban Sociology..... | 3 |

2. At least 1 of the following courses must be included:

| | |
|---|---|
| ALR 460 — Principles Outdoor Recreation Management..... | 3 |
| ALR 450 — Forest Management..... | 3 |
| ALR 370 — Introduction to Watershed Science..... | 3 |

3. At least 2 of the following courses must be included:

| | |
|--|---|
| WLF 417 — Wildlife Management — Forest and Tundra..... | 2 |
| WLF 419 — Waterfowl and Wetlands Ecology and Management..... | 4 |
| FISH 429 — Introduction to Fisheries Science..... | 3 |
| FISH 430 — Fisheries Management..... | 3 |
| WLF 436 — Introduction to Aquaculture..... | 3 |
| WLF 305 — Concepts of Animal/Wildlife Disease..... | 3 |
| BIOL 472 — Communities and Ecosystems..... | 3 |

4. Complete sufficient electives to bring total credits to 130.

Bachelor of science candidates are strongly urged to obtain work experience in wildlife-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers.

The wildlife and fisheries program and the Alaska Cooperative Wildlife Research Unit cooperate in offering graduate work leading to the master of science degree. An interdisciplinary doctor of philosophy degree can also be offered. Persons desiring detailed information on the graduate program in wildlife management may obtain this from the head, wildlife and fisheries program. The procedure to be followed in applying for admission to graduate study is outlined in the section on Graduate Admissions in this catalog.

The Alaska Cooperative Wildlife Research Unit offers a limited number of research assistantships; information on these and the unit's program can be obtained from the leader, Alaska Cooperative Wildlife Research Unit, University of Alaska Fairbanks, Fairbanks, Alaska. Applications for these assistantships should be sent to the unit leader; such applications are supplementary to the application for admission for graduate study.

Wildlife Management — M.S. or Ph.D. Degree

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

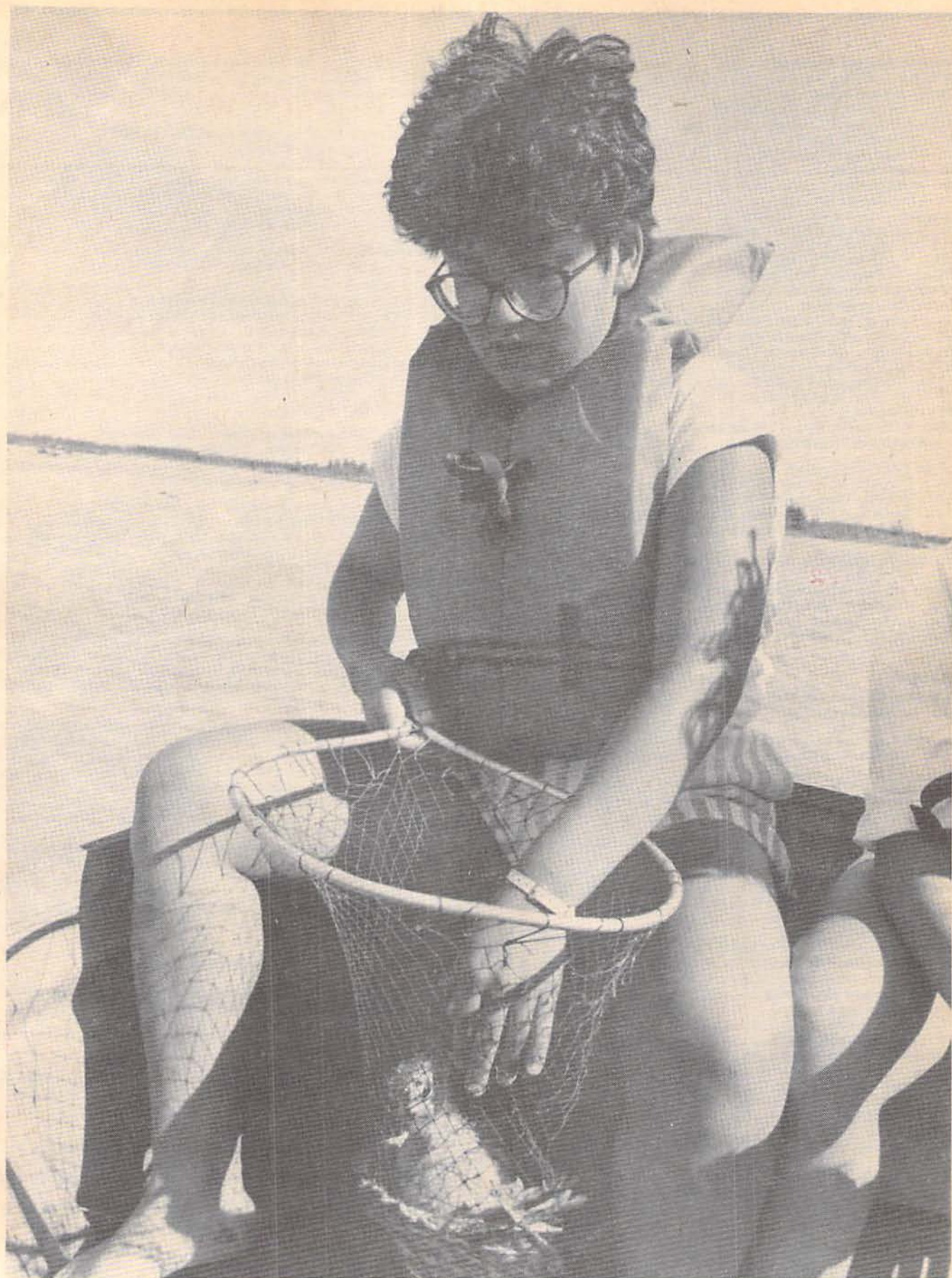
Zoology**College of Natural Sciences**
Department of Biology and Wildlife

(907) 474-7542

Degrees: M.S., Ph.D.

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

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



UAF's classroom can extend to the Tanana River, which flows just south of Fairbanks. From a riverboat, Johanne Rosing of Qaqortoq, Greenland, prepares to band a mew gull during the annual Rural Alaska Honors Institute.

Course Descriptions

In this section of the University of Alaska Fairbanks catalog full course information for all undergraduate level courses is included. Titles, credits and frequency of offering only are indicated for graduate level courses. (See the UAF Graduate Catalog for complete graduate course information.)

Unless otherwise indicated, course frequency refers to the offering of courses at the Fairbanks campus of the University of Alaska Fairbanks. The courses listed in this catalog are not offered at all UAF sites but could be offered if demand warrants and qualified faculty are available.

Courses are regularly offered at the Aleutians Campus at Unalaska, Bristol Bay Campus at Dillingham, Chukchi Campus at Kotzebue, Kuskokwim Campus at Bethel and Northwest Campus at Nome. In the Interior Campus, courses are available at Fort Yukon, Galena, McGrath, Nenana and Tok. Courses are offered at Delta Junction/Ft. Greely, Eielson AFB and Ft. Wainwright through the UAF School of Career and Continuing Education. Information about the frequency of offerings of courses at these sites can be obtained from the local UAF representative.

Course Numbers

The first numeral of a course numbered in the hundreds indicates the year in which the course is normally offered in its own department. For example, ENGL 111 is given for first-year students and ENGL 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, approved to be offered only during one academic year; -94, approved trial courses; -95, special topics summer session courses, offered only during the summer; -97 indicates individual study -98, individual research; -99, thesis.

Courses identified with these special or reserved numbers may be available at all levels (i.e., 193, 293, 393, etc.) at the discretion of any department, although offerings above the level of approved programs must be approved in advance by the Vice Chancellor for Academic Affairs (e.g., 600-level offerings in areas without approved graduate programs). These courses may be repeated for credit.

Course Credits

One credit represents satisfactory completion of 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 week.

The number of credits listed is for each semester. Thus "3 credits" means three credits may be earned.

Credit may not be given more than once for the completion of a course unless the course has been designated as repeatable for credit.

Course Classification Identification

Courses that may be used in satisfying general degree requirements (e.g., Social Science Elective, Written Communication, etc.) are identified in the course description section of this catalog by the following designators:

| | |
|---------------------|---------------------------|
| h — Humanities | o — Oral Communication |
| m — Mathematics | s — Social Science |
| n — Natural Science | w — Written Communication |

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

Special topics courses are not given course classifications.

Note: Courses which are offered only every other year are indicated by the specific year in which they are next scheduled. Courses with no year scheduled are offered every year, except as noted.

Note: All courses are not offered at all locations of the University of Alaska Fairbanks. Check the local class schedule for course offerings at other sites.

Accounting

Admittance to upper division School of Management courses will be granted only to students with junior standing or above. Others will be admitted only with the written permission of the appropriate department head.

ACCT 101 3 Credits Fall and Spring

Elementary Accounting (3+0)

An introduction course in accounting concepts and procedures for service businesses and for merchandising businesses owned by a single proprietor. Also available via Independent Learning.

ACCT 102 3 Credits Fall and Spring

Elementary Accounting (3+0)

A continuation of introductory accounting concepts and procedures emphasizing the problems of businesses organized as partnerships or corporations and performing manufacturing operations. Also available via Independent Learning. (Prerequisite: ACCT 101.)

ACCT 303 3 Credits Spring

Governmental Accounting (3+0)

Principles and operation of fund accounting; financial reporting, budgetary control for governmental, municipal and non-profit organizations. (Prerequisite: ACCT 101.)

ACCT 310 3 Credits Fall

Income Tax (3+0)

A study of federal and state income taxes relating primarily to the individual residing in Alaska and an introduction to corporate income taxation. The course entails tax reporting, planning, and research. (Prerequisite: ACCT 102 or permission of instructor.)

ACCT 316 3 Credits Spring

Accounting Information Systems (3+0)

The design and analysis of accounting systems for business entities in various industries. Internal control for the business, data processing and its relationship to accounting systems examined. Materials fee: \$20.00. (Prerequisite: ACCT 102.)

ACCT 323 3 Credits As Demand Warrants

Petroleum Accounting (3+0)

Financial reporting and accounting for the petroleum industry with an emphasis on the exploration, development and production phases of oil and gas operations. (Prerequisites: ACCT 101 and 102 or permission of instructor.)

ACCT 342 3 Credits Spring

Managerial Cost Accounting (3+0)

A cost accounting course with a managerial emphasis focusing on cost-volume-profit analysis, job order and process costing, joint costs, by-products, inventory costing alternatives, systems design, responsibility accounting, profit planning, standard costs, and flexible budgeting. This course is designed for accounting majors. (Prerequisite: ACCT 102.)

ACCT 352 3 Credits Fall and Spring

Management Accounting (3+0)

A managerial accounting course focusing on business policy profit planning, resource planning, control concepts, reporting for management control, and the impact of public reporting on management decisions. (Prerequisites: ACCT 101 and ACCT 102.)

ACCT 361 3 Credits Fall

ACCT 362 3 Credits Spring

Intermediate Accounting (3+0)

A treatment in depth of the balance sheet accounts and procedures for their analysis and correction. Study of working capital and fixed assets will receive special emphasis during fall semester. Special attention will be given to long-term liabilities and stockholders' equity during spring semester. (Prerequisite: ACCT 102.)

ACCT 401 3 Credits Fall

Advanced and International Accounting (3+0)

A thorough study of accounting for parent-subsidary relationships, partnerships, and fiduciaries. International accounting in multinational enterprises will be emphasized. (Prerequisite: ACCT 362.)

ACCT 403 3 Credits Spring

Advanced Taxes (3+0)

A study of federal income tax for all entities, gift, estate, and payroll taxes. The course entails tax research, tax planning, and tax reporting for domestic and foreign tax payers. (Prerequisite: ACCT 310.)

ACCT 404 3 Credits Fall

Advanced Cost Accounting and Controllability (3+0)

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

ACCT 405 3 Credits Spring

Contemporary Issues in Accounting (3+0)

A study of current developments in financial and managerial accounting theory and research. Relevant court cases, SEC rulings, FASB and AICPA publications, and academic accounting research will be emphasized. (Prerequisite: ACCT 401.)

ACCT 452 3 Credits Fall

Auditing (3+0)

A study of the procedures for verification of financial data and the professional standards applicable to the auditor's examination of financial statements and his expression of opinion relative to them. (Prerequisite: ACCT 362.)

ACCT 471 3 Credits As Demand Warrants

Tax Planning and Research (3+0)

Tax planning and research primarily for business organizations. Tax planning for estates, trusts, and individuals will be examined. The course is designed for tax practitioners as well as for students without work experience in taxation. (Prerequisites: ACCT 310 and 403 or permission of instructor.)

ACCT 472 3 Credits Spring

Computer Control and Advanced Auditing (3+0)

An examination of advanced auditing theory and practice, including audit techniques and internal control of computer systems. The course is designed for auditor practitioners as well as for students without field experience in auditing. Materials Fee: \$20.00. (Prerequisites: ACCT 316 and ACCT 452. This course assumes prior exposure to auditing and information systems.)

ACCT 473 3 Credits Fall

Applied Systems Design (3+0)

The development and implementation of a computer-based accounting information system for a small business or not-for-profit entity. Materials Fee: \$20.00. (Prerequisites: ACCT 316, 342 or 362.)

ACCT 481 1 Credit As Demand Warrants

Personal Tax Planning (1+0)

The course will concern personal tax planning rather than tax preparation. The course will focus on the provisions of tax law affecting the individual taxpayer. (Prerequisites: Upper division standing, permission of instructor.)

ACCT 482 1 Credit As Demand Warrants

Business Tax Planning (1+0)

The course will concern business tax planning rather than tax preparation. The course will focus on applicable tax credits, business deductions, profit sharing plans, and various state taxes. (Prerequisites: Upper division standing or permission of instructor.)

ACCT 483 1 Credit As Demand Warrants

Estate Tax Planning (1+0)

The course will entail estate tax planning. The course will focus on gift, estate, and social security taxes. (Prerequisites: Upper division standing or permission of instructor.)

ACCT 602 3 Credits Spring

Financial Accounting Concepts for Administrators (3+0)

ACCT 650 3 Credits Spring

Management Accounting Seminar (3+0)

Agriculture and Land Resources

RESOURCES MANAGEMENT

ALR 101 3 Credits Fall

Conservation of Natural Resources (3+0)

Consideration of natural resources including discussion of their biological and physical nature, social and economic aspects of use, conflicts of use, and alternative means for conservation. Majors in all fields are welcome. (Prerequisite: Placement in ENGL 111.)

- ALR 102 1-3 credits Fall and Spring**
Practicum in Natural Resources Management
 An individual study opportunity providing practical experience in some field related to natural resources management. This supervised, occupational experience may take place on a farm, in a greenhouse, in a managed forest, with an agency or business, or in another approved location. (Prerequisite: Enrollment limited to Natural Resource Management majors only.)
- ALR 201 3 Credits Fall**
Processes of Natural Resources Management (3+0)
 An introductory course in natural resources management institutions and processes. Emphasizes public lands and resources, but considers private firms and native regional corporations as well. (Prerequisites: ALR 101 and at least sophomore standing.)
- ALR 220 3 credits Spring**
Elements of Information Transfer for Natural Resource Managers (3+0)
 Introduction to information transfer process used by natural resource managers, including principles of the extension processes. Identification of, and networking with various publics, with emphasis on natural resources-oriented agencies; tools, techniques (formal and informal), and planning strategies for promoting effective information transfer; theory and practical applications. (Prerequisites: ALR 101 and a speech communications course or permission of instructor.)
- ALR 231 3 Credits As Demand Warrants**
Arctic Survival (3+0)
 (Same as AVTY 231)
 Use of principles, procedures, techniques and equipment to survive extreme arctic conditions and to assist in safe recovery. Lab is required. Materials fee: \$35.00.
- ALR 235 3 Credits As Demand Warrants**
Elements of Weather (3+0)
 (Same as AVTY 235)
 Weather as it affects aircraft operators with an emphasis on Interior Alaska.
- ALR 300 1-3 Credits Fall, Spring, Summer**
Internship in Natural Resources Management
 Supervised programs designed to provide carefully selected upper division or graduate students with practical experience working with government units or agencies in natural resources management. Opportunities to apply theories and practical application, observe procedures and operations of the agencies, and become better prepared for professional employment. (Prerequisite: ALR 101, at least upper division standing, and permission of instructor.)
- ALR 302 2 Credits Spring**
Aerial Data Collection (2+0)
 (Same as AVTY 302)
 The specific uses of aircraft to collect resource data from ocular observations to the operation of specialized equipment used to collect remote sensing data. Includes aspects of mission design and sampling strategies. The course is intended for people who plan to be involved in data collection, including air workers, mission pilots and managers. (Prerequisite: AVTY 301.)
- ALR 302L 1 Credit Spring**
Aerial Data Collection Laboratory (0+2)
 (Same as AVTY 302L)
 Lab portion of ALR 302. (Prerequisites: AVTY 301 and 302.)
- ALR 310 3 Credits Spring**
Agricultural Concepts and Techniques (3+0)
 Concepts and techniques of agriculture in its broadest sense as related to past, present, and future cultures; food and fiber production; uses of wild and domestic plants and animals; esthetics; and quality and protection of the environment. (Prerequisite: BIOL 105, 106; CHEM 105, 106.)
- ALR 360 3 Credits Alternate Spring**
Outdoor Recreation Planning (3+0)
 The course develops on the basic theory and practices related to the allocations of natural resources for recreational purposes, including concomitant services related to that use. Macrobehavioral patterns are studied as they influence the allocation process. (Prerequisites: ALR 101 and ECON 235 or equivalent, or with permission of instructor. Next offered: 1991-92.)
- ALR 400 3 Credits Alternate Spring**
Natural Resource Policies (3+0)
 The origin and significance of public policies in land, water, forest, wildlife, mineral, petroleum, agricultural and aesthetic resources. Focuses on Alaskan and relevant national issues. (Prerequisites: Upper division or graduate standing. Next offered: 1991-92.)
- ALR 401 3 Credits Alternate Spring**
Natural Resources Legislation (3+0)
 The background and importance of selected federal and Alaskan legislation in land management, resource conservation and environmental arenas. (Prerequisite: Upper division or graduate standing in agriculture, wildlife, fisheries, natural resources management, or related fields, or permission of instructor. Next offered: 1990-91.)
- ALR 402 3 Credits Spring**
Aircraft Management (3+0)
 (Same as AVTY 402)
 Methods for securing, dispatching, and monitoring aircraft operations for managers. Topics to be emphasized include safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling. (Prerequisite: AVTY 301.)
- ALR 403 4 Credits Alternate Spring**
Managing Food Production Systems (3+3)
 The examination of alternative and traditional food production systems in light of changing economic conditions in world markets; emphasis on subarctic areas. Available economic and engineering principles will form the core of the course. Applications include development of a diversified plan for food production. Personal computers will be used in development of budget and cash flows. (Prerequisites: ALR 310, ALR 320, basic economics (can be taken concurrently), and basic knowledge of operation of a personal computer, or permissions of instructor. Next offered: 1991-92.)
- ALR 425 2 Credits Spring**
Alaska's Reindeer Industry (2+0)
 Alaska's reindeer industry will be examined as a practical case in natural resources management. Social, economic, historical, and ecological aspects will be addressed. Emphasis will be placed on (1) the multi-disciplinary nature of natural resource management and planning; and (2) the coordination of agency and private involvement in management of the reindeer industry's resource base. (Prerequisites: ALR 101, at least junior standing or permission of instructor.)
- ALR 430 3 Credits Spring**
Land-Use Planning (3+0)
 History, legal framework, principles, processes, and practices of land use planning. Important Alaskan issues and problems are emphasized. (Prerequisite: Upper division standing.)
- ALR 460 3 Credits Fall**
Principles of Outdoor Recreation Management (2+3)
 Theories, practices, economics, and problems fundamental to the use of land and related natural resources for recreation. (Prerequisite: at least junior standing or permission of the instructor.)
- ALR 461 3 Credits Alternate Spring**
Interpretive Services (3+0)
 Naturalist and other visitor programs in outdoor recreation areas: philosophy, planning, and development of interpretive programs; resources, agencies, users, interpretive media, and program evaluation. (Prerequisites: At least junior standing or permission of instructor. Next offered: 1990-91.)
- ALR 462 3 Credits Fall**
Alaskan Environmental Education (3+0)
 (Same as ED 462)
 Environmental concepts, motivational and discovery techniques, and practical skills for utilizing the environment inside and outside the formal classroom in all subject areas. Course content includes information on curriculum materials (K-12), interpretive and audiovisual aids facilities, environmental problem solving and applications of environmental education to situations from the public schools to summer campus, short courses, and workshops for individuals of any age. (Prerequisites: at least junior standing or permission of instructor.)
- ALR 630 3 Credits Fall**
Planning Theory (3+0)
- ALR 631 3 Credits Spring**
Planning Practicum (3+0)
- ALR 641 3 Credits Alternate Spring**
Natural Resources Applications of Remote Sensing (2+3)
- ALR 675 3 Credits Alternate Fall**
Applied Ecosystem Science (3+0)
- ALR 680 3 Credits Alternate Fall**
Environmental Decision-Making (3+0)
- ALR 681 3 Credits Alternate Spring**
Natural Protection and Management (3+0)
- ALR 690 3 Credits Alternate Fall**
Advanced Topics in Resource Management (3+0)

FOREST SCIENCES

ALR 251 3 credits Spring
Silvics and Dendrology (3+0)

The ecological requirements and characteristics of tree species of the Northern Forest and western North American forest; silvical characteristics including range, climate, soils, shade tolerance, growth, and principal enemies. Family and species characteristics essential for identification on sight or with a key are stressed. (Prerequisites: ALR 101 and introductory biology course or permission of instructor.)

ALR 340 3 Credits Spring
Natural Resources Measurements (2+3)

Introduction to the techniques and instrumentations used in the measurement and inventory of natural resources. Measurements used by managers of land, timber, range, wildlife, water, and recreation resources will be discussed. (Prerequisites: junior standing or permission of instructor.)

ALR 370 3 Credits Fall
Introduction to Watershed Management (2+3)

Examination of the hydrologic cycle and the influence of land management techniques on water quantity, quality, and timing. Topics of water yield, soil erosion and non-point pollution, snowpack management, and land use alternatives will be discussed. (Prerequisites: BOT 239, and GEOS 101, or permission of instructor.)

ALR 450 3 Credits Alternate Fall
Forest Management (3+0)

Introduction to forest land management for production of goods and services; relation of timber production to other forest land uses; topics include sustained yield, allowable cut, management planning inventory, valuation. (Prerequisites: ALR 350, ECON 235, or permission of instructor. Next offered: 1990-91.)

ALR 451 3 credits Alternate Spring
Regeneration and Silviculture of Northern Boreal Forests (2+3)

An examination of the biological, environmental, silvicultural, and economical considerations for the successful regeneration and subsequent management of the northern boreal forest. Designed particularly for persons with interest in land management, including timber management, woodlot management, habitat manipulation, site rehabilitation and streamside management. (Prerequisites: ALR 350, BIOL 271, junior standing or permission of the instructor. Next offered: 1990-91.)

ALR 452 3 Credits Alternate Spring
Forest Protection (3+0)

The basic principles and practical management systems for forest protection from fire, insects, and diseases are presented. Emphasis is on understanding the role of these factors in managing forest ecosystems, and problems and techniques particularly important in the forest of high latitudes, especially in Alaska. (Prerequisites: BIOL 105, 106, 271, BOT 239; ALR 350 or instructor's permission. Next offered: 1991-92.)

ALR 453 3 Credits Alternate Fall
Harvesting and Utilization of Forest Products (3+0)

The first half of this course will be an in-depth study of timber harvesting systems including timber cutting, yarding, and transport processes. Both manual and mechanized aspects will be considered. The second half of the course will cover the technology of processing wood into various products including lumber, plywood, veneer, pulp, and energy. (Prerequisites: ALR 101 and 350. Next offered: 1990-91.)

ALR 640 3 Credits Alternate Spring
Simulation and Modeling in Resource Management (3+0)

ALR 670 3 Credits Alternate Fall
Biometeorology (3+0)

ALR 672 2 Credits Alternate Fall
Dynamics of Nitrogen in Forest Ecosystems (2+0)

ALR 681 3 Credits Alternate Spring
Natural Area Protection and Management

PLANT AND ANIMAL SCIENCES

ALR 211 3 Credits Alternate Fall
Introduction to Agronomy and Horticulture (2+3)

Principles of plant science as related to production of economic crops, with special attention to those grown in Alaska. (Prerequisite: A general botany course or permission of instructor. Next offered: 1991-92.)

ALR 312 3 Credits Alternate Fall

Introduction to Range Management (3+0)

Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands, including discussions on the origin of the discipline, management practices, important rangelands of North America, with emphasis on Alaska's rangelands and grazers. (Prerequisites: BIOL 105, 106, BOT 239 or permission of instructor; ALR 320, 321 recommended. Next offered: 1990-91.)

ALR 313 4 Credits Alternate Spring

Introduction to Plant Pathology (3+3)

An introduction to the field of plant pathology; non-parasitic and parasitic causes of plant diseases; methods of plant infestation and mechanism of plant defenses; epidemiology and disease control. (Prerequisites: BIOL 105 and 106; BOT 239 recommended. Next offered: 1990-91.)

ALR 320 3 Credits Alternate Fall

Introduction to Animal Science (2+3)

Origin, history, and economic significance of breeds of dairy and beef cattle, swine, sheep, and poultry. Discussion of reindeer, bison, and musk-ox. Introduction to management and production systems with special reference to Alaska. (Prerequisite: A course in general biology. Next offered: 1990-91.)

ALR 321 3 Credits Alternate Fall

Applied Animal Nutrition (2+3)

Application of feeding standards and feedstuffs analysis to the nutrition of farm animals. Comparative anatomy of the digestive system of pig, horse, and cow. (Prerequisite: A course in general biology. Next offered: 1991-92.)

ALR 380 3 Credits Spring

Soils (2+3)

Origin and development, weathering, classification, terminology; physical and chemical properties, biology, aeration, and moisture; reaction and liming; manures and fertilizers; management; problems in Alaska. (Prerequisite: CHEM 105.)

ALR 411 3 Credits Alternate Fall

Plant Propagation (2+3)

Principles of plant propagation, including seeds, bulbs, divisions, layers, cuttings, buds, grafts, and rootstocks. Where possible, emphasis will be placed on the propagation of indigenous plants. (Prerequisites: ALR 311 or permission of instructor. Next offered: 1990-91.)

ALR 412 3 Credits Alternate Fall

Field Crop Production (3+0)

Agronomic principles and practices involved in the production, storage, marketing, and utilization of field crops. (Prerequisites: ALR 311. Next offered: 1990-91.)

ALR 420 3 Credits Alternate Spring

Animal Nutrition and Metabolism (3+0)

Nutrition and metabolism of domestic animals; ruminant and monogastric. (Prerequisites: CHEM 105, 106; biochemistry recommended. Next offered: 1991-92)

ALR 480 3 Credits Alternate Fall

Soil Conservation (3+0)

Managing soil to maintain or increase crop productivity while minimizing soil losses from wind and water erosion. (Prerequisites: ALR 380. Next offered: 1991-92.)

ALR 607 3 Credits Alternate Spring

Biotechnology (3+0)

(Same as EQE 607)

Airframe and Powerplant

AFPM 111 3 Credits As Demand Warrants

General Airframe and Powerplant (4+0)

Introduction to Airframe and Powerplant Mechanics including shop practices, basic math, applied physics, F.A.A. regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)

- AFPM 145 1 Credit As Demand Warrants**
Basic Mathematics (1+0)
 A beginning course in Mathematics. The course contains a thorough review of applied and technical mathematics, including common and decimal, fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; and performing fundamental algebraic operations as they relate to the construction of aircraft and their engines. (Prerequisite: Admission to A & P Program or permission of instructor.)
- AFPM 146 2 Credits As Demand Warrants**
Basic Electricity (2+0)
 A beginning level course in electrical theory and concepts. The course is directed towards the needs of the aviation mechanic and includes a study of Ohm's law, electrical circuits, diagrams, batteries, and a variety of electrical components. (Prerequisite: Admission to A & P Program or permission of the instructor.)
- AFPM 147 0.5 Credits As Demand Warrants**
Physics for Mechanics
 A study of the principles and applications of mechanics with emphasis placed on levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamic principles will be covered. (Course does not fulfill Natural Science requirements for any degree.) (Prerequisite: Admission to A & P Program or permission of instructor.)
- AFPM 148 1 Credit As Demand Warrants**
Aircraft Drawing
 A beginning course designed to build skill and knowledge of basic drafting. The student will learn to use drawings, symbols and schematic diagrams, make sketches of repairs and alterations, and use blueprint information, graphs and charts. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 149 0.5 Credits As Demand Warrants**
Fluid Lines and Fittings
 A practical course covering the study of rigid and flexible fluid lines and fittings, including their fabrication and installation. (Prerequisite: Admission to A & P Program or permission of instructor.)
- AFPM 150 2 Credits As Demand Warrants**
Materials and Processes (2+0)
 This course covers basic shop practices, including the selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic heat treating processes, and all forms of non-destructive inspections. (Prerequisite: Admission to A & P Program or permission of instructor.)
- AFPM 151 1 Credit As Demand Warrants**
Cleaning and Corrosion Control (1+0)
 This course covers the basic aircraft cleaning materials, methods, and an in-depth study of aircraft corrosion control. (Prerequisite: Admission to A & P Program or permission of instructor.)
- AFPM 152 1 Credit As Demand Warrants**
Federal Aviation Regulations (1+0)
 This course provides an overview of the Federal Aviation Regulations as they apply to the maintenance of aircraft. Includes a study of maintenance forms and records, maintenance publications, and the privileges and limitations of aircraft mechanics. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 153 1 Credit As Demand Warrants**
Weight and Balance (1+0)
 A study of weighing procedures, weight, arms, moments, center of gravity computations, and placarding. The student will compute loading an aircraft, completing required forms, and weigh an aircraft. (Prerequisite: Admission to A & P Program or permission of instructor.)
- AFPM 154 0.5 Credits As Demand Warrants**
Ground Operations & Servicing
 This course includes both theory and practice in the starting, moving, servicing, securing, and fueling aircraft. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 205 3 Credits As Demand Warrants**
Airframe Structures (FAA Test Preparation)(3+0)
 Principles, practices, procedures, techniques relating to aircraft wood, dope, fabric finishes, welding, sheet metal, assembly and rigging and inspection. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)
- AFPM 206 2 Credits As Demand Warrants**
Airframe System & Components (FAA Test Preparation)(2+0)
 A study of aircraft electrical, hydraulic and pneumatic, landing gear, position and warning, aircraft instrument, aircraft fuel, communication and navigation, cabin atmosphere control, and fire protection systems, inspection, checking, troubleshooting. Repair and servicing is also covered. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)
- AFPM 215 2 Credits As Demand Warrants**
MOS Powerplant Theory/Maintenance (FAA Test Preparation) (2+0)
 Jet engine fundamentals, analysis, testing, and inspecting turbo jets, turbo shaft, and turbo fan engines as well as overhaul, inspection, and fundamentals of reciprocating engines. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)
- AFPM 216 3 Credits As Demand Warrants**
MOS Powerplant Sys/Components (3+0)
 Fuel metering, induction systems, propellers, control systems, and powerplant electricity. The repair, inspection, service and troubleshooting in the above area. Designed to prepare the student for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Meet the experience requirements of FAR 65.77 or permission of the instructor.)
- AFPM 230 2.5 Credits As Demand Warrants**
Aircraft Electrical Systems
 Overview of electrical systems and their use in aircraft. Wiring, control, indication, and protection devices are covered for both AC and DC systems. Inspection, troubleshooting service and repair of these systems is emphasized. Materials fee: \$15.00. (Prerequisite: Admission to A&P Program or permission of instructor.)
- AFPM 231 1.5 Credits As Demand Warrants**
Powerplant Electrical Systems
 The installation, inspection, testing and service of engine electrical system wiring, controls, indicator and protective devices. Also, repair and service of electrical generating systems. Materials fee: \$15.00.
- AFPM 235 5 Credits As Demand Warrants**
Aircraft Reciprocating Engines (5+0)
 A survey of the history and development of the aircraft reciprocating engine. The student will engage in the repair, overhaul, and inspection of various types of engines. Operation and troubleshooting of engines is also discussed. Materials fee: \$120.00.
- AFPM 240 1.5 Credits As Demand Warrants**
Turbine Engines
 Development, theory and operation of modern gas turbine engines. Included is the study of engine design, performance, accessories and subsystems along with an investigation of engine maintenance and overhaul.
- AFPM 244 1.5 Credits As Demand Warrants**
Lubricating Systems
 Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and its components. Materials fee: \$5.00. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 245 2.5 Credits As Demand Warrants**
Ignition Systems
 Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems, in addition to repair and bench testing of components. Materials fee: \$15.00. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 246 1.5 Credits As Demand Warrants**
Fuel Metering Systems
 Fundamental operation of fuel metering systems in aircraft powerplants. Use of technical data to repair and overhaul carburetors and components. Includes the inspection and service of water injection systems. Materials fee: \$10.00. (Prerequisite: Admission to the A & P Program or permission of the instructor.)
- AFPM 248 0.5 Credits As Demand Warrants**
Induction Systems
 The operation and service of aircraft induction, preheat, anti-ice and super charger systems.
- AFPM 249 0.5 Credits As Demand Warrants**
Powerplant Cooling Systems
 Inspection, service and repair of engine cooling systems. Both air and liquid cooled installations will be discussed. (Prerequisite: Admission to A & P Program or permission of instructor.)

- AFPM 250 0.5 Credits As Demand Warrants**
Powerplant Exhaust Systems
 Inspection, service and repair of engine exhaust systems. Operations turbo compounded engines, thrust reversers, and noise suppressors are also presented. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 251 1.5 Credits As Demand Warrants**
Fuel Systems
 A practical course covering the inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 252 2 Credits As Demand Warrants**
Propellers (2+0)
 Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations will be covered. Materials fee: \$5.00. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 253 0.5 Credits As Demand Warrants**
Position and Warning Systems
 A survey of speed and takeoff warning and anti-skid braking systems used in aircraft. Inspection, troubleshooting, service and repair of these systems is discussed. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 254 0.5 Credits As Demand Warrants**
Ice and Rain Control Systems
 Inspection, operation and troubleshooting of de-ice and anti-ice systems.
- AFPM 255 0.5 Credits As Demand Warrants**
Fire Protection Systems
 A practical course covering the inspection, servicing, troubleshooting and repair of aircraft and engine fire detection and extinguishing systems. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 256 0.5 Credits As Demand Warrants**
Communications & Navigation Systems
 Operation of aircraft avionics, autopilots and antennas, including their inspection and installation.
- AFPM 257 0.5 Credits As Demand Warrants**
Instrument Systems
 A practical course covering inspection, troubleshooting, removal and replacement of aircraft and engine instruments and indicating systems. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 258 1 Credit As Demand Warrants**
Cabin Atmosphere Control Systems (1+0)
 Aircraft pressurization, air conditioning, heating and oxygen systems. Their operation, inspection, troubleshooting, service and repair will be covered.
- AFPM 259 1.5 Credits As Demand Warrants**
Hydraulic and Pneumatic Systems
 The operation of hydraulic and pneumatic systems and their uses in aircraft. Included is the identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing, and troubleshooting of systems.
- AFPM 260 2 Credits As Demand Warrants**
Aircraft Landing Gear Systems (2+0)
 Comprehensive examination of simple and complex aircraft landing gear systems. Included is the operation of mechanical and hydraulic retraction mechanisms, service and repair of those systems, and wheel, tire and brake service. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 261 0.5 Credits As Demand Warrants**
Wood Structures
 Inspection, service and repair of wood aircraft structures. Identification and selection of woods, characteristics of glues, patching and splicing are discussed. Materials fee: \$5.00. (Prerequisites: Admission to A & P program or permission of instructor.)
- AFPM 262 1 Credit As Demand Warrants**
Aircraft Coverings (1+0)
 Selection, application, inspection and testing of fabric and fiberglass coverings and methods of repair. Materials fee: \$25.00. (Prerequisite: Admissions to A & P program or permission of instructor.)
- AFPM 263 0.5 Credits As Demand Warrants**
Aircraft Finishes
 Identification and selection of aircraft finishing materials. Application of paints, dopes, primers, and trim. Materials fee: \$30.00. (Prerequisite: Admission to A & P program or permission of instructor.)

- AFPM 264 3.5 Credits As Demand Warrants**
Sheet Metal Structures
 Techniques of sheet metal fabrication, inspection and repair as they relate to aircraft. Included are the use of rivets and fasteners, repair of aircraft interiors and service of plastic, honeycomb and bonded structure. Materials fee: \$85.00.
- AFPM 265 1.5 Credits As Demand Warrants**
Aircraft Welding
 The use of contemporary welding methods on aircraft structures. Includes oxyacetylene, arc, inert gas and brazing techniques. The inspection of welded structure and safety procedures are stressed. Materials fee: \$10.00-100.00.
- AFPM 266 1.5 Credits As Demand Warrants**
Assembly and Rigging
 Review of aerodynamic theory and the function of aircraft control surfaces. The fabrication and installation of control devices for fixed and rotary wing aircraft, jacking and control surface balance. Materials fee: \$15.00. (Prerequisite: Admission to A & P program or instructor permission.)
- AFPM 267 0.5 Credits As Demand Warrants**
Airframe Inspections
 Students develop those skills required to inspect and return an aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections are discussed. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 270 0.5 Credits As Demand Warrants**
Airframe Testing
 Preparation for the Federal Aviation Administration written, oral and practical exams for the Powerplant Mechanics license. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 271 0.5 Credits As Demand Warrants**
Powerplant Inspections
 Methodology and recordkeeping for the inspection of aircraft reciprocating and gas turbine engines. (Prerequisite: Admission to A & P program or permission of instructor.)
- AFPM 272 0.5 Credits As Demand Warrants**
Powerplant Testing
 Preparation for the Federal Aviation Administration written, oral and practical exams for the Powerplant Mechanics license. (Prerequisite: Admission to A & P program or instructor permission.)

Alaska Native Languages

- ANL 141 3 Credits Fall**
Beginning Athabaskan — Koyukon or Kutchin (3+0) h
 Introduction to Koyukon, the Athabaskan language of the Koyukuk and Central Yukon rivers, or Kutchin, the Athabaskan language of the Upper Yukon. Class will deal with one of these two languages. Open to speakers and non-speakers. Literacy and grammatical analysis for speakers. For others, a framework for learning to speak, read, and write the language. (Prerequisite: ANL 141 for ANL 142 in the same language or permission of the instructor.)
- ANL 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. Open to speakers and non-speakers. Literacy and grammatical analysis for speakers. For others, a framework for learning to speak, read, and write the language. (Prerequisite: ANL 141 for ANL 142 in the same language or permission of the instructor.)
- ANL 150 1 Credit As Demand Warrants**
Interpretive Communication (1+0)
 Participants will explore communication processes which occur in Yup'ik and English speaking cultures. They will develop working solutions that address identified problem areas in cross-cultural communication. This includes situations such as conversations, meetings, translating and interpreting. This course will concentrate heavily upon interpreting meaning in what is communicated between people of different socio/cultural backgrounds.
- ANL 151 3 Credits As Demand Warrants**
Inter-Ethnic Communications (3+0)
 Students will acquire an understanding of the differences in cross-cultural interaction and, therefore, be able to function better in a cross-cultural situation. The students will apply understanding of cross-cultural interactions to various communication settings. The course will concentrate heavily on the Yup'ik ways of communication.
- ANL 215 3 Credits Fall**
Alaska Native Languages: Eskimo-Aleut (3+0) h
 A survey of the Native languages of Alaska, particularly of the Eskimo-Aleut languages: history, present and future, with examples of language structure, present situation and prospects as a cultural force. Open to all students.

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, with 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 Elementary Athabaskan — Koyukon or Kutchin. One of these two languages will be taught. Concentration on development of conversational ability with presentation of additional grammar and vocabulary. (Prerequisites: ANL 141 and 142 in the same language, or permission of instructor.)

ANL 387 3 Credits **As Demand Warrants**
ANL 388 3 Credits **As Demand Warrants**
Bilingual Methods and Materials (3+0) h
 Training and research in bilingual education methods in Alaska Native languages and preparation of books and materials in any of them.

Alaska Native Politics

AKNP 131 1 Credit **As Demand Warrants**
Introduction to the Alaska Native Claims Settlement Act (1+0)
 An introduction to the events which resulted in concern over the relation of Alaska Natives to their land, the movement for the Land Claims; the key issues; the organizations involved in the movement; the current corporation structure - regional and village; the current and future problems facing these groups, and strategies being used 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. It will include a brief historical overview of land claims of various tribes in the Lower 48 and in Alaska leading to the Settlement Act of 1971. We will examine the current status of the various Native corporations, including regional, village and non-profit corporations. We will also give special attention to the discussion of 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)
 s workshop focuses on the development, operation and improvement of local government in Alaska. It is aimed at the practical needs of the citizen, practitioner and advocate. Some discussion will also revolve around the future of local government in bush Alaska.

AKNP 230 3 Credits **As Demand Warrants**
Federal Indian Law (3+0)
 A basic understanding of the principles of Federal Indian Law and help to form an opinion about the extent to which these principles may or may not be applicable to Alaska Natives. This course will outline the foundation of principles that formed the bases of the relationship of the United States to the tribes and the development of this relationship. The legal perspective and land issues will be covered. (Prerequisite: English placement test.)

AKNP 232 3 Credits **As Demand Warrants**
1991 and Beyond - Implications of ANCSA (3+0)
 An examination of some of the specific provisions of the Alaska Native Claims Settlement Act as related to 1991. It will include acquisitions, and takeovers of corporations, a more in-depth look at such provisions as those outlined in Sections 7(i), 7(j), 7(h), and 14(c), some of the changes allowed under ANILCA and other amendments to the Act, the effect of ANCSA on such statutes as the Indian Reorganization Act and the Indian Self-Determination Act, and some of the issues commonly termed 1991 issues involving land and stock status in the future. (Prerequisite: English Placement test.)

AKNP 233 1 Credit **As Demand Warrants**
Tribal Government Issues (1+0)
 An introduction to tribal governments and related issues. It will review the political status and lawmaking, judicial, and regulatory powers of tribal governments. The topics of 'sovereignty' will be analyzed. Tribal enrollment and membership will be reviewed. A selected range of federal statutes and Indian Law affecting Alaska Native tribes will be studied. The potential role of tribal governments in planning for Alaska Natives' future will be defined and discussed.

Alaska Native Studies

ANS 101 3 Credits **Fall**
Introduction to Alaska Native Studies (3+0)
 Introductory information on the Alaska Native Community, including overview of significant Native issues and a review of literature and resources pertinent to Alaska Native Studies.

ANS 103 1 Credit **As Demand Warrants**
Beginning Eskimo Dance (1+2)
 Teaching of 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.

ANS 110 1 Credit **Fall and Spring**
Parliamentary Procedures (1+0)
 (Same as PS 110)
 Introduction to the rules and principles of parliamentary procedure and their application to group decision-making processes.

ANS 120 3 Credits **Fall**
Cultural Differences in Institutional Settings (3+0) s
 Introduction to the phenomena of culturally organized thought processes, with emphasis on the communication patterns resulting from the interaction of peoples from different linguistic/culture traditions in modern institutional settings. Special attention is paid to Alaskan Native and non-Native communication patterns.

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 will be taught by guest Native elders and dancers. If sufficient interest, a dance group will be assembled using class members for spring presentation primarily in the Fairbanks area, including the Festival of Native Arts.

ANS 161 3 Credits **Fall**
Introduction to Tuma Theater (3+0) h
 (Same as THR 161)
 Introduction to playwriting and acting within an Alaskan Native cultural context. Original theatrical works based on traditional themes and contemporary issues will be developed and rehearsed. Tuma Theater will tour its annual production each spring, its membership to be selected from the class. (Prerequisite for ANS/THR 361, Advanced Tuma Theater.)

ANS 250 3 Credits **Fall and Spring**
Current Alaska Native Leadership Perspectives (3+0) 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 and Spring**
Practicum in Native Cultural Expression (0+variable)
 Students actively and regularly engaged in the formal organization, promotion, and expression of Alaskan Native cultural heritage may enroll in this practicum for 1-3 credits. The practicum may be repeated through three semesters providing the accumulated credits do not exceed three. (Prerequisite: Permission of the Department Head.)

ANS 268 3 Credits **Fall and Spring**
Beginning Native Art Studio (1+4) h
 (Same as ART 268)
 Understanding and applying the traditional designs and technologies of Native art. (Prerequisite: ART 105 or permission of instructor.)

ANS 300 3 Credits **Alternate Spring**
Rhetorical Expression of the Alaska Native Experience (3+0) h
 Instruction in rhetorical methods of creative expression of the Alaska Native experience. Emphasis is on the student's development of expressive abilities in a variety of Native and Western forms. Publication of student work is a possibility. (Prerequisite: ENGL 111 and permission of instructor.)

ANS 310 3 Credits **Fall**
The Alaska Native Land Settlement (3+0) s
 An examination of Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. (Prerequisites: ANTH 242 or PS 263 or HIST 100; ECON 101 and ECON 137; or permission of instructor.)

- ANS 315 3 Credits** Alternate Spring
Tribal People and Development (3+0) s
 (Same as RD 315)
 Comparative examination of socio-economic development processes as they impact tribal peoples in third and fourth world societies. Particular attention is given to the implications of these processes for Alaska Native people. (Prerequisites: junior standing or permission of the instructor. Next offered 1991-92.)
- ANS 320 3 Credits** Spring
Language and Culture: Applications of Alaska (3+0) s
 (Same as ANTH 320)
 Examination of aspects of language, ethnicity, and their interrelationships. Emphasis is placed on the systems language uses to communicate ethnic identity and how communication between ethnic groups is affected by patterns of language use. Attention is paid to the applicability of these concepts to Native/non-Native communication patterns. (Prerequisites: ANS 120 and ANL 215 or 216; or permission of instructor.)
- ANS 325 3 Credits** Alternate Spring
Native Self Government (3+0) s
 (Same as PS 325)
 Comparative study of indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance under federal Indian Law and Alaska state chartered local government with comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people. (Prerequisites: HIST 100, PS 263. Next offered: 1991-92.)
- ANS 340 3 Credits** Fall
Contemporary Native American Literature (3+0) h
 (Same as ENGL 340).
 An exploration of the contemporary Native American writing in English, including novels, short stories, poetry, and plays. Some examples of Native American film will also be introduced when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111 or permission of instructor.)
- ANS 351 1-3 Credits** Fall and Spring
Practicum in Native Cultural Expression (0+variable)
 Continuation of ANS 251, for students actively involved in advanced organization, promotion, and expression of Alaskan Native cultural heritage projects (Festival of Native Arts leadership, Tuma Theater, Theata magazine, etc.) A maximum of 3 practicum credits can be applied toward a Native studies major or minor. (Prerequisite: Permission of instructor.)
- ANS 360 1 Credit** Spring
Advanced Native Dance (0+2) h
 Advanced techniques in Alaska Native Dance with emphasis on the cultural meanings of the dance performance. (Prerequisite: ANS 160 or permission of instructor.)
- ANS 361 3 Credits** Fall
Advanced Tuma Theater (3+0) h
 (Same as THR 361)
 Continuation of ANS/THR 161 with more advanced involvement in writing (or other production oriented creative activity), research and development of original theatrical works to be performed by the Tuma Theater touring group. (Prerequisites: ANS/THR 161 and either THR 221, THR 241, THR 343, THR 347 or permission of instructor.)
- ANS 365 3 Credits** Fall
Native Art of Alaska (3+0) h
 (Same as ART 365)
 A study of art forms of the Eskimo, Indian and Aleut ranging from prehistory to the present; emphasis upon the changes in forms through the centuries. (Prerequisites: Advanced standing or permission of the instructor.)
- ANS 366 3 Credits** Alternate Spring
Northwest Coast Indian Art (3+0) h (Same as ART 366)
 An in-depth examination of the arts of the Northwest Coast Indians and the place of the art in their culture. (Next offered: 1991-92.)
- ANS 367 3 Credits** Alternate Spring
Eskimo Art (3+0) h (Same as ART 367)
 An in-depth study of Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces up to the beginning of the 20th century. (Next offered: 1990-91.)
- ANS 368 3 Credits** Fall and Spring
Intermediate Native Art Studio (1+4) h
 (Same as ART 368)
 Understanding and applying the more advanced traditional designs and technologies of Native art. (Prerequisite: ART 268 or permission of instructor.)
- ANS 375 3 Credits** Alternate Spring
Native American Religion and Philosophy (3+0) h
 Philosophical aspects of Native American world views, emphasizing systems of belief and knowledge, explanations of natural phenomena, and relations of human beings to the natural environment through ritual and ceremonial observances. (Prerequisites: ANTH 242 or permission of the instructor; PHIL 201 is recommended. Next offered: 1991-92.)
- ANS 401 3 Credits** Fall and Spring
Cultural Knowledge of Native Elders (3+0) h
 Intensive study with prominent Native tradition-bearers in Native philosophies, values, and oral traditions. Students elicit traditional knowledge through methods and conventions of the cultural heritage documentation process. (Prerequisites: HIST 100 or ANTH 242 and upper division standing.)
- ANS 420 3 Credits** Fall
Alaska Native Education (3+0) s
 (Same as ED 420) Examination of the development of different school systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisites: ANTH 242 or HIST 100; or permission of instructor.)
- ANS 425 3 Credits** Fall
Federal Indian Law and Alaska Natives (3+0) s
 A "special relationship" developed between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. This course examines federal Indian law and policy which evolved from this relationship with special attention to the legal rights and status of Alaska Natives. (Prerequisites: PS 101 and HIST 100; or permission of instructor; PS 263 is recommended.)
- ANS 450 3 Credits** Alternate Spring
Comparative Aboriginal Rights and Policies (3+0) s
 (Same as PS 450)
 Use of the case-study approach to develop comparative frameworks for assessing scope and nature of Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations are examined for factors promoting or limiting Aboriginal self-determination. (Prerequisite: Upper division standing or instructor's permission. Next offered: 1991-92.)
- ANS 468 3 Credits** Fall and Spring
Advanced Native Art Studio (1+4) h
 (Same as ART 468)
 Understanding and applying the advanced traditional designs and technologies of Native art with particular emphasis on the use of contemporary materials to interpret traditional forms. (Prerequisite: ART 368 or permission of instructor.)
- ANS 475 3 Credits** Spring
Alaska Native Social Change (3+0) s
 Study is made of tradition and change in Native social institutions in contemporary society. Attention is given to methods of identifying and analyzing significant Native social change processes for better public understanding. (Prerequisites: ANTH 242 or permission of the instructor.)

Alaska Studies

- ALST 103A 1 Credit** As Demand Warrants
Creative Response (1+0)
 Introduces students to sampling of the stories of the indigenous people of Alaska. Reviews sample work of Native Alaskan artists of the state. Examines music of Inupiat, Yup'ik and Koyukon cultures (songs and dances).
- ALST 103B 1 Credit** As Demand Warrants
The People (1+0)
 Deals with topics of sociology, psychology and politics found in the state of Alaska. Surveys the area of social sciences and relates issues to Alaskan culture.
- ALST 103C 1 Credit** As Demand Warrants
The Land (1+0)
 Introduces students to geography and branches of earth science as they related to the land mass of Alaska. Current issues related to the particular area of study are also included.
- ALST 107 1 Credit** As Demand Warrants
Land Resource Management (1+0)
 This course provides students with the tools necessary to become more actively involved in overseeing the use of land and the political aspects of natural resource management. Land and resource management is the application of knowledge and skills necessary to take care of the land and other natural resources for people's welfare.

American Sign Language

ASLG 101 3 Credits As Demand Warrants

American Sign Language I (3+0)h

Study of visual-gestural language used by most deaf Americans with emphasis on the acquisition of both receptive and expressive conversational skills. The cultural aspects of everyday life experiences of deaf people will be included.

ASLG 110 1 Credit As Demand Warrants

American Sign Language Prac (1+0)h

A course designed to develop skill in the practice with American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels welcomed.

ASLG 202 3 Credits As Demand Warrants

American Sign Language II (3+0)h

Further development of expressive and receptive conversational skills. Increased understanding of the culture that is an integral part of the language. This course is a continuation of American Sign Language I. (Prerequisite: ASLG 101 or permission of instructor.)

ASLG 203 3 Credits As Demand Warrants

American Sign Language III (3+0)h

Continuation of ASLG 101 and 202, with a deepening understanding of the grammar, conceptual structure, and lexical items of American Sign Language. Enhanced cultural awareness and refinement of expressive and receptive signing skills will assist students in communicating and understanding American Sign Language in diverse contexts. (Prerequisite: ASLG 202 or permission of instructor.)

ASLG 204 3 Credits As Demand Warrants

American Sign Language IV (3+0)h

A continuation of ASLG 203, spontaneous and interactive use of American Sign Language will be stressed with a detailed understanding of grammar, structure, and lexical components. Further awareness of the accompanying cultural aspects will encourage comfortable communication in American Sign Language at an advanced level. (Prerequisite: ASLG 203 or permission of the instructor.)

Anthropology

ANTH 101 3 Credits Fall and Spring

Introduction to Anthropology (3+0) s

An introduction to the study of human societies and cultures based on the findings of the four subfields of the discipline: archaeological, biological, cultural and linguistic. Also available via Independent Learning. Materials fee: \$10.00.

ANTH 102 3 Credits Fall and Spring

Faces of Culture (3+0) s

Television enhanced instruction in cultural anthropology including an introduction to methods, theories, fundamental concepts and foundations for understanding differences in cultures; provides background for more specialized courses in cultural anthropology. Telecourse fee: \$20.00.

ANTH 103 3 Credits Fall

Human Evolution and World Prehistory (3+0) n

An introduction to the study of human evolution and cultural development on a global basis, including a review of methods, concepts and theories which serve as the scientific foundation for archaeology and physical anthropology.

ANTH 104 3 Credits Alternate Fall

Social/Cultural Anthropology (3+0) n

Introduction to social and cultural anthropology, open to majors and non-majors. Basic concepts and principles underlying anthropological study of society and culture. Emphasis on non-western ethnographic context. (Next offered: 1990-91.)

ANTH 105 1 Credit As Demand Warrants

Introduction to the History and Culture of the Seward Peninsula (1+0)

(Same as HIST 105.)

This course introduces the student to the cultural history of the peoples who have lived in or near the Seward Peninsula for the last 10,000 years. Information is presented from the disciplines of physical anthropology, ethnography, ethnohistory, linguistics, archeology, ecology and climatology. Through lectures, discussions, readings, films, guest speakers and examination of Eskimo artifacts, students gain a basic familiarity with the several Eskimo and Euroamerican cultures which have existed in western Alaska.

ANTH 111 3 Credits Alternate Spring

Ancient Civilizations (3+0) s

A survey of the major civilizations of the Old and New World from a comparative, anthropological perspective. Antecedents and influences of these civilizations on their neighbors will be stressed. Major societal institutions to be considered include economics, science, religion, and social organization. (Next offered: 1990-91.)

ANTH 123 3 Credits Alternate Fall

Origins of Alaska's Native Peoples (3+0) s

Origins and affinities of native Alaskan peoples are examined from an archaeological perspective. Native groups whose prehistory is examined include Yup'ik, Inupiaq, Aleut, Tlingit, and Athabaskan. (Next offered: 1991-92.)

ANTH 203 3 Credits Every Third Spring

Women in Society (3+0) s

An examination of the nature of sex roles cross-culturally. The history of the study of sex roles, with an emphasis on female roles, in anthropology is discussed. Current research on the biological and cultural aspects of these roles is presented and various hypotheses in anthropology regarding male and female behavior cross-culturally are discussed and supplemented by in-depth studies of cultures representing different types of techno-environmental adaptation — hunting, horticultural, pastoral, agricultural, and industrial societies. (Next offered: 1991-92.)

ANTH 210 3 Credits Every Third Spring

New World Prehistory (3+0) s

The culture history of native Americans from earliest times excluding Alaska and Canada, including those in Mexican and Peruvian states. (Prerequisites: ANTH 103 or 211 or permission of instructor. Next offered: 1991-92.)

ANTH 211 3 Credits Alternate Fall

Fundamentals of Archaeology (2+3) s

An introduction to methods and techniques of archeological field and laboratory research. Materials fee: \$10.00. (Prerequisite: ANTH 103. Next offered: 1991-92.)

ANTH 212 3 Credits Alternate Spring

Old World Prehistory (3+0) s

The archaeological record for the development of human culture from the very beginnings of humankind to the rise of civilization. (Prerequisites: ANTH 103 or 211 or permission of instructor. Next offered: 1990-91.)

ANTH 230 3 Credits Fall

The Oral Tradition: Folklore and Oral History (3+0) h

An introduction to the study and collection of folklore and oral history, with focus on the importance of oral tradition in human communication and the advantages and disadvantages of recording and studying it. Methods of findings of sociocultural anthropology and anthropological linguistics in relation to oral traditions of a variety of cultures; study by folklorists and historians. Academic approaches to collection and interpretation compared to and contrasted with those whose goal is to preserve their own traditions. A field project is required. (Prerequisite: ANTH 104.)

ANTH 242 3 Credits Spring

Native Cultures of Alaska (3+0) s

An introduction to the traditional Aleut, Eskimo, and Indian (Athabaskan and Tlingit) cultures of Alaska. Comparative information on Eskimo and Indian cultures in Canada is also presented. Includes a discussion of linguistic groupings as well as the cultural groups; presentation of population changes through time; subsistence patterns, social organization and religion in terms of local ecology. Precontact interaction between native groups of Alaska is also explored. This is a general introductory course presenting an overall view of the cultures of Native Alaskans. Also available via Independent Learning. Materials fee: \$20.00

- ANTH 250 2 Credits** **Fall and Spring**
Archeological Laboratory Techniques (1+3)
 Practical experience in archeological laboratory procedures including lithic analysis and lithic tool typology. Students will examine and analyze collections from several early man sites in Alaska, and will be actively engaged in helping solve specific research problems that pertain to those collections. (Prerequisite: Permission of instructor.)
- ANTH 300 3 Credits** **Alternate Fall**
Anthropology of Religion (3+0) s
 This course focuses on one of the more fascinating subsystems of human culture and society — religion or supernatural belief. As approached from the perspective of anthropology, the study of religion is both comparative and wide ranging. While much of the material will emphasize religion in the context of "primitive" society, its role in the more complex society will also be examined. Among the various topics the student can expect to encounter are: religious practitioners, ritual, belief systems, and the relationship of religious behavior to other aspects of social behavior. (Prerequisite: Junior standing or permission of instructor.)
- ANTH 301 3 Credits** **Fall**
World Ethnography (3+0) s
 Cultural heritage, social systems, modes of economic adaptation and culture change are explored for human populations in major geographic regions of the world. Culture areas to be covered during different semesters, contingent on available faculty expertise, include: North America, Northern Eurasia, Far East (China, Japan, Korea), India and Southeast Asia, Central Asia and the Middle East, Sub-Saharan Africa, Europe and U.S.S.R. (Prerequisites: ANTH 104 and junior standing or permission of instructor.)
- ANTH 305 3 Credits** **As Demand Warrants**
Comparative Political and Legal Systems (3+0) s
 An examination of political systems and the law from a comparative standpoint. The primary focus will be on case studies drawn from non-industrial societies, developing nations, and parapolitical systems or encapsulated societies, such as native peoples in the U.S. Major areas of coverage will be political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity. (Prerequisites: ANTH 104 or permission of instructor.)
- ANTH 306 3 Credits** **As Demand Warrants**
Economic Anthropology (3+0) s
 This course addresses the fundamental issue of the relationship between economic and other social relations. The primary focus is on preindustrial societies because a central task of the course is to determine the relevance of formal economics to small-scale societies and developing nations. Included for study are such topics as exchange, formal and substantive economics, market economics, rationality, political economy, and the economics of development. (Prerequisites: ANTH 104 or permission of instructor.)
- ANTH 307 3 Credits** **Alternate Spring**
Kinship and the Family (3+0) s
 Examination through case studies of the forms and function of family and household organization, kinship and marriage in diverse human socio-cultural systems. Case studies will be drawn from tribal and complex societies including contemporary United States. (Prerequisites: ANTH 104 or permission of instructor. Next offered: 1991-92.)
- ANTH 309 3 Credits** **Alternate Spring**
Arctic Prehistory (3+0) s
 The archaeological cultures of the northern regions from the time of first occupation up to the ethnographic present. Particular attention will be paid to the adaptations to changing environments in time and space as seen through past technological and economic systems, as well as settlement patterns. Materials fee: \$25.00. (Prerequisites: ANTH 103 or permission of instructor. Next offered: 1991-92.)
- ANTH 315 3 Credits** **Alternate Fall**
Human Biology (2+3) n
 The 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. Introduction to human skeletal biology, including metrical and nonmetrical variation, aging and sexing skeletal remains, and paleopathology. Materials fee: \$10.00. (Prerequisite: ANTH 103 or BIOL 103. Next offered: 1991-92.)
- ANTH 320 3 Credits** **Spring**
Language and Culture: Applications of Alaska (3+0) s
 (Same as ANS 320)
 Examination of aspects of language, ethnicity, and their interrelationships. Emphasis is placed on the system language uses to communicate ethnic identity and how communication between ethnic groups is affected by patterns of language use. Attention is paid to the applicability of these concepts to native/non-Native communication patterns. (Prerequisites: ANS 120 and ANL 215 or 216 or permission of instructor.)
- ANTH 321 3 Credits** **As Demand Warrants**
Physical Anthropology of the Americas (3+0) n
 An areal survey of the physical anthropology of the peoples of North and South America, including Eskimo, Aleut and Indian populations. The course will emphasize the analysis of patterns of biological variation within and between prehistoric and modern human populations of the Americas with special reference to origins and relationships, microevolutionary processes and trends, and adaptations to climatic, nutritional, disease and demographic stress. (Prerequisite: ANTH 315 or permission of instructor.)
- ANTH 323 3 Credits** **Alternate Fall**
Archaeology of China from Earliest Times to 771 B.C. (3+0) s
 A detailed survey of weary human developments, the rise of agricultural communities, and the Golden Age states (Xia, Shang, Zhou). (Prerequisites: Any archaeology course or Asian history course or permission of instructor. Next offered: 1991-92.)
- ANTH 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 the Aleuts, including people of the Aleutian archipelago, Kodiak Islanders, people of the Alaska Peninsula and the Chugach of Prince William Sound. Materials fee: \$25.00. (Prerequisites: ANTH 242 or permission of instructor. Next offered: 1991-92.)
- ANTH 381 3 Credits** **Alternate Spring**
The Inupiaq and Yup'ik Peoples (3+0) s
 Study of the contemporary conditions and traditional heritage of the Inupiaq and Yup'ik peoples including the impact of Euroamericans on these populations and cultures. Materials fee: \$20.00. (Prerequisites: ANTH 242 or permission of instructor. Next offered: 1991-92.)
- ANTH 382 3 Credits** **Alternate Spring**
The People of Alaskan SE (3+0) s
 The Tlingit, Haida and Tsimshian societies are discussed in the framework of Northwest Coast culture-area, including impact of Russian penetration and of the recent historical factors. Materials fee: \$15.00. (Prerequisites: ANTH 242 or permission of instructor. Next offered: 1991-92.)
- ANTH 383 3 Credits** **Alternate Fall**
Athabaskan Peoples of Alaska and Adjacent Canada (3+0) s
 Study of the contemporary conditions and traditional heritage of the Athabaskan populations of Alaska and Canada, including the impact of Euroamericans on these populations and cultures. Materials fee: \$20.00. (Prerequisites: ANTH 242 or permission of instructor. Next offered: 1990-91.)
- ANTH 410 3 Credits** **Alternate Fall**
History of Social/Cultural Anthropology (3+0) s
 The major theoretical approaches in cultural/social anthropology presented chronologically from the formulation of the discipline of anthropology to current theory. The substance of the various approaches is used for discussions regarding the nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology. (Prerequisite: Junior standing or permission of instructor. Next offered: 1990-91.)
- ANTH 412 3 Credits** **As Demand Warrants**
Anthropology of Art (3+0) s
 Anthropological study of art in cross-cultural perspective. Primary focus is on social context of art production and use, and on cross-cultural variations in definition of an artist's role. (Prerequisites: Senior standing or permission of instructor.)
- ANTH 413 3 Credits** **Alternate Spring**
Archaeological Method & Theory (2+3) s
 Archaeological methods and analysis will be presented as the framework for discussion and assessment of different perspectives in archaeology. These various perspectives will be illustrated through the study of their application to specific research problems. Materials fee: \$10.00. (Prerequisite: A course in archaeology or permission of the instructor. Next offered: 1990-91.)

- ANTH 414 3 Credits** **Alternate Spring**
Environmental Archaeology (3+0) n
 Introduction to Quaternary environmental reconstruction through the integration of geological, archaeological, botanical, and zoological data. (Prerequisite: A course in archaeology or permission of the instructor.)
- ANTH 421 3 Credits** **Alternate Fall**
Analytical Techniques (3+0)
 Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and methods of illustrating results of analysis. (Prerequisites: Any 200 level Anthropology course. Next offered: 1991-92.)
- ANTH 422 3 Credits** **As Demand Warrants**
Human Osteology (2+3) 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)
 An in-depth analysis of the Plio-Pleistocene hominid fossil record, including comparative primate and hominid skeletal and dental anatomy, systematics, taphonomy and long-term biobehavioral adaptations. (Prerequisites: ANTH 103 and ANTH 212 or permission of instructor. Next offered: 1990-91.)
- ANTH 428 3 Credits** **Every Third Fall**
Ecological Anthropology (3+0) n
 The investigation of the biological, environmental and cultural factors and their interplay in defining the human condition, with examples from Arctic and other populations. (Prerequisites: Junior standing or permission of instructor. Next offered: 1991-92.)
- ANTH 465 3 Credits** **Alternate Spring**
Geoarchaeology (3+0)
 (Same as GEOS 465)
 The geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day field trip planned for a weekend in late April or early May. (Prerequisites: GEOS 101, an introductory course in archaeology, or permission of instructor. Next offered: 1991-92.)
- ANTH 600 0-1 Credits** **Fall and Spring**
Anthropology Colloquium (1+0)
- ANTH 601 3 Credits** **Alternate Fall**
Proseminar in Social/Cultural Anthropology (3+0)
- ANTH 604 3 Credits** **As Demand Warrants**
Seminar: Language and Culture (3+0) s
- ANTH 608 3 Credits** **Every Third Spring**
Classics in Anthropology (3+0)
- ANTH 611 3 Credits** **Alternate Fall**
Proseminar in Archaeology (3+0)
- ANTH 612 3 Credits** **As Demand Warrants**
Paleoecology (3+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 615 3 Credits** **As Demand Warrants**
Seminar: Archaeological Method and Theory (3+0)
- ANTH 616 3 Credits** **Alternate Spring**
Classics in Archaeology (3+0)
- ANTH 621 3 Credits** **Alternate Spring**
Proseminar in Physical Anthropology (3+0)
- ANTH 622 3 Credits** **Alternate Fall**
Problems in Physical Anthropology (3+0)
- ANTH 630 3 Credits** **Alternate Spring**
Anthropological Field Methods (3+0)
- ANTH 637 3 Credits** **As Demand Warrants**
Methods in Ethnohistorical Research (3+0)
- ANTH 640 3 Credits** **As Demand Warrants**
Problems in Anthropology (3+0)
- ANTH 650 3 Credits** **Every Third Spring**
Anthropological Perspectives on Russian America (3+0)

Applied Art

- APAR 100 1 Credit** **As Demand Warrants**
Basic Video Workshop (1+1)
 This will be a 'hands-on' course, introducing the student to basic video equipment operation and elementary equipment maintenance. Camera techniques, portable video recorders, lighting, audio, and simple video production will all be covered.
- APAR 103 1 Credit** **As Demand Warrants**
Editing Videotape (1+1)
 An introduction to the principles and operations in the electronic editing of videotape. This 'hands-on' course will be of particular value to the serious user, either at work or in the home. Persons successfully completing this course will qualify for access to Media Center videotape editing facilities.
- APAR 105 1 Credit** **As Demand Warrants**
Community TV Production (1+1)
 This course is designed for people who wish to become actively involved in producing programming for the Nome Public Access Cable Television (NPACT) channel. The class will have 'hands-on' training with a variety of video equipment and will be responsible for producing at least one 30-minute production. Participants will handle all aspects of production. Emphasis will be on using available video technology to fulfill a communications need. This will be a production lab class which will run 10 weeks.
- APAR 107 1 Credit** **As Demand Warrants**
Beading (1+1)
 This introductory course will teach the application of beads to various materials, three kinds of stitches, and use of a bead loom.
- APAR 157 1-2 Credits** **As Demand Warrants**
Skin Sewing (1+2)
 This is an introduction to skin sewing. Students will begin sewing projects dependent upon their individual ability and experience levels. After the students have been assessed, they will be introduced to larger projects (e.g. slippers, mukluks, mittens, fur hats, vests and ruffs.) Materials fee: \$35.00.

Applied Business

- ABUS 051 3 Credits** **As Demand Warrants**
Bookkeeping For Business (3+0)
 Basic concepts and procedures of practical bookkeeping. Fundamental bookkeeping principles, practices, and procedures necessary in 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)
 Continuation of ACCT 051. Accounting for business partnerships of corporations. Covers other materials selected by teacher, based on student interest.
- ABUS 056 1 Credit** **As Demand Warrants**
Mathematics for the Office (1+0)
 This course reviews basic math processes applied to banking, payroll, business expense reports, commissions, and discounts.
- ABUS 070 1 Credit** **Fall and Spring**
Job Readiness Skills (1+0)
 Understanding of pre-employment skills and human relation skills necessary for job success, including how to identify career choices and employment opportunities; how to prepare a resume, job applications, a cover letter and a follow-up letter; and how to develop human relation skills. The student will select, prepare and be interviewed for jobs which match his/her skills identified through a self-assessment inventory. Offered at Northwest Campus.
- ABUS 081 3 Credits** **As Demand Warrants**
World of Business (3+0)
 Preparatory skills for business.
- ABUS 083 3 Credits** **As Demand Warrants**
Introductory Accounting (3+0)
 This course is designed for the student who has not had high school bookkeeping. This course covers fundamental accounting procedures for a one-owner service and merchandising business.
- ABUS 100 3 Credits** **As Demand Warrants**
Accounting For Small Business (3+0)
 Financial accounting for small businesses, particularly aimed at the practicality of local business.

- ABUS 120 1-3 Credits As Demand Warrants**
Basics of Investing
 This course covers personal financial planning, goal setting, and investing. Also, a study will be made of stocks, bonds, trusts, securities, options, real estate and other investment vehicles. The topics of inflation, taxes, interest rates, retirement, and selecting financial planners are covered. Also available via Independent Learning.
- ABUS 130 3 Credits As Demand Warrants**
Real Estate (3+0)
 This course introduces students to the broad social and economic impact of real estate and provides fundamental preparation work for the Real Estate licensing examination. Course content includes essential details in buying, selling, leasing, and investing in residential and investment real estate. Also contracts, deeds, mortgages, leases, title insurance, sales, brokerage and other related subjects are discussed.
- ABUS 135 3 Credits As Demand Warrants**
Recordkeeping for Business (3+0)
 A course designed to teach skills in keeping business records and banking procedures as a cashier, sales clerk, purchasing agent or payroll clerk.
- ABUS 141 2 Credits As Demand Warrants**
Payroll Accounting (2+0)
 An introduction to payroll records and laws that payroll personnel need to know. It acquaints students with methods used to compile payroll information, compute earnings, figure deductions, calculate net wages, and how to prepare the necessary city, state and federal tax report forms.
- ABUS 142 2 Credits As Demand Warrants**
Office Accounting I (2+0)
 A beginning course introducing the basic accounting procedures used in service and trade businesses. It presents the complete accounting cycle including recordkeeping, posting and preparation of financial statements, bank reconciliation, payroll computations and closing books for a period. Also, accounts receivable, accounts payable, purchasing, credit and other accounting requirements common to retail, trade and service businesses are covered.
- ABUS 143 2 Credits As Demand Warrants**
Office Accounting II (2+0)
 An introduction to financial activities of partnerships and corporations with emphasis on accrual basis of accounting. Areas covered include: notes payable, notes receivables, interest transactions, bad debts, partnership equity accounting, corporate stock transactions, corporate earnings, capital transactions, bonds, long term liabilities and investments.
- ABUS 154 3 Credit As Demand Warrants**
Human Relations (3+0)
 A basic course in human relations exploring attitudes, self-concepts, personal communication styles, motivation, interactions, positive reinforcements, team building and leadership development.
- ABUS 155 2 Credits As Demand Warrants**
Business Math (2+0)
 A review of basic math computation skills applied to various business areas. Emphasis is on applications.
- ABUS 156 2 Credits As Demand Warrants**
Writing for the Office (2+0)
 (Same as OP 156)
 This course will cover writing tasks encountered in typical office situations. Students will learn to write successful letters, minutes, and reports which convey their intent and get desired responses. The course is offered in two modules: Module A-1 Credit; Module B-1 Credit.
- ABUS 160 3 Credits As Demand Warrants**
Principles of Banking (3+0)
 A comprehensive introduction to banking in today's economy. Topics include language and documents of banking, check processing, teller functions, deposits, credit and payment functions, loans, investments, trust, the Federal Reserve System and other regulatory agencies.
- ABUS 161 3 credits As Demand Warrants**
Found/Structure-Credit Union (3+0)
 An introduction to credit unions, their organization and functions, financial development, regulations, insurance, bonding and management.
- ABUS 165 3 Credits As Demand Warrants**
Installment Lending (3+0)
 Principles of credit evaluations, open-end credit, marketing bank services, collection policies and procedures, financial statement analysis, and other details of installment credit.
- ABUS 166 3 Credits As Demand Warrants**
Residential Mortgage Lending (3+0)
 Provides a background in the varied real estate mortgage credit operations of commercial banks; addresses the manner in which funds are channeled into mortgage markets, the financing of residential and income producing property and administrative tasks common to most mortgage departments.
- ABUS 167 3 Credits As Demand Warrants**
Branch Management
 Presents a comprehensive overview of the branch functions and the manager's role in their operations and provides a complete introduction to the functional aspects of the branch management position.
- ABUS 179 3 Credits As Demand Warrants**
Fundamentals of Supervision (3+0)
 A course introducing effective supervisory concepts including planning, organizing, and staffing functions. Other topics include communicating and delegating effectively, morale, productivity, decision making, position discipline and performance goals development.
- ABUS 181 3 Credits As Demand Warrants**
Law & Banking Applications (3+0)
 Examination of the legal structure that is implicit in the normal course of bank operations. Exploration of legal situations that occur in the deposit, collection, dishonor and return, and payment of checks. Legal relationships of the various parties in bank collection channels and between a bank and its depositors are discussed. (Prerequisite: Principles of Banking or Foundations & Structure of Credit Unions.)
- ABUS 185 3 Credits As Demand Warrants**
Teller Operations Training (3+0)
 Entry level job skills for work as a teller in a bank, savings loan, or credit union. Principles of banking, banking terms, and concepts, teller operations such as balancing, cash control, handling financial instruments, detecting forgery and counterfeit money, responding to robbery, and customer relations. (Prerequisite: OP 195 Pre-Employment Skills.)
- ABUS 188 2 Credits As Demand Warrants**
Personal Income Tax (2+0)
 A basic course in personal income tax, covering taxable income, deductions, credit, exemptions, and computation. Also, computer use, recordkeeping methods, tax forms and new tax laws are studied.
- ABUS 211 2 Credits As Demand Warrants**
Tax For Business Entities (2+0)
 Covers tax reports which must be submitted by a business. Tax planning and strategies to reduce the tax bill, payroll tax reports and depository requirements, methods of compensation, acquiring and disposing of business assets, and planning for corporate reorganization or liquidation and a review of new tax laws are also studied.
- ABUS 221 1-3 Credits As Demand Warrants**
Microcomputer Accounting
 This course covers the use of computers to process accounting transactions and provides an understanding of available software packages, microcomputer systems and hardware available in today's market. Computer terminology, system analysis, and actual computer operations in accounting are introduced. (also see CAPS 221.)
- ABUS 222 3 Credits As Demand Warrants**
Computer Applications in Business (3+0)
 This course is designed to provide the student with the skills and knowledge to use a microcomputer to solve business problems. The primary tools for problem solution will be the LOTUS 1-2-3 spreadsheet program and a general ledger accounting program. Both programs are supplied and instruction in the use of each is provided. (Prerequisite: One accounting course or instructor's approval.)
- ABUS 223 3 Credits As Demand Warrants**
Real Estate Law (3+0)
 A practical course surveying the various kinds of deeds and conveyances, mortgages, liens, rentals, appraisals, and other transactions in the field of real estate and the law. Also available via Independent Learning.
- ABUS 224 3 Credits As Demand Warrants**
Money And Banking (3+0)
 Basic economic principles as they relate to banking. Highlights are on the economy and how it works, the Federal Reserve System, the business of banking, monetary policy and its impact on financial markets and banks, alternative theories of money's role in the economy, fiscal policy and trends in banking. (Prerequisite: ABUS 160 or ABUS 161.)
- ABUS 230 3 Credits As Demand Warrants**
Applied Intermediate Accounting (3+0)
 Review of accounting principles with emphasis on working capital, plant assets, intangible assets and financial statement presentation. Introduction to current accounting pronouncements.

ABUS 231 3 Credits As Demand Warrants**Introduction to Personnel (3+0)**

A class on the organizational structure of a company, job analysis, staffing and organization, employee growth and development, employee supervision and developing leadership skills.

ABUS 232 3 Credits As Demand Warrants**Fundamentals of Management (3+0)**

An examination of the basic functions of management to include planning, organizing, staffing, directing and controlling with particular attention to the human aspects of management and decision making. (Prerequisite: BA 151 or instructor permission.)

ABUS 233 3 Credits As Demand Warrants**Financial Management (3+0)**

Analysis of the methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisite: BA 151, ACCT 101.)

ABUS 234 3 Credits As Demand Warrants**Financial Counseling (3+0)**

Introduction to financial counseling processes, choosing and implementing actions plans, evaluation clients needs, generation of alternative solutions, problem solving, decision making and ethics in counseling relationships.

ABUS 241 3 Credits As Demand Warrants**Applied Business Law I (3+0)**

A survey of the legal aspects of business problems including basic principles, institutions and administration of law in contracts, agency, employment and personal sales and property ownership. Also available via Independent Learning. (Prerequisite: BA 151.)

ABUS 242 3 Credits As Demand Warrants**Applied Business Law II (3+0)**

A survey of legal aspects of business problems including basic principles, institutions, and administration of law in insurance, suretyship (negotiable instruments), partnerships, corporations, trusts, wills, bankruptcy, torts and business crimes. (Prerequisite: BA 241.)

ABUS 243 3 Credits As Demand Warrants**Applied Cost Accounting (3+0)**

Principles and applications of cost accounting for manufacturing and non-manufacturing firms. The course covers job order and process costing with analysis of material and labor costs, overhead, inventory controls, production flow, and work in progress. Budgeting and decision making are emphasized using cost accounting methods. (Prerequisite: ACCT 101, ACCT 102 or ABUS 142 and ABUS 143.)

ABUS 244 3 Credits As Demand Warrants**Loan Officer Development (3+0)**

A course designed to study and develop interpersonal skills necessary for dealing with customers and bank personnel. Other areas of study include: loan interview, problem identification, credit development decision, communications, credit file reports, loan pricing, and negotiating skills.

ABUS 250 3 Credits As Demand Warrants**Introduction to Managerial Accounting (3+0)**

A course in the use of accounting information for managerial decisions, planning and control. Topics include the accounting process, responsibility in accounting, performance measurement, capital budgeting and analysis of financial reports. (Prerequisite: ACCT 101, 102.)

ABUS 252 3 Credits As Demand Warrants**Business Statistics (3+0)**

Introduces descriptive and inferential statistics. Includes measures of control, tendency and variation, partial and multiple correlation and regression, time series and forecasting. Presents computer applications. (Prerequisite: must have sophomore standing or instructor permission.)

ABUS 253 3 Credits As Demand Warrants**Principles of Retailing (3+0)**

A course to acquaint students with current retail practices and technologies to assist them in preparing for a career in retailing or a service business. Areas covered include merchandising, store operation, computerized inventory control and electronic cash registers, finance and credit, personnel, sales promotions and selling.

ABUS 254 3 Credits As Demand Warrants**Salesmanship (3+0)**

Designed for both people with and without sales experience. Explores salesmanship as a skill individuals use in selling themselves and their ideas as well as products and services. Topics include: personal selling, buyer behavior and communication, creative selling process, sales management, and time-use management.

ABUS 257 1 Credit As Demand Warrants**Accounts Receivable Management (1+0)**

Covers the entire A/R system: credit policy and management, billing cycles, A/R reporting; collections procedures and legalities, analysis of A/R reports and functions of the Credit Department.

ABUS 258 1 Credit As Demand Warrants**Purchasing And Cost Control (1+0)**

Covers the purchasing and accounts payable systems of an organization of business; forms design and use, accounts payable department functions, design of systems, receiving of merchandise, approving and paying of invoices, evaluating and choosing supplies, accounting for accrued expenses, cash flow management, purchasing and inventory control.

ABUS 261 3 Credits As Demand Warrants**Analyzing Financial Statements (3+0)**

An introduction to statement analysis, accounting data, cash flow management ratios, comparative statements, forecasting, liquidity, solvency and capital structure as they related to financial conditions and performance of modern business enterprise.

ABUS 270 1 Credit As Demand Warrants**Financial Statement Ratio Analysis (1+0)**

This course takes the accounting student from the preparation of financial statements to the use of these reports as Management. Information by analysis. Key ratios are studied in the context of the business decisions to which they apply. A great deal of practical problem-solving is included in the format.

ABUS 273 3 Credits As Demand Warrants**Managing A Small Business (3+0)**

This course covers the fundamental of entrepreneurship and management with emphasis on starting up a new business, buying an existing business or a franchise. Other topics include managing, marketing, staffing, financing, budgeting, pricing, and operational analysis and controls.

ABUS 099, 199, 299 1-3 Credits As Demand Warrants**Practicum In Applied Business**

An orientation to work and training with analysis of the work experience and the relationship of the job to career and academic goals. The higher levels are designed for the student seeking an associate degree and provide an opportunity for practical application of knowledge and skill. It may be essential for students to have access to the faculty advisor for extended periods of time on a regular basis. Topics may include managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning. (Prerequisite: Permission of the instructor.)

Applied Mining Technology

AMIT 101 3 Credits As Demand Warrants**Introduction To Mining (3+0)**

This course covers the fundamental of surface and underground mining and emphasizes economic planning, proper exploration designs, environmental concerns, and safety factors.

AMIT 109 1 Credits As Demand Warrants**Underground Mine Safety (1+0)**

This course fulfills the Mine Safety Health Administration requirements for new underground miner training. Topics covered include: rights of miners, self rescue devices, introduction to the work environment, escapeways, roof and ground control, ventilation, health, clean-up, hard recognition, first aid, mine gasses, and electrical hazards. Students will be awarded a MSHA certificate upon successful completion of this class. Materials fee: \$5.00.

AMIT 110 3 Credits As Demand Warrants**New Underground Miner Training (3+0)**

This course is designed to provide the inexperienced underground miner with the mandatory MSHA federal training to become employable. Skills taught include orientation to the mine environment, general mine inspection, scaling, staging, drilling, rock bolting, blasting, mucking, and mine rescue. Materials fee: \$50.00.

AMIT 120 2 Credits As Demand Warrants**Explosives I (2+0)**

This course discusses the theory and safe use of explosives with a focus on blasting agents used for rock excavation.

AMIT 125 3 Credits As Demand Warrants**Mineral Exploration Techniques (3+0)**

This course covers the modern, scientific exploration and prospecting techniques utilized in Alaska since the 1970's. Exploration design, ore deposit models, exploration geochemistry and geophysics, drilling sampling and geostatistics will be studied. Also available via Independent Learning.

- AMIT 129 1 Credit As Demand Warrants**
Surface Mine Safety (1+0)
 This course fulfills the Mine Safety Health Administration requirements for surface miner training. Course topics include rights of miners, introduction to the work environment, ground control, hazard recognition, first aid, and explosive safety. Students will be awarded a MSHA certificate upon successful completion of the class. Materials fee: \$3.00.
- AMIT 130 3 Credits As Demand Warrants**
Surface Mining Operations (3+0)
 This course covers the safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines will be studied in detail.
- AMIT 140 3 Credits As Demand Warrants**
Environmental Permitting (3+0)
 This course covers the permits necessary for mineral development in Alaska. Students are encouraged to provide their own case histories.
- AMIT 151 1 Credit As Demand Warrants**
Settling Pond And Recycle Tech (1+0)
 This course covers the design of settling ponds and recycle systems. Students will work with individual case histories.
- AMIT 152 1 Credit As Demand Warrants**
Fire Assay Techniques (1+0)
 This course is an overview of the sampling, theory and practice of fire assaying. Covered in depth are such topics as fluxes, oxidation and reduction reactions, fusion of assay charges, cupellation, annealing, micro-weighing and assay charge calculation.
- AMIT 153 1 Credit As Demand Warrants**
Laboratory Analysis (1+0)
 Laboratory procedures required for sample analysis, heap leaching and titrations will be taught in a production laboratory. Students will get hands-on experience by conducting individual projects.
- AMIT 154 1 Credit As Demand Warrants**
Water Quality and Flocculents (1+0)
 A summary of the water quality processes involved using flocculents with emphasis on removing total suspended solids from placer mining waste water.
- AMIT 155 1 Credit As Demand Warrants**
Drilling Technology (1+0)
 An introduction to the terminology and techniques used in exploration and production drilling.
- AMIT 156 1 Credit As Demand Warrants**
Applied Cartography (1+0)
 Map and chart preparation is the focus of this class. Topics covered include drafting skills for prospecting maps, mine maps, permits and data presentation.
- AMIT 161 1 Credit As Demand Warrants**
Alaska Ore Deposits (1+0)
 The geology, ore reserves and preliminary mining plans of significant Alaskan mineral deposits will be discussed in detail.
- AMIT 162 1 Credit As Demand Warrants**
Geochemical Sampling (1+0)
 A hands-on course in scientific sampling methods for rock, soil, pan concentrates, stream sediments, air and water.
- AMIT 170 3 Credits As Demand Warrants**
Fundamentals of Coal Mining (3+0)
 Topics of study include the origin and types of Alaskan and other coal deposits, exploration and planning methods, extraction processes for underground and surface mines, mining safety, coal preparation, and reclamation. An optional field trip will be taken to an active coal mine. Job requirements, safety, and environmental consideration will be highlighted. Materials fee: \$5.00.
- AMIT 180 3 Credits As Demand Warrants**
Colored Stone Grading and Evaluation (3+0)
 Grading, appraisals, and identification of colored stones is the topic of this course. Formation and structure, properties, deposits and production, and the descriptions of major gemstones are major topics of this course.
- AMIT 185 1 Credit As Demand Warrants**
Diamond Evaluation & Grading (1+0)
 This course is an introduction to diamonds: colors and clarity grading, mining of raw material, and detection of stimulants.
- AMIT 205 1 Credit As Demand Warrants**
Geomagnetic Surveying (1+0)
 This course covers placer gold deposit prospecting using magnetic surveying. Students will conduct an actual survey and interpret the data.
- AMIT 206 1 Credit As Demand Warrants**
Electromagnetic Surveying (1+0)
 This course covers electromagnetic geophysical exploration methods and operations using the VLF-EM-16. This instrument has had wide usage in the mining industry as an exploration tool for gold and/or massive sulfide deposits.
- AMIT 210 3 Credits As Demand Warrants**
Advanced Underground Mining (3+0)
 Advanced techniques in underground mining is the topic of this course. Skill training will be conducted in safety, drilling, blasting, ground support, mucking, maintenance and utilities. Training will be conducted in the Silver Fox Mine.
- AMIT 220 1 Credit As Demand Warrants**
Explosives II (1+0)
 An advanced course in the safe use of explosives. Students will get 'hands-on' experience in blasting. Materials fee: \$20.00.
- AMIT 230 1 Credit As Demand Warrants**
Field Methods (1+0)
 Covers topographic map reading using a compass and basic field procedures.
- AMIT 231 1 Credit As Demand Warrants**
Heap Leaching (1+0)
 An advanced course on 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)
 This course is a continuation of Colored Stone Evaluation I. Gemstones covered in this class are stones of the garnet, pyroxene, organic, inorganic, and specialty stones. (Prerequisite: AMIT 180 Colored Stone Evaluation I.)
- AMIT 282 1-2 Credits As Demand Warrants**
Mining Coop Work Experience
 A course for the student who has mastered basic mining techniques and terminology which provides practical work experience in a professional mining environment. Placement and work assignments will vary depending upon student experience.

Applied Photography

- APHO 072 1 Credit As Demand Warrants**
Photography Fundamentals (1+0)
 How to make colorful, well-exposed photographs taking advantage of the capabilities of modern cameras. Elements of composition, exposure and flash techniques. Students furnish their own camera and film.
- APHO 073 1 Credit As Demand Warrants**
Process and Print Color Slides (1+0)
 Learn how to develop color film, mounted in slides for projection; make color prints and enlargements; mix color filters for special effects; and set up a small home darkroom. Students must have a camera and obtain their own film and film processing.
- APHO 074 1 Credit As Demand Warrants**
Process/Print Color Negatives (1+0)
 Students develop their own print film using the Kodak Flexicolor C-41 and Hobby-pac processes. Proof sheets are then made from which selected enlargements are printed using 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)
 Recommended for students seeking initial exposure to various areas such as design, printmaking, weaving, and sculpture. Individual studio projects, lectures, and field trips to introduce possible areas for further concentrated study.
- ART 101 3 Credits As Demand Warrants**
Introduction To Ceramics (3+0)
 Introduction to making and firing clay objects. Study of clay methods, forming decorations, glazing and firing. For beginning students only.

- ART 104 1-3 Credits As Demand Warrants**
Introduction to Drawing
 An introduction course emphasizing self-expression by developing spontaneous artistic ideas into a more focused style. This course employs basic drawing materials and uses student assignments in still life, portrait, interior and landscape compositions as topics for classroom study. For the student with little or no training in drawing who wishes to explore his or her drawing abilities.
- ART 105 3 Credits Fall, Spring**
Beginning Drawing (1+4) h
 Introduction to basic elements in drawing. Emphasis on a variety of techniques and media. Materials fee: \$15.00.
- ART 113 1-3 Credits As Demand Warrants**
Introduction to Painting (1+2)
 An investigation of basic materials, various media and techniques available for painting.
- ART 122 2 Credits As Demand Warrants**
Stained Glass (2+4)
 This course covers the fundamental skills needed to construct stained glass pieces, with special attention given to the basics of glass cutting, leading and soldering. During this course each student will complete a square foot window, a large group project and a suncatcher.
- ART 161 3 Credits Fall, Spring**
Two-Dimensional Design (1+4) h
 Fundamentals of pictorial form; principles of composition, organization, and structure.
- ART 162 3 Credits Fall, Spring**
Color and Design (1+4) h
 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 201 3 Credits Fall, Spring**
Beginning Ceramics (1+4) h
 An introduction to ceramics. Foundation experiences with clays, glazes, plaster, enamels, glass, kiln stacking and firing. Materials fee: \$35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)
- ART 205 3 Credits Fall, Spring**
Intermediate Drawing (1+4) h
 Exploration of pictorial composition and creative interpretation of subjects. Materials fee: \$25.00. (Prerequisite: ART 105.)
- ART 207 3 Credits Fall, Spring**
Beginning Printmaking (1+4) h
 Introduction to the concepts and techniques of printmaking. Subject areas taken from: relief, intaglio, serigraphy, lithography. Materials fee: \$25.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)
- ART 208 2 Credits As Demand Warrants**
Art for the Classroom Teacher (1+2)
 The course will introduce concepts in art education to persons with limited art background who are working with young children. The course will combine a philosophy of Art Education, Art History, and 'hands-on' experiences to enable the classroom teacher to more effectively integrate the visual arts into the classroom curriculum as enjoyment and enrichment. Can also be taken as ED 208.
- ART 209 3 Credits Fall, Spring**
Beginning Metalsmithing (1+4) h
 Introduction to the basic techniques of fine metalsmithing and jewelry. Materials fee: \$35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)
- ART 211 3 Credits Fall, Spring**
Beginning Sculpture (1+4) h
 An introduction to basic sculpture techniques and principles. Materials fee: \$35.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)
- ART 213 3 Credits Fall, Spring**
Beginning Painting (Acrylic or Oil) (1+4) h
 Basic materials and techniques in either medium. Introduction to pictorial principles and organization of paintings. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)
- ART 223 3 Credits Every Third Spring**
Watercolor Painting (1+4) h
 Painting in various transparent and opaque media (watercolor, tempera, polymer, casein). Emphasis on techniques and subjects. (Prerequisite: ART 105 and ART 161 or 162 or 163, or permission of the instructor. Next offered: 1990-91.)
- 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. Term paper required each semester. (Prerequisite: Sophomore standing.)
- ART 268 3 Credits Fall and Spring**
Beginning Native Art Studio (1+4) h
 (Same as ANS 268)
 Understanding and applying the traditional designs and technologies of Native art. (Prerequisite: ART 105 or permission of instructor.)
- ART 301 3 Credits Fall and Spring**
Intermediate Ceramics (1+4) h
 A continuation of beginning ceramics with a major emphasis on glaze calculations, and advanced plaster techniques. Materials fee: \$35.00. (Prerequisites: 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. (Prerequisites: ART 205 or permission of instructor.)
- ART 307 3 Credits Fall, Spring**
Intermediate Printmaking (1+4) h
 A continuation of ART 207 with emphasis on refinement of technique and color printing. Materials fee: \$25.00. (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 for metal-smithing and jewelry with some emphasis on design. Materials fee: \$35.00. (Prerequisites: 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: \$35.00. (Prerequisites: 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 painting media. Emphasis on pictorial and conceptual problems. (Prerequisite: ART 213.)
- ART 324 3 Credits Fall, Spring**
Watercolor Painting and Composition (1+4) h
 Development of individual approach to watercolor media. Can be repeated for credits with permission of the instructor. (Prerequisite: ART 223. Next offered: 1990-91.)
- 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 until contemporary art. Concentration on explaining the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Non-objective Art, Abstract Expressionism, Pop Art, Realism and many other "ism." (Prerequisites: ART 262 or permission of instructor. Next offered: 1991-92.)
- ART 364 3 Credits Alternate Spring**
Italian Renaissance Art (3+0) h
 The development of the Renaissance from early Florentine beginnings to the High Renaissance of Venice. Study of the works of such artists as Massaccio, Michelangelo, Da Vinci, Titian, etc. (Prerequisite: ART 261 or permission of instructor. Next offered: 1990-91.)
- ART 365 3 Credits Fall**
Native Art of Alaska (3+0) h
 (Same as ANS 365)
 A study of art forms of the Eskimo, Indian and Aleut ranging from prehistory to the present; emphasis upon the changes in forms through the centuries. (Prerequisites: Advanced standing or permission of the instructor.)

- ART 366 3 Credits** Alternate Spring
Northwest Coast Indian Art (3+0) h
 (Same as ANS 366)
 An in-depth examination of the arts of the Northwest Coast Indians and the place of the art in their culture. (Next offered: 1991-92.)
- ART 367 3 Credits** Alternate Spring
Eskimo Art (3+0) h
 (Same as ANS 367)
 An in-depth study of Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces up to the beginning of the 20th century. (Next offered: 1990-91.)
- ART 368 3 Credits** Fall and Spring
Intermediate Native Art Studio (1+4) h
 (Same as ANS 368)
 Understanding and applying the more advanced traditional designs and technologies of Native art. (Prerequisite: ART 268 or permission of instructor.)
- ART 371 3 Credits** Fall
Introduction to Computer Art (1+4)
 An introduction to digital editing with an overview of the field of computer art. (Prerequisites: Introductory computer course, one from ART 105, 161, 162, or 163.)
- ART 401 3 Credits** Fall, Spring
Advanced Ceramics (1+4) h
 Advanced ceramic work with an emphasis on individual projects, plus a class project on architectural mural(s). May be repeated for credit with permission of instructor. Materials fee: \$35.00. (Prerequisites: ART 301 or permission of instructor.)
- ART 407 3 Credits** Fall and Spring
Advanced Printmaking (1+4) h
 An individual development of technical and creative processes in printmaking. May be repeated for credit with permission of instructor. Materials fee: \$25.00. (Prerequisites: ART 307 or permission of instructor.)
- ART 409 3 Credits** Fall and Spring
Advanced Metalsmithing and Jewelry (1+4) h
 Continued investigation of materials and processes with an introduction to holloware skills and forging. May be repeated for credits with permission of instructor. Materials fee: \$35.00. (Prerequisites: ART 309 or permission of instructor.)
- ART 411 3 Credits** Fall and Spring
Advanced Sculpture (1+4) h
 Advanced investigation into the principles, practices and concepts of sculpture. May be repeated for credit with permission of instructor. Materials fee: \$35.00. (Prerequisites: ART 311 or permission of instructor.)
- ART 413 3 Credits** Fall, Spring
Advanced Painting (1+4) h
 Individual experimentation and technical/conceptual development in painting. Can be repeated for credits with permission of instructor. (Prerequisite: ART 313.)
- ART 417 3 Credits** Every Third Fall
Lithography (1+4) h
 An exploration of stone and metal plate lithography. Materials fee: \$25.00. (Prerequisite: ART 105, 207, or permission of instructor. Next offered: Fall 1992.)
- ART 419 3 Credits** Fall, Spring
Life Drawing (1+4) h
 Drawing from life, the study of artistic anatomy. Materials fee: \$30.00. (Prerequisite: ART 305 or permission of instructor.)
- ART 427 3 Credits** Every Third Spring
Relief (1+4) h
 Woodcut and monotype with emphasis on color. Materials fee: \$25.00. (Prerequisites: ART 105, 207, and 213, or permission of instructor. Next offered: 1991-92.)
- ART 437 3 Credits** Every Third Fall
Intaglio (1+4) h
 Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. Materials fee: \$25.00. (Prerequisites: ART 105, 162, 207, or permission of the instructor. Next offered: 1990-91.)
- ART 441 3 Credits** Every Third Spring
Lost Wax Casting (1+4) h
 The design and execution of jewelry and other small metal objects by lost wax casting. Materials fee: \$35.00. (Prerequisite: ART 409 or permission of the instructor. Next offered: 1990-91.)
- ART 442 3 Credits** Every Third Spring
Nonferrous Forging (1+4) h
 A study of the design and execution of hammer forged nonferrous metal objects. Materials fee: \$35.00. (Prerequisite: ART 409 or permission of instructor. Next offered: 1991-92.)
- ART 443 3 Credits** Every Third Spring
Holloware (1+4) h
 A study of the design and construction of holloware by raising, sinking, and fabrication. Materials fee: \$35.00. (Prerequisite: ART 409 or permission of instructor. Next offered: 1991-92.)
- ART 447 3 Credits** Every Third Spring
Silkscreen (1+4) h
 Silkscreen printing with photo process. Materials fee: \$25.00. (Prerequisites: ART 105, 162, 207, or permission of the instructor. Next offered: 1991-92.)
- ART 450 3 Credits** Every Third Fall
Raku Pottery (1+4) h
 A one semester experience in Raku pottery including kiln building for raku bodies, glazes and decorations. Materials fee: \$35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1990-91.)
- ART 451 3 Credits** Every Third Spring
Earthenware (1+4) h
 A one semester experience in earthenware pottery including appropriate bodies, glazes, decorations and firing techniques. Materials fee: \$35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1990-91.)
- ART 452 3 Credits** Every Third Fall
Porcelain (1+4) h
 A one semester experience in porcelain including appropriate bodies, glazes, decorations and firing techniques. Materials fee: \$35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1991-92.)
- ART 453 3 Credits** Every Third Spring
Kiln Design and Construction (1+4) h
 A one semester experience in kiln design and construction including building a full sized kiln. Materials fee: \$35.00. (Prerequisite: ART 201 or permission of instructor. Next offered: 1991-92.)
- ART 454 3 Credits** Every Third Fall
Vapor Glazing (1+4) h
 A one semester experience in "salt glazing" (i.e. vapor glazing) including clay, glazes, decorative techniques and kilns. Materials fee: \$35.00. (Prerequisites: ART 201 and permission of instructor. Next offered: 1991-92.)
- ART 455 3 Credits** Spring
Studio Glass (1+4) h
 Studio participation in cold glass and limited hot glass techniques. Materials fee: \$35.00. (Prerequisites: Advanced standing or permission of instructor.)
- ART 468 3 Credits** Fall and Spring
Advanced Native Art Studio (1+4) h
 (Same as ANS 468)
 Understanding and applying the advanced traditional designs and technologies of Native art with particular emphasis on the use of contemporary materials to interpret traditional forms. (Prerequisite: ART 368 or permission of instructor.)
- ART 471 3 Credits** Spring
Computer Art (1+4)
 Production and reproduction techniques for digital painting, images manipulation and typography. (Prerequisites: ART 371; or CS 201 or equivalent, ART 105 and one of ART 161, 162 or 163.)
- ART 499 1-3 Credits** Fall/Spring
Thesis Project
 Directed work toward individual exhibition, completed outside regularly scheduled classes. Required for B.F.A. candidates. (Prerequisites: Senior standing.)

Atmospheric Science

- ATM 636 3 Credits** Alternate Fall
Physics of the Lower Atmosphere (3+0)
- ATM 646 3 Credits** Alternate Spring
Dynamics of the Atmosphere and Ocean (3+0)
- ATM 656 3 Credits** Alternate Spring
Atmospheric Circulation, Weather and Climate

Automotive

AUTO 080 2 Credits As Demand Warrants Driver and Safety Education (2+0)

Drivers Education for the beginning driver. Course will cover the Alaska Driver's Manual and all material necessary to gain an Alaska Driver's Permit. It will also include defensive driving methods for accident-free driving and basic mechanical information.

AUTO 081 1 Credit As Demand Warrants Behind-the-Wheel Training (0+3)

This course will provide practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver's license. (Prerequisite: Must have a valid Alaska Driver's Permit.)

AUTO 100 1 Credit As Demand Warrants Introduction to Small Engine Repair (1+0)

A course designed to teach the parts and functions of a small engine and its electrical system. Proper dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs will be covered.

AUTO 103 1 Credit As Demand Warrants Auto Tune-Up (1+0)

A dual purpose course servicing both as an introduction to a more advanced course and also as a consumer interest course. Instruction will focus attention on vehicle maintenance by the operator with tools commonly available. It will be a 'hands-on' approach to basic troubleshooting and maintenance.

AUTO 170 1 Credit As Demand Warrants Snowmachine Maintenance and Repair (1+0)

An introduction to the fundamental skills necessary for the operation and repair of a snow-machine. Specific areas that are covered are engine tune-up, lubrication, belt and track repair, alignment, and basic problems encountered during operation.

Aviation

AVTY 100 4 Credits As Demand Warrants Private Pilot Ground School (4+0)

Study of aircraft and engine operation and limitations, aircraft flight instruments, navigation, navigation computers, national weather information and dissemination service. Federal Aviation Regulations, flight information publications, radio communications, and radio navigation in preparation for FAA Private Pilot-Airplane written exam. Also available via Independent Learning.

AVTY 101 2 Credits As Demand Warrants Private Pilot Flight Training (2+0)

Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Private Pilot certificate. Department approval required.

AVTY 102 3 Credits As Demand Warrants Commercial Ground Instruction (4+0)

Advanced study of aircraft performance, airplane systems (including complex single engine, multi-engine and turboprop aircraft), navigation, regulations and meteorology. In addition, employment considerations for commercial pilots are surveyed. This course will prepare students to take the FAA Commercial Pilot-Airplane written examination.

AVTY 103 2 Credits As Demand Warrants Commercial Flight Training (2+0)

Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulation. 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 will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Single-Engine Sea Rating. (Prerequisite: Private Pilot certificate or higher, department approval required.)

AVTY 107 1 Credit As Demand Warrants Multi-Engine Flight Training (1+0)

Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Multi-Engine Rating. (Prerequisite: Private Pilot certificate or higher, department approval required.)

AVTY 108 1 Credit As Demand Warrants Introduction to Skis (1+0)

Pilot instruction with a certified flight instructor or flight school to introduce techniques of ski-lane operation and cold weather maintenance. The student is responsible for making arrangements for an appropriate aircraft, instructor, and financing. (Prerequisite: Private Pilot Certificate.)

AVTY 109 1 Credit As Demand Warrants Glider Flight Training (1+0)

Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Glider and Private or Commercial Pilot Certificate with a Glider category rating. (Prerequisite: Department approval.)

AVTY 110 1 Credit As Demand Warrants Biennial Flight Review (1+0)

A review of Federal Aviation Regulations, air traffic control procedures, communications, normal and emergency aircraft procedures, and aircraft performance. (Prerequisite: Student must hold at least a Private Pilot certificate.)

AVTY 111 3 Credits Fall Fundamentals of Aviation (3+0)

A comprehensive introduction to basic concepts associated with the aircraft and its environment. The study of the aircraft and its components, including basic systems, the relationship of the Federal Aviation Administration as it impacts regulations, airports and airspace utilization will be studied along with aeronautical charts, navigation, weather theory, medical and emergency factors. This course will provide the opportunity to explore aviation in general as one acquires related knowledge and skills.

AVTY 116 3 Credits As Demand Warrants Aviation History (3+0)

A survey of aviation from its early days to the present. The people, places, and machines contributing to the development of Alaskan aviation will be emphasized.

AVTY 117 3 Credits As Demand Warrants Aviation Weather (3+0)

Weather and its effects on air transportation and air traffic control. Aviation weather reports and forecasts. Methods of weather distribution including teletype, voice lines, broadcasts, and other systems used by the U.S. Government and airway users.

AVTY 119 1 Credit As Demand Warrants Flight Simulator Instruction Basic Procedures (0+3)

An introduction to the operation and use of the LINK GAT-I flight simulator and selected practice in basic flight maneuvers, procedures and techniques. This individualized simulate flight training may serve as a valuable supplement to both Private Pilot Ground School and actual flight training. (Prerequisite: AVTY 100 or concurrent enrollment in AVTY 100, AVTY 111 or AVTY 112.)

AVTY 155 1-3 Credits As Demand Warrants Preventive Maintenance

The course is designed for the pilot-owner who must make his/her decisions as to what maintenance should be done. A knowledge of the mechanics of the airplane, its power plant and systems will enable the student to evaluate any malfunction and will help make any decisions more accurate. (Prerequisite: AVTY 100 or permission of instructor.)

AVTY 200 4 Credits As Demand Warrants Instrument Ground School (4+0)

Instrument operation in detail, altitude instrument flying, air traffic control and navigation facilities, pilot responsibilities. IFR enroute charts, approach plates, airspace and airway route system, ATC operations and procedures. Federal Aviation Regulations, flight planning, medical facts about pilots, meteorology, similar flights. Course includes visits to FAA RAPCO and ARTCC facilities. (Prerequisite: AVTY 100, passing score on the FAA Private Pilot Written Exam or permission of the instructor. Must complete AVTY 102- Commercial Ground School.)

AVTY 202 3 Credits As Demand Warrants Flight Instructor Ground School (3+0)

Preparation for the FAA Certified Flight Instructor or Advanced Ground Instructor written examination. (Prerequisite: Commercial Pilot certificate or permission of instructor.)

- AVTY 203 2 Credits As Demand Warrants**
Flight Instructor Flight Training (2+0)
 Flight instruction will be arranged by student through approved pilot school or independent flight instructor. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Certified Flight Instructor Certificate. (Prerequisite: 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. (Prerequisite: 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 examination. (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. (Prerequisite: Commercial Pilot Certificate, 1500 hours of flight time as pilot or the equivalent (as described in FAR 61.55); AVTY 206 or passing score on FAA Airline Transport Pilot written exam; current FAA First Class Medical certificate.)
- AVTY 208 Credits As Demand Warrants**
Flight Simulator Operation (3+0)
 Advanced training in a flight simulator. Recommended for instrument flight simulator. Recommended for instrument flight and ground instructor, airline transport pilot, and aircraft dispatcher applicants. (Prerequisite: Private Pilot certificate (or higher), 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)
 Required for persons desiring to utilize the GAT-I Flight Simulator. Use of the flight simulator must be individually scheduled through the aviation department. A flight or ground instructor approved by UAF must direct and accompany the student while the simulator is in operation. Individuals may use the time accumulated to meet the requirements of advance ratings or flight recently 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 will be in accordance with current Federal Aviation flight training directives. Approximately 40 hours flying. Course completion requires the awarding of Instrument Rating by an FAA flight inspector. (Prerequisite: Private or Commercial Pilot Certificate or AVTY 200 (concurrent enrollment allowed) or passing score on FAA Private Commercial Pilot Written Exam or permission of department.)
- AVTY 226 4 Credits As Demand Warrants**
Flight Engineer Ground School (4+0)
 A comprehensive examination of the major systems of one of the following aircraft: Turbojet (B-727, DC-8, B-707); Turboprop (L-382, L-188); or Reciprocating (DC-6). Prepares the student for the FAA Flight Engineer written examination. (Prerequisite: FAA Commercial Pilot License & Instrument Rating, or equivalent, and department approval.)
- AVTY 231 3 Credits As Demand Warrants**
Arctic Survival (3+Arr)
(Same as ALR 231)
 Use of principles, procedures, techniques and equipment to survive extreme arctic conditions and to assist in safe recovery. Lab time required. Materials fee: \$35.00.
- AVTY 232 3 Credits As Demand Warrants**
Aviation Astronomy and Navigation (3+0)
 Introduction to air navigation and astronomy, including charts, equipment, star and constellation identification, and calculations.
- AVTY 233 1 Credit As Demand Warrants**
Loran C Navigation (1+0)
 The student will gain sufficient understanding of the theory of Loran 'C' to recognize positive and adverse conditions regarding its use, to be able to enter way points already programmed into the computer and effectively navigate them and to learn to preprogram the computer for enroute and arrival points to within 100 feet.

- AVTY 235 3 Credits As Demand Warrants**
Elements of Weather (3+0)
(Same as ALR 235)
 Weather as it affects aircraft operators with an emphasis on Interior Alaska.
- AVTY 239 4 Credits As Demand Warrants**
Aircraft Dispatcher (4+0)
 Coordinating functions that must be performed involving the aircraft and other departments of an airline business. (Prerequisite: Those wanting to be eligible for aircraft dispatcher certificate must be 23 years of age.)
- AVTY 301 3 Credits Fall**
Air Worker Strategies (3+0)
 For pilots or air workers who use aviation in natural resources management; addresses areas of knowledge and skills necessary to use general aviation aircraft as a tool for field transportation, field logistics or as a platform for instrumentation and data collection. (Prerequisite: AVTY 101 or AVTY 111.)
- AVTY 302 2 Credits Spring**
Aerial Data Collection (2+0)
(Same as ALR 302)
 The specific uses of aircraft to collect resource data from ocular observations to the operation of specialized equipment used to collect remote sensing data. Includes aspects of mission design and sampling strategies. The course is intended for people who plan to be involved in data collection, including air workers, mission pilots and managers. (Prerequisite: AVTY 301.)
- AVTY 302L 1 Credit Spring**
Aerial Data Collection Laboratory (0+2)
(Same as ALR 302L)
 Optional lab portion of AVTY 302. (Prerequisites: AVTY 301 and 302.)
- AVTY 402 3 Credits Spring**
Aircraft Management (3+0)
(Same as ALR 402)
 Methods for securing, dispatching, and monitoring aircraft operations for managers. Topics to be emphasized include safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling. (Prerequisite: AVTY 301.)
- 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 103 4 Credits Fall and Spring**
Biology and Society (3+3) n
 Introduction to the fundamental principles of biology; emphasis on their application to man in the modern world. Course is designed for non-science majors. Includes lectures, laboratory demonstrations, experiments, and discussions of contemporary biological topics. This course may not be used as biology elective credit for a major in biological science. Laboratory fee: \$10.00-\$40.00. (Offered every Fall at the Northwest Campus.)
- BIOL 104 3 Credits Fall and Spring**
Natural History of Alaska (3+0) n
 Aspects of the physical environment peculiar to the north and important in determining the biological setting; major ecosystem concepts to develop an appreciation for land use and wildlife management problems in both terrestrial and aquatic situations. This course may not be used as biology elective credit for a major in biological science. Also available via Independent Learning.
- BIOL 105 4 Credits Fall**
BIOL 106 4 Credits Spring
Fundamentals of Biology I and II (3+3) n
 Principles of biology for the science major. First semester: cell structure, metabolism, genetics and evolution. Second semester: plant and animal structure and function, ecology. BIOL 105 is required for BIOL 106. Laboratory fee: \$10.00. (Prerequisite: high school chemistry recommended.)

- BIOL 111 4 Credits** Fall
BIOL 112 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. BIOL 111 is required for BIOL 112. These courses may not be used as biology elective credit for majors in biological sciences. Laboratory fee: \$10.00.
- BIOL 150 3 Credits** Independent Learning Only
Introduction to Marine Biology
 A general survey of marine organisms, evolution of marine life, habitats and communities of ocean zones, productivity, and marine resources. This course is designed for non-science majors and may not be used as biology elective credit for a major in biological science.
- BIOL 205 4 Credits** Alternate Spring
Vertebrate Anatomy (2+6) n
 Anatomy of bony fishes, birds, and mammals. Laboratory dissections emphasized. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106. Next offered: 1991-92.)
- BIOL 210 4 Credits** Spring
Animal Physiology (3+3) n
 Animal function, including respiration, digestion, circulation, nerve and muscle function, hormones, and reproduction. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106; CHEM 103 and 104 or 105 may be taken concurrently.)
- BIOL 222 4 Credits** Fall
Biology of the Vertebrates (3+3) n
 An introduction to the fishes, amphibians, reptiles, birds, and mammals emphasizing systematics, evolution, structure, and function. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106.)
- BIOL 239 4 Credits** Spring
Introduction to Plant Biology (3+3) n
 Structure, function, ecology, and evolutionary patterns of the major groups of plants. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106.)
- BIOL 240 4 Credits** 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: \$20.00
- BIOL 271 4 Credits** Fall
Principles of Ecology (4+0) n
 Introduction to the basic principles of ecology and evolutionary biology. Environmental factors, their causation and influence upon plants and animals. Basic population biology: population structure, growth, and regulation. The mechanisms of evolutionary change in populations. The organization of biotic communities. The structure and function of ecosystems. (Prerequisites: BIOL 105 and 106.)
- BIOL 305 4 Credits** Fall
Invertebrate Zoology (3+3) n
 Classification, structure, function, evolution, and life histories of invertebrate animals. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106, 210, and 271.)
- BIOL 307 3 Credits** Alternate Spring
Parasitology (2+3) n
 Structure, function, life history, and ecology of animal parasites. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106 and BIOL 222 or permission of instructor. Next offered: 1990-91.)
- BIOL 308 3 Credits** Spring
Principles of Evolution (3+0) n
 An introduction to the mechanisms of, and evidence for, the evolution of living systems. The coding and transmission of genetic information in populations, population variability, change, and stabilization. (Prerequisites: BIOL 105-106, 362, 271, or permission of the instructor.)
- BIOL 317 4 Credits** Alternate Spring
Comparative Anatomy of Vertebrates (2+6) n
 Anatomy, phylogeny and evolution of the vertebrates. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106. Next offered: 1990-91.)
- BIOL 328 3 Credits** Spring
Biology of Marine Organisms (3+0) n
 Introduction to biology of marine organisms: ocean as a habitat, distribution, classification, functional morphology, and general biology of the major biological groups; man and the oceans. (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; discussion of taxonomic principles and both classical and experimental methods of research. Preregistration is required to insure that each student will prepare a plant collection. Laboratory fee: \$10.00. (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
 The structure, function, comparative development, taxonomy, phylogeny and life histories of non-vascular cryptogams (algae, excluding blue greens, fungi, lichens, mosses and hepatics). Laboratory fee: \$10. (Prerequisite: BIOL 239. Next offered: 1991-92.)
- BIOL 334 4 Credits** Alternate Fall
Structure and Function in Vascular Plants (3+3) n
 Morphology, anatomy and physiology of vascular plants, stressing the interrelationships between development, anatomy, growth, water relations, photosynthesis, transport and metabolism. Laboratory fee: \$10.00. (Prerequisite: BIOL 239. Next offered: 1991-92.)
- BIOL 342 4 Credits** Spring
Microbiology (3+3) n
 A survey of morphology and physiology of microorganisms (viruses, bacteria, fungi, algae and protozoans). The role of these organisms in the environment and their relationship to humans are considered. Concepts of immunology are introduced. The laboratory stresses aseptic techniques for handling microorganisms. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106.)
- BIOL 361 4 Credits** Alternate Spring
Cell Biology (3+3) n
 Detailed structure, including ultrastructure, and function of the cell: isolation, composition, and biochemical properties of cell organelles and their integration. Laboratory fee: \$10.00. (Prerequisites: A year each of college chemistry and biology. Next offered: 1990-91.)
- BIOL 362 4 Credits** Fall
Principles of Genetics (3+3) n
 Principles of inheritance; physico-chemical properties of genetic systems. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106.)
- BIOL 384 3 Credits** Alternate Fall
Biology of the Freshwater Fish of Alaska (3+0)
 Life histories of Alaskan freshwater fish emphasizing species sought by fishermen. Emphasis is on reproduction, age, growth, migration, food, inter-relationships and habitat requirements. (Prerequisite: BIOL 105-106 or permission of instructor. Next offered: 1991-92.)
- 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. Laboratories emphasize identification. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106 and 271.)
- BIOL 407 3 Credits** Alternate Fall
Aquatic Entomology (2+3)
 Ecology, taxonomy, anatomy, physiology and evolution of aquatic insects. Laboratories emphasize identification and field/laboratory techniques. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106 and 271, BIOL 473 recommended or permission of instructor. Next offered: 1990-91.)
- BIOL 414 4 Credits** Fall
Comparative Physiology (3+3) n
 Functional variations and relationships among animals; respiration, cardiovascular systems, metabolism, temperature regulation, osmoregulation excretion, nerve and muscle function. Laboratory fee: \$10.00. (Prerequisites: BIOL 210, CHEM 106 and CHEM 321 or permission of instructor.)
- BIOL 418 4 Credits** Alternate Spring
Developmental Biology (3+3) n
 Morphological and molecular aspects of development of multicellular organisms, with emphasis on the regulation of morphogenesis. Laboratory stresses experimental study of vertebrate embryos. Laboratory fee: \$10.00. (Prerequisites: BIOL 105-106, 210 or permission of instructor. Next offered: 1991-92.)
- BIOL 425 3 Credits** Fall
Mammalogy (2+3) n
 Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution, and zoogeography. Laboratory fee: \$10.00. (Prerequisites: BIOL 222, and either BIOL 205, or 317; or permission of instructor.)

- BIOL 426 3 Credits** 7 **Spring**
Ornithology (2+3) n
 The evolution, anatomy, physiology, distribution, migration, breeding biology of birds and their classification and identification. Laboratory fee: \$10.00. (Prerequisites: BIOL 222, and either 205 or or permission of instructor. Concurrent enrollment in BIOL 479 is recommended.)
- BIOL 427 4 Credits** **Fall**
Ichthyology (3+3) n
 Major groups of fishes, emphasizing the fishes of northwestern North America. Classification structure, evolution, general biology, and importance to man of the major groups. Laboratory fee: \$10.00. (Prerequisites: BIOL 222, and either BIOL 205 or 317 or permission of the instructor.)
- BIOL 441 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 the techniques of behavioral observation and analysis. Laboratory fee: \$10.00. (Prerequisites: BIOL 210 and 271; or permission of instructor; Recommended: BIOL 308.)
- BIOL 442 5 Credits** **Alternate Fall**
Bacteriology and Immunology (3+6) n
 Morphology, physiology and systematics of bacteria. Introduction to microbial pathogenesis and concepts of immunology. Laboratory fee: \$10.00. (Prerequisites: BIOL 342, CHEM 321 or permission of instructor. Next offered: 1990-91.)
- BIOL 443 3 Credits** **As Demand Warrants**
Microbial Ecology (2+3) n
 Laboratory investigation of ecological activity and impact of bacteria and fungi. Isolation and study of important genera. Laboratory fee: \$10.00. (Prerequisites: BIOL 342, 271, or 442; or permission of instructor.)
- BIOL 445 4 Credits** **Fall**
Molecular Evolution (3+3)
 (Same as CHEM 445)
 The study of structure, function and evolution of hereditary molecules (nucleic acids). (Prerequisite: BIOL 362.)
- BIOL 460 3 Credits** **Alternate Spring**
Biomes of the World (3+0)
 Survey of the major terrestrial ecosystems of the world; emphasis on global patterns of climate and ecosystem processes, ecological features, flora and fauna of major ecosystems and ecosystem convergence. (Prerequisite: BIOL 271. Next offered: 1990-91.)
- BIOL 471 3 Credits** **Spring**
Population Ecology (3+0) n
 The biology of populations of plants and animals, including population structure, natality, mortality, population growth, the regulation of population size, and population interactions in herbivory, predation, and parasitism. (Prerequisite: BIOL 271.)
- BIOL 472 3 Credits** **Fall**
Communities and Ecosystems (3+0) n
 An analysis of the structure of plant and animal communities and their organization. The structuring forces of competition, predation, herbivory, mutualisms, and the flow of energy and nutrients will be covered. Latitudinal gradients in species richness and biogeography will also be discussed. (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: \$10.00. (Prerequisites: BIOL 271, CHEM 106 or permission of instructor.)
- BIOL 474 4 Credits** **Alternate Fall**
Plant Ecology (3+3) n
 Principles and contemporary topics in plant ecology. Topics covered include autecology, community ecology, ecosystem ecology and evolutionary ecology. Laboratory fee: \$10.00. (Prerequisites: BIOL 239, BIOL 271, STAT 301. Next offered: 1990-91.)
- BIOL 475 2 Credits** **Alternate Fall**
Plant Communities of Alaska-Field Course (1+3)
 A series of field trips to the plant communities of interior Alaska; emphasis on identification of vascular and non-vascular plants and the processes affecting the structure and evolution of Alaskan plant communities. Laboratory fee: \$10.00. (Prerequisites: BIOL 239, permission of instructor. Next offered: 1991-92.)
- BIOL 477 3 Credits** **Alternate Spring**
Ecology of Streams and Rivers (3+0)
 Physical, chemical and (especially) biological aspects of stream and river ecosystems. Course will include considerations of the methods used in running water research and management of streams and rivers. (Prerequisites: BIOL 271 and 473, recommended or permission of instructor. Materials fee: \$10.00. (Next offered: 1990-91.)
- BIOL 478 2 Credits** **Spring**
Field Ecology (0+3) n
 An intensive experience in the collection and interpretation of ecological data. The course consists of concentrated study for 10-12 days in early May. Students will engage in the design, execution, and analysis of field projects dealing with various aspects of ecology. Course is graded pass/fail. Field trip fee to be announced. Laboratory fee: \$10.00. (Prerequisites: BIOL 271, 471 or 472 [may be taken concurrently], and permission of instructor.)
- BIOL 479 2 Credits** **Spring**
Ornithology Field Trip (0+3) n
 Techniques of field ornithology, emphasizing identification of birds and bird-habitat relationships. The course consists of preparation during the spring semester followed by a field trip of 10-12 days in early May. Students must share in expenses. Field trip fee to be announced. Laboratory fee: \$10.00. (Prerequisites: BIOL 426, may be taken concurrently, and permission of instructor.)
- BIOL 480 3 Credits** **Alternate Fall**
Water Pollution Biology (3+0)
 Effects of man-caused environmental stresses on the composition and dynamics of aquatic communities. Changes in diversity and matter and energy transfer. Biological indices. Water quality, standards and use classifications. (Prerequisites: BIOL 271 and 473 or permission of instructor. Next offered: 1991-92.)
- 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 618 2 Credits** **Alternate Spring**
Biogeography (2+0)
- BIOL 619 2 Credits** **Alternate Fall**
Marine Mammals (1+3)
- BIOL 625 3 Credits** **Alternate Spring**
Physiological Ecology: Energetics and Nutrition (2+3)
- BIOL 626 3 Credits** **Alternate Fall**
Physiological Ecology: Vertebrate Reproduction (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 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**
- 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 4 Credits** **Alternate Fall**
Data Analysis in Biology (3+3)
 (Same as STAT 680)

Business Administration

Admittance to upper division School of Management courses will be granted only to students with junior standing or above who have completed all required 100 and 200 level courses in Accounting, Business Administration, Economics and Mathematics. The exceptions to this include BA 301, BA 331 and BA 332. Any other exceptions require the approval of the BA department head.

BA 100 3 Credits Fall and Spring Introduction to Data Processing and BASIC Language (3+0)

A general introductory business course designed to provide students with an overview of business applications of computers. Topics covered are: machine organizations, problem formulation, utilization of BASIC programming language in business applications, information flow management, applications of automatic data processing systems to include input-output procedures, and the utilization of business application programs available to the School of Management. Materials fee: \$20.00. (Not for School of Management students. This course will not substitute for BA 101, Introduction to Management Information systems.)

BA 101 3 Credits Fall and Spring Introduction to Management Information Systems (3+0)

An introduction to the concepts, skills and software required for today's business education. Students will become familiar with selected current business software applications. Special emphasis will be placed on acquiring proficiency in the use of required School of Management software programs. Materials fee: \$20.00.

BA 151 3 Credits Fall and Spring Introduction to Business (3+0)

Business organization, nature of major business functions such as management, finance, accounting, marketing, personnel administration. The opportunities and requirements for professional business careers.

BA 160 3 Credits Fall Tourism Principles and Practices (3+0)

Forces which influence the international and domestic hospitality, leisure, travel, and recreation industries. Socio-economic models and measure of regional impact, demand, and supply.

BA 201 3 Credits Alternate Spring COBOL (2+2)

Training and practice in writing problems in the COBOL language. Multiple file processing, editing and report generating routines. Materials fee: \$20.00. (Prerequisite: BA 101 or permission of instructor. Next offered: 1991-92.)

BA 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: BA 101. Next offered: 1991-92.)

BA 253 1-3 Credits Fall-Spring-Summer Internship in Business (0+1-3)

Supervised work experience in an approved position which is related to the student's career interests or objectives. Number of credits given will depend on types of position and amount of time worked by the student. No student can count more than eight internship credits towards a degree. (Prerequisite: approval of program or department head.)

BA 301 3 Credits Fall Processes of Management (3+0)

A systematic examination of the basic functions of management with particular attention on the human side of the organization. Modes of communication and coordination are evaluated in terms of the need for planning, controlling, and decision-making among the organizational components. An overall framework for effective integration of the distinct processes is emphasized. (Prerequisites: Junior standing or permission of instructor.)

BA 303 3 Credits Fall Advanced Leadership (3+1) (Same as MILS 303)

Comprehensive analysis of leadership styles and functions applicable to formal organizations. Lab: Advanced leadership development including enrichment seminars. (Prerequisite: Junior standing.)

BA 307 3 Credits Fall Personnel Management (3+0)

Personnel practice in industry, analysis of labor-management problems, methods and administration of recruiting, selecting, training, and compensating employees, and labor laws and their applications. Materials fee: \$10.00. (Prerequisites: BA 301 or permission of instructor.)

BA 310 3 Credits Fall and Spring Intermediate Management Information Systems (3+0)

The role of information technology in organizations and its impact on management and strategic issues. Hands on use of the computer for developing and using decision support systems for management analysis in business. Materials fee: \$20.00. (Prerequisite: BA 101.)

BA 317 3 Credits Fall Employment Law (3+0)

Basic personnel and human resource management, including the major federal laws affecting personnel management and state employment laws including Alaska. (Prerequisites: BA 301, BA 307 or concurrent enrollment in BA 307.)

BA 325 3 Credits Fall and Spring Financial Management (3+0)

Intensive analysis of the methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisites: ACCT 102, ECON 201, 202, 226. Highly recommended MATH 162 or equivalent, and ECON 227.)

BA 326 3 Credits Spring Principles of Advertising (3+0) (Same as J-B 326)

Theory and practice of 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)

An examination of labor law and current management practices in administering collective bargaining agreements, emphasizing recent problems, developments and trends in union management relations, negotiating, arbitration and unfair labor practices. (Prerequisites: BA 301, BA 307.)

BA 331 3 Credits Fall and Spring The Legal Environment of Business (3+0)

An introduction to the legal environment of business and management. Topics include the judicial system, legal processes, administrative procedures, product safety and advertising, debtor-creditor relations, issuing and trading securities, restraints of trade, monopolies, mergers, price discrimination, labor-management relations, labor standards and employee safety, business ethics and corporate social responsibility. Materials fee: \$10.00. (Prerequisite: Junior standing or permission of instructor.)

BA 332 3 Credits Fall and Spring Business Law (3+0)

The legal principles essential to a business person are presented in this course and include: the law of torts, contracts, agency, property, sales transactions, commercial paper, business organizations, government regulation of business, the uniform commercial code, the uniform partnership act and the uniform limited partnership act. Materials fee \$10.00. (Prerequisite: BA 331.)

BA 343 3 Credits Fall and Spring Principles of Marketing (3+0)

Role of marketing in society and economy. The business firm as a marketing system, and management of the firm's marketing effort. Also available via Independent Learning. (Prerequisite: ACCT 102, ECON 201, 202, 226.)

BA 350 3 Credits Fall Introduction to Real Estate and Land Economics (3+0)

Study of processes and considerations that influence decisions of individuals and groups concerning real estate investment and utilization. Functions of various types of real estate operators are also considered in the course. (Prerequisites: Junior standing or permission of instructor.)

BA 360 3 Credits Spring and Fall Operations Management (3+0)

An introduction to the operational field of production with emphasis on the design of efficient operating systems. Specific areas considered are: forecasting, facilities planning, inventory management, production scheduling, and job design as applicable to all types of organizations. Materials fee: \$20.00. (Prerequisites: BA 101 or equivalent, ACCT 102, ECON 201, 202, 226. Highly recommended, MATH 162 or equivalent and ECON 227.)

- BA 372 3 Credits Spring**
Hotel Administration (3+0)
 An intensive examination of the practices and concepts necessary for successful hotel operation in Alaska including but not limited to management systems financing of hotels, budgeting and food costing, housekeeping, and front office management. (Prerequisites: BA 160, BA 253 and BA 301.)
- BA 375 3 Credits Fall**
Marketing of Hospitality Service (3+0)
 Principles of marketing applied to service industries, advertising, promotion, public relations, and personal selling to achieve profitable public recognition and good will. (Prerequisites: BA 343.)
- BA 377 3 Credits Alternate Fall**
Food and Beverage Management (3+0)
 Students will follow the development of a successful food and beverage system from its inception to operation and will deal with the diverse subjects of menu planning, purchasing, preparation, service, and food beverage cost control. (Prerequisites: BA 160, BA 253, BA 301. Next offered: 1990-91.)
- BA 378 3 Credits Fall**
Passenger Transportation Management (3+0)
 Students will become familiar with all modern forms of passenger transportation. Main emphasis will be put on those carriers presently operating in Alaska and future development of transportation in Alaska. (Prerequisites: BA 160 and BA 253.)
- BA 390 3 Credits Fall**
Organizational Theory and Behavior (3+0)
 A focus on people in organizations from the level of the individual, the group, and the organization. Topics covered include motivation, leadership, communication, group processes, organization structure and design, organizational development, and organizational change. (Prerequisites: PSY 101 or SOC 101.)
- BA 410 3 Credits Fall**
Systems Analysis and Design (3+0)
 The System Development Lifecycle for Information Systems in both mainframe and microcomputer environments. Includes a term project. Materials fee: \$20.00. (Prerequisite: BA 310, BA 312 and ACCT 316.)
- BA 412 3 Credits Spring**
MIS Project (0+6)
 Application of systems analysis and computer skills in building applications for Fairbanks organizations, both in public and the private sector. Each project will be carried out by a team of students. (Prerequisites: BA 410; concurrent enrollment in BA 414.)
- BA 414 3 Credits Spring**
Database Design for Management Information (3+0)
 Advanced systems analysis using modern techniques of data modeling with study of the management and administrative problems in the coordination and management of organization data resources; focusing on the needs of medium-sized and large organizations. (Prerequisite: BA 410.)
- BA 418 3 Credits Spring**
Simulation Modeling for Decision Making (3+0)
 The concepts of computer simulation, probability distributions, modeling principles and the language STELLA from basics to experiencing modeling a reasonably complex operating system and making conclusions about the system. (Prerequisites: BA 101 or equivalent, ECON 227, MATH 162, ACCT 102 and BA 360 is recommended.)
- BA 423 3 Credits Fall**
Investment Management (3+0)
 Principles of investing in marketable securities from the individual's perspective, the determination of value, analysis of growth, technical analysis, and portfolio management. Materials fee: \$10.00. (Prerequisite: BA 325 or equivalent.)
- BA 425 3 Credits Spring**
Advanced Corporate Financial Problems (3+0)
 A consideration of corporate financial problems, planning and controls, and major functions performed by corporate financial managers. (Prerequisite: BA 325.)
- BA 430 3 Credits Fall**
Current Topics in Finance (3+0)
 An in-depth consideration of sophisticated and specialized applications of financial management principles. The topics covered will be those most timely to the Alaskan economy. Materials fee: \$20.00. (Prerequisites: BA 325.)
- BA 436 3 Credits Spring**
Consumer Behavior (3+0)
 Examination of the complex system of communication in marketing. The role of culture and its effects on product discrimination. Social class, personality, symbolism, and persuasion are studied from the marketing manager's point of view. The analysis is extended to the organizational influences on corporate buyers and the impact of buyer behavior on the strategy and tactics of marketing management. (Prerequisites: BA 343, ECON 226 and 227.)
- BA 441 3 Credits Spring**
Promotion Management (3+0)
 An examination of the areas of advertising, publicity, sales management, sales promotion, and the interrelationships necessary for effective promotions. (Prerequisite: BA 343.)
- BA 443 3 Credits Spring**
International Marketing (3+0)
 There are significant changes occurring in the world with respect to trade. Thus, comparisons of foreign markets with domestic markets are required. If the market is attractive, then it can be enlarged via direct export, direct investment, or joint ventures. All three methods will be examined. The problems of foreign pricing, communications, distribution, and advertising will also be viewed in terms of marketing management and research. (Prerequisite: BA 343.)
- BA 445 3 Credits Fall**
Marketing Research (3+0)
 To familiarize students with the basic processes and tools of marketing research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Students will apply technique of data-gathering and analysis to a marketing problem. (Prerequisites: BA 343 and 436.)
- BA 447 3 Credits Spring**
Compensation Management (3+0)
 Theory and practice of wage and salary, benefits and risk management. Course focuses upon the planning, administration, auditing, adjusting and budgeting for compensation and risk. (Prerequisites: BA 301, 307 and 327.)
- BA 453 3 Credits Fall and Spring**
Internship in Business Administration (0+var.)
 A supervised practical work experience designed to provide students with a meaningful external involvement in their major discipline. Admission dependent upon completion of satisfactory sponsorship arrangements and permission of the instructor. (Prerequisite: Senior standing and permission of instructor.)
- BA 456 3 Credits Spring**
Small Business Management (3+0)
 The course focuses on the operations and special problems of the small business with emphasis on both existing firms and new ventures. Subjects to be covered include starting new businesses, buying going concerns, acquiring and operating franchises, establishing lines of credit, management, legal matters, profit planning, pricing, inventory levels, record systems, tax regulations, and employee supervision. Materials fee: \$20.00. (Prerequisites: Completion of all 300 level Business Administration, Accounting and Economics common body of knowledge requirements and senior standing in the School of Management.)
- BA 457 3 Credits Spring**
Training and Management Development (3+0)
 Theory and practice of employee training programs, needs assessments, learning theories, instructional design, training techniques and evaluation, management development and career development techniques and practices. (Prerequisites: BA 301, 307 and 317.)
- BA 460 3 Credits Fall**
International Business (3+0)
 An analysis of the relationships among nations with particular emphasis on the business, economic, and sociocultural institutions that influence the performance of managers. Formulation of objectives, strategies, and organizational structures within the context of international diversity will be addressed. (Prerequisite: senior standing. All 300 level requirements completed.)
- BA 461 3 Credits Spring**
International Finance (3+0)
 A study of the financing of foreign investment projects including foreign capital markets, financing exports, hedging foreign exchange risks, and capital budgeting in an international setting. (Prerequisites: BA 325.)

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| BA 462 | 3 Credits | Fall and Spring |
| Administrative Policy (3+0) | | |
| An advanced case course which focuses on the questions of organizational purpose and design through the eyes of the general manager. Marketing, management, and financial considerations are integrated with external influences to forge strategic planning and control. (Prerequisites: Completion of all 300 level 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. (Prerequisites: BA 160, BA 301. Next offered: 1991-92.) | | |
| BA 471 | 3 Credits | Alternate Spring |
| Tourism Seminar (3+0) | | |
| A senior seminar bringing together all areas of the travel-tourism industry. Lecturer, guest industry speakers, and the case study method will all be utilized. (Prerequisite: Admission by instructor's permission and upper division standing. Next offered: 1990-91.) | | |
| BA 475 | 3 Credits | As Demand Warrants |
| Transportation and Logistics (3+0) | | |
| The essential focus of teaching and research in transportation is on systems planning, especially multimode systems. The program builds upon basic knowledge of the properties of transportation systems components, and the ability to analyze interactions among these components and between the transportation system and its environment. Special consideration will be given to Alaskan transportation problems by experienced specialists. (Prerequisites: ECON 226, 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. (Prerequisite: BA 325, 331, 360 and 445.) | | |
| BA 603 | 3 Credits | Fall |
| Processes of Management (3+0) | | |
| BA 604 | 3 Credits | Spring |
| The Legal Environment of Business (3+0) | | |
| BA 605 | 3 Credits | Fall |
| Management Information Systems (3+0) | | |
| BA 606 | 3 Credits | Spring |
| Quantitative Analysis (3+0) | | |
| BA 625 | 3 Credits | Spring |
| Financial Management (3+0) | | |
| BA 643 | 3 Credits | Fall |
| Marketing Management (3+0) | | |
| BA 651 | 3 Credits | Spring |
| Organizational Theory and Behavior (3+0) | | |
| BA 661 | 3 Credits | As Demand Warrants |
| Human Resources Management (3+0) | | |
| BA 680 | 3 Credits | Fall |
| Seminar in Finance (3+0) | | |
| BA 683 | 3 Credits | Spring |
| Seminar in Marketing (3+0) | | |
| BA 684 | 3 Credits | Fall |
| Production and Operations Management (3+0) | | |
| BA 690 | 3 Credits | Spring |
| Administrative Policy (3+0) | | |
| BA 691 | 3 Credits | Fall |
| Research Design and Methods (3+0) | | |

Chemistry

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| CHEM 075 | 3Credits | As Demand Warrants |
| Introduction to Chemical Sciences (3+) | | |
| Introduction to chemistry for the non-science major. Includes units of measurement, atomic and molecular structure, chemical bonding, metabolism, radioactivity, oxidation-reduction reactions, solutions, acids and buffers. | | |

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| CHEM 103 | 4 Credits | Fall |
| Basic General Chemistry (3+3) n | | |
| Introduction to the fundamentals of chemistry including historical and descriptive aspects as well as basic mathematical concepts. The course fulfills the laboratory part of the natural science requirement and prepares the student for CHEM 105. Laboratory fee: \$15.00. (Prerequisite: High school algebra.) | | |
| CHEM 104 | 4 Credits | Spring |
| Beginnings in Biochemistry: | | |
| A Survey of Organic Chemistry and Biochemistry (4+0) n | | |
| A freshman-level course covering the fundamentals of chemistry as applied to biological systems. It is intended to bridge the gap between a general chemistry course and the biochemical concepts of other health-related sciences. Recommended for health-science degree candidates. (Prerequisite: CHEM 103 or consent of instructor.) | | |
| CHEM 105 | 4 Credits | Fall and Spring |
| CHEM 106 | 4 Credits | Fall and Spring |
| General Chemistry (3+3) n | | |
| CHEM 105-106, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. CHEM 105: Measurements, calculations, atomic and molecular structure, chemical reactions and related energy changes. CHEM 106: Reaction kinetics, equilibrium (including acids and bases), nuclear chemistry, electro-chemistry, chemistry of the elements and an introduction to organic and biochemistry. Laboratory fee: \$25.00-30.00. (Prerequisites: For CHEM 105: high school algebra, high school chemistry or CHEM 103, or consent of instructor. For CHEM 106: CHEM 105.) | | |
| CHEM 108 | 4 Credits | Spring |
| Chemistry and the Modern World (3+3) n | | |
| Introduction to the fundamentals of chemistry with an emphasis on the impact of chemistry and the chemical industry on society and the environment. The course is designed for non-science majors and may be used to fulfill part of the natural science requirement or as preparation for Chem 105. Laboratory fee: \$15.00. | | |
| CHEM 202 | 3 Credits | Spring |
| Basic Inorganic Chemistry (2+3) n | | |
| Survey of inorganic chemical properties and reactions with special emphasis on the environment. The laboratory includes synthesis, characterization and analysis. Laboratory fee: \$15.00 (Prerequisite: CHEM 106 or permission of instructor.) | | |
| CHEM 212 | 3 Credits | Fall |
| Chemical Equilibrium and Analysis (3+0) n | | |
| A systematic study of aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, potentiometry, and factors considered in the analytical approach. (Prerequisites: CHEM 106, 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: \$15.00 (Prerequisites: CHEM 106 and MATH 107.) | | |
| CHEM 321 | 3 Credits | Fall and Spring |
| CHEM 322 | 3 Credits | Fall and 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 106 for CHEM 321; CHEM 321 for CHEM 322.) | | |
| CHEM 324 | 3 Credits | Fall and 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: \$15.00. (Prerequisites: 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 106, 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 | | |
| An in-depth survey of modern inorganic chemistry with application of physical chemistry to the study of the elements and their compounds. Major emphasis is on bonding, periodic properties and coordination chemistry. (Prerequisite or corequisite: CHEM 332.) | | |

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| CHEM 412 | 3 Credits | Fall |
| Instrumental Analytical Methods (3+0) n | | |
| Theory, capabilities and limitations of instruments used in chemical analysis. Subjects include chromatography, mass spectrometry, potentiometry, optical spectroscopy, and nuclear magnetic resonance. (Prerequisites: CHEM 212 and 213; Corequisite: CHEM 332.) | | |
| CHEM 433 | 3 Credits | Spring |
| Analytical Instrumental Laboratory (1+6) n | | |
| An analytical chemistry laboratory emphasizing quantitative instrumental measurements with atomic and molecular absorption spectrometry, gas and liquid chromatography and potentiometry. \$15.00. (Prerequisite: CHEM 212, Corequisite CHEM 331, 412.) | | |
| CHEM 434 | 3 Credits | Fall and Spring |
| Physical Instrumental Laboratory (1+6) n | | |
| A physical chemistry laboratory emphasizing quantitative instrumental measurements: calorimetry, conductance, polarimetry; IR, NMR, x-ray, and Raman spectroscopy. Laboratory fee: \$15.00. (Prerequisite: CHEM 433.) | | |
| CHEM 445 | 4 Credits | Fall |
| Molecular Evolution (3+3) (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. (Prerequisites: CHEM 322; CHEM 331 and 322 recommended or permission of the instructor.) | | |
| CHEM 452 | 3 Credits | Spring |
| Biochemistry Laboratory (1+6) | | |
| An introduction to the experimental manipulation and observation of enzymes, proteins, and nucleic acids, using chromatographic, spectroscopic, electrophoretic, and other techniques. Laboratory fee: \$15.00 (Prerequisite: CHEM 324 and 451.) | | |
| CHEM 602 | 3 Credits | Alternate Fall |
| Advanced Inorganic Chemistry (3+0) | | |
| CHEM 606 | 3 Credits | Alternate Fall |
| Atmospheric Chemistry (3+0) | | |
| CHEM 612 | 3 Credits | Alternate Fall |
| Advanced Analytical Chemistry (3+0) | | |
| CHEM 621 | 3 Credits | Alternate Fall |
| Enzymology and Bio-Organic Chemistry (3+0) | | |
| CHEM 622 | 3 Credits | Alternate Fall |
| Advanced Organic Chemistry II (3+0) | | |
| CHEM 631 | 3 Credits | Alternate Spring |
| Advanced Physical Chemistry (3+0) | | |
| CHEM 632 | 3 Credits | Alternate Spring |
| Molecular Spectroscopy (3+0) | | |
| CHEM 652 | 3 Credits | Alternate Spring |
| Advanced Biochemistry (3+0) | | |
| CHEM 653 | 3 Credits | Alternate Fall |
| Prokaryotic Molecular Biology (3+0) | | |
| CHEM 654 | 3 Credits | Alternate Spring |
| Protein Structure and Function (3+0) | | |
| CHEM 660 | 3 Credits | Spring |
| Chemical Oceanography (3+0) (Same as MSL 660) | | |
| CHEM 662 | 3 Credits | |
| Biochemical and Molecular Biology Research Techniques (0+3) | | |
| CHEM 673 | 3 Credits | Alternate Spring |
| Bioenergetics (3+0) | | |
| CHEM 688 | 0-1 Credits | |
| Biochemical and Molecular Biology Seminar (1+0) | | |

Chinese

For information on studying in China, see Study Abroad.

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| CHNS 101 | 3 Credits | Fall |
| CHNS 102 | 3 Credits | Spring |
| Elementary Chinese I and II (3+0) h | | |
| Introduction to the language and culture; development of competence and performance in the language through understanding recognition and use of linguistic structures, increasing emphasis on listening comprehension and speaking, exploration of the cultural dimension, implicitly through language and explicitly through texts and audio-visual materials. (Prerequisite: For CHNS 102, CHNS 101.) | | |
| CHNS 201 | 3 Credits | Fall |
| CHNS 202 | 3 Credits | Spring |
| Intermediate Chinese I and II (3+0) h | | |
| Continuation of Chinese 102. Increasing emphasis on reading ability and culture material. Conducted in Chinese. (Prerequisite: CHNS 102 or equivalent.) | | |

Civil Engineering

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| CE 112 | 3 Credits | Spring |
| Elementary Surveying (2+3) | | |
| Basic plane surveying; use of transit, level, theodolite, and total station. Traverses, public land system, circular curves, cross-sectioning and earthwork. (Prerequisites: MATH 108.) | | |
| CE 326 | 4 Credits | Fall and Spring |
| Introduction to Geotechnical Engineering (3+3) | | |
| Introduction to the fundamentals of geotechnical engineering including both soil mechanics and foundation engineering. Identification and classification of soil, physical and mechanical properties of soil, subsurface exploration and laboratory testing techniques, seepage, compaction, bearing capacity, slope stability, deep and shallow foundation design, retaining structure design, frozen ground consideration. (Prerequisites: ES 331, ES 341, CE 334 or permission of the instructor.) | | |
| CE 334 | 3 Credits | Fall |
| Properties of Materials (2+3) | | |
| Introduction to the properties of engineering materials. Bonding, crystal, and amorphous structures. Relationships between microstructure and engineering properties. Modification of properties and environmental serviceability. Concrete and asphalt mixes. Laboratory fee: \$10.00. (Corequisite: ES 331.) | | |
| CE 344 | 3 Credits | Fall |
| Water Resources Engineering (3+0) | | |
| Fundamentals of engineering hydrology and hydraulic engineering. Precipitation, runoff, statistical methods, flood control, open channels, and groundwater. Materials fee: \$10.00. (Prerequisite: ES 341.) | | |
| CE 400 | 0 Credits | Fall and Spring |
| EIT Exam | | |
| Complete the EIT application and take the State of Alaska Engineering-in-Training Exam in the same semester of course registration. (Prerequisites: Senior Standing, Civil Engineering.) | | |
| CE 402 | 3 Credits | Fall |
| Introduction to Transportation Engineering (3+0) | | |
| Introduction to fundamentals of transportation engineering. Transportation systems, planning, design parameters, demand and mode specific consideration. Laboratory fee: \$10.00. (Prerequisites: CE junior standing or permission of instructor.) | | |
| CE 403 | 3 Credits | Fall |
| Traffic Engineering (2+3) | | |
| Analysis and design of highways, streets and intersections for traffic consideration. (Prerequisite: CE 402) | | |
| CE 404 | 3 Credits | Spring |
| Highway Engineering (2+3) | | |
| Engineering considerations for highway design including vertical and horizontal alignment, cross sections, drainage, pavements, earthworks, signs and markings, intersection and interchange. (Prerequisite: CE 402.) | | |
| CE 412 | 3 Credits | Alternate Spring |
| Elements of Photogrammetry (2+3) | | |
| Elementary study of aerial and terrestrial photography as applied to surveying and mapping. Flight planning and ground control. Analytical analysis of photography by computer. Kelsh Plotter and other related equipment will be used. (Prerequisite: permission of the instructor. Next offered: 1991-92.) | | |

CE 415 3 Credits Fall
Advanced Surveying (2+3)
 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. Both metes and bounds descriptions and platted subdivisions are considered. (Prerequisite: CE 112 or permission of the instructor.)

CE 422 3 Credits Spring
Foundation Engineering (3+0)
 Principles of foundation design, ultimate bearing capacity of soils and effects of settlements on structure, design of footings and rafts, design of pile and pier foundations, retaining walls and anchored bulkheads, foundations on frozen soils, and construction problems in foundation engineering. (Prerequisite, 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. (Prerequisite: CE 326, ES 301.)

CE 431 3 Credits Spring
Structural Engineering I (2+3)
 Analysis of statically determinate and indeterminate structures to include: beams, trusses and frames. Internal force resultants, shear and moment diagrams, deflections, internal stresses. Influence lines and criteria for moving loads. Indeterminate analysis to include methods of consistent deflections, slope deflection and moment distribution. Introduction to matrix methods. (Prerequisites: CE 334, ES 331.)

CE 432 3 Credits Fall
Structural Engineering II (2+3)
 The concepts of analysis/design will be examined for structural systems using advanced methods of structural analysis and computer techniques. The effects of material behavior, and modes of failure (building, bending, shear, connections) on design decisions will be examined. (Prerequisite: CE 431.)

CE 433 3 Credits Fall
Reinforced Concrete Design (2+3)
 Analysis and design of reinforced concrete components. Design philosophies and current practice. Short and long columns, beam-columns, flexural members, to include: rectangular and T-beams, one and two-way slabs. Footings. Crack control, anchorage, development lengths and deflections. Introduction to complete structural systems. Current ACI specifications used. (Prerequisite: CE 431.)

CE 434 3 Credits Spring
Timber Design (2+3)
 Essentials of structural design in timber. Design of basic components of solid and laminated timber, connections, arches, pole framing, diaphragms, stressed-skin construction, and timber shells. (Prerequisite: ES 331 and CE 431.)

CE 436 3 Credits Spring
Structural Steel Design (2+3)
 Analysis and design of structural steel components. Design philosophies and current practice. Columns, tension members, laterally supported and unsupported beams and beam-columns. Local and global instabilities. Welded and bolted connections. Introduction to complete structural systems. Current AISC specifications used. Prerequisite: CE 431.)

CE 438 3 Credits Spring
Design of Engineered Systems (3+0)
 Introduction to system design principles for large scale constructed facilities. Application of ethics, liability and legal principles to professional practice. Emphasis on teamwork and leadership. (Prerequisite: Last semester of civil engineering B.S. program.)

CE 441 4 Credits Spring
Environmental Engineering (3+3)
 Introduction to fundamentals of environmental engineering including theory and application of water and wastewater engineering practice. Conservation, quality, treatment, and distribution of water supply. Wastewater characteristics, collection, treatment, and disposal. Introductory information on 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 in environmental engineering. Each of the following subjects will be allocated about an equal portion of time for topic coverage. Environmental law and health, air pollution, solid waste management, toxic and hazardous wastes, animal waste management, noise pollution, water quality modeling, wastewater collection systems, chemical/physical processes, theory of sedimentation, disinfection, biological processes, onsite treatment, sludge management, advanced waste treatment and other. (Prerequisites: CE 441 and junior CE standing.)

CE 445 3 Credits Alternate Spring
Engineering Hydrology (2+3)
 Engineering hydrology, design and analysis; extended coverage of hydrologic concepts from CE 344. Precipitation, evaporation analysis; groundwater hydraulics; runoff analysis and prediction; statistical hydrology; application of simulation models. (Prerequisite: CE 344.)

CE 446 3 Credits Alternate Spring
Hydraulic Engineering (2+3)
 Hydraulic design and analysis. Review of principles of fluid mechanics pipe network modeling, hydraulic systems (pumps and turbines), steady and unsteady flow in open channels, hydraulic structures, similitude. (Prerequisite: CE 344.)

CE 470 1 Credit Fall and Spring
Civil Engineering Internship (0+3)
 Designed to give students the opportunity to investigate the practical workings of engineering organizations. Assignments individually arranged with cooperating organizations and agencies. (Prerequisites: Senior standing. Permission of Department Coordinator.)

CE 603 3 Credits Fall and 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 1-3 Credit As Demand Warrants
Community Health Aide Pre-session I

Assists the newly employed community health aide to function in the village clinic until he/she enters Session I. Introductory courses in patient evaluation, use of the manual, reporting patients, medicines and lab tests are included. An introduction to emergency care is included if students have not had Emergency Trauma Training. (Prerequisite: Employment by the health corporation as a Community Health Aide or permission of instructor.)

CHP 110 4 Credits As Demand Warrants
Community Health Aide, Session I

This session focuses on a beginning body of knowledge and skills designed for the CHA to function in the village clinic under the medical supervision of a physician at the regional hospital. Topics emphasized include anatomy, disease concepts, patient evaluation, patient education and treatment plan, use of the manual, M.D. referral, medicines, medical emergencies, common medical problems, prenatal care, immunizations and clinic management and health administration. Introductory courses are taught in pediatrics, communicable diseases, health surveillance and promotion, mental health and substance abuse. Lab skills and clinical training time are scheduled fifty percent of the time. (Prerequisite: Employment by the health corporation as a CHA or permission of the instructor.)

CHP 111 3-4 Credits As Demand Warrants
Community Health Aide, Session II

Session I material is reviewed and reinforced, especially patient evaluation skills and emergency care. This session focuses on prevention, especially the child-bearing cycle, prenatal care, family planning, gynecology/obstetrics, well-child care, and adolescence. Topics of pediatric problems, cardiovascular problems, nutrition, health education, health surveillance and promotion, environmental health, dental health, and mental health are included. Upon completion, the CHA is prepared to conduct basic prenatal and well-child exams, recognize and manage most common minor problems seen in these areas and make appropriate referrals as necessary. Lab skills and clinical training time are scheduled fifty percent of the time. (Prerequisite: CHP 110.)

CHP 112 3-4 Credits As Demand Warrants
Community Health Aide, Session III

Session II material is reviewed and reinforced, especially patient evaluation skills, emergency care, prenatal and well-child care. Additional topics include chronic patient care, dental disease, sexually transmitted diseases, health education, accident prevention, adult health surveillance and mental health. Health problems in each body system are reviewed and discussed in greater depth. Attention is given to the CHA's ability to differentiate between normal and abnormal, determine the relative seriousness of the patient's condition and to make appropriate judgements regarding the nature, locale and immediacy of treatment. Lab skills and clinical training time are scheduled fifty percent of the time. (Prerequisite: CHP 111.)

CHP 113 14 Credits As Demand Warrants
Community Health Aide Field Experience

Students work on-the-job in a village clinic to practice and develop the skills learned in Sessions I, II and III. During this time the community Health Aide consults with a referral physician on a daily basis. Additionally, a variety of health professionals make field trips to the village to provide health care with the CHA. Learning contracts from Sessions I, II and III and the evaluation of CHA skills are also accomplished during the CHA Field Experience. A minimum of 600 hours of village patient care is required. (Prerequisite: CHP 110.)

CHP 114 2 Credits As Demand Warrants

Community Health Aide Preceptorship

Students practice direct patient care, including history taking, physical exam, patient assessment and patient plan. Students receive 30 hours of experience in acute care, emergency care, prenatal care, well-child care, and chronic patient follow-up working with a midlevel practitioner or an M.D. Additional experiences are scheduled with the referral center departments, including Pharmacy, Lab, Supply, Eye Care, Social Services, Mental Health, Public Health Nursing, Maternal Child Health, etc. (Prerequisite: CHP 112.)

CHP 202 1-3 Credits As Demand Warrants
Emergency Care for Community Health Practitioners

Will learn to evaluate and respond to a wide variety of emergency situations that may arise in the village setting. Included among skills to be taught are emergency assessment and treatment, administration of intravenous fluids, application of splints, bandages and transportation of the injured. (Prerequisite: CHP 110.)

CHP 203 1-3 Credits As Demand Warrants
Clinical Update for Community Health Practitioners

Review, update and reinforce the knowledge and skills that were taught in CHP 110, 111 and 112. The major emphasis is on patient evaluation skills, use of the manual, patient treatment plan, medicines, prenatal care, well-child care, chronic patient care and emergency care. Clinical training is provided. (Prerequisite: CHP 110.)

CHP 206 1-3 Credits As Demand Warrants
Mental Health and Substance Abuse

Designed to teach listening skills, drug therapy and family dynamics to the CHPs involved with both crisis intervention, long term care in the area of mental health, and substance abuse. Information will be provided on the mentally ill patient, the substance abuser, the co-dependent, and prevention activities for the village. (Prerequisite: CHP 110.)

CHP 207 1-3 Credits As Demand Warrants
Maternal and Infant Health

Review of the anatomy of the reproductive system, family planning, pregnancy, fetal development, prenatal care, prenatal education, emergency delivery, post-partum care for mother and baby, and well-child evaluations and immunizations. (Prerequisite: CHP 110.)

CHP 208 1-3 Credits As Demand Warrants
Communicable Diseases

Expands concepts of CHP 112 in relation to diagnosis, management and prevention of sexually transmitted diseases. Skills taught include male and female genitalia exam, pelvic exam, pap smear, gonorrhea culture and chlamydia culture. Prevention and patient education are emphasized. (Prerequisite: CHP 110.)

CHP 211 1-3 Credit As Demand Warrants
Health Education

Methods and philosophy of health education, use and sources of audiovisual materials, presentation planning and participation in a school and community health programs are included. A variety of teaching methods including role playing for individual and group presentations will be used for CHPs to practice their health education knowledge and skills. (Prerequisite: CHP 110.)

Computer Applications

CAPS 100 1 Credit As Demand Warrants
Introduction to Personal Computers (1+0)

An introduction to the personal computer which gives the first time user an overview of the three most popular uses of the personal computer: word processing, data base management and electronic spreadsheets. Students completing this course will have a basic understanding of how the computer works and how they might put it to work for them. Materials fee: \$10.00.

CAPS 102 3 Credits As Demand Warrants
Programming in BASIC (3+0)

Recommended as a first programming language for non-majors. Training and practice in writing programs in BASIC language for business data processing applications using microcomputers. Emphasis on problem-solving; analysis, flowcharting, testing and debugging and documentation. (Prerequisite: MATH 070 or 105 or equivalent.)

CAPS 103 1-3Credits As Demand Warrants
Computer Survey (1+0 to 3+0)

An introduction to the world of computers with an emphasis on microcomputers. Introduces the computer and provides computer terminology and how to use computers as a tool to make work easier and to extend the reach of the mind.

- CAPS 104 3 Credits As Demand Warrants**
Introduction to Computer Programming (3+0)
 Through readings, homework computer assignments and computer project assignments the student will learn the fundamental structure of the computer language PASCAL and be able to write elementary computer programs on the IBM-PC (or compatible) computer. Will also be able to understand what a computer is and how it functions, compiles, processes and outputs information. Computer networking will be an integral part of the course. (Prerequisite: Ninth grade reading and comprehension level.)
- CAPS 105 3 Credits As Demand Warrants**
Programming in Fortran (3+0)
 Training and practice in writing programs in FORTRAN. Emphasis on problem-solving through analysis, flowcharting, testing and debugging and documentation. (Prerequisite: Math 070 or 105 or equivalent.)
- CAPS 106 3 Credits As Demand Warrants**
BASIC Programming (3+0)
 Training and practice in writing programs in the BASIC language for business data processing applications using microcomputers. Emphasis on problem solving with a computer. (Equivalent to CAPS 102.)
- CAPS 107 3 Credits As Demand Warrants**
Programming in PASCAL (3+0)
 Through textbook readings, lecture/discussion sessions and nine programming assignments the student will learn the fundamental structure of the computer language PASCAL (up to data types of single dimension arrays) and be able to write elementary computer programs on the University VAXNMS in PASCAL. (Prerequisite: One computer programming course or equivalent.)
- CAPS 110 3 Credits As Demand Warrants**
Microcomputer as Learning Tool (3+0)
 Concentration on word processing and other software to facilitate education. Telecommunications will be an important part of course. Materials fee: \$10.00-\$15.00. (Prerequisite: Typing skill required.)
- CAPS 111 2 Credits As Demand Warrants**
Computer Software for Beginners (2+0)
 An absolute beginners class into the world of computers -without writing programs. An overview of computer hardware and software will be presented along with demonstrations and hands-on experience with telecommunications, word-processing, spreadsheets, data base management and tutorial software. IBM-PC, APPLE, and mainframe computers will be used. This is not a lab class; some out-of-class work on computers is expected.
- CAPS 120 2 Credits As Demand Warrants**
Introduction to LOGO (2+0)
 An introduction to programming in LOGO. Topics include; recursion, interactive graphics, primitives, procedures, managing work space, filing, debugging and editing commands.
- CAPS 122 1-2 Credits As Demand Warrants**
Computer Software Application (1+0 to 2+0)
 Provides student with an opportunity to learn to effectively use either spreadsheet or data base management software on a microcomputer. Some of the programs available for use include VISICALC, DB MASTER, APPLE-WORKS, LOTUS 1-2-3, dBASE III.
- CAPS 124 1 Credit As Demand Warrants**
Apple Workshop (1+0)
 Fundamentals of Apple computer operations, popular programs and DOS.
- CAPS 125 3 Credits As Demand Warrants**
Appleworks (3+0)
 A beginning course covering the many issues of the program 'APPLEWORKS' taught on the Apple IIe. APPLEWORKS has word processing, electronic spreadsheet and data base capabilities. Materials fee: \$10.00-\$15.00.
- CAPS 130 3 Credits As Demand Warrants**
Introduction to BASIC Programming (3+0)
 A beginning course in BASIC. Course will cover the arithmetic, logic, graphics, and file statements of Applesoft BASIC. Materials fee: \$10.00-\$15.00.
- CAPS 135 3 Credit As Demand Warrants**
Introduction to LOTUS 1-2-3 (3+0)
 An in-depth course presenting spreadsheet concepts using the four major parts of 'LOTUS 1-2-3': worksheets, graphics, databases and macros. Materials fee: \$10.00.
- CAPS 140 3 Credits As Demand Warrants**
Introduction to PASCAL (3+0)
 An introduction to programming in PASCAL using Apple microcomputers with UCSD PASCAL.

- CAPS 145 1 Credit As Demand Warrants**
Introduction to MULTIMATE (1+0)
 Course to teach business managers, program administrators, secretaries, office workers and others who require a high level of word processing productivity the preparation and revision of standard or customized business correspondence and reports using a contemporary, versatile software program and micromputer. Students should bring two (2) double-density 5-1/4 diskettes to class. Materials fee: \$10.00.
- CAPS 150 3 Credits As Demand Warrants**
Computer Business Applications (3+0)
 Investigation of several ways to use microcomputers in a business including word processing, spreadsheets, data bases, graphics, project management and telecommunications. Each application will be introduced in class and possible uses in a business environment will be suggested. No previous experience necessary. Materials fee: \$10.00.
- CAPS 181 2 Credits As Demand Warrants**
Introduction to Microcomputers at Home (2+0)
 Introduction to home computer usage by typical consumers. Overview of home computers, uses, operations and programs. Does not satisfy certificate or degree requirements.
- CAPS 182 2 Credits As Demand Warrants**
Introduction to Microcomputers in Small Businesses (2+0)
 Introduction to microcomputers used in small business or professional practice by small business owners or employees. Overview of computers, uses and means of evaluation when purchasing equipment. Does not satisfy certificate of degree requirements.
- CAPS 200 2 Credits (2+0) As Demand Warrants**
Programming in Assembly Language (2+0)
 A course in programming the 6502 (Apple) computer in ASSEMBLY and MACHINE language. Course will include the following topics: assembly coding, registers, stacks, indirect and indexed addressing, logic and arithmetic operations, binary and hexadecimal code.
- CAPS 220 2 Credits As Demand Warrants**
Microcomputer Graphics (2+0)
 Practical techniques for generating computer graphics on the Apple. (Prerequisite: BASIC programming experience and Math 070 or equivalent Algebra II.)
- CAPS 221 1-3 Credits As Demand Warrants**
Microcomputer Accounting (1-3+0)
 This course covers the use of computers to process accounting transactions and provides an understanding of available software packages, microcomputer systems and hardware available in today's market. Computer terminology, system analysis, and actual computer operations in accounting are introduced. (Also see ABUS 221)

Computer Science

- CS 101 3 Credits Fall and Spring**
Computers and Society (3+0)
 A course in computer literacy for everyone. An overview of computing machines and the automatic processing of data. The interaction between social institutions and automated decision making. Some programming, but as a means of understanding the process rather than skill development. Materials fee (Eielson only): \$15.00. (Prerequisite: Two years of high school mathematics, including at least one year of algebra.)
- CS 103 3 Credits Fall**
Introduction to Computer Programming (2+3)
 A beginning course in programming for non-majors and for those computer science students who do not have the necessary background for CS 201. Concepts of structured programming and algorithm design are taught with the syntax of the PASCAL language. (Prerequisite: Two years of high school algebra.)
- CS 201 3 Credits Fall and Spring**
Computer Science I (2+3)
- CS 202 3 Credits Fall and Spring**
Computer Science II (3+0)
 A year sequence providing an introduction to the discipline of computer science including problem solving, algorithm development, structured programming, top-down design, good programming style, concurrent programming, and elementary data structures. Concepts will be implemented with extensive programming experience in a structured language. (Prerequisites: For CS 201: one year high school level programming, ES 201 or CS 103 and mathematics placement at the 200-level. For CS 202: CS 201.)

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| CS 205 | 3 Credits | Spring | Programming in C (3+0) An introduction to the C programming language for students who have had some experience with other programming languages such as PASCAL or FORTRAN. (Prerequisite: One year high school programming, CS 103, CS 201, or ES 201.) |
| CS 271 | 3 Credits | As Demand Warrants | Scientific Programming in FORTRAN (3+0) Syntax and principles of the FORTRAN programming language. 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. (Prerequisites: CS 201, MATH 200, and MATH 210.) |
| 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. (Prerequisites: CS 201) |
| CS 302 | 3 Credits | As Demand Warrants | Systems Programming (3+) Advanced assembly language programming including privileged instructions and system services. Applications to asynchronous I/O, process control and communication, device drivers and file management. (Prerequisite: CS 301. Next offered: 1991-92.) |
| CS 311 | 3 Credits | 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. (Prerequisites: CS 202) |
| CS 321 | 3 Credits | Spring | Operating Systems (3+0) The 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) A study of the 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. Programming assignments in each language. (Prerequisite: CS 311) |
| CS 381 | 3 Credits | Alternate Spring | Advanced Computer Graphics (3+0) Graphics hardware, display programming, transformations, hidden line and surface elimination, approximation techniques for curve and surface representation, and project. (Prerequisites: CS 281 and MATH 314. Next offered: 1990-91.) |
| CS 401 | 3 Credits | Alternate Fall | Software Engineering (3+0) Software design as an engineering discipline. Project planning, proposal writing, and management. Program design, verification, and documentation. Additional topics from object oriented design, real time design, and validation. (Prerequisites: CS 311 and CS 321. Next offered: 1991-92.) |
| CS 402 | 3 Credits | Spring | Senior Project and Professional Practice (3+0) Students will work on group projects in a simulated computer industry environment and produce appropriate documentation and reports. The nature, ethics, and legal considerations of the computer science profession will be discussed. Additional topics will be selected from project management, design methodologies, technical presentation, human-machine interface and programming team interactions as appropriate to the projects. (Prerequisites: CS 311, CS 321 and Senior standing.) |
| CS 405 | 3 Credits | Alternate Fall | Introduction to Expert Systems (3+0) Introduction to expert systems, problem selection, knowledge acquisition, knowledge representation, knowledge programming, expert system shells, and validation and evaluation of expert systems. Case study of existing expert systems. Individual projects to develop an expert system are required. Materials fee: \$10.00. (Prerequisite: CS 311 or permission of the instructor. Next offered: 1990-91.) |
| CS 411 | 3 Credits | Spring | Analysis of Algorithms (3+0) Analysis of classic algorithms, their implementation, and efficiency. Topics from combinatorics (sets, graphs, bit vectors), algebra (integer arithmetic, primes, polynomial arithmetic, 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. Next offered: Spring 1991.) |
| 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, CS 321. Next offered: 1990-91.) |
| CS 431 | 3 Credits | As Demand Warrants | Programming Language Implementation (3+0) Design and implementation of the major phases of modern high level language translators including scanning, parsing, translation, code generation and optimization. Students will develop a compiler for a high level programming language in a group project which emphasizes good software engineering practices in structured design, testing and documentation. (Prerequisite: CS 331. Next offered: Spring 1992.) |
| CS 442 | 3 Credits | Alternate Fall | Computer Communication and Networks (3+0) Review of communication terminology, baud rates, band width, noise, and error detection. Distributed processing and local and global 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: 1991-92.) |
| 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: 1990-91.) |
| 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: 1991-92.) |
| CS 490 | 1-3 Credits | As Demand Warrants | Student Internship Students will work on a mainstream computer science project under the joint direction of a faculty member and participating industry or governmental agency. (Prerequisite: Participation in internship program. Next offered: Fall 1990.) |
| 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) |

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| CS 642 | 3 Credits | As Demand Warrants |
| Distributed Processing (3+0) | | |
| 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

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| COUN 615 | 3 Credits | Spring |
| Foundations of Guidance and Counseling (3+0) | | |
| COUN 623 | 4 Credits | Fall |
| Principles and Techniques of Individual Counseling (3+3) | | |
| (Same as PSY 660) | | |
| COUN 628 | 3 Credits | Fall |
| Life Span Development (3+0) | | |
| COUN 634 | 3 Credits | Fall |
| Counseling Practicum I (2+7) | | |
| COUN 636 | 3 Credits | Fall and Spring |
| Counseling Practicum II (0+9) | | |
| COUN 646 | 3 Credits | Alternate Spring |
| Consultation (3+0) | | |
| (Same as PSY 646) | | |
| COUN 660 | 3 Credits | Spring |
| Cross-Cultural Counseling (3+0) | | |
| (Same as PSY 661) | | |
| COUN 665 | 3 Credits | Fall and 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) | | |

Cross Cultural Communication

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|---|-----------|-----------------|
| CCC 104 | 3 Credits | Fall and Spring |
| University Communications (3+0) | | |
| (Same as DEVS 104) | | |
| Designed to introduce communication skills that are characteristic of university contexts (e.g., taking notes from lectures) and to address cultural differences between rural students and the university community. Links with selected lecture course. (Prerequisite: Referral from Rural Student Services.) | | |
| CCC 105 | 3 Credits | Fall and Spring |
| Intensive Reading Development (3+0) | | |
| (Same as DEVS 105) | | |
| Develops and refines vocabulary, comprehension, and critical reading at the college level. Students develop appropriate strategies for reading a variety of texts and composing essays in relation to them. (Prerequisite: Referral from Rural Student Services.) | | |
| CCC 106 | 3 Credits | Fall and Spring |
| Intensive Writing Development (3+0) | | |
| Emphasizes differences between speaking and writing, focusing on rhetorical patterns and style appropriate for formal writing in a university context. Prepares students for English 111. (Prerequisite: Referral from Rural Student Services.) | | |

Culinary Arts

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|---|-----------|--------------------|
| CAH 105 | 3 Credits | Fall and Spring |
| Principles of Food Service I (3+0) | | |
| Introduction to food service and the principle variations which students may encounter within the industry; professional standards, kitchen safety, first aid, storeroom operation, kitchen equipment and basic culinary terminology. | | |
| CAH 116 | 1 Credit | As Demand Warrants |
| Beginning Cake Decorating I (1+0) | | |
| Introduction to the proper baking and icing of cakes. Topics include basic borders, buttercream flowers, and leaves. Students will decorate a minimum of three cakes. Materials fee: \$15.00. | | |
| CAH 117 | 1 Credit | As Demand Warrants |
| Intermediate Cake Decorating (1+0) | | |
| A course designed for the more advanced cake decorator. Advanced methods such as pattern transfer, flowers and borders, wafer paper and chocolate on cakes for decoration, and flow in techniques will be covered. Class will decorate a minimum of three cakes. Materials fee: \$15.00. | | |
| CAH 140 | 6 Credits | Fall and Spring |
| Principles of Cooking (6+0) | | |
| Course gives the student an opportunity to learn basic food service skills in a commercial kitchen environment. Use of standardized recipes and procedures will be stressed. End product will be critiqued on a daily basis. Student assignments will rotate between a stock and soup station, vegetable station, pantry, and service line and grill. Emphasis will be on sanitary food handling practices and the development of professional work habits. Uniform cleaning fee: \$105.00. | | |
| CAH 141 | 6 Credits | Fall and Spring |
| Food Production I (6+0) | | |
| Continuation of CAH 140 with emphasis on preparation and use of small sauces, sautéing, roasting, braising, stewing and broiling. Salad bar preparation and grill service will also be covered. Uniform cleaning fee: \$105.00. | | |
| CAH 145 | 6 Credits | Fall and Spring |
| Principles of Baking (6+0) | | |
| Students will be taught basic commercial baking skills and procedures. Class will include lectures, demonstrations and hands-on activities. The use of standardized recipes and procedures will be stressed. End product will be critiqued on a daily basis. Emphasis will be on sanitary food handling, practices and the development of professional work habits. Uniform cleaning fee: \$105.00. | | |
| CAH 146 | 6 Credits | Fall and Spring |
| Bakery Production I (6+0) | | |
| Continuation of CAH 145 with emphasis on Danish and French pastries, combination breads, tortes and fancy dessert items. Uniform cleaning fee: \$105.00. | | |
| CAH 150 | 1 Credit | Fall and Spring |
| Sanitation (1+0) | | |
| Course will provide an understanding of sanitation principles essential to commercial kitchen personnel. Successful completion of the course will allow the student to receive certification by the National Institute for the Food Service Industry. | | |
| CAH 152 | 2 Credits | Fall and Spring |
| Supervisory Development (2+0) | | |
| Introduction to the problems and challenges that food service supervisors deal with every day. Course will emphasize development of personnel management methods. | | |
| CAH 154 | 2 Credits | Fall and Spring |
| Dining Room Service (2+0) | | |
| Introduction to American style table service. Students will participate in dining room service, management, controls and methods. | | |
| CAH 160 | 2 Credits | Fall and Spring |
| Principles of Nutrition (2+0) | | |
| An introduction to the 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) | | |
| Students work with basic cake and food product techniques including borders, flowers, cake designing, and proper use of pastry tube bags. Students will decorate two cakes and assorted fruit and vegetable items. | | |

- CAH 170 2 Credits** **Fall and Spring**
Gourmet Cooking (2+0)
 Preparation and service of gourmet beef, poultry and seafood entrees for the home cook. Recipes represent new ideas in home entertainment, and menus change every semester. Materials fee: \$75.00.
- CAH 171 2 Credits** **Fall and Spring**
Gourmet Baking (2+0)
 Students will prepare a wide range of breads, pastries, fancy desserts, French pastry, and simple tortes. Recipes will represent traditional methods of baking along with current trends in home entertainment. Materials fee: \$45.00.
- CAH 199 1-12 Credits** **Summer**
Culinary Arts Workstudy Externship
 Students work in a variety of food service operations, learning current cooking methods and techniques. Students are evaluated by the externship coordinator and the employer. Enrollment by special permission only.
- CAH 242 4 Credits** **Fall and Spring**
Food Production II (4+0)
 Continuation of CAH 141 with emphasis on ala carte and production cooking. Students will prepare foods for the Advance Table Service class. Foods will represent current trends in the industry with kitchen organization and professional methods stressed. Uniform cleaning fee: \$105.00. (Prerequisite: CAH 141.)
- CAH 243 4 Credits** **Fall and Spring**
Food Production III (4+0)
 Continuation of CAH 242 with emphasis on international and new trend American Cooking. The role of the Gardé Manger in the modern kitchen will also be explored. Uniform cleaning fee: \$105.00. (Prerequisite: CAH 242 or permission of instructor.)
- CAH 247 4 Credits** **Fall and Spring**
Bakery Production II (4+0)
 Continuation of CAH 146 with emphasis on specialty breads, desserts, cakes, tortes and French pastries. Ability to plan and organize production, schedule and supervise other students will be emphasized. Uniform cleaning fee: \$105.00. (Prerequisite: CAH 146 or permission of instructor.)
- CAH 248 4 Credits** **Fall and Spring**
Bakery Production III (4+0)
 Continuation of CAH 247 with emphasis on pastry buffet. Students will produce artistic centerpieces, decorated tortes and cakes, assorted French pastries, assorted petits fours, and assorted candies. Uniform cleaning fee: \$105.00. (Prerequisite: CAH 146 and 247 or permission of instructor.)
- CAH 250 2 Credits** **As Demand Warrants**
Gardé Manger (2+0)
 A course designed to give the student a hands on experience in buffet. Presentation of hot and cold foods. Students will 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)
 Introduction to formal and informal methods of purchasing, receiving and storing of food and nonfood items in food service operations. Specifications, par inventory systems and controls will be emphasized.
- CAH 255 2 Credits** **As Demand Warrants**
Food Service Management (2+0)
 Study of the management teams' responsibility in the food service operation. Students will assume the role of kitchen manager, dining room manager and general manager.
- CAH 256 2 Credits** **As Demand Warrants**
Food Service Accounting (2+0)
 Principles and practices concerned with determination of food cost, labor cost, beverage cost and the basic accounting practices necessary to operate a successful food service operation.
- CAH 257 1 Credit** **As Demand Warrants**
Oenology-Hospitality Industry I (1+0)
 An introduction to the study and evaluation of the wines of France, Germany, Italy and the California wine producing areas. Focus will be on 'point of sale' approach for first level serving staff. Special attention 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 will be on preparing the new sommelier. Special attention to selections for building cellar and developing breadth in the restaurant. Materials fee: \$37.50. (Prerequisite: CAH 257 or permission of instructor.)

Dance

- DANC 108 1 Credit** **As Demand Warrants**
Beginning Freestyle Jazz (1+0)
 Jazz dance for the beginning student.

Danish

For information on studying at the University of Copenhagen, see Study Abroad.

- DNSH 101 5 Credits** **Fall**
DNSH 102 5 Credits **Spring**
Elementary Danish I & II (5+0) h
 Introduction to the language and culture; development of competence and performance in the language through understanding, recognition and use of linguistic structures, increasing emphasis on listening comprehension and speaking, exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materials. (Prerequisites: 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 culture material. Conducted in Danish. (Prerequisites: 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. (Prerequisites: 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)
 This course is designed to increase vocabulary substantially and to provide tools for further vocabulary growth.
- DEVS 104 1-3 Credits** **Fall and Spring**
University Communications (1-3+0)
 (Same as CCC 104)
 Introduces the unique methods of communication required at the college level. Links with selected lecture courses. May be repeated.
- DEVS 105 3 Credits** **As Demand Warrants**
College Reading (3+0)
 (Same as CCC 105)
 Develops and refines vocabulary, comprehension and critical reading at the college level. Instruction focuses on developing readers' ability to use a wide range of comprehensive strategies to enhance reading effectiveness. Placement by examination.
- DEVS 108 1 Credit** **As Demand Warrants**
Study Skills Lab (1+0)
 Students will learn to improve their study skills in areas of greatest need on an individual basis in the lab. Study skills topics include time management, listening/notemaking, library research, and memory.

DEVS 110 1 Credit **Fall and Spring**
Orientation to College (2+0)
 (Same as PSY 110)

An overview of the university as an institution with strategies and resources available to ensure a successful transition to college life in general, and specifically, the University of Alaska Fairbanks. Topics include academic and developmental skill building strategies, such as study skills, time management, career planning, and stress management. An examination of Alaska's past, present and future from social, cultural, political, and economic perspectives, including Pacific Rim and international/global issues. Graded Pass/Fail.

DEVS 185 3 Credits **As Demand Warrants**
Straight Thinking (3+0)

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 will be covered. Political speeches and other media presentation will be examined. Effective and convincing presentation of one's own ideas include formal and informal logic which will be practiced. Materials fee: \$10.00.

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 and Spring**
English Skills Laboratory (0+3-9)

The open entry/open exit lab block is designed to provide students with individualized instruction where language skill building is needed. The lab is composed of three modules (spelling/vocabulary, writing, and grammar/usage). It is not necessary for a student to enroll in all three modules. These modules may be taken for elective credit only, may not be used to fulfill written communication or humanities degree requirements and may be repeated as necessary.

DEVE 070 3 Credits **As Demand Warrants**
Preparatory College English (3+0)

Instruction in writing to improve students' fluency and accuracy, so they will be able to communicate ideas and information clearly and will be prepared to take ENGL 111. Placement by examination or student desire to enroll. Materials fee: \$5.00.

MATHEMATICS

DEVM 050 3 Credits **As Demand Warrants**
Basic College Mathematics (3+0)

Operations with whole numbers, fractions, decimals, percents and ratios, signed numbers, evaluation of algebraic expressions and evaluation of simple formula. Metric measurement system and geometric figures will also be studied. Also available via Independent Learning.

DEVM 052 3 Credits **Fall and Spring**
Alternative Approaches to Math: Basic College Math (3+0)

Basic college mathematics: operations with percents, decimals, fractions and signed numbers, translating word problems, introduction to algebra and geometry, using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: Appropriate placement test scores. Students must meet federal eligibility requirements.)

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. 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 and Spring**

Alternative Approaches to Math: Elementary Algebra (3+0)

Elementary algebra: algebraic equations, first-degree equations, polynomials, factoring, integral exponents, 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)

This course is an individual tutorial lab. Course 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. 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, complex numbers, using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEVM 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

Diesel Technology

DSLIT 150 7 Credits **As Demand Warrants**
Diesel Mechanics I (7+0)

Course covers theory and function of the diesel engine. Topics include introduction to various diesel engines, shop tools and instruments for engine disassembly, inspection, assembly, parts failure analysis and shop safety. Materials fee: \$125.00.

DSLIT 152 7 Credits **As Demand Warrants**
Diesel Mechanics II (7+0)

A continuation of DSLIT 150. Topics include air intake systems, exhaust systems, lube systems, cooling systems, and fuel systems. Materials fee: \$125.00. (Prerequisite: DSLIT 150.)

Drafting Technology

DRT 100 1 Credit **As Demand Warrants**
Introduction to Drafting Concepts (1+0)

An overview of the principles of architectural, civil and industrial drafting.

DRT 101 4 Credits **As Demand Warrants**
Beginning Drafting I (4+0)

A beginning course designed to build skill and knowledge in technical lettering, line techniques, equipment, orthographics, dimensioning, pictorials, auxiliaries and sections. Materials fee: \$50.00.

DRT 102 2 Credits **As Demand Warrants**
Beginning Drafting II (2+0)

An advanced course in drafting involving practice and skill development in geometric construction, sketching, orthographics and dimensioning, sections, auxiliaries and work on individual projects. Materials fee: \$20.00.

DRT 115 3 Credits **As Demand Warrants**
Graphics I (3+0)

Study and application of methods, problems and solutions in graphic design.

DRT 121 3 Credits **As Demand Warrants**
Reading Construction Blueprints (2+0)

A course to teach the reading and interpretation of two and three dimensional blueprints of residential, light commercial and heavy commercial structures using conventional symbols and representation.

DRT 123 3 Credits **As Demand Warrants**
Uniform Building Code (3+0)

This course will cover the minimum required construction standards as described in the display Uniform Building Code. The course teaches the proper use of local zoning ordinances and the Uniform Building Code as comprehensive building guides and explains their principle aspects as applied to various building types and trades. This course concentrates on zoning, the UBC and some fire codes. Mechanical and electrical codes are introduced only for student familiarity. (Prerequisite: working knowledge of building systems is strongly recommended.)

DRT 125 2 Credits As Demand Warrants
Lettering I (2+0)
 A course to introduce and practice varigraphic, Leroy, Kohi-Noor, Kad II, freehand and script lettering methods and to develop commercial lettering ability.

DRT 130 4 Credits As Demand Warrants
Perspective Drafting I (4+0)
 The 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)
 The introduction and practice of 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)
 An overview of 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)
 The introduction and practice of 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)
 An 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
Draft Co-Op Work Experience (2-3+0)
 A course for the student who has mastered basic drafting techniques and terminology which provides a non-paid practical work experience in a professional drafting environment. Placement and work assignments will vary depending upon student experience.

DRT 250 4 Credits As Demand Warrants
Civil Drafting III-Advanced (4+0)
 Techniques of highway design, boundaries, right of way layouts, curves and grades, bridges, cut and fill detail drawings, gas and water services, sewers, culverts, signs and guard rails.

Early Childhood Development (SCCE)

(Also see "Early Childhood Education" (ECDD) for non-Fairbanks courses.)

ECHD 100 3 Credits As Demand Warrants
Introduction to Early Childhood (3+0)
 An introductory course in the care and education of young children. The needs and skills of young children will be determined. The skills needed by child care workers will be presented. LABS ARRANGED.

ECHD 105 3 Credits As Demand Warrants
Survey Programs/Young Child (3+0)
 Students observe and contrast past and present programs in the community and formulate their own personal philosophy of early childhood education and child care.

ECHD 110 1 Credit As Demand Warrants
Practical Paths to Discipline & Guidance (1+0)
 Practical techniques for guidance and discipline of 2-6 year old children.

ECHD 120 3 Credits As Demand Warrants
Nutrition, Health and Safety (3+0)
 This course is designed for parents, care-givers and teachers of young children. It focuses on common illnesses and preventive health care, nutritional needs and safety aspects of rearing and teaching young children.

ECHD 121 1 Credit As Demand Warrants
Physical Activities Young Child (1+0)
 Planning a center which promotes the physical development of children.

ECHD 122 1 Credit As Demand Warrants
Cognitive Activity/Young Child (1+0)
 Activities and experiences which encourage questioning, probing, and problem-solving skills which are appropriate for different developmental levels and various learning styles of young children.

ECHD 123 1 Credit As Demand Warrants
Language Activity/Young Child (1+0)
 Activities that will help children acquire and use language as a means of communicating their thoughts and feelings. It also includes non-verbal communication and understanding others.

ECHD 124 1 Credit As Demand Warrants
Creative Activity/Young Child (1+0)
 Activities which provide a variety of experiences and media that stimulate children to explore and express their creative ability.

ECHD 131 1 Credit As Demand Warrants
Group Management (1+0)
 This course emphasizes both direct and indirect guidance techniques. Theories of guidance, including body language effects, reinforcement, and logical consequences are discussed for cultural relevance and practical application.

ECHD 135 2 Credits Spring
Infant/Toddler Care (1+2)
 Activities to stimulate development and learning of infants and toddlers individually and in a group setting. The class will cover discipline and guidance techniques, communication, health concerns and facility requirements: Weekly 2 hour lab required.

ECHD 161 1 Credit As Demand Warrants
Stories For Young Children (1+0)
 Keep your youngster fascinated while you increase their reading readiness! This new course will demonstrate ideas and techniques for a variety of story telling methods. Especially helpful for Early Childhood teachers.

ECHD 162 1 Credit As Demand Warrants
Child Development Associate (1+0)
 This course is designed to introduce the care giver to the Child Development Associate credential. This is a nationally recognized credential awarded to child caregivers who have successfully demonstrated their competency in working with young children. It is awarded through a grant from the United States Department of Health and Human Services.

ECHD 163 1 Credit As Demand Warrants
Learning Centers For Young Children (1+0)
 Participants will explore how to use learning centers in preschool classrooms, how to set up learning centers and exchange ideas for learning center.

ECHD 211 1 Credit As Demand Warrants
Developing Positive Self-Concept (1+0)
 This course stresses helping each child develop a sense of awareness and self-esteem. Emphasis is placed on providing success-oriented feelings and developing pride as an individual and as a member of a cultural/ethnic group.

ECHD 221 1 Credit As Demand Warrants
Positive Home-Center Relationship (1+0)
 Stresses the importance of a positive and productive relationship between families and Child Development centers. Emphasis is on using this relationship to coordinate the child-rearing efforts of both the family and classroom teacher.

ECHD 240 2 Credits As Demand Warrants
Legal Management of Child Care Centers (2+0)
 This course will focus on the legal aspects of managing a day care center or pre-school program. Participants will explore some of the liability concerns in out-door environments, food service, material selections, employer/employee relationships, and more.

ECHD 241 2 Credits As Demand Warrants
Personnel Management in ECD Programs (2+0)
 Management of personnel of child care programs, including in-service training, staff meetings and communication, staff supervisor, evaluating staff, staff motivation, burn-out prevention, and termination of employees. Labor management specific to early childhood programs are explored.

ECHD 242 1 Credit As Demand Warrants
Observe/Record Behavior of Child (1+0)
 This course will emphasize techniques for accurately observing children's behavior, including several methods of observation and techniques for graphing the results.

ECHD 243 3 Credits As Demand Warrants
Personal Development/Child Care Workers (3+0) Students will assess their learning needs as related to their current child care position; select and prioritize goals; consider alternative learning options; and plan and evaluate their professional growth.

ECHD 245 3 Credits As Demand Warrants
Child Development (3+0)
 (Same as PSY 245)

Study of development from prenatal through middle childhood including the cognitive, emotional, social and physical aspects of the young child. Course includes child observations. Emphasis is on the roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

ECHD 250 3 Credits As Demand Warrants
Practicum ECHD I (3+0)

This is a guided student teaching experience in working with a group of 3-6 year old children. The student will assume increasing responsibility for planning and lead teaching. Prerequisite: 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)

This is a guided field experience in working with a group of young children in a school or center with the intent of expanding on the needs and interests of the practicum student. Students who have demonstrated satisfactory competency in ECHD 250 may choose to participate in an infant toddler center, child care center, early childhood education program or public school classroom. Schedule times and dates to be arranged. (Prerequisite: ECHD 250 and instructor's permission.)

ECHD 255 3 Credits As Demand Warrants
Activities for Young Children (3+0)

Designed for parents, care-givers and teachers of children 2-6. Focus is on art, music, literature, and language experiences, science, math, food experiences, and excursions. Lab required.

ECHD 260 3 Credits As Demand Warrants
Introduction To the Exceptional Child (3+0)

An overview of categories of exceptionality includes hearing and visual impairments; learning, speech and language disabilities; emotional disturbances; physical handicaps; mental retardation; and the gifted and talented. (Prerequisite: PSY 245 or permission of instructor.)

ECHD 265 2 Credits As Demand Warrant
Culture, Learning & The Young Child (2+0)

How culture affects development and learning patterns of young children. Will explore curriculum planning with emphasis on multi-cultural and multi-ethnic resources with special attention on the Alaskan Native Cultures.

Early Childhood Education (Rural College)

Early childhood education courses are not offered on the Fairbanks campus. See "Early Childhood Development" (ECHD) for Fairbanks area offerings.

ECDD 109 1 Credit As Demand Warrants
Orientation to Child Development (3+0)

Students will develop an overall understanding of training programs for early childhood workers with specific training for working in a Child Development Associate program. They will, through in-class exercises, be able to perform as CDA field trainers and/or CDA candidates from on-the-job training into a career ladder leading to a profession in the field of early childhood education.

ECDD 111 1 Credit As Demand Warrants
A Safe Environment (1+0)

The importance of a safe learning environment and includes the competencies which enable students to provide a safe environment for young children. Emphasis is placed on the measures necessary to reduce and prevent accidents. (CDA curriculum)

ECDD 112 1 Credit As Demand Warrants
A Healthy Learning Environment (1+0)

Prepares the student to provide a learning environment for young children which is free of factors which may contribute to or cause illness. (CDA curriculum)

ECDD 113 1 Credit As Demand Warrants
Learning Environment (1+0)

The arrangement of an environment which is conducive to learning and appropriate to the developmental level and learning style of children. It includes selection of materials and equipment, room arrangement, and scheduling. (CDA curriculum)

ECDD 121 1 Credit As Demand Warrants
Physical Activities for Young Children (1+0)

The essentials of planning a center which provides space, materials, equipment, and activities which promote the physical development of children. It includes scheduling, planning, activities, and selection of equipment and materials. (CDA curriculum)

ECDD 122 1 Credit As Demand Warrants
Cognitive Activities for Young Children (1+0)

Activities and experiences which encourage questioning, probing, and problem solving skills which are appropriate for different developmental levels and various learning styles of young children (CDA curriculum)

ECDD 123 1 Credit As Demand Warrants
Communication Activities (1+0)

Activities that will help children acquire and use language as a means of communicating their thoughts and feelings. It also includes non-verbal communication and understanding of others (CDA curriculum)

ECDD 124 1 Credit As Demand Warrants
Creative Activities for Young Children (1+0)

Activities which provide a variety of experiences and media that stimulate children to explore and express their creative ability. (CDA curriculum)

ECDD 131 1 Credit As Demand Warrant
Guidance and Discipline (1+0)

Indirect and direct guidance techniques. Theories of guidance, including body language effects, reinforcement, and logical consequences are discussed for cultural relevance and practical application. (CDA curriculum)

ECDD 132 1 Credit As Demand Warrants
Social Development for the Young Child (1+0)

The development of social skills which enable children to function as productive members of a group. Emphasis is placed on the development of mutual respect and cooperative work/play between child/child and child/adult. (CDA curriculum)

ECDD 211 1 Credit As Demand Warrants
Developing Positive Self-Concepts for Young Children (1+0)

Helping each child develop a sense of awareness and self-esteem. Emphasis is placed on providing success-oriented activities, encouraging acceptance and expression of children's feelings and developing pride as an individual and as a member of a cultural/ethnic group. (CDA curriculum)

ECDD 212 1 Credit Fall and Spring
Developing Individual Strengths in Children (1+0)

Use of activities, techniques and planning that will help each child to function to his/her maximum potential. Must be taken concurrently with supervised experience in a child development center, home-based or infant-learning setting.

ECDD 221 1 Credit As Demand Warrants
Positive Home-Center Relationship (1+0)

The importance of a positive and productive relationship between families and the child development educator. Emphasis is on using this relationship to coordinate the child rearing efforts of both the family and the educator.

ECDD 222 1 Credit As Demand Warrants
Program Management (1+0)

The importance of coordination and communication among staff in the classroom. Emphasis is placed on effective group planning, using resources, improving communication, sharing information about children, maintaining records, and establishing and following policies, rules and regulations. (CDA curriculum)

ECDD 223 1 Credit As Demand Warrants
Professionalism (1+0)

Awareness of one's own personal qualities, feelings, and values that affect the teaching atmosphere; one's relationships with children; one's own teaching style. (CDA curriculum)

ECDD 231 1 Credit As Demand Warrants
Screening (1+0)

Activities which help the teacher to understand the purpose of screening young children and to know how to use good screening procedures. (CDA curriculum)

ECDD 232 1 Credit As Demand Warrants
Assessment/Recording (1+0)

Activities that will help the teacher to understand assessment of young children, recording of assessment information, and staffing. (CDA curriculum)

ECDD 233 1 Credit **As Demand Warrants**
Mainstreaming Young Children with Special Needs (1+0)
 Activities that will help the teacher to understand the concept and purpose of mainstreaming special needs preschool children into the regular classroom. Emphasis is on the rights of the special needs child to service and the necessary procedures for providing the service under Public Law 94-142 (CDA curriculum)

ECDD 289 1 Credit **As Demand Warrants**
Final Assessment for Child Development Associate Credential (1+0)

The procedures necessary to apply and prepare for final assessment for the Child Development Associate (CDA) credential. It 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)

*All Early Childhood Education courses must be accompanied by a lab experience in a facility for children ages 0-5.

Economics

Admittance to upper division School of Management courses will be granted only to students with junior standing or above. Others will be admitted only with the written permission of the appropriate department head.

ECON 101 3 Credits **Fall and Spring**
Introduction to Current Economic Problems (3+0) s

A one semester course designed primarily for the student who plans no further work in economics. The course utilizes a less theoretical approach than is customary in introductory economics courses and focuses on such current problems as unemployment, inflation, pollution, poverty, etc.

ECON 111 3 Credits **As Demands Warrants**
Economics of Rural Alaska (3+0)

Introduction to basic economic concepts as they relate to issues and problems of contemporary regional development in rural Alaska. Special attention is paid to socio-economic consequences of the introduction of new technologies, modern economic intra-structures and corporate relationships to traditional, small scale communities.

ECON 137 3 Credits **Spring**
The Alaskan Economy (3+0) s

A broad introductory examination of economic problems in Alaska; analysis of historical trends and current patterns of economic growth; particular emphasis on present and future alternative economic policies, and their potential impacts. Also available via Independent Learning.

ECON 201 3 Credits **Fall and Spring**
Principles of Economics I: Microeconomics (3+0) s

Theory of prices and markets, income distribution, contemporary problems of labor, agriculture, market structure, pollution, etc. Also available via Independent Learning.

ECON 202 3 Credits **Fall and Spring**
Principles of Economics II: Macroeconomics (3+0) s

Analysis and theory of national income, money and banking, and stabilization policy. Also available via Independent Learning.

ECON 226 3 Credits **Fall and Spring**
Introduction to Statistics for Economics and Business (3+0)

Problems in economics and business translated into statistical terms. Topics covered include descriptive measures, probability and probability distributions, sampling methods, sampling distributions, point and interval estimation, hypothesis testing, index numbers, and time series analysis. (Prerequisite: MATH 107-108 or MATH 161.)

ECON 227 3 Credits **Fall and Spring**
Intermediate Statistics for Economics and Business (3+0)

Extension of topics developed in ECON 226. Development of statistical techniques and their application to economic and business problems. Topics include simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, non-parametric methods, and decision theory. Materials fee: \$20.00 (Prerequisites: ECON 226, MATH 162 or 200.)

ECON 235 3 Credits **Fall**

Introduction to Natural Resource Economics (3+0) s
 Introduction to microeconomic principles and their application to natural resource issues. Specific topics include supply, demand, marginality, optimality, elementary production economics, economic rent, and comparative advantage. These principles are applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure, and public outdoor recreation problems.

ECON 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 201, 202 and MATH 162 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. Particular emphasis upon decision-making based heavily upon analysis of data developed from research. Materials fee: \$10.00 (Prerequisites: ECON 201, 202 and 227 and MATH 162 or equivalent.)

ECON 324 3 Credits **Spring**

Intermediate Macroeconomics (3+0) s
 Concepts and measurement of income, analysis of aggregate demand and supply and their relation to the level of prices, employment, and economic growth. (Prerequisites: ECON 201, 202 and MATH 162 or equivalent.)

ECON 335 3 Credits **Spring**

Intermediate Natural Resource Economics (3+0) s
 Extension of concepts developed in ECON 235, using a higher level of economic analysis in examining natural resource issues. Specific topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation overtime, resource taxation, common property problems, externalities, public goods, valuation of non-market resources, and land use planning issues. (Prerequisites: ECON 201 or ECON 235.)

ECON 350 3 Credits **Fall**

Money and Banking (3+0) s
 The liquid wealth system in the United States, to include the commercial banking system, the Federal Reserve System, and nonbank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives. (Prerequisites: ECON 201 and 202.)

ECON 351 3 Credits **Alternate Fall**

Public Finance (3+0) s
 Economic justifications for government; federal, state and local government, taxation, spending and debt; their effects on allocation, distribution, stabilization and growth. (Prerequisites: ECON 201 and 202. Next offered 1991-92.)

ECON 409 3 Credits **As Demand Warrants**

Industrial Organization and Public Policy (3+0) s
 The study of the relationship of market structure to the economic conduct and performance of firms and industries, the determinants, measurement and classification of market structure, public policy toward mergers, industrial concentration, and aggregate concentration. (Prerequisites: ECON 201, 202, and 321.)

ECON 420 3 Credits **Fall**

Labor Markets and Public Policy (3+0) s
 The application of labor market analysis and wage theory as they relate to public policy issues. Topics include: determination of wages, taxation and employment, the economic impact of unions, the economics of discrimination, and issues relating to women's and minorities' changing roles in the labor market. (Prerequisites: ECON 201 and 202.)

ECON 436 3 Credits **As Demand Warrants**

Energy Economics (3+0) s
 A course concerned with market forces and institutions affecting the allocation of energy resources. Special attention is given to intertemporal allocative decisions and the role that public policy plays in influencing the rate at which energy resources are used over time. (Prerequisites: ECON 201 or 235.)

ECON 437 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. (Prerequisites: ECON 201 and 202. Next offered: 1990-91.)

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| ECON 438 | 3 Credits | As Demand Warrants |
| The Economics of Fisheries Management (3+0) | | |
| The course will provide a review of theoretical economic concepts as they are applied to the management of a commercial fishery, as well as an introduction to major current management policy issues affecting United States' commercial fishing. Major emphasis will be placed on the practical application of the economic theory and policy insights derived from the course to the problems of the management of Alaska's fisheries. (Prerequisites: ECON 201, or equivalent, or ECON 235.) | | |
| ECON 451 | 3 Credits | Spring |
| Public Expenditure Analysis (3+0) | | |
| Purposes and economic effects of governmental expenditures, budgeting techniques, and their effects on resource allocation. (Prerequisite: ECON 201 and 202 or equivalent.) | | |
| ECON 463 | 3 Credits | Fall |
| International Economics (3+0) | | |
| 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. (Prerequisites: ECON 201 and 202.) | | |
| ECON 475 | 1-3 Credits | Fall and 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 623 | 3 Credits | Fall |
| Mathematical Economics (3+0) | | |
| ECON 624 | 3 Credits | Fall |
| Managerial Economics (3+0) | | |
| ECON 626 | 3 Credits | Spring |
| Econometrics (3+0) | | |
| ECON 635 | 3 Credits | Fall |
| Resource Economics (3+0) | | |
| ECON 636 | 3 Credits | Spring |
| Microeconomics II — Dynamic Resource Optimization (3+0) | | |
| ECON 670 | 0 Credit | Spring |
| Seminar in Research Methodology (1+0) | | |

Education

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| ED 101 | 1 Credit | Fall and Spring |
| Orientation to Alaska Native Education (1+0) | | |
| A seminar in which Native Alaska educators present information and lead discussions on issues that are directly related to rural and urban Alaskan Native education. Topics covered include cultural differences in teaching and learning styles; curriculum development for multi-graded classrooms and small high schools; use of technology and community resources; and decision making and local control. (Prerequisite: Permission of instructors.) | | |
| ED 106 | 3 Credits | As Demand Warrants |
| Reading Activities in the Classroom (3+0) | | |
| Introduction to methods, materials and teaching of reading the classroom. Emphasis on techniques for working with small groups and for integrating a language experience approach, using personal language backgrounds with basal reading programs. Attention focussed on teacher's guides and participation in demonstration lessons. | | |
| ED 131 | 1-3 Credits | As Demand Warrants |
| Implementation of an Adult Education Program (1+0, 2+0 or 3+0) | | |
| This course covers a variety of areas necessary for setting up a village-based adult education program and its implementation. It includes: organizing the classroom, equipment and materials; grades and record keeping, testing and assessing appropriate levels of materials for individual students; lessons plans, as well as history and functions of adult education; funding teacher education and evaluation tools. | | |

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| 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 and scheduling. All materials are to be made in both the appropriate language of the children and English. Teaching teams are encouraged. (Recommended: Literacy in both languages of instruction.) | | |
| ED 200 | 2-6 Credits | As Demand Warrants |
| Peer Tutoring (1+3 to 6) | | |
| For students interested in the teaching profession or for those who wish to share their expertise in a content area, Peer Tutoring offers an opportunity to explore and practice tutoring issues and techniques. Students may take the Institute section (3 weeks) and/or the Learning Activities Center section (12 weeks). The course combines lecture and lab time. Lab time is arranged for variable credit; the course may be repeated for up to six credits. | | |
| ED 201 | 3 Credits | Fall and 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) | | |
| Introduce concepts in art education to persons with limited art background who are working with young children. It combines a philosophy of Art Education, Art History, and 'hands-on' experiences to enable the classroom teacher to more effectively integrate the visual arts into the classroom curriculum as enjoyment and enrichment. Can also be taken as ART 208. | | |
| ED 210 | 3 Credits | As Demand Warrants |
| Second Language Acquisition (3+0) | | |
| This course presents an intensive introduction to the study of how people acquire second languages, i.e., ones in addition to the ones they learn as young children in the home. We examine psychological, social and cultural aspects of second language acquisition including theory of second language acquisition, applied linguistic and sociolinguistic research, and insights of teachers and students of second languages. We also observe, analyze, and compare the acquisition of languages by people in the students' own communities. Throughout, the emphasis is on how second language acquisition studies can enlighten the practice of second language teaching and promoting bilingualism in western Alaska. | | |
| ED 211 | 3 Credits | As Demand Warrants |
| Teaching a Second Language (3+0) | | |
| Intensive work in learning a broad repertoire of second language teaching methods, how to develop lesson plans (including writing and measuring instructional objectives), and discussing why these educational skills can make a marked difference in a teacher's classroom performance. The course includes designing, teaching, and assessing actual lessons. (Prerequisites: 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) | | |
| Intensive work in developing scopes and sequences for unit plans and yearly/multi-year curricula for teaching a second language. (Prerequisites: 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) | | |
| Content is a synthesis of the interrelated principles of human growth, development, adjustment and learning. It is designed primarily for students preparing for a career in teaching but is also open to parents, counselors, community workers and others interested in human development and learning. | | |
| ED 214 | 3 Credits | As Demand Warrants |
| Natural Approaches to Language Instruction (3+0) | | |
| A course in which students explore modern approaches, methods, techniques, and activities which have been proven to be successful in teaching second languages. | | |
| ED 215 | 3 Credits | As Demand Warrants |
| Methods of Teaching a Second Language (3+0) | | |
| Provides student with a basic knowledge of second language acquisition theory. Students will learn 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 a study of criteria for evaluation of books and related materials. The course emphasizes methods of encouraging children's appreciation of a variety of selections. Students may do concentrated study of materials for a specific age group within the range of 1-12 years.
- ED 220 3 Credits As Demand Warrants**
Culture and Learning (3+0)
 Students will acquire a basic understanding of the role of culture in human development. They will, through reading and discussion, study the learning process in various cultural contexts. Attention will be given to problems of conflicting cultures and role of education in a changing world and as an agent of change.
- ED 241 3 Credits As Demand Warrants**
Methods and Materials in Bilingual Education (3+0)
 An overview of bilingual instruction. Students will make and adapt materials for the classroom. Attention is paid 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. (Prerequisites: 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)
 Introduction to second language teaching methods, using English as a Second Language (ESL) and Standard English as a Second Dialect (SESD) for the examples. The class covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affect they have on how we teach. The different roles of the second language teacher and their appropriateness is covered. Several specific language teaching methods, techniques and activities consistent with these methods, and adaptation of these methods to the needs of western Alaska classrooms is also presented. (Prerequisites: Classroom experience)
- ED 275 3 Credits Fall and Spring**
Introduction to Microcomputers for Teachers (3+0)
 This course will provide information about and understanding of computer technology and its present and potential impact on the field of education. Students will learn basic microcomputer terminology and operation, be introduced to a variety of classroom applications of computer technology, and develop judgement skills related to hardware and software utilization in the classroom. (Prerequisites: 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 As Demand Warrants**
Language and Literacy Development (3+0)
 (Same as LING 303)
 Principles, procedures, and materials for enhancing the language development of young children. (Prerequisite: Psy. 240.)
- ED 304 3 Credits Fall and Spring**
Literature for Children (3+0)
 Criteria for evaluating children's books and application of criteria to 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. Also available via Independent 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 and Spring**
Modes of Creative Expression in Education (3+0)
 A study of a variety of modes for stimulating creative expression in an educational setting such as art, music, dance, drama, photography and creative writing. Particular emphasis will be on methods of incorporating these modes into teaching practices, to enhance the interest in, and quality of learning. (Prerequisite: ED 330.)
- ED 311 3 Credits Spring**
Introduction to Instructional Technologies (2+3)
 Principles, procedures, materials and apparatus associated with the application of instructional technologies to the teaching/learning environment. Uses of instructional (AV) equipment: video recorders, teleconferencing equipment, motion and still picture projectors, audio recorders, and other programmable equipment will be learned. Students will learn systematic selection and utilization techniques based upon the principles of instructional design and instructional technology. (Prerequisite: ED 201 or concurrent enrollment in ED 201.)
- ED 330 3 Credits Fall and Spring**
Diagnosis and Evaluation of Learning (3+0)
 Detailed information about the teaching-learning process in the classroom emphasizing making teaching decision. The student will learn the strengths and weaknesses of various forms of diagnosis and evaluation of learning, with particular emphasis on problems encountered in cross-cultural settings. Attention will be given to informal, formal, process, and product assessment. Also available via Independent Learning. (Prerequisites: PSY 240: concurrent enrollment in PSY 240/ED 330 permissible for students with senior standing or earned degree.)
- ED 333 3 Credits As Demand Warrants**
History of Childhood (3+0)
 Surveys child rearing practices in the major cultures of the world examining how parents and children related to each other in different time periods. Examines the central force for change in history as psychogenic changes in personality, occurring between 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)
 An examination of both theory and evidence linking varied forms of education to economic growth and development. A comparative approach is utilized to explore 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)
 Examination of the ways in which social, political, and economic forces influence what happens in schools with focus on how the organization of schools affects what teachers can do in the classroom, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisites: SOC 101 and Junior standing.)
- 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 are analyzed with particular attention given to issues in Alaska. (Prerequisite: Junior standing in Education.)
- ED 350 3 Credits Fall and Spring**
Communication in Cross-Cultural Classrooms (3+0)
 An interdisciplinary examination of communication and language in cross-cultural educational situations, including language, literacy, and inter-ethnic communication as they relate directly to classrooms in Alaska. Also available via Independent Learning. (Prerequisites: LING 101 or ANL 215 or ANL 216 or permission of instructor.)
- ED 375 3 Credits Fall and Spring**
The Exceptional Learner (3+0)
 An overview course which develops the foundation for understanding, identifying and serving the exceptional learner in rural and urban settings. A special emphasis is placed on working with exceptional learners in the regular classroom. The unique needs of exceptional students in rural settings from bilingual/multicultural backgrounds is a part of the course. 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 encountered by students and teachers in a variety of cultural contexts. Students will consider social, cultural and psychological factors inherent in the educational process and how they are affected by the multicultural setting through an investigation of a variety of cultural contact situations. Specific attention will be given to curriculum improvement and teaching strategies appropriate for the multicultural classroom and school. (Prerequisite: ED 330 and junior standing.)

ED 381 3 Credits Fall and Spring

Foundations of Literacy Development (2.5+1.5)
The development of understanding of the process involved in becoming a literate person. Language, reading, and writing development will be explored for children of varying ages and within various social contexts, with particular emphasis on the impact of out-of-school styles on school literacy instruction. Students may be asked to tutor at least one child. (Prerequisites: PSY 240 and ED 330. Should be taken the semester prior to enrolling in ED 421.)

ED 402 3 Credits Fall and Spring

Methods of Teaching in the Secondary School (2+3)
Principles and methods of teaching appropriate for junior high and high school classrooms. Includes planning for effective teaching, classroom management, and the implementation of teaching plans in classroom settings. Materials fee: \$35.00. (Prerequisite: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 407 3 Credits Fall and Spring

Reading Strategies for Secondary Teachers (3+0)
Techniques and materials to be used in helping the secondary students acquire the skills necessary for greater comprehension of subject matter at the secondary level. Should be taken concurrently with ED 402. (Prerequisites: ED 330 and junior standing.)

ED 419 6 Credits Fall and Spring

Integrated Methods and Curriculum Development (3+9)
The study of the unique and common concepts, content, methods and materials which characterize the teaching of mathematics, science, social studies and language arts; the development of written plans and units; and practical experience in the elementary schools. (Prerequisites: MATH 205, PSY 240, ED 330, concurrent enrollment with ED 421. Should be taken semester prior to student teaching.)

ED 420 3 Credits Fall

Alaska Native Education (3+0)s
(Same as ANS 420)
Examination of the development of different school systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisites: ANTH 242 or HIST 100; or permission of instructor.)

ED 421 3 Credits As Demand Warrants

Multi-Cultural Classrooms (2.5+1.5)
Methodology, instructional materials, and language arts content relevant to the instruction of developmental language, reading and writing in diverse K-8 classrooms. Includes limited field experience. (Prerequisites: PSY 240 and ED 330. Should be taken concurrently with ED 381 and ED 419 the semester prior to student teaching.)

ED 422 3 Credits Independent Learning Only

Building a Practical Philosophy of Education
A study of philosophy as a distinct discipline with its own terminology, concepts, and processes and how it functions in the field of education. Special emphasis is given to an application of philosophy of education to cross-cultural situations in Alaskan classrooms. (Prerequisite: Junior standing or permission of the instructor.)

ED 424 3 Credits Fall

Small High School Programs (2+3)
After examining secondary programs in general, students will be exposed to alternative approaches to the design of small high school programs, with particular emphasis on the problems of designing secondary programs for the small rural communities of Alaska. (Prerequisites: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 425 3 Credits Spring

Community as an Educational Resource (2+3)
Practical experience to assist the student in developing greater awareness of the community as an educational resource. Methods and techniques for developing and implementing a community-oriented curriculum with practical experience in determining and using community resources will be provided. (Prerequisites: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 429 3 Credits Spring

Microcomputer Application in the Classroom (2+2)
Strategies for the effective use of microcomputers in the classroom; understanding of the potentials and limitations of the computer in the schools; developing classroom plans to take advantage of computer potentials; and evaluation of educational software. (Prerequisites: Upper-division undergraduate or certified teacher status.)

ED 430 3 Credits Fall and Spring

Multicultural Teaching Techniques (2+3)
Development of effective teaching strategies for implementation in cross-cultural and multicultural classrooms with particular attention to instructional practices for secondary schools (small school design, computer-based instruction, telecommunications, community-based education, interdisciplinary linkages of coursework, experiential education, productive thinking skills, and individual programmed instruction). Guest lectures and field trips. There will be weekly participation in a practical experience in multicultural classrooms. (Prerequisites: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

ED 450 3 Credits As Demand Warrants

Education and Cultural Transmission (3+0)
Education as a process for transmitting culture with examination of various issues related to cultural transmission in a multi-cultural environment, with particular emphasis on the dynamics of cultural change. (Prerequisite: ED 330 and junior standing.)

ED 451 1-9 Credits Fall and Spring

Practicum in Education
Practical application of general ideas and techniques addressed in the methods courses in which the student is currently enrolled or previously completed. (Prerequisites: ED 201, ED 330, ED 402 or equivalent; concurrent enrollment permitted with ED 402, and permission of instructor.)

ED 452 12 Credits Fall and Spring

Elementary Student Teaching (1+33)
Supervised teaching in elementary schools approved by the department of education. The school may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. Students should expect to be involved in the public school setting for the entire school day for the duration of the university semester in fulfilling their assignment. (Prerequisites: See requirements for admission to student teaching.)

ED 453 12 Credits Fall and Spring

Secondary Student Teaching (1+33)
Supervised teaching in secondary schools approved by the department of education. The school may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. Students should expect to be involved in the public school setting for the entire school day for the duration of the university semester in fulfilling their assignment. (Prerequisites: See requirements for admission to student teaching.)

ED 454 12 Credits Fall and 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. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. Students should be expected to be involved in the public school setting for the entire school day for the duration of the university semester in fulfilling their assignment. (Prerequisites: See requirements for admission to student teaching.)

ED 456 3 Credits Summer

Orientation to Teaching in Rural Alaska (2+3)
A study of the needs of rural schools, their environments and the recipients of school services with special attention given to cross-cultural educational issues. (Prerequisite: permission of instructor.)

ED 462 3 Credits Fall

Alaskan Environmental Education (3+0)
(Same as ALR 462)
Environmental concepts, motivational and discovery techniques, and practical skills for utilizing the environment inside and outside the formal classroom in all subject areas. Course content includes information on curriculum materials (K-12), interpretive and audiovisual aids facilities, environmental problem solving and applications of environmental education to situations from the public schools to summer campus, short courses, and workshops for individuals of any age. (Prerequisites: Junior standing or permission of instructor.)

ED 470 3 Credits As Demand Warrants

Human Resource Development (3+0)
Strategies and approaches which emphasize the mobilization and utilization of human resources within the general processes of socio-economic change and development in historical and cross-national contexts. (Prerequisite: Junior standing.)

- ED 473 3 Credits Spring**
Marine Education (3+0)
 Instructional techniques and methods for integrating marine and freshwater programs into schools and communities. The elementary school Alaska Sea Week Curriculum Guides, plus a variety of secondary level marine education materials, their design and implementation will be highlighted as well as a 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 and ways in which it can be incorporated into the curriculum. (Prerequisite: Upper division undergraduate or certified teacher status. Next offered: 1990-91.)
- ED 490 3 Credits Fall and Spring**
Curriculum Development in Cultural Perspective (3+0)
 An examination of issues related to the development of curriculum programs and materials in a cross-cultural environment. Emphasis will be on process, context, and content of curriculum as well as curriculum change and evaluation strategies. Students will 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 exological 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. Study of motivations of teachers and stages of professional development. Study of context of teaching: legal framework, school finance, history of American education and education in Alaska. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)
- ED 583 8 Credits Fall**
Teaching as Decision-Making and Invention (4+0+8)
 Considers appropriate educational purposes in such subjects as English, mathematics, social studies, cultural studies and science. 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. Examines these issues in multicultural contexts. (Prerequisites: Baccalaureate degree; admission to Teachers for Alaska Program.)
- ED 584 3 Credits Fall**
Practicum: Teaching in Small and Large Schools (0+6)
 Accompanies ED 583 and serves as laboratory where students can explore concepts and methods of teaching such subjects as English, mathematics, social studies, cultural studies, and science. Students observe, assist teachers, and prepare lessons in the public schools. Should be taken concurrently with ED 583. (Prerequisites: Baccalaureate degree; admissions 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 619 3 Credits Spring**
Reflective Inquiry into Multicultural Classrooms and Communities (1+6)
- 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 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 and Spring**
Internship: Principal's Endorsement (0+9)
- ED 677 3 Credits Alternate Spring**
Public School Finance (3+0)
- ED 679 3-6 Credits Fall and Spring**
Internship: Superintendent's Endorsement (0+9)
- ED 680 3 Credits As Demand Warrants**
Comparative Education (3+0)
- ED 682 3 Credits Spring**
Designing Learning Environments (2+3)
- 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)
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- ## Electrical Engineering
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- 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 and Spring**
Electrical Engineering Fundamentals I (3+3)
 Analysis of alternating-current circuits using complex notation and phasor diagrams, resonance, transformers, Fourier 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 Fall and 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 211, MATH 302, EE 204.)
- EE 312 3 Credits Spring**
Electromagnetic Waves and Devices (3+0)
 Theory and design of antennas, waveguides and other periodic structures. Antenna arrays, broadband design techniques and related topics. Theory and design of practical communication links. (Prerequisites: EE 311, EE 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 the analysis of waveguides, cavity resonators, transmission lines, antennas, and radio propagation. Laboratory fee: \$25.00. (Corequisite: EE 312.)
- EE 333 4 Credits Fall**
Physical Electronics (3+3)
 Basic properties of semiconductors. Principles of semiconductor devices: diodes, transistors, and integrated circuits. Laboratory fee: \$25.00. (Prerequisite: EE 204.)*
- EE 334 4 Credits Spring**
Electronic Circuit Design (3+3)
 Application of semiconductor devices in the design of circuits used in computation, automatic control, and communication. Laboratory fee: \$25.00. (Prerequisite: EE 333.)*
- EE 341 4 Credits Fall**
Computer Organization I (3+3)
 Modular structure of computer systems: hardware and firmware techniques of realizing logical functions and types and purposes of peripherals with methods of interface. Laboratory fee: \$25.00. (Prerequisites: CS 201 and one year of college physics.)
- EE 342 4 Credits Spring**
Computer Organization II (3+3)
 Techniques of constructing input/output device drivers, dedicated signal processors, and central processor unit microprogrammable bit slice devices. Laboratory fee: \$25.00. (Prerequisite: EE 341.)
- EE 353 3 Credits Fall**
Circuit Theory I (3+0)
 Transient analysis by Laplace transform, state variable, and Fourier methods, filter networks, and computer aided analysis. (Prerequisite: EE 204.)*
- EE 354 3 Credits Spring**
Engineering Signal Analysis (3+0)
 Analysis of both continuous and discrete-time signals and systems. Fundamentals and applications of probability, statistics and stochastic processes to linear, time-invariant systems. Development and applications of convolution, z-transform and Laplace transform theory to filters, modulation, multiplexing, sampling, interpolation, and related processes. (Prerequisite: EE 353, MATH 302.)
- EE 404 4 Credits Spring**
Electrical Power Systems (3+3)
 Alternate energy sources, transmission system components, elements of control, system protection, and interconnections. Laboratory fee: \$25.00. (Prerequisite: EE 303.)*
- EE 406 4 Credits Fall**
Electrical Power Engineering (3+3)
 Symmetrical and unsymmetrical faults, load flow, economic operation of power systems, dynamic power system, stability, and computer aided fault and load flow analysis. Laboratory fee: \$25.00. (Prerequisites: EE 404 or equivalent.)
- EE 434 3 Credits Spring**
Instrumentation Systems (2+3)
 Analysis and design of instrumentation systems: static and dynamic characteristics; accuracy, noise, reliability; sensors; signal conditioning; typical measurement systems. Laboratory fee: \$25.00. (Prerequisites: EE 334, EE 354, EE 442.)
- 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 and EE 333 - may be taken concurrently.)
- EE 443 4 Credits Spring**
Digital Systems Analysis and Design II (3+3)
 Microcomputer interfacing; timing/transmission line effects in logic design; analog-digital and digital-analog converters; basic digital filtering with microcomputers; 8 bit and 16 bit microprocessor organization, operation and programming; computer peripherals; digital signal processing hardware. Laboratory fee: \$25.00.** (Prerequisite: EE 442.)
- EE 451 3 Credits Fall**
Digital Signal Processing (2+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. (Prerequisites: EE 354 or equivalent.)
- EE 454 4 Credits Spring**
Advanced Digital Systems Application and Design (3+3)
 Advanced, topical applications of digital techniques in the areas of high speed signal processing, process control, data transmission and speech synthesis. Emphasis on recent developments and custom design. Laboratory fee: \$25.00. (Prerequisites: EE 442 and senior standing.)
- EE 461 4 Credits Fall**
Communication Systems (3+3)
 Utilization of communication theory in the design and implementation of communication systems. Laboratory measurement of modulation, noise, channel spectrum, satellite link budget, and microwave path design. Laboratory fee: \$25.00. (Prerequisites: EE 354 and senior standing.)
- EE 462 4 Credits Spring**
Communication Systems (3+3)
 Theory and practice of communications systems, introduction to probability, statistics, and information theory, systems design and laboratory experience in analog and digital communication. (Prerequisite: EE 354, EE 334.)*
- EE 464 3 Credits Spring**
Communication Networks (3+0)
 Design of voice and data communication 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. The concept of feedback. Time and frequency response of linear systems. Identification. Controllability and observability. Stability by Routh-Hurwitz criterion and frequency plane methods. Specifications of higher order linear systems. System design and compensation; introduction to sampled data systems. (Prerequisites: EE 353 and MATH 302.)*
- EE 481 3 Credits Fall**
Electronics and Instrumentation for Scientists and Engineers I (2+3)
 Theory and design of solid state electronic circuitry for practicing engineers and scientists in the physical and life sciences. Diodes, transistors, field effect transistors, integrated circuits, and other solid state devices. Analysis of modern electronic systems. Laboratory fee: \$25.00. (Prerequisites: 1 year of college physics; Corequisite: MATH 200.)*
- EE 482 3 Credits Spring**
Electronics and Instrumentation for Scientists and Engineers II (2+3)
 Instrumentation theory and concepts, transducers, data transmission, recording, and reducing. Digital electronics. Electrical measurement of physical variables and error analysis. Laboratory fee: \$25.00. (Prerequisite: EE 481 or equivalent.)*
- EE 603 3 Credits As Demand Warrants**
Advanced Electric Power Engineering (3+0)
- EE 604 3 Credits As Demand Warrants**
Electric Power System Modeling and Transients (3+0)

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| 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 662 | 3 Credits | As Demand Warrants |
| Communication Theory (3+0) | | |
| EE 664 | 3 Credits | As Demand Warrants |
| Data Communication Techniques (3+0) | | |
| EE 671 | 3 Credits | As Demand Warrants |
| Digital Control Systems (3+0) | | |

Electronics Technology

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| 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 | | |
| This course provides an overview of amateur radio. Specific code and radio theory will be provided for the Novice and General Amateur License Examination. For those already licensed, there will be opportunities in the areas of community emergency communications, net operations, repeaters, use in the public classroom, etc. | | |
| ELT 122 | 3 Credits | 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) | | |
| An Analysis of basic electronic circuits. Power supplies, amplifiers, and oscillators. Operational and failure analysis of basic circuits with troubleshooting procedures for each type. | | |
| ELT 171 | 3 Credits | As Demand Warrants |
| National Electric Code Study (3+0) | | |
| Systematic study of the National Electric Code and the rules governing the minimum requirements for the installation of electrical services, feeders and branch circuits and the requirements for the construction and installation of electrical equipment. | | |

Emergency Medical Technology

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| EMTT 103 | 3 Credits | As Demand Warrants |
| EMT: Emergency Trauma Training First Responder (3+0) | | |
| Provide training in emergency medical care for those who are apt to be the first person responding to an accident. Upon successful completion of the program, the student will be proficient not only in providing basic emergency medical care to victims of emergencies, but also in taking any actions necessary to minimize patient suffering and prevent further injury. Materials fee: \$10.00-\$15.00. | | |

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| EMTT 110 | 1 Credit | As Demand Warrants |
| EMT: Cardiopulmonary Resuscitation (1+0) | | |
| This course is based on the Basic Life Support course offered by the American Heart Association. This course is recommended for anyone interested in knowing what to do in case of an emergency involving the interference with breathing and/or heart function. | | |
| EMTT 119 | 4 Credits | As Demand Warrants |
| EMT: Emergency Medical Technician I (4+0) | | |
| Designed to train professional emergency care providers in techniques to administer life-saving first aid and run an ambulance. Upon the successful completion of this course, the student will meet the Alaska requirements for certification as an Emergency Medical Technician. Materials fee: \$115.00. | | |
| EMTT 120 | 4 Credits | As Demand Warrants |
| EMT: Emergency Medical Technician - Ambulance (4+0) | | |
| 120 hours of didactic and practical skills training, to provide competency in the life saving skills of an Emergency Medical Technician-Ambulance including basic patient assessment, advanced shock management, trauma management, CPR, extrication and immobilization techniques. Similar to EMTT 119, but emphasizing ambulance techniques. | | |
| EMTT 121 | 2 Credits | As Demand Warrants |
| EMT: Emergency Medical Technician II (2+0) | | |
| Designed to improve the skills of basic EMTs in the area of trauma intervention to help decrease the possibility of mortality and morbidity for the seriously injured patient by acquainting the student with advanced techniques in fluid therapy. The use of MAST pants, utilization of specific drug therapy and advanced airway care. Materials fee: \$85.00. | | |
| EMTT 123 | 1 Credit | As Demand Warrants |
| Emergency Medical Technician III (1+0) | | |
| Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal arrhythmias, use of defibrillator monitor, use of morphine, lidocaine, and epinephrine 1:1000. Recognition and treatment of extremity pain due to isolated trauma. (Prerequisite: Successful completion of EMTT 121 or EMT II standing.) | | |
| EMTT 124 | 1 Credit | As Demand Warrants |
| EMT: Emergency Medical Technician- Refresher (1+0) | | |
| This course will assist the EMT in maintaining the basic skills and knowledge of emergency medical procedures at the Basic EMT level; update EMT's on emergency medical care procedural changes; introduce them to newly developed equipment and train them in its use, and expose them to changes in State licensure or other medico-legal requirements. | | |
| EMTT 247 A, B | 2 Credits | As Demand Warrants |
| Arctic Survival (1+2) | | |
| Study and acquisition of basic survival skills and techniques needed in northern latitudes. Prepares students to face survival situations in an arctic environment and enables them to maintain equipment, skills, and attitudes in a state of readiness. Includes 1 credit in lecture, 1 in practicum - students must take lecture portion to be eligible for practicum. | | |
| 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. | | |
| ESM 450 | 3 Credits | Spring |
| Economic Analysis and Operations (3+0) | | |
| Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics, and human relations. (Not offered for credit toward the Master of Science in Engineering Management or Science Management. Prerequisites: ES 201 and senior standing in engineering or permission of instructor.) | | |
| ESM 601 | 3 Credits | Fall |
| Engineers in Organizations (3+0) | | |
| ESM 605 | 3 Credits | Fall |
| Engineering Economy (3+0) | | |
| ESM 608 | 3 Credits | Fall |
| Legal Principles for Engineering Management (3+0) | | |
| ESM 609 | 3 Credits | Alternate Fall |
| Project Management (3+0) | | |

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| 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 and Spring |
| Computer Programming for Engineering Managers (3+0) | | |
| ESM 684 | 3 Credits | Spring and Fall |
| Engineering Management Project (3+0) | | |

*Undergraduate engineering students who are taking graduate ESM courses as technical electives should have completed or be concurrently enrolled in ESM 450.

Engineering Science

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| ES 101 | 2 Credits | Fall and Spring |
| Descriptive Geometry for Engineers (1 1/2+4) | | |
| Orthographic, isometric, oblique and perspective drawing, descriptive geometry, graphic solutions, computer graphics and computer aided drawing (CAD). Laboratory fee: \$25.00. (Corequisite: MATH 107.) | | |
| ES 201 | 3 Credits | Fall and Spring |
| Computer Techniques (2+3) | | |
| Basic computer programming, in both FORTRAN and BASIC, with considerable applications from all fields of engineering. Laboratory fee: \$10.00. (Prerequisite: MATH 107-108 or enrollment in MATH 200.) | | |
| ES 208 | 4 Credits | Spring |
| Mechanics (3+3) | | |
| A standard engineering-oriented coverage of statics and dynamics. Vector methods are used where appropriate. (Prerequisites: MATH 201 and PHYS 211.) | | |
| ES 209 | 3 Credits | Fall and Spring |
| Statics (3+0) | | |
| Study of force systems in two and three dimensions. Composition and resolution of forces and force systems; principles of equilibrium applied to various bodies, simple structures, friction, centroids, moments of inertia. Vector algebra used where appropriate. (Prerequisite: MATH 201; Corequisite: PHYS 211.) | | |
| ES 210 | 3 Credits | Fall and Spring |
| Dynamics (3+0) | | |
| Study of the 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 engineering with emphasis on the mathematical formulation of typical engineering problems. Selected topics from all fields of engineering. (Prerequisites: MATH 302, ES 210.) | | |
| ES 307 | 3 Credits | Fall |
| Elements of Electrical Engineering (2+3) | | |
| Electrical fundamentals: 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 the 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 and 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 ES 209 and MATH 201.) | | |
| ES 334 | 3 Credits | Fall |
| Elements of Material Science/Engineering (2+3) | | |
| Introduction to 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.) | | |

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| ES 341 | 4 Credits | Fall and 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: \$10.00. (Prerequisites: MATH 201 and ES 208 or ES 210.) | | |
| ES 346 | 3 Credits | Fall and Spring |
| Basic Thermodynamics (3+0) | | |
| 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 111 and ENGL 211 or 213 or equivalent.

A student may elect to fulfill one half of the composition requirement by completing credit by examination in one of the required English courses. Permission of the Director of Communications in the English Department is required to begin all challenge procedures.

Students with extensive backgrounds in literature and composition or with outstanding test scores on nationally recognized examinations (an ACT score of 26 or higher, for example) may challenge both ENGL 111 and 211 or 213. Normally students will be required to complete a successful challenge of ENGL 111 before taking or challenging ENGL 211 or 213.

Required composition courses may also be taken through the University of Alaska Fairbanks Correspondence Study department.

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| DEVE 060 | 3 Credits | As Demand Warrants |
| Elementary Composition (3+0) | | |
| Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination. | | |
| DEVE 068 | 1-3 Credits | As Demand Warrants |
| English Skills Laboratory (0+3+9) | | |
| The open entry/open exit lab block is designed to provide students with individualized instruction in areas where language skills building is needed. The lab is composed of three modules (spelling/vocabulary, writing and grammar/usage) into which a student might be advised based upon diagnosed need or student desire to improve skills in a particular area. It is not necessary for a student to enroll in all three modules. These modules may be taken for elective credit only, may not be used to fulfill written communication or humanities degree requirements, and may be repeated as necessary. | | |
| DEVE 070 | 3 Credits | As Demand Warrants |
| Preparation for College English (3+0) | | |
| Intensive practice in a variety of language skills to prepare students for ENGL 111. Materials fee: \$5.00. | | |
| ENGL 104 | 3 Credits | As Demand Warrants |
| Institute on Language & Thought (3+0) | | |
| An intensive Institute for developing critical thinking, writing, and reading skills using the Bard College model. The Institute establishes and nurtures learning communities which support bold thinking, risk-taking, collaboration, and independence. Offered only at the Kuskokwim Campus. | | |
| ENGL 111 | 3 Credits | Fall and Spring |
| Methods of Written Communication (3+0) w | | |
| Instruction in writing expository prose, including generating topics as part of the writing process. Practice in developing, organizing, revising, and editing compositions. Materials fee: \$0.00-\$8.00. Also available via Independent Learning. (Prerequisite: Placement examination or DEVE 070.) | | |
| ENGL 190H | 3 Credits | Fall and Spring |
| Honors English Composition (3+0) | | |
| 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. (Prerequisites: Admission to the Honors Program or recommendations of instructor.) | | |

- ENGL 211 3 Credits** **Fall and Spring**
Intermediate Exposition, with Modes of Literature (3+0) w
 Instruction in writing through close analysis of literature. Research paper required. Materials fee: \$0.00-\$8.00. Also available via Independent Learning. (Prerequisites: Sophomore standing and completion of ENGL 111 or its equivalent.)
- ENGL 212 3 Credits** **As Demand Warrants**
Business, Grant, and Report Writing (3+0)
 This course will cover forms and techniques of business, grant, and report writing. (It may put special emphasis on one or another of these topics in a given semester.) It will not fulfill the second half of the baccalaureate requirements in written communication. (Prerequisite: ENGL 111.)
- ENGL 213 3 Credits** **Fall and Spring**
Intermediate Exposition (3+0) w
 Instruction in writing through close analysis of expository prose from the social and natural sciences. Research paper required. Materials fee: \$0.00-\$8.00. (Prerequisites: Sophomore standing and completion of ENGL 111 or its equivalent.)
- NOTE:** Neither ENGL 211 nor ENGL 213 is to be considered or is to be used as a prerequisite for any other course or for any particular course of study. Because both of these courses will be primarily courses in writing, 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 111 or permission of instructor.)
- ENGL 216 3 Credits** **Fall and Spring**
Introduction to Fiction (3+0) h
 Analysis and appreciation of selected novels and short stories, including the terminology used to describe fictional techniques. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 217 3 Credits** **Spring**
Introduction to the Study of Film (2+2) h
 (Same as JB 217)
 A broad historical survey of cinematic art with emphasis on its humanistic and artistic aspects. (Prerequisite: ENGL 111.)
- ENGL 218 3 Credits** **Spring**
Themes in Literature (3+0) h
 Exploration of literary themes in various genres of literature, including fiction, poetry and drama. Such themes as 'Women in Literature,' 'Literature of the North,' and 'Detective Stories in Literature and Film' may be offered. Specific content to be announced at time of registration. Course may be repeated for credit when content varies. (Prerequisite: ENGL 111 or permission of instructor.)
- 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. (Prerequisite: Open only to students for whom English is a foreign language. Permission of instructor required.)
- ENGL 271 3 Credits** **Fall and Spring**
Introduction to Creative Writing-Fiction (3+0) h
 A study of the forms and techniques of fiction for beginning students; discussion of students' work in class and in individual conferences. Materials fee: \$10.00. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 272 3 Credits** **Fall**
Introduction to Creative Writing-Poetry (3+0)h
 A study of the forms and techniques of poetry for beginning students; discussion of students' work in class and in individual conferences. Materials fee: \$5.00. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 290H 2 Credits** **Fall**
Summer Reading Program (Honors) (2+0)
 A summer reading course of selected readings in a variety of disciplines. Group discussions and written responses to the readings follow in the fall. Students are required to keep a summer journal. The course may be repeated for credit. (Prerequisite: ENGL 111 or enrollment in the Honors Program.)
- 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 the western literary tradition has sprung. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 306 3 Credits** **Spring**
Survey of American Literature (3+0) h
 Comprehensive study of American thought as reflected in its major writers, including works representative of American Calvinism, Rationalism, Transcendentalism, Romanticism, Realism, Naturalism, and Modernism. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 308 3 Credits** **Fall**
Survey of British Literature: Beowulf to the Romantic Period (3+0) h
 Survey of writers and works in Old and Middle English, including Chaucer, through the Elizabethan period (Shakespeare), the Restoration, and the Neoclassic Period of the 18th Century. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 309 3 Credits** **Spring**
Survey of British Literature: Romantic Period to the Present (3+0) h
 Survey of writers and works from the early Romantic Period (Blake and Burns), through the Victorian period, James Joyce, and Stream-of-Consciousness, to the present. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 310 3 Credits** **Spring**
Literary Criticism (3+0) h
 Introduction to the history and principles of literary criticism, from the earliest days to the end of the 19th century. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 313 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. (Prerequisites: Junior standing, ENGL 211 or 213 or permission of instructor.) Course does not fulfill the second half of the general degree requirement in written communication.
- ENGL 314 3 Credits** **Fall and Spring**
Technical Writing (2+0+1)h
 Instruction in writing job applications with resumes, as well as letters of inquiry, complaint, and evaluation. Practice in preparing tables, graphs, process descriptions, technical instructions, abstracts, grant proposals. Practice in writing technical reports, such as progress, laboratory, survey, incident, inspection, feasibility, and research reports. Course does not fulfill the second half of the general degree requirement in written communication. Also available via Independent Learning. Materials fee: \$3.00. (Prerequisites: Junior standing and ENGL 211 or 213 or permission of instructor.)
- ENGL 318 3 Credits** **Fall and Spring**
Modern English Grammar (3+0) h
 Study of the structure of current English as seen through traditional and contemporary grammatical theories. (Prerequisite: English 111 or permission of instructor.)
- ENGL 340 3 Credits** **Fall**
Contemporary Native American Literature (3+0)h
 (Same as ANS 340)
 An exploration of contemporary Native American writing in English, including novels, short stories, poetry, and plays. Some examples of Native American film will also be introduced when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111 or permission of instructor.)
- ENGL 349 3 Credits** **Fall**
Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h
 (Same as ANS 349)
 Survey of traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Attention to bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111 or permission of instructor.)

- ENGL 350 3 Credits** Alternate Spring
Literature of Alaska and the Yukon Territory (3+0) h
 Study of representative works of fiction, verse, and non-fiction which deal with Alaska and the Yukon Territory. Also available via Independent Learning. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)
- ENGL 371 3 Credits** Fall and Spring
Intermediate Creative Writing (3+0) h
 Practice and guidance in writing fiction, poetry, drama, and essays. Students' work will be read and discussed in class and in 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 403 3 Credits** Every Third Spring
American Renaissance (3+0) h
 Study of American Literature of the mid-nineteenth century: Poe through Whitman. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1991-92.)
- ENGL 404 3 Credits** Every Third Spring
American Realism (3+0) h
 Study of American literature from the Civil War to World War I: Twain through James. (Prerequisite: ENGL 111 or permission of instructor. ENGL 307 desirable but not required. Next offered: 1990-91.)
- ENGL 405 3 Credits** Every Third Fall
British Writers of the 19th Century: Romantic Period (3+0) h
 Study of English literary romanticism including authors such as Byron, Keats, Shelley, Coleridge, Wordsworth, Austen, the Bronte sisters, and Scott. (Prerequisite: ENGL 111 or permission of instructor. ENGL 308 desirable but not required. Next offered: 1990-91.)
- ENGL 406 3 Credits** Every Third Fall
British Writers of the 19th Century: Victorian Period (3+0) h
 Study of the impact of industrialization, social 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 111 or permission of instructor. ENGL 309 desirable but not required. Next offered: 1990-91.)
- ENGL 407 3 Credits** Every Third Fall
British Writers of the Restoration and 18th Century: Neo-Classical Period (3+0) h
 Study of new developments in drama, verse, and prose reflecting new forces in government, religion, and society during the Augustan Age. Attention to the mode of satire and to the fashion of sentimentalism in all genres. Authors to include (but not limited to): Dryden, Defoe, Addison, Steele, Swift, Pope, Johnson, Boswell, Goldsmith, and Sheridan. (Prerequisites: ENGL 111 and junior standing or permission of instructor. ENGL 308 recommended. Next offered: 1991-92.)
- ENGL 408 3 Credits** Every Third Fall
American Origins. (3+0) h
 Study of the writers who contributed to the development of a national literary identity: Bradstreet through Cooper. (Prerequisites: ENGL 111 and junior standing or permission of instructor. ENGL 307 recommended but not required. Next offered: 1990-91.)
- ENGL 414 3 Credits** Fall
Research Writing (3+0) h
 Practice in reporting primary and secondary research in the forms and styles appropriate to the student's field. Preference given to seniors. (Prerequisite: ENGL 111 and 211 or 213 or their equivalent.)
- ENGL 421 3 Credits** Alternate Spring
Chaucer and His Age (3+0) h
 Major poetry of Chaucer and his contemporaries, with emphasis on *The Canterbury Tales*, and survey of criticism. (Prerequisite: ENGL 111 or permission of instructor; ENGL 308 desirable but not required. Next offered: 1990-91.)
- ENGL 422 3 Credits** Fall
Shakespeare: History Plays and Tragedies (3+0) h
 Major chronicle plays and tragedies, including significant criticism. (Prerequisite: ENGL 111 or permission of instructor. ENGL 308 desirable but not required.)
- ENGL 425 3 Credits** Spring
Shakespeare: Comedies and Non-Dramatic Poetry (3+0) h
 Major comedies and non-dramatic poems, including significant criticism. (Prerequisite: ENGL 111 or permission of instructor. ENGL 308 desirable but not required.)
- ENGL 426 3 Credits** Every Third Fall
Milton (3+0) h
 Major poetry and prose, and survey of Miltonian criticism. (Prerequisite: ENGL 111 or permission of instructor; ENGL 308 desirable but not required. Next offered: 1990-91.)
- ENGL 444 3 Credits** Every Third Spring
Fiction in Translation (3+0) h
 Major fiction in English translation. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)
- ENGL 445 3 Credits** Alternate Fall
20th-Century Drama: From Chekhov to Ionesco (3+0) h
 The major dramatists and their achievements. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)
- ENGL 446 3 Credits** Alternate Spring
Major Modern and Contemporary Poetry (3+0) h
 Yeats to the present. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1991-92.)
- ENGL 447 3 Credits** Alternate Fall
20th-Century British Prose (3+0) h
 Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1991-92.)
- ENGL 448 3 Credits** Alternate Spring
20th-Century American Prose (3+0) h
 Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)
- ENGL 452 3 Credits** Every Third Fall
The British Novel to 1900 (3+0) h
 Origin and development of the novel with concentration on significant novelists from Daniel Defoe to Thomas Hardy. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1990-91.)
- ENGL 462 3 Credits** Alternate Spring
Applied English Linguistics (3+0) h
 The topic(s) for each offering of the course will be announced. Examples are teaching English as a second language, dialects and education, dictionaries, stylistics, and composition. (Prerequisite: ENGL 111 or permission of instructor. Next offered: 1991-92.)
- ENGL 471 3 Credits** Fall and Spring
Undergraduate Writers' Workshop (3+0) h
 Discussion of craft and techniques and student work intended for advanced students who will prepare a brief, finished manuscript as a final project. May be repeated one time for credit. Materials fee: \$10.00. (Prerequisites: ENGL 371 or permission of instructor.)
- ENGL 472 3 Credits** Alternate Spring
History of the English Language (3+0) h
 Origin and development of the English language from prehistoric times to the present. (Prerequisite: ENGL 111 or permission of instructor. ENGL 318 or a linguistics course is desirable, but not required. Next offered: 1991-92.)
- ENGL 485 3 Credits** Alternate Spring
Teaching Composition in the Schools (3+0)
 Theoretical background and workshop experience for teaching composition in middle and high schools with current pedagogy on teaching of writing stressed. A variety of teaching methods will be demonstrated and discussed. Writing, teaching demonstrations, reports, group and class discussions are required. (Prerequisites: Completion of university composition requirement with grade of B or higher, or permission of instructor. Next offered: 1991-92.)
- ENGL 601 3 Credits** Spring
Bibliography, Methods, and Criticism (3+0)
- ENGL 603 3 Credits** As Demand Warrants
Studies in British Literature: Old and Middle English (3+0)
- ENGL 604 3 Credits** Every Third Fall
Studies in British Literature: Renaissance and 17th Century (3+0)
- ENGL 607 3 Credits** Every Third Spring
Studies in British Literature: Restoration, 18th and 19th Centuries (3+0)
- ENGL 608 3 Credits** Every Third Spring
Studies in British Literature: 20th Century (3+0)
- ENGL 609 3 Credits** Every Third Spring
Studies in American Literature: Colonial Period and 19th Century (3+0)
- ENGL 612 3 Credits** Every Third Fall
Studies in American Literature: 20th Century (3+0)
- ENGL 651 3 Credits** Alternate Spring
Internship in Publishing (3+1)

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| ENGL 671 | Credits Arr. Writers' Workshop | Fall and Spring |
| ENGL 673 | 3 Credits Professional Writing Workshop (3+0) | Fall |
| ENGL 681 | 3 Credits Forms of Poetry (3+0) | Every Third Semester |
| ENGL 682 | 3 Credits Forms of Fiction (3+0) | Every Third Semester |
| ENGL 683 | 3 Credits Forms of Drama (3+0) | As Demand Warrants |
| ENGL 684 | 3 Credits Forms of Non-Fiction Prose (3+0) | Every Third Semester |
| ENGL 685 | 3 Credits Teaching College Composition (3+0) | Fall |
| ENGL 687 | 3 Credits Writing Professional Prose (3+0) | Alternate Spring |
| ENGL 688 | 3 Credits Audiovisual Script Writing (3+0) | Alternate Spring |
| ENGL 689 | 3 Credits Editing Prose (3+0) | Alternate Fall |
| ENGL 692 | Credits Arr. Graduate Seminar | Fall and Spring |

English as a Second Language

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| ESLG 051 | 1-3 Credits Speaking English as a Second Language | As Demand Warrants |
| For students who do not speak English as their first language, but who can understand and follow simple instructions in English, this class provides ample opportunity to engage in English conversation. The emphasis is on large quantities of comprehensible English, and building student confidence in understanding and speaking it. May be repeated up to nine credits. | | |
| ESLG 061 | 1-3 Credits Reading English as a Second Language | As Demand Warrants |
| For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English. Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. May be repeated up to nine credits. | | |
| ESLG 071 | 1-3 Credits Writing English as a Second Language | As Demand Warrants |
| For students whose first language is not English, this class provides an opportunity to develop skills at writing simple English compositions. The emphasis is on writing large quantities of English which is understandable to native English speakers, and on building students' confidence in communicating through written English. May be repeated up to nine credits. | | |

Environmental Quality Engineering/Science

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| EQS 201 | 3 Credits Environmental Management (3+0) s | Spring |
| The study of social processes affecting the environment including law, environmental assessment, social/economic constraints, political processes and society's influence on environmental values. Topics include NEPA, energy sources and impacts, population control, resource development, conservation and preservation, acid rain, greenhouse effect, deforestation, pollution and hazardous waste abatement and treatment strategies. Case studies are used and the course is integrated with and complements ALR 101. | | |
| EQE 641 | 3 Credits Environmental Quality Science Measurements (2+3) | Every Fifth Semester |
| EQE 642 | 3 Credits Modeling for Environmental Management (3+0) | Every Fifth Semester |
| EQE 643 | 3 Credits Air Pollution Management (4+0) | Fall |

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| EQE 644 | 3 Credits Environmental Quality Evaluation (3+0) | Every Fifth Semester |
| EQE 645 | 3 Credits Unit Processes - Chemical and Physical (3+0) | Every Fifth Semester |
| EQE 646 | 3 Credits Unit Processes — Biological (3+0) | Every Fifth Semester |
| EQE 647 | 3 Credits Biotechnology (3+0) (Same as ALR 607) | Every Fifth Semester |
| EQE 648 | 3 Credits Solid Waste Management (3+0) | Every Fifth Semester |
| EQE 649 | 3 Credits Hazardous and Toxic Waste Management (3+0) (Same as GE 649) | Every Fifth Semester |

Eskimo

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| ESK 101 | 5 Credits | Fall |
| ESK 102 | 5 Credits | Spring |
| Elementary 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 non-speakers. For speakers the course provides literacy and grammatical analysis. For others, it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences. | | |
| ESK 103 | 3 Credits Yup'ik Made Easy (3+0) | As Demand Warrants |
| An entry-level course for those wishing to learn the Yup'ik language. The very popular and highly successful TPR (Total Physical Response) methods, through commands and actions is used. The study of grammar, reading and writing will not be covered in this course. The focus will be on teaching comprehension of the language in everyday situations, with speech being delayed until the student is ready. | | |
| ESK 104 | 3 Credits Yup'ik Made Easy II (3+0) | As Demand Warrants |
| A continuation of ESK 103 for those wishing to learn the Yup'ik language. The very popular and highly successful TPR (Total Physical Response) method, whereby students learn to comprehend the language through commands and actions, is used. Reading and writing will only be covered indirectly in this course. The focus will be on teaching comprehension of the language in everyday situations. Vocabulary from ESK 103 will be briefly reviewed. | | |
| ESK 105 | 1-3 Credits | As Demand Warrants |
| ESK 106 | 1-3 Credits | As Demand Warrants |
| Conversational Central Yup'ik (1+3) Introductory courses for students who wish to acquire the ability to speak Central Yup'ik, the language of Norton Sound, the lower Yukon and Kuskokwim Rivers and the Delta, and Bristol Bay. Students first learn to understand simple spoken language, then to speak simple Central Yup'ik, developing a beginning level of communicative competence in the language. (Prerequisite: ESK 105 for 106.) | | |

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| ESK 108 | 3 Credits Yup'ik Literacy (3+8) | Spring |
| Literacy training for speakers of Yup'ik languages (Central Yup'ik, St. Lawrence Island Yup'ik, and Alutiiq). Learning to read and write the language. | | |
| ESK 109 | 3 Credits Yup'ik Orthography (3+0) | As Demand Warrants |
| Yup'ik orthography is an entry level-class designed for those how are fluent in Central Yup'ik. The course will cover reading, silent and oral, and writing, emphasizing specific skills and practical application of those skills through writing assignments. Dialect differences in the Central Yup'ik region will be 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 non-speakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences. | | |

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| 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 | Spring |
| Inupiaq Literacy (3+0) | | |
| Literacy training for speakers of Alaskan Inupiaq. Learning to read and write the language. | | |
| ESK 130 | 3 Credits | As Demand Warrants |
| Beginning Yup'ik Grammar (3+0) | | |
| Literacy and grammatical analysis of the Central 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 Yup'ik (1+3) | | |
| Introductory courses for students who wish to acquire the ability to speak in Siberian Yupik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yupik, developing a beginning level of communicative competence in the language. | | |
| ESK 158 | 1-3 Credits | As Demand Warrants |
| Siberian Yup'ik Orthography (1+3) | | |
| Introduction to the standard writing system (orthography) of Siberian Yupik. Students learn the skills of spelling, reading, and writing words in Siberian Yupik, which are the fundamentals of basic literacy. (Prerequisite: ability to speak Siberian Yupik or permission of the instructor.) | | |
| ESK 201 | 3 Credits | Fall |
| ESK 202 | 3 Credits | Spring |
| Intermediate Yup'ik (3+0) h | | |
| Continuation of ESK 101-102. Increasing emphasis on speaking, reading, and writing. | | |
| ESK 203 | 3 Credits | As Demand Warrants |
| Yup'ik Made Easy III (3+0) h | | |
| A continuation of Yup'ik Made Easy I and II using TPR (total physical response), where students learn to comprehend the language through commands and actions. Reading and writing will be covered only indirectly, as the focus will be on teaching comprehension and speech in everyday situations. Vocabulary from previous classes will be briefly reviewed. (Prerequisite: ESK 104 or instructor permission.) | | |
| ESK 208 | 3 Credits | As Demand Warrants |
| Yup'ik Composition (3+0) | | |
| An examination of the development of written 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 will be examined, rather than simply translating the standard categories of English composition. Students will receive extensive practice in Yup'ik orthography and participate in the evaluation of each other's writings. (Prerequisite: ESK 108) | | |
| ESK 211 | 3 Credits | Fall |
| ESK 212 | 3 Credits | Spring |
| Intermediate Inupiaq Eskimo (3+0) h | | |
| Continuation of Eskimo 111-112, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary. | | |
| ESK 218 | 3 Credits | As Demand Warrants |
| Inupiaq Composition (3+0) | | |
| An examination of the development of written inupiaq and exploration of the many possible uses of Inupiaq writing, to entertain, inform, persuade, transcribe oral narratives and take notes on such occasions as city council meetings. The course will be open to new genres, rather than simply translating the standard categories of English composition. Students will receive extensive practice in the Inupiaq orthography and will actively participate in the evaluation of each other's writing (Prerequisite: ESK 118 or equivalent.) | | |
| ESK 301 | 3 Credits | Fall |
| Advanced Yup'ik Eskimo (3+0) h | | |
| Continuation of ESK 201-202. Completes the basic study of the Yup'ik grammar. (Prerequisites: ESK 101, 102, 201-202 or permission of instructor.) | | |

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| 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 permission of instructor.) | | |
| ESK 417 | 3 Credits | Spring |
| Advanced Inupiaq Eskimo (3+0) h | | |
| Advanced study in Inupiaq Eskimo. A continuation of Esk. 212. (Prerequisites: Completion of ESK 111, 112, 211, 212 or permission of instructor.) | | |

Fire Science

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| FSCI 101 | 3 Credits | As Demand Warrants |
| Introduction to Fire Science (3+0) | | |
| An introduction to Fire Science and Fire Protection; career opportunities in fire protection and related fields; history of fire protection; fire loss analysis; public, quasi-public and private fire protection services; specific fire protection functions; fire chemistry and physics. | | |
| FSCI 105 | 3 Credits | As Demand Warrants |
| Fundamentals of Fire Prevention (3+0) | | |
| Organization and function of fire prevention; inspections; surveying and mapping procedures; recognition of fire and life hazards; engineering a solution of a fire hazard; enforcing the solution of a fire hazard; fire safety education. | | |
| FSCI 107 | 3 Credits | As Demand Warrants |
| Fire Tactics and Strategy (3+0) | | |
| Principles of fire control through utilization of manpower, equipment and extinguishing agents. (Prerequisite FSCI 101 or equivalent or permission of instructor) | | |
| FSCI 111 | 3 Credits | As Demand Warrants |
| Fire Company Organization & Management (3+0) | | |
| Review of fire department organization; planning, organizing and supervising to meet the needs of the fire department, with emphasis on the company officer's role. | | |
| FSCI 115 | 3 Credits | As Demand Warrants |
| Fire Apparatus and Equipment (3+0) | | |
| Fire apparatus design, specifications and performance capabilities, effective utilization of apparatus in fire emergencies | | |
| FSCI 117 | 3 Credits | As Demand Warrants |
| Rescue Practices (3+0) | | |
| Rescue problems and techniques; emergency rescue equipment; toxic gases; chemicals and diseases; radiation hazards; care of the victims, including emergency childbirth, respiration and resuscitation, extrication, and other emergency conditions. | | |
| FSCI 121 | 3 Credits | As Demand Warrants |
| Introduction to Fire Chemistry & Physics (3+0) | | |
| Introduction to nomenclatures, principles and procedures of chemistry as related to fire problems. | | |
| FSCI 123 | 3 Credits | As Demand Warrants |
| Fire Investigation (3+0) | | |
| Determining cause of fires (accidental, suspicious and incendiary); types of fires; related laws; introduction to arson and incendiarism; recognizing and preserving evidence; interviewing witnesses and suspects; arrest and detention procedures; court procedures and giving court testimony. | | |
| FSCI 151 | 3 Credits | As Demand Warrants |
| Wildland Fire Control I (3+0) | | |
| A course designed to provide the student with a fundamental knowledge of the factors affecting wildland fire prevention, fire behavior, and control techniques. | | |
| FSCI 153 | 3 Credits | As Demand Warrants |
| Wildland Fire Organization and Management (3+0) | | |
| A review of fire organization, the steps involved in organizing for suppression, and a study of management functions. | | |
| FSCI 155 | 3 Credits | As Demand Warrants |
| Fire Behavior I (3+0) | | |
| Course includes fire triangle, ignition temperatures, sources of heat, heat transfer, weather factors, forest fuel factors and topography, interplay of fuels and prediction of fire behavior on our wildland fires. | | |

- FSCI 156 3 Credits As Demand Warrants**
Fire Planning Function (3+0)
 A course designed to provide the student with an overview of the planning process, organizational relationships with other functions, use of planning matrix board, check-in and resource status procedures, evaluation, analysis and display of incident information, documentation, demobilization, use of technical specialist and components of an incident action plan.
- FSCI 157 3 Credits As Demand Warrants**
Aircraft Operations (3+0)
 Use of aircraft for suppression of wildland fires and support of the service function-emphasis on air safety.
- FSCI 158 3 Credits As Demand Warrants**
Fire Operation Function (3+0)
 A course designed to provide the student with an overview of the operation function including organization, implementation of the incident action plan, tactical use of resources, ordering additional resources, appointment of geographical and functional supervisors, support and operations of fixed wing and rotor aircraft.
- FSCI 161 3 Credits As Demand Warrants**
Fire Logistics Functions (3+0)
 Contains basic organization and procedures of the support function. Includes study of the Service Chief position and its subordinate positions.
- FSCI 162 3 Credits As Demand Warrants**
Methods/Instruction For Fire Service Training (3+0)
 A course designed to provide the student with the skills necessary to instruct fire service courses including adult education techniques, classroom setup, use of audio-visual equipment, presentation, and evaluation methods of students and instruction.
- FSCI 163 3 Credits As Demand Warrants**
Wildland Air Attack (3+0)
 Proper use and management of aircraft as a tool in fire support, specifically the use of helicopters and fixed wing tanker attack.
- FSCI 202 3 Credits As Demand Warrants**
Fire Hydraulics (3+0)
 Review of applied mathematics; hydraulic laws as applied to fire service; applications of formulas and mental calculations; hydraulics and water supply problems.
- FSCI 204 3 Credits As Demand Warrants**
Hazardous Materials I (3+0)
 An introduction to basic fire chemistry and physics. Problems of flammability as encountered by firefighters when dealing with fuels and oxidizers. Elementary fire fighting practices pertaining to hazardous materials in storage and transit.
- FSCI 205 3 Credits As Demand Warrants**
Hazardous Materials II (3+0)
 A second semester course in Hazardous Materials covering handling, identification and fire fighting practices involving explosive, toxic, and radioactive materials in storage and transit. (Prerequisite: FSCI 204 or instructor's permission)
- FSCI 206 3 Credits As Demand Warrants**
Building Construction/Fire Protection (3+0)
 Fundamentals of building construction as it relates to fire protection. (Prerequisite: FSCI 101 or employment or experience in related field, such as Fire Protection, insurance, construction architecture, or engineering.)
- FSCI 208 3 Credits As Demand Warrants**
Fire Service Records and Reporting (3+0)
 A course designed for all members to the fire service in the use of typical records and report systems. Involves knowledge and understanding of fire department records systems, principles of report writing, applications in the area of pre-fire survey, post-fire reporting, research and planning.
- FSCI 212 3 Credits As Demand Warrants**
Codes and Ordinances (3+0)
 Familiarization and interpretation of national, state and local codes, ordinances and laws which influence the field of fire prevention. (Prerequisites: FSCI 101 or permission of instructor.)
- FSCI 214 3 Credits As Demand Warrants**
Fire Protection Equipment and Systems (3+0)
 portable fire extinguishing equipment; protection systems for specific hazards; sprinkler systems; and fire detection and alarm systems.
- FSCI 252 3 Credits As Demand Warrants**
Wildland Fire Prevention/Law Enforcement (3+0)
 The organization and functions of fire prevention; objectives and policy, education and enforcement, analysis and inspection techniques; public relations as affected by fire prevention; fire investigation; basic law enforcement techniques.
- FSCI 254 3 Credits As Demand Warrants**
Wildland Fire Business Management (3+0)
 A course covering the duties and responsibilities of a fire officer as they relate to fire management practices and programs. Promotes professionalism and effects a sound fire management program. Covers procedures required in identified finance jobs in a wildland organization, including the financial management of a large complex wildland fire.
- FSCI 256 3 Credits As Demand Warrants**
Wildland Fire Plan/Multi Use Management (3+0)
 Fire management and its role in a multiple use resource management program. Includes resource management, prescribed fire wildfire practices, environment, management goals and objectives, and fire planning.
- FSCI 258 3 Credits As Demand Warrants**
Prescribed Burning/Fuels Management (3+0)
 Course analyzes different fuels and evaluates benefits and effect of management practices. Includes prescribed fire procedures and objectives.
- FSCI 260 3 Credits As Demand Warrants**
Fire Research & Development (3+0)
 Research and development in the area of fire prevention, detection, prescribed burns, fire suppression, and post suppression.
- FSCI 262 3 Credits As Demand Warrants**
Wildland Fire Control II (3+0)
 A course designed to provide the student with advanced management skills and techniques. Topics included are political and environmental considerations as they apply to wildland fires, line officer/incident management team roles and responsibilities, available technology and the problems involved with the wildland-urban interface.
- FSCI 266 3 Credits As Demand Warrants**
Wildland Fire Environment Considerations (3+0)
 Course covers ecosystems, erosion, soil properties and revegetation, fire ecology, fuel and the environment, fire control practices, and smoke management.
- FSCI 270 3 Credits As Demand Warrants**
Incident Command Function (3+0)
 A course designed to provide the student with an overview of the command function including use of single and unified command, roles and responsibilities of the incident commander and staff, development and implementation of strategic decision, providing information to the media, and managing the incident.

Fisheries

Fisheries courses are offered at both the Fairbanks Campus and at the UAF Juneau Center for Fisheries and Ocean Science. Those offered only at Fairbanks will be identified by the initial "F" following the course number. Courses offered only at Juneau will be identified with 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, 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)
 An introduction for sophomore-level natural sciences/environmental studies students to the application of scientific and engineering principles in the harvesting, processing, preservation and marketing of Alaska's rich fisheries resources. (Prerequisites: CHEM 105 or BIOL 105 or consent of instructor.)
- FISH 381 3 Credits Alternate Fall**
Biology of Commercially Important Salmonid Fishes (3+0)
 Biology, life history and ecology of economically valuable salmonids. Management of salmonid fisheries. (Prerequisite: FISH 301. Next offered: 1990-91.)
- FISH 382 4 Credits Alternate Spring**
Biology of Commercially Important Marine Fishes (3+2)
 Review of the major marine fish resources of Alaska. The taxonomy, distribution, life history and ecological relationships of marine fishes will be studied, with emphasis on demersal fishes, early life history and the effects of fisheries on stocks. (Prerequisite: BIOL 222 [J] BIOL 209]. Next offered: 1990-91.)

- FISH 383 4 Credits** Alternate Fall
Biology of Commercially Important Invertebrates (3+3)
 Topics covered include the taxonomy, morphology, physiology and ecology of commercially important invertebrates. A history of the management and fishery of the major species will also be covered. Emphasis will be on Alaskan species. (Prerequisite: BIOL 222 [J BIOL 209]. Next offered: 1990-91.)
- FISH 400 3 Credits** Fairbanks, Fall
Fisheries Science (F 2+3, J 3+0) Juneau, Fall
 The general biology of fishes in relation to their management. Methods of collecting, analyzing, and interpreting field and laboratory data. (Prerequisite: one 200-level biology class. Corequisite: STAT 301 [J STAT 373].)
- FISH 401 3 Credits** Fairbanks, Spring
Fisheries Management (3+0) Juneau, Alternate Spring
 The principles, concepts and techniques of fisheries management are reviewed in terms of their biological, economic, social and political aspects. Topics covered are stocking and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. To clarify concepts and practices, examples of several fisheries are used. (Prerequisite: BIOL 271. Next offered Juneau: 1990-91.)
- FISH 411F Credits Arr** As Demand Warrants
Fisheries Field Trip
 A trip to acquaint students with some of the principal fisheries of the state and problems involved in their management. (Prerequisite: major in fisheries biology or admission by arrangement.)
- FISH 418J 4 Credits** Alternate Fall
Renewable Resource Management Systems (4+0)
 Develops the abilities to recognize, process and apply critical information in the management of renewable resources by examples from Alaskan fisheries. The computer is explored as a primary tool of resource management. (Prerequisite: STAT 301 [J STAT 373]. STAT 401 recommended. Next offered: 1990-91.)
- FISH 420J 3 Credits** Fall
Modeling, Simulation and Ecological Theory (3+0)
 Introduction to formal models (mathematical, graphical and simulation) in fisheries and ecology. Nature and uses of modeling approaches; choice of assumptions; simulation techniques and model verification; examples and case histories. (Prerequisites: MATH 200, BIOL 271 [J BIOL 281].)
- FISH 421J 4 Credits** Alternate Spring
Fisheries Population Dynamics (4+0)
 Review and analysis of the major quantitative techniques available for assessing and predicting the status of fish populations. Demonstration and use of field and laboratory techniques and model verification; examples and case histories. (Prerequisite: STAT 301 [J STAT 373]. FISH 418 recommended. Next offered: 1990-91.)
- FISH 436J 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 [J BIOL 209], CHEM 106, FISH 381. Next offered: 1991-92.)
- FISH 445J 3 Credits** Alternate Spring
Sampling Methods in Fisheries (2+2)
 A review of standard and specialized sampling techniques in aquatic habitats. Basic sampling theory and statistical considerations will be included, as will demonstrations and use of field laboratory techniques. Ship-board sampling will be part of the course. (Prerequisite: STAT 301 [J STAT 373]. Next offered: 1991-92.)
- FISH 601F 3 Credits** Alternate Fall
Quantitative Fishery Science (3+0)
- FISH 602 3 Credits** Juneau, Alternate Fall
Advanced Fisheries Management (2+3) Fairbanks, Alt Spring
- FISH 606J 4 Credits** As Demand Warrants
Finfish and Shellfish Diseases (3+3)
- FISH 621J 4 Credits** Alternate Fall
Advanced Fisheries Population Dynamics I (3+2)
- FISH 622J 4 Credits** Alternate Spring
Advanced Fisheries Population Dynamics II (3+2)
- FISH 651J 3 Credits** As Demand Warrants
Fishery Genetics (3+0)

- FISH 652J 3 Credits** As Demand Warrants
Use of Electrophoresis in Fisheries (1+4)
- FISH 661 3 Credits** Fall
Seafood Processing and Preservation (3+0)
- FISH 662 3 Credits** Alternate Fall
Seafood Composition and Analysis (3+0)

Foreign Languages

- FL 110 2 Credits** As Demand Warrants
How to Pronounce French, German, Italian, and Spanish (2+0)
 Designed to meet the needs of students and others in radio, television, journalism, drama, music (esp. voice), etc. who want to pronounce French, German, Italian and Spanish correctly and with confidence. The method is practical and direct. Concrete examples are used.

French

For information on studying in Europe, see Study Abroad.

- FREN 075 3 Credits** As Demand Warrants
FREN 076 3 Credits As Demand Warrants
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 in the language. (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; use of Foreign Language Learning Center.
- 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 culture material. Conducted in French. (Prerequisite: FREN 102 or equivalent.)
- FREN 288 2 Credits** Spring
Individual Study: Reading French h
 Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures, development of true reading skills, modern literary and/or non-literary texts. (Prerequisites: FREN 201, equivalent training or permission of instructor. Recommended to be taken concurrently with FREN 202.)
- FREN 301 3 Credits** Alternate Fall
FREN 303 3 Credits Alternate Fall
Advanced French (3+0) h
 Discussions and essays on more difficult subjects or texts, and translations, stylistic exercises, and special grammatical problems. Conducted in French. (Prerequisite: FREN 202 or equivalent. FREN 301 next offered: 1991-92; FREN 303: 1990-91.)
- FREN 387 2 Credits** Alternate Fall
Individual Study: Semantics h
 Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. Conducted in French. (Prerequisites: FREN 202 or permission of instructor. Next offered: 1991-92.)
- FREN 432 3 Credits** Spring
Studies in French Literature and Culture (3+0) h
 Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in French. Student may repeat course for credit when topics vary. (Prerequisites: French 301 or 303 or equivalent and at least sophomore standing, or permission of instructor.)

FREN 487 2 Credits Alternate Fall
Individual Study: Translation of French Texts 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. (Prerequisites: FREN 301 or 303 or equivalent and at least sophomore standing, permission of instructor. Next offered: 1991-92.)

FREN 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 French. (Prerequisites: At least 10 credits in upper division French or permission of instructor.)

Geography

GEOG 101 3 Credits Fall and Spring
Introductory Geography (3+0) s
 World regions, an analysis of environment, with emphasis on major culture realms. Also available via Independent Learning.

GEOG 103 3 Credits Fall and Spring
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.

GEOG 202 3 Credits Alternate Fall
Geography of United States and Canada (3+0) s
 Regional geography of Anglo-America. Introductory systematic study of the area as a whole, followed by detailed study of the physical and cultural landscape forms, patterns, and associations of each major region in turn. Consideration of Anglo-America in current world economic and political geography. (Next offered: 1991-92.)

GEOG 205 3 or 4 Credits Fall and Spring
Elements of Physical Geography (3+0 or 3+3) n
 Analysis of the processes that form the physical environment and the 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. (Prerequisite: GEOG 101 or 103 or permission of instructor. Offered every Spring at the Northwest Campus.)

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. (Permission of instructor. Next offered: 1991-92.)

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. (Prerequisite: GEOG 101 and 205.)

GEOG 305 3 Credits Alternate Fall
Geography of Europe (except U.S.S.R.) (3+0) s
 Regional, physical, economic and cultural geography of Europe, except U.S.S.R. (Prerequisite: GEOG 101 and 205. Next offered: 1991-92.)

GEOG 306 3 Credits Alternate Spring
Geography of the Soviet Union (3+0) s
 The physical, cultural and historical geography of the U.S.S.R. with special emphasis on the geographic bases of the expansion of the Great Russians and the contemporary foundation of Soviet national power. (Prerequisite: GEOG 101 or 103 or 205 or permission of the instructor. Next offered: 1990-91.)

GEOG 309 3 Credits Alternate Spring
Cartography (1+6) s
 Graphic techniques for presenting geographic data through the construction of maps, projections and charts. Materials fee: \$40.00. (Prerequisite: Permission of instructor. Next offered: 1991-92.)

GEOG 311 3 Credits Alternate Fall
Geography of Asia (3+0) s
 Regional geography of Asia, exclusive of the Soviet Union. A study of the 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 103 or 205 or permission of the instructor. Next offered: 1991-92.)

GEOG 315 3 Credits As Demand Warrants
Geography of Africa (3+0) s
 Physical and cultural geography of Africa, by regions. Significance of Africa in current world cultural, economic, and political geography. Major emphasis on regions south of the Sahara. (Prerequisite: GEOG 101 and 205.)

GEOG 327 3 Credits Spring
Cold Lands (3+0) s
 The comparative physical, human, and economic geography of cold regions, with particular attention to Siberia, Greenland, Scandinavia and Canada. Special attention is given to the different approaches which have been taken toward economic development in cold regions. (Prerequisite: GEOG 101 or 103 or 205 or permission of the instructor.)

GEOG 339 3 or 4 Credits Spring
Advanced Physical Geography (3+0) or (3+3) n
 Application of methodology of physical geography to analysis of regional landscapes. Optional laboratory for one additional credit. (Prerequisites: GEOG 101 or 103, 205.)

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: 1991-92.)

GEOG 402 3 Credits Alternate Fall
Culture and Environment (3+0) s
 The relationship of cultures with the land they have occupied over time, in the context of the world's major regions. Consideration will be given to the significance of cultural diversity, differing patterns of livelihood, settlement and population change. (Prerequisite: GEOG 101 and 205. Next offered: 1991-92.)

GEOG 404 3 Credits Alternate Fall
Urban Geography (3+0) s
 A world survey of urbanization with particular emphasis on the accelerating urban revolution in modern times. 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: 1991-92.)

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: 1990-91.)

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: 1991-92.)

Geological Engineering

GE 101 1 Credit Fall
Introduction to Geological Engineering (1+0)
 An introduction to the many facets 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. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)

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| 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 ES 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 ES 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. (Prerequisites: GE/GEOS 261 or GEOS 101.) | | |
| GE 405 | 4 Credits | Spring |
| Exploration Geophysics (3+3) | | |
| Introduction to the theory and application of gravity, magnetic, electrical, electro-magnetic, radioactive, and seismic methods as used for geophysical exploration. Some field work required. (Prerequisites: MATH 200 and PHYS 211 or equivalent.) | | |
| GE 420 | 3 Credits | Spring |
| Subsurface Hydrology (2+3) | | |
| Study of 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: 1991-92.) | | |
| 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 314 and GEOS 214 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. (Prerequisites: ES 331 or permission of instructor. Next offered: 1991-92.) | | |
| GE 471 | 3 Credits | Spring |
| 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, GEOS 408, PHYS 212.) | | |
| GE 480 | 2 Credits | Spring |
| Geological Engineering II (1+3) | | |
| A detailed study of geological and engineering factors for the solution of engineering problems. A term project is required. (Prerequisites: GE 365, GE 375 or permission of instructor.) | | |
| GE 630 | 3 Credits | Alternate Fall |
| Advanced Applied Mining Geology (2+3) | | |
| GE 631 | 3 Credits | Spring |
| Electron Microprobe Methods (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)

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| GEOS 100 | 4 Credits | Spring |
| Introduction to Earth Science (3+3) n | | |
| A survey of four main disciplines of earth science—geology, oceanography, meteorology, and astronomy. The lab portion has two main goals, one to provide students with a vehicle to learn scientific methodology and two, to provide students with lab evidence to support theories presented in lecture. (Prerequisite: English placement test) | | |
| GEOS 101 | 4 Credits | Fall and Spring |
| The Dynamic Earth (3+3) n | | |
| Introduction to physical geology: a study of the earth, its materials, and the processes that effect changes upon and within it. Laboratory training in the use of topographic maps and the recognition of common rocks and minerals. Laboratory fee: \$15.00. | | |
| GEOS 102 | 4 Credits | Independent Learning Only |
| Principles of Geology (3+3)n | | |
| Designed to offer an introduction to geology including an understanding of earth processes (both on the earth's surface and at depth) and the origin and classification of major rock types. By the end of the course, students should have an understanding of factors that have shaped the Earth, geologic events and processes occurring today, and some ideas on what may occur in Earth's future. Will not substitute for GEOS 101. | | |
| GEOS 103 | 3 Credits | As Demand Warrants |
| Lanscapes and Resources of Alaska (3+0) | | |
| Geological origins of the physical features of Alaska—mountains, volcanoes, islands and glaciers. Designed for those who want to learn more about the geology of Alaska and of the processes that formed it. | | |
| GEOS 105 | 3 Credits | As Demand Warrants |
| Geology of America's National Park (3+0) | | |
| Explanations of prominent geologic features and landforms for which national parks and monuments have been selected. Brief descriptions of their geologic history. | | |
| GEOS 112 | 4 Credits | Spring |
| Historical Geology (3+3) n | | |
| An introduction to the principles of historical geologic interpretation, the development of the geologic time scale, the stratigraphic record and its interpretation. Sedimentation and plate tectonics, the fossil record and its utilization, biostratigraphy, and the evolution of the North American continent through geologic time. Laboratory examination of fossils, interpretation of geologic maps and stratigraphic columns. Laboratory fee: \$10.00. (Prerequisites: GEOS 101 with lab (4 credits) or GEOS/GE 261.) | | |
| GEOS 120A | 1 Credit | Spring |
| Earthquakes (1+0) n | | |
| A course for the non-specialist on the causes, effects, measurements and prediction of earthquakes. Topics include the distribution of earthquakes and relation to plate tectonics, catastrophic events in historic times, size and frequency of earthquakes, man-made earthquakes and earthquake prediction and control. | | |
| GEOS 120B | 1 Credit | Spring |
| Volcanos (1+0) n | | |
| A survey course on volcanos for the non-specialist. Topics will include the type of volcanic eruptions and characteristics deposits, volcanic rocks, size and frequency of eruptions, the distribution of volcanos in relations to plate tectonics, volcanism and geothermal energy, assessment of volcanic hazards, prediction and control of eruptions. | | |
| GEOS 120C | 1 Credit | Spring |
| Glaciers: Past, Present and Future (1+0) n | | |
| The distribution of glaciers in space and time and their effects on the landscape and humans. topics include the cause of an ice age, current distribution of glaciers in relation to climate, glacial flow, glacial deposits, interaction of humans with glaciers and glacial deposits. | | |
| GEOS 212 | 3 Credits | Spring |
| Geology of Alaska (3+0) n | | |
| An overview of the geology of Alaska for non-majors. 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. (Prerequisites: GEOS 101.) | | |
| GEOS 213 | 4 Credits | Fall |
| Mineralogy (2+6) n | | |
| Introduction to mineral chemistry, atomic structure, elementary crystallography, optical crystallography and descriptive and determinative mineralogy. Includes introduction to instrumental determinative techniques (x-ray diffraction, petrographic microscope). (Prerequisites: GEOS 101 or 261; CHEM 105 and concurrent registration in MATH 107-108.) | | |

- GEOS 214 4 Credits Spring**
Petrology and Petrography (2+6) n
 Study of the origin, occurrence, and classification of igneous, sedimentary, and metamorphic rocks. Laboratory work involves hand lens identification and thin section examination of representative igneous, sedimentary and metamorphic rocks. Laboratory Fee: \$10.00. (Prerequisite: GEOS 213.)
- GEOS 261 3 Credits Spring**
General Geology for Engineers (2+3) n
 (Same as GE 261)
 Study of common rocks and minerals, landforms, erosion. Geologic materials and engineering application of geology. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)
- GEOS 262 3 Credits Alternate Fall**
Rocks and Minerals (2+3)
 Minerals and rocks in the earth; their physical properties, classification, mode of occurrence and economic applications. Role of rock materials in soil formation and fluid flow. Influence of minerals and rock properties on economic deposits and construction. Labs on recognition and measurement of physical properties. Course may not be used to satisfy degree requirements in Geology or Geological Engineering. (Prerequisites: GE/GEOS 261, GEOS 101 or equivalent. Next offered: 1990-91.)
- GEOS 304 3 Credits Fall**
Geomorphology (2+3) n
 Study of the Earth's surface features and the processes which create or modify them. Application to Quaternary history, environmental science and related fields. Laboratory examination of topographic maps and aerial photographs, introduction to geomorphic measurements. Laboratory fee: \$10.00. (Prerequisite: GEOS 101.)
- GEOS 314 4 Credits Spring**
Structural Geology (3+3) n
 Origin and interpretation of primary and secondary geologic structures. Graphical solution of structural problems. Laboratory Fee: \$10.00. (Prerequisites: GEOS 112, PHYS 103 or 211, MATH 201, GEOS 214 [or concurrent registration].)
- GEOS 321 3 Credits Alternate Fall**
Sedimentology (2+3) n
 Broad survey of sediments, including origin, classification, composition, transportation, deposition, and diagenesis. Laboratory instruction covers identification and description of hand specimens as well as techniques of textural and compositional analysis. Laboratory fee: \$10.00. (Prerequisite: GEOS 213 or permission of instructor. Next offered: 1990-91.)
- GEOS 322 4 Credits Spring**
Stratigraphy and Sedimentation (3+3) n
 Analysis of sequence in sediments including principles of litho-, bio- and chronostratigraphy and facies analysis. Surface and subsurface methods utilizing petrologic and geophysical data. Laboratory emphasizes correlation problem from geologic maps and subsurface data. (Prerequisites: GEOS 101 or GEOS 261, and GEOS 112.)
- GEOS 332 3 Credits Alternate Spring**
Ore Deposits and Structure (1+6)
 Distribution and characteristics (especially mineralogy, morphology, and structure) of major mineral deposit types with some background on structural techniques. Emphasis on application to mineral exploration and development. Laboratory exercises stress recognition of major mineral deposit types, zoning and grade patterns; and use of structural techniques in mineral deposit exploration/development. (Prerequisite: GEOS 262 or permission of instructor. Next offered: 1990-91.)
- GEOS 351 4 or 6 Credits As Demand Warrants**
Field Geology (Arranged) n
 Practical experience in the procedures employed in collecting and presenting the basic data obtained from the field. Includes field mapping of stratigraphic and structural problems on topographic maps, aerial photographs, plane table maps, and presentation of results in a professional report and finished geologic map. Students pay own transportation, subsistence and course tuition fee. Entrance by preregistration only; apply through the department. Class usually is filled to capacity by February of current year. Geophysics option students may elect to take this course for 4 credits if they also register for GEOS 451, Field Geophysics. All others must take 6 credits. (Prerequisites: junior standing in geology, GEOS 350 or equivalent and permission of instructor.)
- GEOS 370 4 Credits Alternate Spring**
Sedimentary and Structural Geology for Petroleum Engineers (3+3) n
 Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships, and structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration. (Prerequisite: GEOS 101 or GE/GEOS 261. Next offered: 1990-91.)
- GEOS 401 4 Credits Fall**
Invertebrate Paleontology (3+3) n
 Study of the invertebrate phyla with fossil records. Emphasis on soft-part anatomy and classification, followed by study of hard-part anatomy of fossil groups and their classification. Recurrent emphasis on relevant biologic principles. Laboratory study on fossil materials. (Prerequisites: GEOS 101 or by permission of instructor; BIOL 305 recommended.)
- GEOS 408 2 Credits Alternate Spring**
Photogeology (1+3) n
 Use of topographic maps, geologic maps, aerial photographs, and satellite imagery in the interpretation of geological structures, landscapes, landforms, and geomorphic processes. Techniques included are map compilation, photo mapping, statistical treatment of map data, and composite mapping for planning purposes. Laboratory fee: \$10.00 (Prerequisite: GEOS 304 or permission of instructor. Next offered: 1991-92.)
- GEOS 410 2 Credits Fall**
Potential Methods in Geophysics (1+3) n
 The fundamental theory of potential methods and the application to geophysical exploration will be studied along with the basic techniques and methods of interpretation of gravimetric and magnetic measurements. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)
- GEOS 411 3 Credits Spring**
Seismic Exploration (2+3) n
 The study of the fundamental principles of seismic exploration techniques, beginning with the basic laws of seismic wave propagation and ending with the practical application of the techniques, including both reflection and refraction methods. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)
- GEOS 412 2 Credits Fall**
Electrical Methods in Geophysics (1+3) n
 The fundamental principles of electrical resistivity and current flow in the earth and the practical application in the realm of geophysical exploration will be studied. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)
- GEOS 414 3 Credits Alternate Fall**
Introduction to Glaciology (3+0) n
 A broad survey of and introduction to glaciology including 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 processes in seasonal and perennial snow and transformation of snow to glacier ice will be examined, as well as distribution and classification of glaciers, mass balance of glaciers, glacier flow and causes of glaciation. Physical properties of and processes in frozen ground and sea ice will be studied. (Prerequisite: MATH 201 or permission of instructor. Next offered: 1991-92.)
- GEOS 417 3 Credits Fall**
Introduction to Geochemistry (3+0) n
 Introduction to chemistry of the earth. (Prerequisites: CHEM 105-106 or permission of instructor.)
- GEOS 418 3 Credits Fall**
Basic Geophysics (3+0) n
 The basic concepts and techniques of geophysics as applied on a global scale. Topics covered will include the origin of the earth, its structure, and the large scale dynamic processes responsible for its surface features. Geophysical techniques including seismology, gravity, magnetometry, and electrical methods will be discussed along with measurements of the earth's thermal structure, rotation rates, and the effects of the tides. (Prerequisite: Permission of the instructor.)
- GEOS 419 4 Credits Alternate Spring**
Continuum Mechanics (4+0) n
 Mechanics of continuous deformable media; analysis of stress and strain using tensor notation; elastic, viscous, plastic and visco-elastic constitutive laws with examples from the geophysical environment including hydrology, geology, glaciology and meteorology. (Prerequisites: PHYS 211 212 and MATH 302 or permission of instructor. Next offered: 1991-92.)

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| GEOS 420 4 Credits Elements of Seismology (3+3) n Global distribution of earthquakes; causes and effects of earthquakes with reference to Alaska; instrumentation utilization for the determination of earthquake sources and subsurface structures; introduction to the techniques used for studies of seismotectonics and earthquake prediction. (Prerequisites: Geoscience students: MATH 201; Civil Engineering students: ES 331. Next offered: 1991-92) | Alternate Fall |
| GEOS 422 3 Credits Geoscience Applications of Remote Sensing (2+3) n Introduction to the scope of remote sensing and its applications to geologic, environmental and physical sciences. Includes explanation of nomenclature, a review of types of remote sensing systems, and study of the forms in which remote sensing data is available. Emphasis placed on the use of LANDSAT, radar imagery, thermal imagery and color infrared photography. (Prerequisites: PHYS 104, 212, junior standing or consent of instructor.) | Fall |
| GEOS 430 3 Credits Statistics and Data Analysis in Geology (3+0) n An introduction to the use of the computer and statistics in geology and related sciences. The course stresses geologic applications of elementary statistics, Markov chains, time-series analysis, trend-surface analysis, factor analysis, cluster analysis, discriminant analysis, and multiple regression. (Prerequisites: MATH 200 or STAT 301; senior standing or permission of instructor.) | Spring |
| GEOS 432 3 Credits Geology of Mineral Resources (3+0) n An introduction to the occurrence and characteristics of metallic and selected non-metallic mineral deposits, geographic locations, petrologic settings, mineralogic and petrologic features, and theories of genesis, with applications to exploration and development. (Prerequisites: GEOS 214, GEOS 314, GEOS 322, GEOS 401) | Fall |
| GEOS 432L 2 Credits Geology of Mineral Resources Laboratory (1+3) n Laboratory work includes identification, characterization and systematic description of major ore types. Laboratory fee: \$10.00. (Prerequisites: GEOS 214) | Fall |
| GEOS 451 2 Credits Practical Field Geophysics n Designed to be a "hands-on" practical geophysics course involving both data acquisition and reduction. Techniques used will include gravimetric, radiometric, resistivity, magnetic, electro-magnetic and seismic. Taught concurrently with the last two weeks of GEOS 351, Field Geology. Entrance by preregistration only; apply through the department. Class usually is filled to capacity by February of current year. (Prerequisites: MATH 201, PHYS 212, and introductory exploratory geophysics, and permission of instructor.) | Summer |
| GEOS 462 4 Credits Glacial and Periglacial Geology (3+3) n An introduction to glaciers and their geological processes. The course emphasizes recognition and understanding of glacial landforms, sediments, and stratigraphic relations, and their implications for paleoclimatology, and paleogeography. Non-glacial techniques and methods for interpreting Quaternary sediments are also emphasized. Laboratory fee: \$10.00. (Prerequisite: GEOS 304. Next offered: 1991-92.) | Alternate Fall |
| GEOS 465 3 Credits Geoarchaeology (3+0) (Same as ANTH 465) The geological context of archeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day field trip planned for a weekend in late April or early May. (Prerequisites: GEOS 101, an introductory course in archeology, or permission of instructor. Next offered: 1991-92.) | Alternate Spring |
| GEOS 470 4 Credits Petroleum Geology (3+3) The study of the basic elements required for hydrocarbon accumulation: source, maturation, migration, reservoir, seal, and trap. These elements, and exploration and production practices will be illustrated using examples of oil and gas fields throughout the world. The lab will provide practical experience with the tools and techniques of surface and subsurface exploration. (Prerequisites: GEOS 314, GEOS 321, GEOS 322. Next offered: 1991-92.) | Alternate Fall |
| GEOS 482 1 Credit Geology Seminar (1+0) A weekly seminar series designed to explore a geologic theme of current interest for a complete semester. (Prerequisite: Senior or graduate standing or permission of instructor.) | Fall and Spring |
| GEOS 603 1-2 Credits Advanced Field Mapping (0+3)-(1+3) | As Demand Warrants |
| GEOS 604 3 Credits Intermediate Seismology (3+0) | Alternate Fall |
| GEOS 605 3 Credits Geochronology (3+0) | Alternate Spring |
| GEOS 606 2 Credits Volcanology (2+0) | Alternate Spring |
| GEOS 607 2 Credits Advanced Paleomagnetism (1+3) | Spring |
| GEOS 608 2-4 Credits Advanced Exploration Geophysics (2-4+0) | As Demand Warrants |
| GEOS 609 2-4 Credits Advanced Geomorphology (2-4+0-3) | Fall-Spring |
| GEOS 610 3 Credits Advanced Seismology (3+0) | Alternate Spring |
| GEOS 611 3 Credits Tectonics and Sedimentation (3+0) | Alternate Fall |
| GEOS 612 3 Credits Geologic Evolution of Alaska (3+0) | Alternate Fall |
| GEOS 613 3 Credits Global Tectonics (3+0) | Alternate Spring |
| GEOS 615 3 Credits Sea Ice (3+0) | Fall |
| GEOS 616 3 Credits Permafrost (3+0) | Alternate Spring |
| GEOS 617 3 Credits Glaciers (3+0) | Alternate Fall |
| GEOS 621 3-4 Credits Advanced Petrology (2-3+3-6) | Fall-Spring |
| GEOS 622 4 Credits Advanced Clastic Petrology (3+3) | As Demand Warrants |
| GEOS 625 3 Credits Mountain Belts of the World (3+0) | Alternate Fall |
| GEOS 631 3 Credits Advanced Geochemistry (1-3+0) | Alternate Spring |
| GEOS 632 4 Credits Advanced Study of Mineral Deposits (3+3) | As Demand Warrants |
| GEOS 635 1-4 Credits Advanced Economic Geology (1-4+0-3) | As Demand Warrants |
| GEOS 636 2 Credits Scientific Methods, Strategies and Tools in Geology (2+0) | Fall |
| GEOS 640 4 Credits Petrology of Carbonate Rocks (3+3) | Alternate Spring |
| GEOS 641 1-3 Credits Advanced Paleontology (1-3+0) | As Demand Warrants |
| GEOS 643 3 Credits Sandstone Depositional Environments (3+0) | Alternate Fall |
| GEOS 644 3 Credits Advanced Stratigraphy (3+0) | Alternate Spring |
| GEOS 645 3 Credits Advanced Carbonate Sedimentology (3+0 or 2+3) | Alternate Fall |
| GEOS 646 3 Credits Seismic Stratigraphy (2+3) | As Demand Warrants |
| GEOS 647 3 Credits Advanced Sedimentology (3+0) | As Demand Warrants |
| GEOS 649 3 Credits Geomorphology of the Unglaciated Arctic and Subarctic (3+0) | Alternate Spring |
| GEOS 650 3 Credits Paleoecology of Beringia (3+0) | Alternate Fall |

German

For information on studying in Europe, see Study Abroad.

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| GER 075 3 Credits | As Demand Warrants |
| 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 | As Demand Warrants |

communicative competence in the language. (Prerequisite: GER 075 for 076.)

GER 101 5 Credits **Fall**
GER 102 5 Credits **Spring**

Elementary German I and II (5+0) h

Introduction to the language and culture; development of competence and performance in the language through understanding, recognition, and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 1,000 words, exploration of the cultural dimension, implicitly through language, and explicitly through texts and audio-visual materials; use of Foreign Language Learning Center.

GER 201 3 Credits **Fall**
GER 202 3 Credits **Spring**

Intermediate German I and II (3+0) h

Continuation of GER 102. Increasing emphasis on reading ability and cultural material. Conducted in German. (Prerequisite: GER 102 or equivalent.)

GER 288 2 Credits **Spring**

Individual Study: Reading German h

Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures, development of true reading skill, modern literary and/or non-literary texts. (Prerequisites: GER 201, equivalent training or permission of instructor. Recommended to be taken concurrently with GER 202.)

GER 301 3 Credits **Alternate Fall**
GER 303 3 Credits **Alternate Fall**

Advanced German (3+0) h

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in German. (Prerequisite: GER 202 or equivalent. GER 301 next offered: 1991-92; GER 303: 1990-91.)

GER 387 2 Credits **Fall**

Individual Study: Semantics h

Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. Conducted in German. (Prerequisites: GER 202 or permission of instructor.)

GER 432 3 Credits **Alternate Spring**

Studies in German Literature and Culture (3+0) h

Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in German. Student may repeat course for credit when topics vary. (Prerequisites: GER 301 or 303 or equivalent and at least sophomore standing, or permission of instructor. Next offered: 1991-92.)

GER 487 2 Credits **Alternate Fall**

Individual Study: Translation of German Texts h

Expansion of vocabulary and grammatical knowledge, emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language; and literary and non-literary texts. Student may repeat course for credit if material varies. Conducted in German. (Prerequisites: GER 301 or 303 or equivalent and at least sophomore standing, or permission of instructor. Next offered: 1991-92.)

GER 488 3 Credits **As Demand Warrants**

Individual Study: Senior Project h

Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 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 120 1 Credit **As Demand Warrants**

Industrial First Aid (1+0)

This course 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

An introductory course in which the principles of nutrition and how they relate to the life cycle are studied. The effect this course has upon the student's thinking relative to nutrition and upon the student's dietary habits is an important outcome. A desired objective is improvement, where needed, in the student's nutritional status.

HLTH 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 101 3 Credits **Fall**

Western Civilization (3+0) s

The origins and major political, economic, social, and intellectual developments of western civilization to 1500. Also available via Independent Learning.

HIST 102 3 Credits **Spring**

Western Civilization (3+0) s

Major political, economic, social, and intellectual developments of western civilization since 1500. Also available via Independent Learning.

HIST 103 3 Credits **As Demand Warrants**

History of the Yukon-Kuskokwim Delta (3+0)

This course covers the history of the Yukon-Kuskokwim Delta beginning with oral traditions about the creation of the area, and ending with the passage of the Alaska Native Land Claims Act in 1971. The course concentrates on Yup'ik social, economic, and educational changes that have occurred, including both native and non-native accounts of these changes. Offered only at the Kuskokwim Campus.

HIST 105 1 Credit **As Demand Warrants**

Introduction to the History and Culture of the Seward Peninsula (1+0)

(Same as ANTH 205)

This course introduces the student to the cultural history of the people who have lived on or near the Seward Peninsula for the last 10,000 years. Information is presented from the disciplines of physical anthropology, ethnography, ethnohistory, linguistics, archaeology, social anthropology, ecology, and climatology. Through lectures, discussions, readings films, guest speakers, and examination of Eskimo artifacts, students gain a basic familiarity with the several Eskimo and Euro-American cultures which have existed in western Alaska.

HIST 110 3 Credits **Fall and Spring**

History of Alaska Natives (3+0) s

The history of Alaska Natives from contact to the signing of the Claims Settlement Act.

HIST 115 3 Credits **Spring**

Alaska, Land and Its People (3+0) s

A survey of Alaska from earliest days to present, its peoples, problems, and prospects. Also available via Independent Learning.

HIST 121 3 Credits **Alternate Fall**

East Asian Civilization (3+0) s

Origin and development of the civilizations of China, Japan and Korea from the beginning to 1800, with emphasis on traditional social, political, and cultural institutions. (Next offered: 1991-92.)

HIST 122 3 Credits **Alternate Spring**

East Asian Civilization (3+0) s

East Asia from 1800 to the present with emphasis on patterns of social cohesion, transition, and revolutionary change. (Next offered: 1991-92.)

HIST 123 3 Credits **As Demand Warrants**

Japan: The Changing Tradition (3+0)

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 200 3 Credits As Demand Warrants**Heritage of Alaska Natives (3+0)**

Students will acquire a basic understanding of Alaska Native cultures through readings and lectures and research. The class will explore kinship systems, world views, social organizations, etc., throughout the course. The course will cover pre-contact days to the present including a surface look at the results of the Native Land Claims Act.

HIST 201 3 Credits As Demand Warrants**History of the Bering Straits (3+0) s**

This course covers the multi-faceted history of this region, including prehistory, exploration and permanent settlement, in addition to material culture, religion, education and other topics. This class will focus on the means by which factors in each of these areas have influenced the development of the region as it exists today. Analysis of the perceptions of others as they appear in writings about the region are an integral part of the class.

HIST 221 3 Credits Alternate Fall**HIST 222 3 Credits Alternate Spring****English History (3+0) s**

Fall semester: pre-Roman Britain to the end of the Puritan Revolution, emphasizing constitutional developments. Spring semester: from the restoration of 1660 to the present, emphasizing social and economic developments. (Next offered: 1990-91)

HIST 244 3 Credits As Demand Warrants**Movies: Mirror of the World (3+0)**

An introduction to 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)**

This is a course in Alaskan history with a strong local focus. Students will begin by studying the history of their region and then concentrate on their community. assignments are designed to introduce the local historian to a variety of resources and research methods including exploration accounts, oral history, education reports, census studies, newspapers, etc. A final project of original research is 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)**

A general investigation into Gold Rush Era of 1880-1905 in Alaska and the Yukon. The major emphasis will be on the Klondike, but Juneau, Nome and Fairbanks will also be investigated. Both fact and fiction will be 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: 1991-92.)

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: 1991-92.)

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: 1990-91.)

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: 1991-92.)

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 Scandinavian parliamentary democracy and welfare systems, Scandinavian cooperation and neutrality, and Scandinavia's experience in the world wars. (Prerequisites: HIST 101 or 102, or permission of the instructor. Next offered: 1991-92.)

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: 1991-92.)

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: 1991-92.)

HIST 340 3 Credits Fall**Russian Eastward Expansion (3+0)**

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, HIST 102 or permission of instructor.)

HIST 341 3 Credits Fall**History of Alaska (3+0) s**

Alaska from prehistoric times to the present. Research methodology and use of archival resources relating to Alaska's past. Also available via Independent Learning. (Prerequisite: Junior standing.)

HIST 344 3 Credits Spring**Modern Russia (3+0) s**

Origin and development of modern Russia from the nineteenth century to the present: the development of the Soviet Union and Soviet government, stages of economic development, and Soviet foreign policy. (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: 1991-92.)

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: 1991-92.)

HIST 355 3 Credits Alternate Spring**Canadian History: 1867 to Present (3+0)**

The political, social, and economical development of Canada from Confederation to the present. (Next offered: 1991-92.)

HIST 375 3 Credits Alternate Fall**History of the Northern Pacific (3+0) s**

The historical 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: 1991-92.)

HIST 380 3 Credits Alternate Spring**Polar Exploration and its Literature (3+0) s**

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: 1991-92.)

HIST 382 3 Credits Alternate Spring**History of Circumpolar Research (3+0) s****(Same as LS 382)**

Explores the systematic development of knowledge of the circumpolar northern regions in all fields. Studies the history of arctic and sub-arctic sciences such as geological, biological and atmospheric sciences and the study of people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology as well as research in education, government and law are covered. The literature and source material for a study of these fields will be analyzed. (Prerequisite: HIST 110 or 115 or ANTH 242 or BIOL 104 or permission of instructor. Next offered: 1991-92.)

HIST 384 3 Credits Alternate Fall**20th Century Circumpolar History (3+0)**

A comparative history of the circumpolar north, including Alaska, Siberia, Scandinavia, Greenland and Canada. The course will focus on the major 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: 1991-92.)

HIST 401 3 Credits Alternate Fall
Renaissance and Reformation Europe (3+0) s
 Political, economic, and intellectual developments during the 15th and 16th centuries in Europe. (Prerequisites: HIST 101 or 102 and junior standing, or permission of instructor. Next offered: 1991-92.)

HIST 402 3 Credits Alternate Fall
Seventeenth and Eighteenth Century Europe (3+0) s
 Political, social, economic, and cultural developments during the 17th and 18th centuries in Europe. (Prerequisites: HIST 101 or 102 and junior standing, or permission of instructor. Next offered: 1990-91.)

HIST 405 3 Credits Alternate Fall
Modern Germany (3+0) s
 1848 to present: Unification, the Second Empire, WWI, the Weimar Republic, National Socialism, WWII, the Holocaust, and the creation of two post-war German states with different societies. Emphasis on political, social and economic developments. (Prerequisite: HIST 101 or 102. Next offered: 1989-90)

HIST 420 3 Credits Alternate Spring
Approaches to Women's History (3+0) s
 A theoretical and topical approach to the study of the history of women: the role of women in politics, the economy, the family, wartime, the influence of industrialization, and changing social structures on women. (Prerequisites: HIST 102, 132, or permission of the instructor. Next offered: 1990-91.)

HIST 430 3 Credits Alternate Fall
American Colonial History (3+0) s
 Early 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: 1991-92.)

HIST 435 3 Credits Alternate Spring
Civil War and Reconstruction (3+0) s
 Political, economic, social and diplomatic history of 1860-77, disruption and re-establishment of the Union. (Prerequisites: HIST 131, 132 or permission of instructor. Next offered: 1991-92.)

HIST 440 3 Credits Alternate Fall
U.S. Westward Expansion 1763-1867 (3+0) s
 Westward expansion and acquisition of territory, admission of new states, development of land policy, treatment of native people. (Prerequisites: HIST 131 or permission of instructor. Next offered: 1991-92.)

HIST 441 3 Credits Alternate Spring
The Development of the American and Canadian West 1867-Present (3+0) s
 Building of transcontinental railroads and plains settlement in U.S. and Canada and Klondike gold rush. Theories of frontier development, statehood movements and views of the West as a 'colonial' region in the 20th century. (Prerequisite: HIST 132 or HIST 440 or permission of instructor.)

HIST 442 3 Credits Independent Learning Only
History of the American Military (s)
 A history of the military's place in American life and society from the Colonial era to the early 1980's. Historically, the military has been and remains one of the nation's most important institutions. It has shaped the nature of American society while reflecting the character of the society it serves.

HIST 450 3 Credits Alternate Spring
Twentieth Century America (3+0) s
 United States from the progressive movement to the present day, with emphasis on domestic developments. (Prerequisites: HIST 131, 132 or permission of instructor. Next offered: 1991-92.)

HIST 451 3Credits Independent Learning Only
History of U.S. Foreign Policy (s)
 Analysis of the evolution of U.S. foreign policy with emphasis on the post-World War II period and the emergence of a bipolar distribution of power. Includes major discussion of the Vietnam War, American policy in the Middle East, and the foreign policy views of the Kennedy, Nixon, Carter and Reagan administrations. (Prerequisite: Junior standing or permission of the instructor.)

HIST 455 3 Credits Alternate Fall
Military History (3+0) s
 Warfare from classical times to the present: the interrelationships of warfare and society, the role of technology and the development of tactics and strategy. (Prerequisites: Junior standing or permission of instructor. Next offered: 1991-92.)

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 475 3 Credits Fall
HIST 476 3 Credits Spring
Historiography and Historical Method (3+0) s
 A two-semester sequence given as a tutorial for each student. The first semester is devoted to a comparison of the historical treatment of a particular subject by different historians. Three short papers are required. In the second semester the student writes a lengthy research paper on a topic of his or her own choosing. (Those students needing only 3 credits of HIST 475-476 will do the work outlined for the first semester. This can be done either the fall or the spring term.) (Prerequisite: Senior standing or permission of instructor.)

HIST 490 3 Credits Alternate Spring
Researching and Writing Academic and Public Northern History (3+0) s
 The practical aspects of publication and problem solving in public history. Research will familiarize students with source materials in both the Archives and governmental agencies. (Prerequisite: HIST 475. Next offered 1991-92.)

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 will be explored. These will be 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)
 The purpose of this course is to acquaint students with the various social programs and human services which constitute society's organized response to social problems. Federal programs authorized by the Social Security Act and other legislation are presented, and various community services are described, including those directed at child welfare, alcohol and drug abuse, mental health, juvenile delinquency, and discrimination. Local human service agencies are discussed, as well as regional offices located in the rural areas. (Prerequisites: 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 will be presented to demonstrate the way the normal healthy state may be disrupted by external or internal influences. The natural histories of major types of disease will be reviewed.

HMSV 210 3 Credits Alternate Fall
Crisis Intervention (3+0)
 An examination of theoretical foundations and appropriate techniques and strategies to deal with individuals, families, and groups during stressful situations. Application of the crisis approach is made in several categories of 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: 1990-91.)

HMSV 215 3 Credits As Demand Warrants
Death and Dying (3+0)s
 An interdisciplinary study of thanatology which presents material from multicultural, humanistic and life span perspectives. Readings and discussions will include material from areas such as 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)
 Introduction to basic knowledge and skills needed to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management are considered and discussed.

HMSV 230 3 Credits As Demand Warrants
Alcoholism: Causes and Consequences (3+0)
 An examination of the theories concerning the causes of alcoholism to include physical and psychological factors, such as personality disorders or disease states. Data supporting these theories will be evaluated. (Prerequisites: SOC 101 or PSY 101 or permission of instructor.)

HMSV 255 3 Credits Fall
Foundations of Counseling I (3+0)
 (Same as PSY 255)
 A survey of counseling philosophy and the various types of counseling systems that are used in most settings. An examination of the appropriate approach and system match will be undertaken so that the student will be able to make intelligent decisions concerning which approach to use. Some of the approaches examined will be psychoanalysis, behavior therapy, and humanistic approaches. Offshoots of these approaches will also be surveyed if they are in fairly wide use. Counseling ethics will be studied and ethical problems illustrated and discussed. (Prerequisites: PSY 101, PSY 240 or permission of instructor.)

HMSV 284 Variable Credits As Demand Warrants
Human Services Seminar
 Identification and discussion of issues relevant to the human services field. Specific topics to be announced. (Prerequisite: Permission of instructor.)

HMSV 330 3 Credits As Demand Warrants
Alcoholism: Treatment and Prevention (3+0)
 A survey and evaluation of treatment and prevention attempts in dealing with alcoholism and alcohol abuse with emphasis placed on prevention strategies. (Prerequisites: HMSV 230.)

HMSV 356 3 Credits Spring
Foundations of Counseling II (3+0)
 (Same as PSY 356)
 Continuation of HMSV 255 — Foundations of Counseling I. Specific counseling strategies will be studied in-depth such as crisis intervention, individual techniques such as the rational therapies and specific behavioral approaches. The role of the counselor in community education and consultation will be explored as will methods of promoting community change. Issues in cross-cultural counseling will be studied to include those likely to be encountered in Alaska. (Prerequisite: HMSV 255 or PSY 355.)

HMSV 410 3 Credits As Demand Warrants
Management of Human Services Programs (3+0)
 Human service personnel at the baccalaureate level are often required to supervise associates or aides with less training. In rural areas such personnel may also assume responsibilities for program development and management. This course is designed to prepare students for supervisory and managerial tasks at a beginning level. It is anticipated that additional in-service training would be made available to provide techniques that are agency-specific. (Prerequisites: HMSV 255.)

HMSV 415 3 Credits As Demand Warrants
Group Processes (3+0)
 An examination of various group types to include problem solving/task-oriented groups; encounter groups; therapy groups; career guidance groups; and assertive training groups. Different theoretical orientations to groups counseling will also be discussed. (Prerequisites: HMSV 255 and HMSV 356.)

HMSV 445 3 Credits Fall
Community Psychology (3+0)
 (Same as PSY 445)
 An examination of community psychology foundations to include community assessment consultation as edited in psychology. Topics covered during the community assessment include identification of areas for study, surveys, evaluation of services, and use of results for programming. During the community consultation portion, education, prevention, and service issues are covered. Particular attention will be given to rural and small community assessment and change especially as it applies to Alaska. (Prerequisites: PSY 101, SOC 101 and HMSV 201.)

HMSV 488 3-6 Credits As Demand Warrants
Practicum in Human Services
 This course teaches the student skills with which to work in a human service agency either concurrently with an agency placement or prior to placement. Skills covered include interviewing, assessment, facilitating, intervening, and in general, case management. Students will be meeting with an instructor from the Department weekly to learn counseling skills through use of instruction, role-playing, video tapes, and various types of feedback. In addition, an instructor will be appointed by the university from the agency for practicum supervision of the student. (Prerequisites: HMSV 255. Student must be a major in the program.)

Humanities

HUM 101 3 Credits As Demand Warrants
The Humanities: A Cultural Perspective (3+0)
 This course examines the humanities using both Western Civilization and the Yup'ik cultures as bases. It introduces fundamental principles of the performing and visual arts as displayed in Yup'ik and Non-Yup'ik art forms. It acquaints the student with ideas and cultural developments that have stirred and enriched civilization. It considers various aspects of Yup'ik and Western Culture to help students develop greater awareness of forces that affect them.

HUM 131 3 Credits As Demand Warrants
Introduction to Alaska Literature (3+0)
 The course has two aims: to provide an introduction to literature, poetry and drama; and to increase the student's appreciation of Alaskan literature written by both natives and non-Natives. Students will read examples from oral Native tradition, the frontier era, and meet the contemporary living writers by audioconference.

HUM 161 3 Credits As Demand Warrants
In Our Own Image (3+0)
 Focuses on some 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 the scientific rudiments, methods, and principles as they emerged from 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: Aesthetics, Criticism, History (3+0) h
 This course examines the roles played by the city and the wilderness in contemporary imagination. The movies and books will introduce students to thought on the subject and teach them the skills of movie reviewing.

HUM 241 3 Credits As Demand Warrants
HUM 242 3 Credits As Demand Warrants
Eskimo and World Literature (3+0)
 These courses examine the literature of the Eskimo peoples as well as that of other Native North Americans, Asians, and Europeans. Universal and timely themes are found and compared which communicate aspects of the human experience which are valid across cultures and across times. HUM 241 is not prerequisite to HUM 242.

HUM 329 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: 1991-92.)

HUM 332 3 Credits Alternate Spring
Varieties of Visual Expression: Art as Image and Idea (3+0) h
 Discussion of the visual elements of art, principles of visual organization, the process of artistic perception and its evaluation by the viewer. (Prerequisites: 3 credits in the visual arts or permission of instructor. Next offered: 1991-92.)

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. (Prerequisites: MUS 123 or 124, or permission of instructor. Next offered: 1991-92.)

HUM 411 3 Credits Alternate Fall
Dimensions of Literature (3+0) h
 Systematic discussion of the medium of literary creation, of the organization of literary texts and the functions of literature. (Prerequisites: 6 credits in literature courses, or permission of the instructor. Next offered: 1991-92.)

HUM 492 3 Credits Alternate Spring
Senior Seminar (3+0) h
 Report by the instructor on the state of the humanities at the University of Alaska and on alternate approaches elsewhere. Oral presentation and defense by the student, of their humanities project paper. (Prerequisites: Open requirements, or by permission of the instructor. Next offered 1991-92.)

Japanese

For information on studying in Japan, see Study Abroad.

JPN 101 5 Credits Fall
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. The cultural dimension will be explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese.

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 will be enhanced through the use of videotape materials. Courses are taught in Japanese. (Prerequisite: JPN 102 or equivalent.)

JPN 301 3 Credits Fall
JPN 302 3 Credits Spring
Advanced Japanese (3+0)h
 These courses serve to develop advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics. (Prerequisites: JPN 202 or equivalent.)

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 will be 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. (Prerequisites: Junior standing or consent of instructor. Next offered: 1991-92.)

JPN 333 3 Credits Alternate Spring
Twentieth Century Japanese Prose Fiction (3+0)h
 A study of selected novels, short stories, and film scripts in translation representative of styles and themes which characterize twentieth century Japanese literature. Class discussion will invite a close 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. (Prerequisites: Junior standing or consent of instructor. Next offered: 1990-91.)

Journalism — Broadcasting

JB 101 3 Credits Fall and Spring
Introduction to Mass Communications (3+0) h
 History and principles of mass communications and the role of information media in American society. Introduction to professional aspects of mass communications, including print and broadcast. Also available via Independent Learning.

JB 102 3 Credits Fall and Spring
Introduction to Broadcasting (3+0) h
 Principles of broadcasting as they relate to the people of the United States, including history, government involvement, and social effects.

JB 203 3 Credits Fall and 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. Black and white darkroom procedures including film processing and printing. Design and composition as they apply to photography. Students who enroll must have use of an adjustable camera. Laboratory fee: \$40.00. (Course may not be used to meet major or minor requirements in Journalism-Broadcasting.)

JB 204 3 Credits Fall and Spring
Basic Photojournalism (2+3)h
 Photographic communications including use of an adjustable camera, film developing and printmaking, flash and design elements applied to visual communications. Students will make candid photos of people involved in news events and learn how to document news visually. Course emphasizes preparation of pictures for publication. Students who enroll must have the use of an adjustable camera. Laboratory fee: \$40.00.

JB 215 3 Credits Fall and 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: \$10.00.

JB 217 3 Credits Spring
Introduction to the Study of Film (2+2) h
 (Same as ENGL 217)
 A broad historical survey of cinematic art with emphasis on its humanistic and artistic aspects. (Prerequisite: ENGL 111.)

JB 240 3 Credits Spring
International Communications (3+0) h
 Historical development of different mass communication systems around the globe. The relationship between press philosophies and their practical implementation. Mass communication systems of selected countries as representative examples of generalized systems.

JB 301 4 Credits Fall and Spring
Basic Newsgathering and Processing (2+4) h
 News reporting, writing, and editing, including news evaluation and news story structure, editing copy, writing headlines and captions, and cropping and sizing of pictures. Laboratory fee: \$10.00. (Prerequisites: ENGL 111 and ENGL 211, 213, or 311, junior standing, or permission of instructor.)

JB 303 3 Credits Spring
Intermediate Photography (2+3)h
 Continuation of JB 203 and JB 204 with emphasis on the picture story and freelance photography. Laboratory fee: \$40.00. (Prerequisite: JB 203, JB 204 or permission of instructor.)

JB 311 3 Credits Fall and Spring
Magazine Article Writing (2+1)h
 Writing articles for publication. Students repeating the course limited to six credits. (Prerequisites: JB 301 or permission of instructor.)

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. (Prerequisites: JB 215 or permission of instructor.)

JB 317 3 Credits Spring
Broadcast Journalism (3+0)
 Preparation of announcements, commercials, interviews, music continuity, special events programs, documentaries, commentaries, news, and other basic broadcast continuity. Administrative aspects included. (Prerequisite: JB 301, or permission of instructor.)

- JB 320 3 Credits Spring**
Journalism in Perspective (3+0) h
 Present problems and trends in mass communication with emphasis on historical development, including survey of world press coverage and problems. (Prerequisite: Junior standing.)
- JB 323 3 Credits Fall**
Publication Editing (3+0)
 Publication management and editing: content selection, design, editorial responsibility, and economics of publishing. (Prerequisite: Junior standing.)
- JB 324 3 Credits Spring**
Typography and Publication Design (2+2)
 Typography, layout, and design, coupled with a study of the methods of printing production. Materials fee: \$20.00. (Prerequisite: Permission of instructor.)
- JB 326 3 Credits Spring**
Principles of Advertising (3+0)
 (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
 Development of mass communication theory and research in the U.S. in the twentieth century. Relationship between theoretical assumptions and concerns of investigators, questions posed, methodological frameworks adopted, findings reached, and integration of new knowledge into the existing corpus.
- JB 372 3 Credits Alternate Fall**
Methods of Instructional Broadcasting (3+0)
 Studio practices and procedures for producing instructional programs. Underlying educational philosophy and actual in-studio practice. Materials fee: \$40.00. (Prerequisite: JB 215 or permission of instructor. Next offered: 1991-92.)
- JB 400 3 Credits Fall and Spring**
Advanced Media Practicum (1+6)
 Practical training in print or electronic communication. Participation at an approved publication or broadcast station required. (Prerequisite: Permission of instructor.)
- JB 402 3 Credits Fall**
Advanced Photography (2+3)
 Special techniques in publications photography. Student concentrates on one or more areas: special lighting, special effects, freelance photography, studio photography, sports, color photography, etc. Laboratory fee: \$40.00. (Prerequisite: JB 303.)
- JB 407 3 Credits Spring**
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.)
- JB 411 3 Credits Fall and Spring**
Advanced Writing for Publication (3+0)h
 Writing advanced prose for publication in books or magazines. May be repeated for credit with permission of instructor. (Prerequisite: JB 311, or permission of instructor.)
- JB 413 3 Credits Fall**
Mass Media Law and Regulation (3+0)s
 Common law, statutory law and administrative law that affects the mass media, including libel, copyright, access to the media, constitutional problems, privacy, shield laws, and broadcast regulations. (Prerequisite: JB 301, or permission of instructor.)
- JB 415 3 Credits Fall**
News/Documentary Television Production (2+2)
 Electronic news gathering, electronic field production using remote videotape equipment. Develop skills in scriptwriting, budgets, location sound recording, interview techniques, editing, videography, and other aspects of field production. Materials fee: \$40.00. (Prerequisites: JB 204 and JB 215.)
- JB 416 3 Credits Alternate Fall**
Advanced Broadcast Production (1+6)
 Advanced broadcast production in either TV or radio. Each student produces, directs, and writes productions of a quality to air on either KUAC-TV or KUAC-FM. Students repeating the course limited to a total of six credits. Materials fee: \$40.00. (Prerequisites: JB 215, JB 316, or permission of instructor. Next offered: 1991-92.)

- JB 424 3 Credits Spring**
Magazine Production (2+3)
 Magazine publication experience, including writing, photography, editing, design, layout, advertising, and circulation. Students edit and produce *Alaska Today* magazine, under journalism faculty supervision. Materials fee: \$20.00. (Admission by arrangement; editorial positions open to students who have completed JB 323.)
- 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. (Prerequisites: JB 301 or permission of instructor.)
- JB 444 4 Credits Fall and Spring**
Advanced Newsgathering and Processing (2+4)h
 Advanced reporting, writing and editing of news with emphasis on public affairs. Develops sophisticated skills in copy editing, headline writing, news judgment and positioning, page layout and use of pictures. Laboratory fee: \$10.00. (Prerequisites: JB 301, junior standing, or permission of instructor.)

Justice

- JUST 110 3 Credits Fall and 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 221 3 Credits Spring**
Justice Organization and Management (3+0)
 Survey of organizational structure and management styles of criminal justice agencies. Includes application and critique of major theoretical models.
- JUST 222 3 Credits 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.)
- JUST 250 3 Credits Fall**
Origins of Law (3+0) s
 (Same as PS 250)
 The study of the historical, social, cultural, intellectual and political origins of the legal system, legal culture and laws of the U.S. Includes discussion of schools of jurisprudence and legal interpretation; the development of common and colonial law through constitutional interpretation; the role of legal profession; and selected current legal practices and issues.
- JUST 251 3 Credits Spring**
Criminology (3+0) s
 The study of the major areas of deviant behavior and its relationships to society, law, and law enforcement, including the theories of crime causation. (Prerequisites: SOC 101.)
- JUST 258 3 Credits Alternate Fall**
Juveniles and the Law (3+0) s
 Survey of the structure and process of the juvenile justice system and the major theories of juvenile delinquency. (Next offered: 1991-92.)
- JUST 259 3 Credits Alternate Spring**
Introduction to Public Administration (3+0) s
 (Same as PS 212)
 Theories and practices of public administration, especially as applied to federal agencies. Study of organization planning, and decision making in implementing public policy. (Next offered: 1990-91.)
- JUST 303 3 Credits Fall**
Introduction to Legal Processes (3+0)
 (Same as PS 303)
 The purpose and functions of law in society, with a focus on legal reasoning and decisionmaking in civil cases. (Prerequisites: PS 101, JUST 110.)
- JUST 310 3 Credits 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 251 or permission of instructor.)

- JUST 320 Variable Credit** **Fall and Spring**
Practicum
 A research oriented course 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, JUST 110.)
- JUST 340 3 Credits** **Spring**
Rural Justice in Alaska (3+0)s
 A comparison of the justice system of the dominant society with the traditional forms of justice found in the villages in Alaska. Emphasis will be on comparing the tribal councils as a legislative body to the state legislative process and on comparing tribal courts to the state and federal systems. Overlapping and conflicting areas will be examined. (Prerequisites: JUST 110 plus six hours Justice courses and junior standing.)
- 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)
 The methods of legal research and preparation of legal materials, to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101, JUST 110, JUST/PS 303.)
- JUST 452 3 Credits** **Spring**
Comparative Criminal Justice (3+0) s
 The study of crime problems, legal systems and the organization and performance of criminal justice agencies (police, courts, corrections, juvenile) in selected democratic, socialist and developing countries. Includes England, Soviet Union, China and Japan, selected developing countries. (Prerequisites: JUST 110 of PS 201 or PS 202 or permission of instructor.)
- 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, JUST 251, or senior standing.)
- JUST 475 3-9 Credits** **Fall and Spring**
Internship
 On site experience in criminal justice agencies. (Prerequisite: Permission of director of intern program. Note: department approval required for 9 credits.)
- JUST 492 Variable Credit** **Fall and Spring**
Seminar
 Various topics of current interest and importance to the justice major will be presented. Topics will be announced prior to each offering. (Prerequisites: JUST 110, senior standing or permission of instructor.)

Korean

For information on studying in Korea, see Study Abroad.

- KORE 101 3 Credits** **Fall**
KORE 102 3 Credits **Spring**
Elementary Korean I and II (3+0) 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** **Fall**
KORE 202 3 Credits **Spring**
Intermediate Korean I and II (3+0) h
 Continuation of KORE 102. Increasing emphasis on reading ability and culture material. Conducted in Korean. (Prerequisite: KORE 102 or equivalent.)

- KORE 232 3 Credits** **Alternate Spring**
Korean Culture (3+0)h
 An overview of Korean cultural traditions as revealed in the life styles, ways of thinking, literature, and arts. Lecture on paintings, architecture, shamanist rituals, and performing arts will be accompanied by video tapes and films. (Next offered: 1990-91.)

Library Science

- LS 100 1 Credit** **Fall and Spring**
Library and Information Strategies (1+0)
 An introductory course intended for students who do not have direct physical access to the Rasmuson Library. It will cover the principles of information organization and how libraries can provide access to information and scholarly resources. Emphasis will be on use of a library via distance delivery methods.
- LS 101 1 Credit** **Fall and Spring**
Library Skills (0+0)
 An independent study course in college library skills and some resources and facilities common to academic libraries in general and to the Rasmuson Library in particular. After one introductory class meeting no further class sessions are held; the student works at his individual rate and on his own time schedule.
- LS 307 1 Credit** **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 literatures 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 the semester before or during which the student takes an upper division course requiring a term paper. Course may be repeated when there is a change in discipline. (Prerequisite: Junior standing in specific discipline or permission of the instructor. LS 101 recommended.)
- LS 382 3 Credits** **Alternate Spring**
History of Circumpolar Research (3+0) s
 (Same as HIST 382)
 Explores the systematic development of knowledge of the circumpolar northern regions in all fields. Studies the history of arctic and sub-arctic sciences such as geological, biological and atmospheric sciences and the study of people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology as well as research in education, government and law are covered. The literature and source material for a study of these fields will be analyzed. (Prerequisite: HIST 110 or 115 or ANTH 242 or BIOL 104 or permission of the instructor. Next offered: 1991-92.)

Linguistics

- LING 101 3 Credits** **Fall**
Nature of Language (3+0) 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 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)
 This course is an introduction to second language teaching methods, using English as a Second Language (ESL) and Standard English as a Second Dialect (SESD) for the examples. The class covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affect they have on how we teach. The different roles of the second language teacher and their appropriateness is covered. Several specific language teaching methods, techniques and activities consistent with these methods, and adaptation of these methods to the needs of western Alaskan classrooms is also presented. (Prerequisite: Classroom experience.)

- LING 216 3 Credits** Alternate Fall
Languages of the World (3+0) h
 A comprehensive survey of the world's languages — both past and present. Topics to be covered include genetic relationships among languages, linguistic change, language universals, language classification, and language families, as well as the interaction of culture and language. (Next offered: 1991-92.)
- LING 303 3 Credits** As Demand Warrants
Language and Literacy Development (3+0)
 (Same as ED 303)
 Principles, procedures, and materials for enhancing the language development of young children. (Prerequisite: PSY 240.)
- LING 318 3 Credits** Alternate Spring
Introduction to Phonetics and Phonology (3+0)
 An introduction to scientific study of human speech sounds, the mechanism of their production, and the sound systems of languages. (Prerequisites: Upper division standing or permission of instructor. Next offered: 1991-92.)
- LING 320 3 Credits** Alternate Spring
Intro. to Syntactic Theory (3+0) h
 An introduction to the study of the principles and processes of sentence construction in language. (Prerequisites: LING 101 or its equivalent, at least junior standing or permission of the instructor. Next offered: 1991-92.)
- LING 340 3 Credits** Every Third Spring
Aspects of Bilingualism (3+0)h
 Cognitive, linguistic, sociopolitical, and educational aspects of bilingualism at both the individual and societal levels, including factors contributing to language maintenance and language shift. (Prerequisite: LING 101 or permission of instructor. Next offered: 1990-91.)
- LING 350 3 Credits** Alternate Fall
Historical Linguistics (3+0)
 Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages. (Prerequisite: LING 318. Next offered: 1991-92.)
- LING 410 3 Credits** Alternate Fall
Theory and Methods of Second Language Teaching (3+0)
 Theory and practice of teaching a second language, including methodological approaches, second language acquisition theory, materials, and testing. (Next offered: 1991-92.)
- LING 420 3 Credits** Every Third Spring
Semantics (3+0)h
 A systematic exploration of the nature of meaning in human language. Focus is on historical and contemporary approaches to understanding problems of reference, categorization, and lexical relationships in meaningful contexts. (Prerequisite: LING 101 or permission of instructor. Next offered: 1991-92.)
- LING 450 3 Credits** Every Third Spring
Language Policy and Planning (3+0)
 Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance. (Next offered: 1990-91.)
- LING 482 3 Credits** Every Third Year
Seminar in Linguistics (3+0)
 Current issues in various subfields of linguistics including semantics and pragmatics, discourse analysis, bilingualism, lexicography, language philosophy, and issues within a particular language or language group, e.g. Eskimo phonology, Athabaskan morphology. May be repeated once. (Next offered: 1990-91.)

Marine Science and Limnology

- MSL 111 3 Credits** Juneau Alternate Fall
The Oceans (3+0) n Fairbanks Spring
 An introductory examination of the classic disciplines of ocean science beginning with important definitions and a general history of oceanography. Emphasis is on descriptive biological, physical, chemical and geological marine science. Additional topics of special interest including scuba, demonstrations of marine research instrumentation, and films of current oceanographic topics such as coastal upwelling and polar oceanography will supplement the lecture. (Next offered Juneau: 1991-92.)

- MSL 411 3 Credits** Juneau As Demand Warrants
Current Topics in Oceanographic Research (3+0) Fairbanks Alternate Fall
 Study of current oceanographic research problems from biology, chemistry, geology and physics. Topics will include sea floor hydrothermal vents and their indigenous communities, manganese nodules, tsunami prediction, radioisotopes in the sea, Bering Sea productivity, and the role of the ocean in global warming due to fossil fuel carbon dioxide. (Prerequisites: Four semesters of natural sciences at 100 level or above or permission of the instructor. Next offered Fairbanks: 1991-92.)
- MSL 435 3 Credits** Alternate Fall
Acoustical Oceanography (3+0)
 Principles and applications of underwater sound in solving oceanographic problems related to chemistry, physics, geology and biology, including hydroacoustical methods, acoustical phenomena, bioacoustics and fisheries acoustics, environmental noise and signal processing. (Prerequisites: college physics and calculus. Next offered: 1991-92.)
- MSL 610 3 Credits** Alternate Spring
Marine Biology (3+0)
- MSL 611 5 Credits** Alternate Summer
Field Problems in Marine Biology (0+Arr)
- MSL 615 2 Credits** Alternate Fall
Physiology of Marine Organisms (2+0)
- MSL 620 4 Credits** Fall
Physical Oceanography (3+3)
- MSL 621 3 Credits** Alternate Fall
Polar Marine Science (3+0)
- MSL 622 3 Credits** Alternate Fall
Satellite Oceanography (3+0)
- MSL 625 2 Credits** Spring
Shipboard Techniques (1+3)
- MSL 629 3 Credits** Alternate Fall
Methods of Numerical Simulation in Fluids and Plasma (3+0)
 (Same as PHYS 629)
- MSL 629L 1 Credit** Alternate Fall
Methods of Numerical Simulation in Fluids and Plasma Lab (0+3)
- MSL 630 3 Credits** Spring
Geological Oceanography (3+0)
- MSL 640 3 Credits** Alternate Spring
Fisheries Oceanography (3+0)
- MSL 650 3 Credits** Fall
Biological Oceanography (3+0)
- MSL 652 3 Credits** Alternate Spring
Marine Ecosystems (3+0)
- MSL 660 3 Credits** Spring
Chemical Oceanography (3+0)
 (Same as CHEM 660)
- MSL 661 2 Credits** Alternate Spring
Isotope Techniques for Aquatic Sciences (2+0)
- MSL 662 3 Credits** Alternate Spring
Fjord Oceanography (3+0)
- MSL 665 3 Credits** Alternate Spring
Microbial Biochemistry (2+3)
- MSL 670 2 Credits** Alternate Fall
Nutrient Dynamics (2+0)
- MSL 680 3 Credits** Alternate Spring
Physical-Chemical Limnology (3+0)

Mathematics

No student will be permitted to enroll in a course having prerequisites if a grade lower than C is received in the prerequisite course.

- DEVM 050 3 Credits** As Demand Warrants
Basic College Mathematics (3+0)
 Operations with whole numbers, fractions, decimals and signed numbers. Percents and ratios. Evaluating algebraic expressions. Introduction to geometric figures. Metric system.

- DEVN 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: DEVN 050 or placement.)
- DEVN 065 Variable Credit** As Demand Warrants
Mathematics Lab
 This course is an individual tutorial lab. Course content is selected according to the needs of the individual student from the topics covered in DevM. 050 and DevM. 606. (Prerequisite: placement.)
- DEVN 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: DEVN 060 or placement.)
- MATH 080 3 Credits** As Demand Warrants
Mathematics for the Trades (3+0)
 Designed for students in diesel and welding areas. Topics from algebra, geometry and trigonometry are applied to Voc-Tech problems.
- MATH 107 3 Credits** Fall and Spring
Elementary Functions (3+0) 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, MATH 161, or MATH 171. Also available via Independent Learning. (Prerequisite: Two years of high school algebra and MATH 107 placement or higher.)
- MATH 108 2-3 Credits** Fall and Spring
Trigonometry (2-3+0) m
 A study of the trigonometric functions. Also available via Independent Learning. (Prerequisite: MATH 107 or concurrent registration in MATH 107.)
- MATH 109 3 Credits** As Demand Warrants
Analytic Geometry (3+0) m
 Rectangular coordinate system, the straight line, conic sections, transcendental curves, polar coordinates, parametric equations, and solid analytic geometry. (Prerequisite: Two years of high school algebra.)
- MATH 110 3 Credits** Fall and Spring
Mathematics of Finance (3+0) m
 Simple and compound interest, discount, annuities, amortization, sinking funds, depreciation, and capitalization. (Prerequisite: Two years high school mathematics, including at least one year of algebra.)
- MATH 131 3 Credits** Fall
MATH 132 3 Credits Spring
Concepts of Mathematics 3(3+0) m
 A study of mathematical thought and history designed for students with a limited mathematical background. Mathematical reasoning rather than formal manipulation is emphasized. Topics may be chosen from number theory, topology, set theory, geometry, algebra and analysis. Note: These courses do not provide technical preparation for, nor are they prerequisites for, any other college level mathematics courses. Both courses also available via Independent Learning. (Prerequisite for MATH 131 - Two years high school mathematics, including at least one year of algebra; for MATH 132: MATH 131 or consent of instructor.)
- MATH 161 3 Credits** Fall and Spring
Algebra for Business and Economics (3+0) m
 Functions of one and several variables studied with special attention given to linear, polynomial, rational, logarithmic, and exponential relationships. Geometric progressions as applied to compound interest and present value. Linear systems of equations and inequalities. All applications are from the fields of economics and business. Note: No credit may be earned for more than one of MATH 107, MATH 161, or MATH 171. (Prerequisites: Two years of high school algebra and MATH 161 placement or higher.)
- MATH 162 4 Credits** Fall and Spring
Calculus for Business and Economics (4+0) m
 Ordinary and partial derivatives. Maxima and minima problems, including the use of Lagrange multipliers. A brief introduction to the integral of a function of one variable. Applications include marginal cost, productivity, revenue, point elasticity of demand, competitive/complementary products, consumer's surplus, etc. Note: No credit may be earned for more than one of Math 162, Math 200, or Math 272. (Prerequisites: MATH 161.)
- MATH 171 3 Credits** Spring
Mathematics for Life Sciences (3+0) m
 Algebraic, trigonometric, exponential, and logarithmic functions with applications to problems arising in the life sciences. Note: No credit may be earned for more than one of MATH 107, MATH 161, or MATH 171. (Prerequisite: Two years of high school algebra and MATH 171 placement or higher.)
- MATH 181 3 Credits**
Finite Math for Business (3+0)
 Topics used to solve business and economic problems including matrix theory, linear programming, simplex method, counting techniques and probability distributions. (Prerequisite: DEVN 070 or placement.)
- MATH 200 4 Credits** Fall and Spring
MATH 201 4 Credits Fall and Spring
MATH 202 4 Credits Fall and 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 162, MATH 200 or MATH 272. MATH 200 and MATH 201 also available via Independent Learning. (Prerequisites: MATH 107-108.)
- MATH 203 4 Credits** Fall
Finite Math (4+0) m
 Topics covered include: symbolic logic, partitions, binomial and multinomial theorems, probability, finite stochastic processes, linear algebra, Markov chains, linear programming, and game theory. (Prerequisite: MATH 162 or 272 or 200.)
- MATH 205 3 Credits** Fall
Mathematics for Elementary School Teachers I (3+1) m
 Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers, introduction to rational numbers. Also available via Independent Learning. (Prerequisites: Two years high school mathematics, including at least one year of algebra. Restricted to B.Ed. students; others by permission of instructor.)
- MATH 206 3 Credits** Spring
Mathematics for Elementary School Teachers II (3+1) m
 A continuation of MATH 205. Real number systems and sub-systems, logic, informal geometry, metric system, probability, and statistics. Also available via Independent Learning. (Prerequisite: MATH 205.)
- MATH 210 1 Credit** Fall and Spring
Calculus and the Computer (1+0) m
 Computer implementation of numerical methods of elementary calculus. Functions, limits, roots, differentiation, maxmin, integration, and differential equations. Emphasis is on problem analysis and interpretation of results. (Prerequisite: Concurrent registration in MATH 162 or 200 or 272 or completion of one of these courses.)
- MATH 211 1 Credit** Spring and Fall
Linear Algebra and the Computer (1+0) m
 Computer implementation of numerical methods of elementary linear algebra. Solution of systems of linear equations, matrix inversion, determinants, characteristic roots, linear optimization, and iterative methods. (Prerequisite: MATH 210.)
- 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 permission of instructor.)
- 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 162, MATH 200, or MATH 272. (Prerequisites: MATH 171 or MATH 107 and MATH 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 and 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.)

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| MATH 305 3 Credits Geometry (3+0) | As Demand Warrants |
| 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 Introduction to the History and Philosophy of Mathematics (3+0) | Alternate Spring |
| A concise survey of the history and philosophy of mathematics for students of mathematics, science, history and philosophy as well as a detailed study of certain important periods of that history as examined by such thinkers as Plato, B. Russell, D. Hilbert, L.E.J. Brouwer and K. Godel. (Prerequisites: MATH 202 or permission of instructor. Next offered: 1990-91.) | |
| MATH 307 3 Credits Discrete Mathematics (3+0) | Fall |
| Logic, counting, sets and functions, recurrence relations graphs and trees. Additional topics may be chosen from probability theory. (Prerequisites: MATH 201 or 203 or permission of instructor.) | |
| MATH 308 3 Credits Abstract Algebra (3+0) | Spring |
| Theory of groups, rings and fields. (Prerequisites: MATH 215 or permission of instructor. Recommended: MATH 307 and/or MATH 314.) | |
| MATH 310 3 Credits Numerical Analysis (3+0) | Fall |
| 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 Linear Algebra (3+0) | Spring |
| Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations, and characteristic values. Inner product spaces. (Prerequisite: MATH 202 or MATH 211.) | |
| MATH 371 3 Credits Probability (3+0) | As Demand Warrants |
| Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions, and characteristic functions. (Prerequisite: MATH 202.) | |
| MATH 401 3 Credits MATH 402 3 Credits Advanced Calculus (3+0) | Fall Spring |
| A rigorous treatment of one and several dimensional calculus. Includes the study of mappings from n-space and their continuity, differentiability and integrability properties as well as sequences and series. (Prerequisites: MATH 215 or 202 for MATH 401; MATH 401 for MATH 402.) | |
| MATH 404 3 Credits Topology (3+0) | As Demand Warrants |
| Introduction to topology, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continua. (Prerequisites: MATH 215 and MATH 202. Recommended: MATH 314 and/or MATH 308.) | |
| MATH 408 3 Credits Mathematical Statistics (3+0) | As Demand Warrants |
| Distribution of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests. (Prerequisites: MATH 371 and STAT 301.) | |
| MATH 421 4 Credits Applied Analysis I (4+0) | Fall |
| Vector calculus, including gradient, divergence, and curl in orthogonal curvilinear coordinates, ordinary and partial differential equations and boundary value problems, and Fourier series and integrals. (Prerequisites: MATH 302 or concurrent enrollment in MATH 302.) | |
| MATH 422 4 Credits Applied Analysis II (4+0) | Spring |
| 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. (Prerequisite: MATH 421.) | |
| MATH 423 3 Credits Applied Mathematics (3+0) | As Demand Warrants |
| Topics to be determined at the time of registration to fit the needs of the students. (Prerequisite: Senior standing or permission of instructor.) | |

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| MATH 460 3 Credits Mathematical Modeling (3+0) | Fall |
| Analysis, construction, and interpretation of mathematical models. Applications to the physical, biological, and social sciences. Topics will be selected from combinatorics, probability, statistics, perturbation, numerical analysis, and differential equations. Students will develop a modeling project. (Prerequisite: MATH 201. Recommended: One or more of MATH 302, MATH 314, MATH 211, STAT 302, STAT 400; and some programming experience.) | |
| MATH 603 3 Credits Real and Complex Analysis I (3+0) | Fall |
| MATH 604 3 Credits Real and Complex Analysis II (3+0) | Spring |
| MATH 608 3 Credits Partial Differential Equations (3+0) | As Demand Warrants |
| MATH 611 3 Credits MATH 612 3 Credits Mathematical Physics (3+0) (Same as PHYS 611, 612) | Alternate Fall Alternate Spring |
| MATH 615 3 Credits Applied Numerical Analysis (3+0) | Alternate Spring |
| MATH 621 3 Credits Advanced Applied Analysis (3+0) | Alternate Fall |
| MATH 622 3 Credits Topics in Applied Analysis (3+0) | As Demand Warrants |
| MATH 630 3 Credits Advanced Linear Algebra and Its Applications (3+0) | Fall |
| MATH 631 3 Credits Theory of Modern Algebra (3+0) | Spring |
| MATH 651 3 Credits Topology (3+0) | Every third year |
| MATH 660 3 Credits Advanced Mathematical Modeling (3+0) | Alternate Spring |
| MATH 661 3 Credits Optimization (3+0) (Same as CS 661) | As Demand Warrants |
| MATH 663 3 Credits Applied Combinatorics and Graph Theory (3+0) | Alternate Spring |

Mechanical Engineering

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| ME 150 1 Credit Aerodynamics for Pilots (1+1) | Fall |
| Nature of the atmosphere, elementary airfoil theory, drag and power requirements, performance computations, and introduction to stability. For those who desire a basic understanding of flight with minimum mathematical background. (Prerequisite: High school algebra and general science.) | |
| ME 302 4 Credits Mechanical Design (3+3) | Spring |
| Kinematics and dynamics of mechanisms. Analysis and design of displacements, velocities, accelerations, and forces in linkages, cams, and gear systems by analytical, experimental, and computer methods. (Prerequisites: ES 208 and ES 210.) | |
| ME 313 3 Credits Mechanical Engineering Thermodynamics (3+0) | Spring |
| 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 and ES 346.) | |
| ME 321 3 Credits Industrial Processes (2+3) | Fall |
| Introductory course covering a wide spectrum of manufacturing processes used in modern industry, primary and secondary manufacturing processes, casting, hot and cold forming, machining, welding, and mass production tools and techniques as related to economic and efficient product design. Laboratory fee: \$25.00. | |
| ME 403 4 Credits Mechanical Design II (3+2) | Fall |
| 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.) | |

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| ME 404 | 3 Credits | Spring |
| Stress Analysis (3+0) | | |
| Analysis of the strength, stability and rigidity of machine components by analytical and computer methods. (Prerequisites: ES 331, MATH 302, ES 201.) | | |
| ME 408 | 3 Credits | Spring |
| Dynamics of Systems (2+2) | | |
| Response of mechanical, fluid, and thermal systems to internal, external, and control forces. Free and forced vibration, random vibration, self-excited vibration, control systems, and stability criteria. Non-linear systems. (Prerequisites: ES 201 and ES 301.) | | |
| ME 409 | 3 Credits | Spring |
| Controls (2+2) | | |
| Analysis and design of mechanical, electrical, and human control systems. (Prerequisites: ES 201, ES 301.) | | |
| ME 414 | 3 Credits | Fall |
| Thermal Systems Design (3+0) | | |
| Introduction to the design of power and space conditioning systems, energy conversion, heating, ventilating, air conditioning, total energy systems, and introduction to thermal system simulation and optimization. (Prerequisite: ES 346.) | | |
| ME 415 | 2 Credits | Fall |
| Thermal Systems Laboratory (1+3) | | |
| Testing and evaluation of components and energy systems such as pumps, fans, engines, heat exchangers, refrigerators, and heating/power plants. Laboratory fee: \$15.00. (Prerequisites: ES 341 and ME 313.) | | |
| ME 416 | 3 Credits | Fall |
| Design of Mechanical Equipment for the Petroleum Industry (3+0) | | |
| Design, selection, and operation of mechanical equipment used in the production and processing of crude oil and gas. Instrumentation and control systems used with the mechanical equipment. (Prerequisites: ES 341 and ES 346.) | | |
| ME 441 | 3 Credits | Spring |
| Heat and Mass Transfer (3+0) | | |
| Fundamental concepts of heat and mass transfer including steady state and transient conduction, laminar and turbulent free and forced convection, evaporation, condensation, ice and frost formation, black body and real surface radiation, and heat exchangers. (Prerequisite: ES 346.) | | |
| ME 450 | 3 Credits | As Demand Warrants |
| Theory of Flight (3+0) | | |
| Airfoil theory in subsonic and supersonic flow. Propulsion systems, stability and performance of aircraft. (Prerequisite: Consent of instructor.) | | |
| ME 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. (Prerequisite: Senior standing in engineering.) | | |
| ME 487 | 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

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| MECN 101 | 7 Credits | As Demand Warrants |
| 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 | As Demand Warrants |
| 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) | | |
| This course, designed for the person without mechanical experience, will cover 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. Materials fee: \$10.00. | | |

Military Science

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| MILS 100, 200 | 1 Credit | Fall and Spring |
| Outdoor Skills Laboratory (0+2) | | |
| Introduction to the fundamentals of various outdoor skills such as mountaineering, orienteering, marksmanship, arctic survival, skiing, and snowshoeing. Emphasis is on practical work. The same skills are not taught both semesters. (Corequisite: Concurrent registration in another basic military science course [111, 112, 201 or 202]) | | |
| MILS 111 | 2 Credits | Fall |
| U.S. Army and Society I (2+0) | | |
| Survey and analysis of the origin, development, organization and function of the American military. Focus is on the structure and purpose of the U.S. Army and ROTC program and the civilian-military relationship. An introduction to chain of command and small unit organization is provided to include characteristics of officers and their relation to subordinate leaders and enlisted men and women. | | |
| MILS 112 | 2 Credits | Spring |
| U.S. Army and Society II (2+0) | | |
| Survey of human behavior and leadership in the organizational context of the army and military environment. The role of the soldier, military training, discipline, ethics, and professionalism are presented. Students are introduced to behavioral dimensions and management techniques used by successful officer-leaders. | | |
| MILS 113 | 2 Credits | Spring |
| Map Reading and Orienteering (2+0) | | |
| Introduction to military and civilian topographical maps and their related informational content, use of the lensatic compass and map as navigational instruments. Practical exercises in orienteering complement academic instruction. | | |
| MILS 201 | 2 Credits | Fall |
| U.S. Defense and World Affairs (2+0) s | | |
| A study of current world events and how they affect the military leader and defense structure. Historical as well as political events are studied to learn their relationships to the decision making processes. Geography is considered as an influential factor affecting the economic base of a nation, and both are considered in terms of socio-political influence on military thought. Current military strengths and weaknesses of power groups are discussed and analyzed. | | |
| MILS 202 | 2 Credits | Spring |
| Communications Arts for the Military Leader (2+0) | | |
| A study of the principles of public speaking and instructional techniques. Emphasis is upon the development of functional skills through rehearsed and unrehearsed presentations. Instructional techniques, to include the use of audio-visual aids, provides intensive practice in developing lesson plans and skill in presentation. | | |
| MILS 250 | 3 Credits | Summer |
| Basic Camp | | |
| Six week practical field work to prepare students who did not take basic course for entrance into the advanced course. Camp prepares student in basic military skills and leadership experience. (Prerequisite: At least two years of schooling remaining upon completion of camp. Admission by arrangement with professor of military science.) | | |

MILS 300, 400 — 1 Credit **Fall and Spring****Outdoor Skills Laboratory (0+2)**

Advanced training in mountaineering, orienteering, marksmanship, arctic survival, skiing and snowshoeing. Students assist in giving instruction and in organizing and managing the lab. Emphasis is on practical work. 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)**

Detailed examination of the concepts, principles, and techniques applicable to the current doctrine of tactical operations. The course emphasizes the role of the small unit leader in planning, directing, and controlling the efforts of individuals and small units to accomplish offensive, defensive, and specialized combat operations. Practical application of performance objectives and the integration of support functions are emphasized. Laboratory consists of practical leadership development. (Prerequisites: Junior standing in MILS or permission of instructor.)

MILS 303 — 3 Credits **Fall****Advanced Leadership (3+1)**

(Same as B.A. 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 advanced camp (MILS 350). (Prerequisites: Junior standing in MILS or permission of instructor.)

MILS 350 — 3 Credits **Summer****Advanced Camp**

Six week practical field work for students enrolled in the advanced course. Camp is structured as a leadership workshop allowing students to utilize leadership skills in a variety of situations in a military environment. (Prerequisite: Must be enrolled as an advanced course cadet and have completed MILS III.)

MILS 351 — 2 Credits **Summer****Cadet Troop Leadership Training**

Three week full-time leadership training and development. Serving in leadership positions with the Active Army. Applying leadership and management principles in real life junior officer situations/positions in a military environment. (Prerequisite: Must be enrolled as an advanced course cadet and completed MILS III and Advanced Camp. MILS 350.)

MILS 401 — 3 Credits **Fall****Seminar on Tactical Operations (3+1) s**

A study of the conduct of tactical operations from the time of Hannibal to the present. The course is designed to introduce the student to a wide variety of historical examples where application or violation of sound tactical principles, or various styles and types of leadership have produced success or failure. Laboratory consists of practical leadership roles and seminars. (Prerequisites: Senior standing in MILS or permission of instructor.)

MILS 402 — 3 Credits **Spring****Seminar in Leadership and Management (3+0)**

A study and overview of management principles, management practices, and military justice. Emphasis is on the review of management principles and skills through advanced readings and case studies. Students will receive an orientation on the various administrative, training, logistical, and maintenance tools used in the military. Class includes preparation for commissioning. (Prerequisites: Senior standing in MILS 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 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 **Spring****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). The importance of the natural conditions and production level in the equipment selection procedure is emphasized. (Prerequisites: ES 208, ES 307, ES 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)**

Definitions and principles of basic science and engineering principles as applied to process and adaptive metallurgy. (Prerequisites: CHEM 211, PHYS 212. Next offered: 1991-92.)

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 beneficiation. (Prerequisite: Junior standing or permission of the instructor. Next offered: 1991-92.)

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 are developed. (Prerequisite: MIN 313. Next offered: 1991-92.)

MIN 370 — 3 Credits **Spring****Rock Mechanics (2+3)**

Strength and deformation characteristics of rock, 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 students' option, or equivalent. Performed 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: 1991-92)

MIN 408 — 3 Credits **Spring****Mineral Valuation and Economics (3+0)**

Theory of sampling techniques, deposit and reserve calculations, and analysis of mineral economic problems. (Prerequisite: Permission of the instructor.)

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| MIN 409 | 3 Credits | Spring |
| Operations Research and Computer Applications in Mineral Industry (3+0) | | |
| Use of operations research and computer techniques for understanding, analysis, forecasting and optimization of mining operations and systems. (Prerequisites: MIN 301 or concurrent registration, ES 201, and STAT 451 or STAT 301.) | | |
| MIN 410 | 3 Credits | Alternate Fall |
| Surface Materials Handling Systems (2+3) | | |
| The techniques and design of systems to move ore, concentrates, and waste materials in mining and milling operation. (Prerequisite: Senior standing or permission of the instructor. Next offered: 1991-92.) | | |
| MIN 415 | 3 Credits | Alternate Fall |
| Coal Preparation (2+3) | | |
| Units 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: 1991-92.) | | |
| MIN 418 | 3 Credits | Spring |
| Emission Spectroscopy, X-Ray Spectroscopy, and Atomic Absorption (2+3) | | |
| Can be taken for any combination of parts A, B, C as demand warrants. (Admission by special arrangement.) | | |
| MIN 418A — Theory and application of emission spectrography: two one-hour classes and one three-hour lab per week for five weeks. One credit. | | |
| MIN 418B — Theory and application of x-ray spectrography and diffractometer: two one-hour classes and one three-hour lab per week for five weeks. One credit. | | |
| MIN 418C — Theory and application of atomic absorption spectrophotometry: two one-hour classes and one three-hour lab per week for five weeks. One credit. | | |
| MIN 433 | 3 Credits | Alternate Fall |
| Mining Access, Safety and Environmental Law | | |
| History of mining law. Access to property, safety and environmental laws (and court decisions) as they pertain to mining. (Prerequisite: senior standing or permission of instructor. Next offered: 1991-92.) | | |
| MIN 443 | 3 Credits | Fall |
| Rock Fragmentation (3+0) | | |
| Selection and design of modern mining rock 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. (Prerequisites: MIN 443 or concurrent registration.) | | |
| MIN 446 | 3 Credits | Fall |
| Underground Mining Methods and Their Design (3+0) | | |
| Design of main development openings; mining methods such as room and pillar, open stoping, supported stopes and caving systems; selection of mining method and mine planning processes will be covered. (Prerequisites: MIN 301, MIN 302, and MIN 370.) | | |
| MIN 447 | 3 Credits | Fall |
| Mining Methods for Placer and Offshore Deposits (3+0) | | |
| Design of placer and offshore mining methods. Occurrence properties and mineral content of placer and offshore deposits. Underground mining of frozen placer deposits. (Prerequisites: MIN 301, senior standing or permission of the instructor.) | | |
| MIN 472 | 3 Credits | Alternate Spring |
| Design, Construction and Stability of Mining Openings (3+0) | | |
| Stability and design of excavating methods, reinforcement and monitoring systems for openings constructed in rock mass. Construction in swelling rock and frozen ground, underground hazards (bursts and water inflow) as well as monitoring of deformation and stresses associated with the opening's presence are covered. (Prerequisites: MIN 370, MIN 443. Next offered: 1991-92.) | | |
| MIN 490 | 2 Credits | Spring |
| Mining Design Project (1+3) | | |
| Design of mine layout including extraction and beneficiation and economic evaluation of the complete mining cycle. (Prerequisites: MIN 408, MIN 445, MIN 446, and MIN 447; MIN 408 can be taken concurrently.) | | |
| MIN 621 | 3 Credits | Fall |
| Advanced Mineral Economics (3+0) | | |

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| MIN 631 | 4 Credits | Alternate Fall |
| Research Methods in Mineral Engineering (3+3) | | |
| MIN 635 | 3 Credits | Spring |
| Geostatistical Ore Reserve Estimation (2+3) | | |
| (Same as GE 635) | | |
| MIN 637 | 3 Credits | Alternate Fall |
| Mine Systems Simulation (2+3) | | |
| MIN 646 | 3 Credits | Alternate Spring |
| Mining Engineering in the Arctic (3+0) | | |
| MIN 647 | 2 Credits | Alternate Fall |
| Advanced Underground Mine Design (1+3) | | |
| MIN 652 | 3 Credits | Alternate Spring |
| Numerical Methods in Mine Ventilation (2+3) | | |
| MIN 670 | 3 Credits | Alternate Spring |
| Optimization Models in the Mineral Industry (3+0) | | |
| MIN 673 | 3 Credits | Alternate Fall |
| Theoretical and Experimental Methods in Rock Mechanics (2+3) | | |
| MIN 674 | 3 Credits | Alternate Spring |
| Selected Topics in Rock Mechanics (2+3) | | |
| MIN 688 | 1 Credit | Fall |
| Graduate Seminar I (1+0) | | |
| (Same as MPR 688) | | |
| MIN 689 | 1 Credit | Spring |
| Graduate Seminar II (1+0) | | |

Museum Studies

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| MSM 211 | 3 Credits | Alternate Fall |
| Fundamentals of Museum Studies I (3+0) | | |
| An integrated view of the origin, structure and development of museums, types of museums and their functions, professional directions and ethics. Overview of collection management systems and techniques, and the role and ethics of museum conservation. (Prerequisite: Sophomore standing or permission of the instructor. Next offered: 1990-91.) | | |
| MSM 212 | 3 Credits | Alternate Spring |
| Fundamentals of Museum Studies II (3+0) | | |
| Museum education, including educational goals and objectives, the museum visitor, program development and publicity. A comprehensive survey of exhibits theory and practices, management practices in a museological context including types of museum administrative frameworks, legal considerations, and financial management. (Prerequisite: MSM 211. Next offered: 1990-91.) | | |
| MSM 311 | 3 Credits | Alternate Fall |
| Museum Administration (3+0) | | |
| An exploration of the administrative philosophy and procedures found in both public and private, large and small museums; the types and sources of support and the types of interactions with local and national supportive groups. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1991-92.) | | |
| MSM 312 | 3 Credits | Alternate Spring |
| Museum Collection Management (3+0) | | |
| Basic curatorial techniques and problems; major aspects of collection management will be studied, from field collecting and other forms of acquisition through accessioning, cataloging, preparation, exhibit, teaching, and research requirements. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1991-92.) | | |
| MSM 487 | 3 Credits | As Demand Warrants |
| Museum Practicum | | |
| Student participation in one or more phases of museum operations or disciplines. Special projects are to be developed by the student under the supervision of the appropriate museum personnel. (Prerequisites: MSM 211 and 212 and permission of the instructor.) | | |
| MSM 488 | 3 Credits | As Demand Warrants |
| Individual Research: Field Collecting Museum Specimens | | |
| Collection of specimens in the field, addresses philosophies, purposes and goals of field collection, procedures for collecting museum specimens, and methods of handling materials before it reaches the museum. Field trips may be required. By arrangement with the appropriate curator(s). May be repeated for credit with permission of instructor. (Prerequisites: MSM 211 and 212 and prior disciplinary preparation or permission of the instructor.) | | |

MUSIC

Music Ensembles And Class Lessons

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| MUS 101 | 1 Credit | Fall and Spring |
| Choral Society (0+3) h | | |
| MUS 151 | 1 Credit | Fall and Spring |
| Class Lesson (0+3) h | | |
| Class instruction in piano, voice, orchestral instrument, or guitar. Class lesson fee: see below. (MUS 151 may be repeated for credit. Course may not be audited.) | | |
| MUS 153 | 1 Credit | Fall and Spring |
| Functional Piano (1+0) h | | |
| Piano laboratory: instruction designed to help music majors obtain the performance, sight-reading, and harmonization-transposition skills needed to pass the Piano Proficiency Examination. It also provides non-music majors with an opportunity to study basic piano skills on a space-available basis. Lesson fee: see below. (Prerequisites: Music majors — MUS 131 or equivalent or concurrent enrollment in MUS 131; non-music majors: permission of instructor. Course may not be audited.) | | |
| MUS 203 | 1 Credit | Fall and Spring |
| Orchestra (0+3) h | | |
| (Admission by audition.) | | |
| MUS 205 | 1 Credit | Fall and Spring |
| Concert Band (0+3) h | | |
| (Admission by audition.) | | |
| MUS 211 | 1 Credit | Fall and Spring |
| "Choir of the North" (0+3) h | | |
| (Admission by audition.) | | |
| MUS 253 | 0 Credit | Fall and Spring |
| Piano Proficiency (0+1) | | |
| Final phase of completion of piano proficiency examination. (Prerequisite: MUS 153 and permission of instructor.) | | |
| MUS 307 | 1 Credit | Fall and Spring |
| Chamber Music (0+3) h | | |
| String, brass, or woodwind chamber music; piano chamber music and accompanying; stage band, and Madrigal singers. (Prerequisite: Permission of instructor.) | | |
| MUS 313 | 1, 2, 3 Credits | Fall and Spring |
| Opera Workshop (0+3, 6 or 9) h | | |
| MUS 317 | 1 Credit | Fall and Spring |
| Arctic Chamber Orchestra (0+3) h | | |
| Chamber Music. (Admission by audition.) | | |
| MUS 606 | 1-2 Credits | As Demand Warrants |
| Advanced Chamber Music (0+3)-(1+3) | | |

Applied Music

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| MUS 161, 162 | 2 or 4 Credits | Fall and Spring |
| MUS 261, 262 | 2 or 4 Credits | Fall and Spring |
| MUS 361, 362 | 2 or 4 Credits | Fall and Spring |
| MUS 461, 462 | 2 or 4 Credits | Fall and Spring |
| Private Lessons h | | |
| Private instruction in piano, organ, voice, orchestral and band instruments, or guitar. Private instruction shall consist of one private lesson and one master class per week. Music performance majors may enroll for four credits. All others will normally enroll for two credits. Private lesson fee: see below. (Prerequisite: Admission by audition. Course may not be audited. Credit-No Credit grading not permitted.) | | |
| MUS 190 | 0 Credit | Fall and Spring |
| Recital Attendance (1+0) | | |
| Recital and concert attendance. | | |
| MUS 390 | 0 Credit | Fall and 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 and 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.) | | |

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| MUS 661 | 2 or 4 Credits | Fall and Spring |
| Advanced Private Lessons | | |
| CLASS LESSONS AND APPLIED MUSIC FEES | | |
| MUS 151 - Class Lessons - | Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: \$70.00 | |
| | Lesson fees for music majors enrolled in 12 or more credits: \$35.00 | |
| MUS 153 - Functional Piano - | Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: \$70.00 | |
| | Lesson fees for music majors enrolled in 12 or more credits: \$35.00 | |
| MUS 161-462, 661 - Private Lessons - | Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: \$145.00 | |
| | Lesson fees for music majors enrolled in 12 or more credits: \$75.00 | |

For music majors, any combination of the above fees shall not exceed a maximum charge of \$105.00

Music Theory, Music History, and Music Education

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| MUS 103 | 3 Credits | Fall and Spring |
| Music Fundamentals (3+0) h | | |
| An introductory study of the language of music. Includes basic notation, melodic and rhythmic writing, scales, bass and treble clefs, and basic harmony. Also available via Independent Learning. | | |
| MUS 123 | 3 Credits | Spring |
| Appreciation of Music (3+0) h | | |
| A guide to the richer enjoyment of classical music through a study of the main periods, styles, and composers from the time of the Gregorian chant to the present. | | |
| MUS 124 | 3 Credits | Fall |
| Music in World Cultures (3+0) h | | |
| A survey of traditional and folk music around the world, with an emphasis on Oriental and African music. The course examines the different uses of music in various societies, and includes demonstration of ethnic musical instruments. | | |
| MUS 131 | 2 Credits | Fall |
| 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: Concurrent enrollment in MUS 133 for 131 and 134 for 132 required 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 will be made of programmed materials in a laboratory situation in addition to classroom instruction. Concurrent enrollment in MUS 131 or 132 required unless exempted by music theory placement examination. | | |
| MUS 221 | 3 Credits | Fall |
| MUS 222 | 3 Credits | Spring |
| History of Music (3+0) h | | |
| Fall semester: Music before 1750. Spring semester: Music since 1750. (Prerequisite: MUS 131-132 or permission of the instructor.) | | |
| MUS 223 | 3 Credits | Spring |
| Native Alaskan Music (3+0) h | | |
| Eskimo and Indian dance and song styles in Alaska. Emphasis on the sound, effect, and purpose unique to each and the collection methods, analysis, and the development of a broad musical perspective. | | |

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| 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 will be devoted to study and synthesis of 20th century stylistic and harmonic idioms. (Prerequisites: Concurrent enrollment in MUS 233 for 231 or 234 for 232 unless exempted by music theory placement test.) | | |
| MUS 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 or 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 and Spring |
| Music Methods and Techniques (1+2) | | |
| Instruction in voice and the basic instruments of band and orchestra. Emphasis on teaching methods in these areas. This course number is repeatable for credit. See Music Department Handbook. (Prerequisite: Permission of instructor.) | | |
| MUS 331 | 3 Credits | Alternate Spring |
| Form and Analysis (3+0) h | | |
| Formal and stylistic musical elements in historical context with special application to problems of proper stylistic performance. (Prerequisite: MUS 232 or permission of the instructor. Next offered: 1991-92.) | | |
| MUS 351 | 3 Credits | Fall |
| Conducting (3+0) h | | |
| Principles of conducting; interpretation of vocal and instrumental ensemble music. (Prerequisite: MUS 232.) | | |
| MUS 405 | 3 Credits | Spring |
| Secondary School Music Methods (2+3) | | |
| 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 the implementation of teaching plans in classroom and rehearsal settings. (Prerequisite: Permission of instructor. Should be taken prior to Ed. 453—Secondary Student Teaching.) | | |
| MUS 421 | 3 Credits | Alternate Fall |
| Music before 1620 (3+0) h | | |
| Music from its origins in Greek antiquity through the Middle Ages and the Renaissance up to and including the emergence of opera at the turn of the seventeenth century. Includes study of prominent composers, early musical forms, original sources in translation, development of musical notation, and development of early musical instruments. (Prerequisites: MUS 221 and 222 or permission of instructor. Next offered: 1991-92.) | | |
| MUS 422 | 3 Credits | Alternate Spring |
| Music in the Seventeenth and Eighteenth Centuries (3+0) h | | |
| Music from the turn of the seventeenth century through Beethoven. Examination of style and performance practices relating to opera, oratorio, cantata, sonata, and concerto, as well as chamber music. Development of keyboard instruments as well as other instrumental genres: strings, winds, and brasses. Intensive music listening as well as reading contemporary sources in translation. Style study of representative works from early Baroque composers through Bach, Handel, Bach's sons, Haydn, Mozart, Beethoven, and others. Musical developments in Italy, England, France, Germany, Austria, and cross-cultural influences. (Prerequisites: MUS 221 and 222 or permission of instructor. Next offered: 1991-92.) | | |
| MUS 423 | 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, Tchaikovsky, and others. Related readings in other aspects of the Romantic movement. (Prerequisite: MUS 221 or 222 or permission of the instructor. Next offered: 1991-92.) | | |
| MUS 424 | 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.) | | |

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| MUS 431 | 3 Credits | Alternate Spring |
| Counterpoint (3+0) h | | |
| Contrapuntal techniques by means of analysis and synthesis of pieces in contrapuntal idioms. (Next offered: 1991-92.) | | |
| MUS 432 | 3 Credits | Alternate Fall |
| Orchestration and Arranging (3+0) h | | |
| Instrumentation and arranging for vocal and instrumental ensembles. (Next offered: 1991-92.) | | |
| MUS 433 | 2-3 Credits | Alternate Fall |
| Seminar in Musical Composition (2+0, 3+0) h | | |
| Development of compositional skills based upon the works of predominantly twentieth-century composers. Repeatable for credit. (Prerequisites: MUS 232 or equivalent and/or permission of instructor. Next offered: 1991-92.) | | |
| MUS 441 | 3 Credits | Alternate Fall |
| Alaska Native Music and Social Change (3+0) h | | |
| A consideration of cultural persistence and of differential change in musical form and function. (Prerequisites: MUS 232 or equivalent and/or permission of instructor. Next offered: 1990-91.) | | |
| MUS 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 and Spring |
| Graduate Recital | | |

Northern Studies

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the U.S.S.R., see Study Abroad.

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| NS 484 | 3 Credits | Alternate Spring |
| Seminar in Northern Studies (3+0) s | | |
| An interdisciplinary seminar focusing on topics relating to the North with emphasis on the physical sciences, the peoples and the socioeconomic and political aspects of the area. Specialists in the various fields will assign readings and conduct discussions. (Prerequisite: At least junior standing or permission of instructor. Next offered: 1991-92.) | | |

Office Professions

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| OP 072 | 1 Credit | As Demand Warrants |
| Alphabetic Filing (1+0) | | |
| Organizing records alphabetically according to standard indexing rules for names of individuals, organizations and business firms. | | |
| OP 073 | 1 Credit | As Demand Warrants |
| Spelling and Vocabulary (1+0) | | |
| Designed to help the student develop skill in spelling correctly and using general and specialized terms in business. | | |
| OP 080 | 1 Credit | As Demand Warrants |
| Keyboarding (0+3) | | |
| Basic keyboarding skills with emphasis on correct technique and development of speed and accuracy. Open lab. | | |
| OP 082 | 1 Credit | As Demand Warrants |
| Clerical Accounting I (1+0) | | |
| Acquaints student with the relationship between accounting and business; develops an understanding of the steps of the accounting cycle; and develops an understanding of the principles and procedures involved in handling cash. | | |

- OP 083 1 Credit As Demand Warrants**
Clerical Accounting II (1+0)
 Acquaints student with an understanding of accounting systems and develops competence in the use of journals, subsidiary ledgers and in preparing financial statements as well as an understanding of end-of-the-period procedures. (Prerequisite: OP 082.)
- OP 086 1 Credit As Demand Warrants**
Reception Skills (1+0)
 Designed to help in the preparation of individuals for an entry level position as office receptionist by outlining the characteristics and skills of the office receptionist and providing the opportunity to develop these traits. Open lab.
- OP 100 3 Credits As Demand Warrants**
Alphabetic Shorthand (3+0)
 Introduces alphabetic shorthand, including alphabet, shortcuts, phasing, and other abbreviating devices.
- OP 101 4 Credits As Demand Warrants**
Shorthand Principles I (4+0)
 Provides student with instruction and practice in the use of Gregg Shorthand, Series 90 in order to develop ability to read shorthand and transcribe dictation taken at a minimum of 60 wpm on practiced material.
- OP 102 4 Credits As Demand Warrants**
Shorthand Principles II (4+0)
 Development of ability to construct new outlines from dictation under stress of dictation at 80 to 100 wpm. (Prerequisite: OP 101 and 103 or permission of instructor.)
- OP 103 1-3 Credits As Demand Warrants**
Keyboarding I/Beginning Typewriting (1-3+0)
 Basic keyboarding skills with emphasis on correct techniques and development of speed and accuracy. Introduction to centering, typing of personal and business letters, envelopes, simple tables and manuscripts. For those with no previous typing training. May be taken in 1-credit segments in the Office Professions lab. Materials fee: \$10.00.
- OP 104 1 Credit As Demand Warrants**
Typing Skill Building (1+0)
 This course will help improve speed and/or accuracy on straight and numerical copy. May be repeated up to 3 credits. Materials fee: \$5.00. (Prerequisite: OP 103 or permission of instructor.)
- OP 105 3 Credits As Demand Warrants**
Keyboarding II/Intermediate Typewriting (3+0)
 Course is designed to attain at least minimal typing skill, experience and knowledge necessary for typist beginning an office career. Lab arranged. Materials fee: \$5.00. (Prerequisite: OP 103 or one year high school typing or permission of instructor.)
- OP 106 3 Credits As Demand Warrants**
Keyboarding III/Advanced Typewriting (3+0)
 Course designed to achieve level of typing skill, experience, knowledge and production output that will assure successful typing performance in business office position. Lab arranged. Materials fee: \$10.00. (Prerequisite: OP 105 or permission of instructor.)
- OP 107 3 Credits As Demand Warrants**
Medical Terminology (3+0)
 Study of medical terminology, including analysis of its roots and origins. Anatomical, diagnostic, operative, and laboratory terminology of the human body systems, and selected medical specialties. Emphasis on spelling and pronunciation.
- OP 108 4 Credits As Demand Warrants**
Medical Office Procedures I (4+0)
 Introduction and orientation to business aspects of medical offices. Includes medical law and ethics, reception and telephone procedures, medical economics, orientation to medical profession and patient care.
- OP 109 1 Credit As Demand Warrants**
Proofreading (1+0)
 Provides instruction and practice in finding, making and correcting errors that are commonly made but often overlooked in business communication. Practice in recognizing frequently made errors, where they are likely to occur and special techniques of finding them will be provided. Open lab.
- OP 110 3 Credits As Demand Warrants**
Office Procedures (3+0)
 Duties and responsibilities of general office employees areas such as filing, effective processing of mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.
- OP 112 2 Credits As Demand Warrants**
Introduction to Word Processing (2+0)
 Course designed to teach how to type documents on microcomputer using a word processing program.
- OP 128 2 Credits As Demand Warrants**
Word Processing/Displaywriter (2+0)
 Word processing training. All machine functions are covered and applied to revision and application problems in simulated word processing setting. Should type 35 wpm prior to entry. Materials fee: \$10.00. (Prerequisite: OP 103 or permission of instructor.)
- OP 131 3 Credits As Demand Warrants**
Business English (3+0)
 Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.
- OP 151 2 Credits As Demand Warrants**
Microcomputer Wordprocessing/WordPerfect (2+0)
 Provides practice on an IBM compatible microcomputer using Wordperfect, software to create, edit, and store documents as well as perform advanced applications using the software. Materials fee: \$10.00. (Prerequisite: Keyboard speed of 35 wpm.)
- OP 152 2 Credits As Demand Warrants**
Microcomputer WordProcessing/Displaywrite 4 (2+0)
 Provides instruction on an IBM compatible microcomputer using Displaywrite 4 software to create, edit and store documents as well as perform advanced applications using the software. Materials fee: \$10.00. (Prerequisite: Keyboard speed of 35 wpm.)
- OP 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.
- OP 157 1 Credit As Demand Warrants**
Introduction to Office Computers (1+0)
 Provides an introduction to personal computers as well as the basics of spreadsheets, data bases and word processing software commonly used in an office setting. Materials fee: \$10.00.
- OP 201 3 Credits As Demand Warrants**
Shorthand III-Speed Dictation and Transcription (3+0)
 Strengthen typing and shorthand skills to improve speed and accuracy of transcription and to develop a high degree of shorthand skills. (Prerequisite: OP 102, 105 or demonstration of equivalent proficiency.)
- OP 203 2 Credits As Demand Warrants**
Calculating Machines (2+0)
 Provides the student with basic operating knowledge of the electronic calculator in order to perform such business applications as discounting, amount and percent of change, prorating interest, commissions and payroll; to develop an occupation proficiency in the use of machines for initial job placement. Open lab. (Prerequisite: ABUS 155 strongly recommended.)
- OP 207 2 Credits As Demand Warrants**
Machine Transcription (2+0)
 Training in machine transcription with emphasis on mailable copies. Review of language skills and vocabulary included. Materials fee: \$5.00. (Prerequisites: OP 105 or permission of instructor.)
- OP 210 3 Credits As Demand Warrants**
Legal Typewriting (3+0)
 Provides legal procedures background as well as sharpen and refresh typewriting and transcription skills. Emphasis on understanding legal processes as well as developing expertise in legal typewriting and legal office procedures. Materials fee: \$5.00. (Prerequisite: OP 105 or permission of instructor.)
- OP 211 2 Credits As Demand Warrants**
Medical Typing (2+0)
 Provides training to enable the student to qualify for employment as an office worker, particularly as a forms typist, in a hospital or medical bureau or office or to contribute to qualifications as a medical assistant or secretary. (Prerequisite: OP 105 or demonstration of equivalent proficiencies.)
- OP 212 2 Credits As Demand Warrants**
Intermediate Word Processing (2+0)
 Practice in producing typical office communications and reports using a microcomputer and word processing program.
- OP 214 1 Credit As Demand Warrants**
Medical Machine Transcription (1+0)
 Instruction and practice needed to develop competency in formatting medical papers including a Medicare form, an admission form, a dental patient; preparing patient histories, medical reports; file cards and other medical documents. Develop competence in transcribing from machine dictation and in using medical terminology correctly. Materials fee: \$5.00. (Prerequisite: OP 105 and 207.)

OP 219 1 Credit As Demand Warrants
Legal Machine Transcription (1+0)
 Instruction and practice needed to develop competency in formatting legal papers including a lease, bill of sale, subpoena, stipulations, interrogatories, notices and various types of orders. Develop competency in transcribing from machine dictation and in using the language of the law correctly. Materials fee: \$5.00.

OP 221 3 Credits As Demand Warrants
Filing/Records Management (3+0)
 Introduction to records management including 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.

OP 225 1-2 Credits As Demand Warrants
CPS Review
 Prepares students for the CPS (Certified Professional Secretary) examination. Review sessions will be offered in the six areas covered by the exam: Behavioral Science in Business, Business Law, Economics and Management, Accounting, Office Administration and Communication. One credit will be granted for any combination of three of the above review topic areas. Material Fee: \$5.00.

OP 228 1 Credit As Demand Warrants
Wordprocessing/Reportpack (1+0)
 For operators using the IBM Displaywriter System. The Reportpack Feature will be used to create, maintain and print files. (Prerequisite: OP 128 or permission of instructor.) Materials fee: \$10.00.

OP 231 3 Credits As Demand Warrants
Business Communications (3+0)
 Introduces composition and evaluation of various kinds of communications that commonly pass between a business person and associates, customers and dealers. Included will be inter-office memos, letters, reports and oral communications. (Prerequisite OP 131 or permission of instructor.)

OP 244 3 Credits As Demand Warrants
Office Management (3+0)
 Review of procedures, basic attitudes and skills required of a secretary in any type office. 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.)

OP 282 3 Credits As Demand Warrants
Cooperative Work Experience
 On-the-job training related to occupational objectives. Weekly seminar with coordinator required. (Prerequisite: Permission of instructor and 12 credits in OP courses.)

Paraprofessional Counseling

PPC 101 3 Credits Fall
Models of Human Personality and Counseling I (3+0)
 Introduction to basic personality theories and theoretical approaches to counseling.

PPC 102 3 Credits Spring
Models of Human Personality and Counseling II (3+0)
 Theoretical approaches to personality theory, ideal and problematic functioning and relevant intervention by the counselor. (Prerequisite: PPC 101.)

PPC 105 3 Credits Fall
Basic Helping Skills (3+0)
 Introduction to the principles, skills and role of the helping process. A practical course which focuses on communication and how to have effective intervention with the client.

PPC 106 3 Credits Spring
Advanced Helping Skills (3+0)
 Development of relationship skills with emphasis on specialized methods of crisis intervention, behavioral techniques, and other methods of intervention. (Prerequisite: PPC 105.)

PPC 120 1 Credit As Demand Warrants
Self-Esteem Issues (1+0)
 Assessing, improving and maintaining self-esteem in ourselves and fostering positive self-esteem in children. (Next offered: Fall 1990.)

PPC 130 1 Credit As Demand Warrants
Stress Management (1+0)
 Addresses the various techniques of stress management. Topics will include psycho-physiology of stress, acute and chronic stress and assessment of individual stress levels.

PPC 135 1 Credits As Demand Warrants
Journaling Techniques (1+0)
 Journaling can serve a valuable therapeutic role in the helping relationship, both for client and helper. The class explores ways to enhance the healing process through specific exercises and techniques.

PPC 140 1 Credit As Demand Warrants
Understanding Disabilities (1+0)
 An overview of disabling conditions focusing on developing helping skills for working with people with disabilities as well as their families. (Next offered: Fall 1990.)

PPC 141 1 Credits As Demand Warrants
Adult Child of the Alcoholic (1+0)
 Examines special characteristics and skills which are developed by children who grow up in homes with an alcoholic parent. Effect of these learned roles in adulthood will be explored in depth. Suggestions for intervention (helping) strategies with both children and adults will be addressed.

PPC 145 2 Credits As Demand Warrants
Effective Parenting (2+0)
 Effective parenting skills, including building self-esteem in parent and child, family communication, effective discipline techniques, assertive parenting techniques, and anger control. (Next offered: Fall 1990.)

PPC 150 1 Credit As Demand Warrants
Mediation: Resolving Conflicts (1+0)
 Introduction to the theory and practice of mediation based on the principles of negotiation, arbitration, and compromise. (Next offered: Spring 1991.)

PPC 151 1 Credit As Demand Warrants
Blended Families (1+0)
 Provides a close look at YOURS, MINE and OURS by exploring the relationship formation and development of children and parents as they try to form a new family unit. Type of problems which can be expected and alternative solutions will be discussed.

PPC 201 3 Credits Fall
Basic Principles/Group Counseling (3+0)
 Introduction to concepts and techniques of counseling, methods for establishing effective group goals, objectives and group organization. (Prerequisite: PPC 101, 102, 105 or permission of the PPC advisor.)

PPC 203 3 Credits As Demand Warrants
Substance Abuse Counseling I (3+0)
 Special difficulties of working with the drug/alcohol abusing person will be explored.

PPC 204 3 Credits As Demand Warrants
Working With Marriage and Family Problems (3+0)
 Exploration of multiple factors affecting marriage today. Sources of marriage problems and specific skills in their assessment and treatment will be covered. Emphasis on systems approach.

PPC 206 3 Credits As Demand Warrants
Paraprofessional Roles-Ethics (3+0)
 Basic ethics of counseling necessary for the professional.

PPC 207 3 Credits As Demand Warrants
Personal Awareness and Growth (3+0)
 Individual and group experiences to help the individual become more aware of self and other.

PPC 208 3 Credits Fall
Human Problems and Evaluation I (3+0)
 Introduction to adjustment psychology, inter-personal problems, intra-personal problems and an overview of assessment devices used in the helping profession. (Prerequisites: PPC 101/102, PPC 105/106 or permission of PPC advisor.)

PPC 209 3 Credits Spring
Human Problems and Evaluation II (3+0)
 A continuation of PPC 208 which further addresses the difference between constructive and destructive behavior and looks at how assessments are made. (Prerequisite: PPC 208.)

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| PPC 212 | 3 Credits | Alternate Spring |
| Counseling Children (3+0) | | |
| Developing skills to work with children's emotional, social and behavioral problems. Discusses developmental stages, self-esteem, normal vs. abnormal behavior, relationship of counselor and child, working with significant adults in the child's life, communication, identifying needs, problem solving, play therapy, changing behaviors, working with groups. (Prerequisites: six PPC credits, work experience or permission of instructor.) | | |
| PPC 215 | 3 Credits | As Demand Warrants |
| Working With People of Other Cultures (3+0) | | |
| This course is designed to provide an in-depth examination of counseling processes and practices in multi-cultural, multi-lingual settings. | | |
| PPC 220 | 3 Credits | Fall |
| Violence and Family Relationships (3+0) | | |
| Family violence whether directed toward a child, spouse, or elder, affects each member. Will focus on developing effective intervention skills for assisting families in violent relationships. | | |
| PPC 288 | 3 Credits | As Demand Warrants |
| Paraprofessional Practicum I (0+var) | | |
| Supervised on-the-job counseling experience in a community agency. Course allows students to develop and expand skills and knowledge taught in the classroom and apply to situations working with individuals in a social service agency. (Prerequisites: PPC 101-102, PPC 105-106, PPC 206 and permission of instructor.) | | |
| PPC 289 | 3 Credits | As Demand Warrants |
| Paraprofessional Practicum II (0+9) | | |
| This practicum further develops the practical work experience of the student in a supervised social service agency. Practicum allows for more direct client contact with increased opportunity for working with groups and families. (Prerequisites: PPC 288 and permission of instructor.) | | |
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| Petroleum Engineering | | |
| PETE 103 | 2 Credits | Fall |
| Survey of the Energy Industries (2+0) | | |
| Overview of global energy supply and demand, alternate energy options, and petroleum production technology. | | |
| PETE 205 | 3 Credits | Fall |
| Introduction to Petroleum Drilling and Productions (3+0) | | |
| Fundamental principles of drilling, well completions, production engineering; field trips to Alaskan oil fields if possible. (Prerequisite: MATH 200.) | | |
| PETE 211 | 1-2 Credits | Spring |
| Drilling Laboratory (0+3 or 6) | | |
| Measurement of physical properties of drilling mud; optional BOP certification and drilling rig operation experience during spring break. (Prerequisite: PETE 205 or permission of instructor.) | | |
| PETE 301 | 3 Credits | Fall |
| Reservoir Rock Properties (2+3) | | |
| Definition and measurement of the physical properties of reservoir rocks; porosity, permeability, lithology, fluid saturations, relative permeability. | | |
| PETE 302 | 3 Credits | Spring |
| Well Logging (3+0) | | |
| Comprehensive treatment of modern well logging methods including formation and production logging tools and techniques and basic concepts of log interpretation. (Prerequisite: Junior standing in engineering or geoscience.) | | |
| PETE 305 | 4 Credits | Spring |
| Underground Fluids Behavior (3+3) | | |
| Chemical, physical, and thermodynamic properties of water, oil, and gas in petroleum formations; classification of petroleum reservoirs by fluid phase contents, and interpretation of PVT reports for reservoir fluid samples. (Prerequisites: PETE 301, ES 346.) | | |
| PETE 321 | 3 Credits | Fall |
| Advanced Thermodynamics for Petroleum Engineers (3+0) | | |
| A thorough study of the thermodynamics involved in the transport of petroleum fluids from the formation to the surface with an emphasis on multi-phase, multi-component equilibrium processes. (Prerequisites: MATH 302, CHEM 321 and ES 346 and concurrent registration in ES 341.) | | |
| 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.) | | |

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| PETE 407 | 4 Credits | Fall |
| Petroleum Production Engineering (3+3) | | |
| Well completion, workovers, surface and subsurface equipment design, sucker-rod pumping, gas lift, stimulation techniques, sand control. Laboratory includes measurement of gas and oil streams. (Prerequisite: ES 346 and concurrent enrollment in ES 341.) | | |
| PETE 421 | 3 Credits | Fall |
| Subsurface Engineering (3+0) | | |
| Application of well logs to delineate reservoir rock properties and its spatial variations. Estimation of petroleum in place. Impact of facies variation and depositional models for the design of production policies. Impact of formation structure on enhanced oil recovery methods. Reservoir surveillance. (Prerequisites: PETE 301, 302, and GEOS 370) | | |
| PETE 426 | 4 Credits | Spring |
| Drilling Engineering and Laboratory (3+3) | | |
| Principles of drilling, drilling fluids, drilling mud, drilling problems, mud logging, drill stem testing, rig types, rig design and selection. Drilling optimization. Well control. (Prerequisites: ES 331 and ES 341.) | | |
| PETE 431 | 2 Credits | Fall |
| Natural Gas Engineering (2+0) | | |
| The production of natural gas and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems. (Prerequisite: PETE 301.) | | |
| PETE 456 | 3 Credits | Spring |
| Petroleum Evaluation and Economic Decisions (3+0) | | |
| Economic appraisal methods for oil field developmental project evaluations including risk analysis, probability, and statistics in decision making and evaluations. Case studies. (Prerequisites: MATH 202 and PETE 476.) | | |
| PETE 466 | 3 Credits | Spring |
| Petroleum Recovery Methods (3+0) | | |
| Discussion of flow and physiochemical principles of oil recovery by water, chemical, thermal and miscible floods. Prediction of recovery for each of these methods. (Prerequisites: PETE 476 and ME 441.) | | |
| 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 and PETE 405.) | | |
| PETE 478 | 2 Credits | Spring |
| Well Test Analysis (2+0) | | |
| Transient flow of fluids through porous media, application of solutions of the diffusivity equation to pressure buildup, drawdown, interference testing and log-log type curve analysis and effect of reservoir heterogeneities on pressure behavior. (Prerequisites: PETE 476 and MATH 302) | | |
| PETE 489 | 2 Credits | Fall/Spring |
| Reservoir Simulation (2+0) | | |
| The theory and use of computer reservoir simulation in petroleum reservoir and production engineering. (Prerequisites: MATH 310 and PETE 476.) | | |
| PETE 607 | 3 Credits | Fall |
| Advanced Production Engineering (3+0) | | |
| PETE 610 | 3 Credits | Fall |
| Advanced Reservoir Engineering (3+0) | | |
| PETE 630 | 3 Credits | 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 and 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 conclusions of the major philosophical traditions of the Far East. (Prerequisite: PHIL 201 or permission of the instructor.)
- PHIL 204 3 Credits** **Fall and Spring**
Introduction to Logic (3+0) h
 Principles of deductive and inductive logic and application of these laws in science and other fields; brief introduction to symbolic logic and its application. (Prerequisite: Sophomore standing.)
- PHIL 321 3 Credits** **Alternate Fall**
Aesthetics (3+0) h
 The nature of aesthetic experience in poetry, music, painting, sculpture and architecture; studies in relation to artistic production and the role of art in society. (Prerequisite: PHIL 201. Next offered: 1991-92.)
- PHIL 322 3 Credits** **Alternate Spring**
Ethics (3+0) h
 Examination of ethical theories and basic issues of moral thought. (Prerequisite: PHIL 201. Next offered: 1991-92.)
- PHIL 341 3 Credits** **Alternate Fall**
Epistemology (3+0) h
 The nature of knowledge, truth and certainty. (Prerequisite: PHIL 201 next offered: 1991-92.)
- PHIL 342 3 Credits** **Alternate Spring**
Metaphysics (3+0) h
 The nature of reality comprising both ontology and cosmology. (Prerequisite: PHIL 201. Next offered: 1991-92.)
- PHIL 351 3 Credits** **Fall**
History of Philosophy and Science (3+0) h
 Ancient and medieval periods. (Prerequisite: Six credits in philosophy or social science.)
- PHIL 352 3 Credits** **Spring**
History of Philosophy and Science (3+0) h
 Renaissance, modern, and recent periods. (Prerequisite: Six credits in philosophy or social science.)
- PHIL 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. Next offered: Spring 1991.)
- PHIL 471 3 Credits** **Alternate Fall**
Contemporary Philosophical Problems (3+0) h
 Ideological issues facing the modern world. (Prerequisite: Nine credits philosophy or permission of the instructor. Next offered: 1991-92.)
- PHIL 481 3 Credits** **Alternate Spring**
Philosophy of Science (3+0) h
 Comparison and discussion of various contemporary methodological positions. (Prerequisite: Junior standing. Next offered: 1991-92.)
- 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: 1991-92.)
- PHIL 483 3 Credits** **Alternate Spring**
Philosophy of Social Science (3+0) h
 Comparison and analysis of various contemporary methodological positions in the social sciences. (Prerequisite: Junior standing. Next offered: 1991-92.)
- PHIL 485 3 Credits** **As Demand Warrants**
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. Next offered: Fall 1990.)

PHIL 486 3 Credits

B.A. Thesis in Philosophy (1+2+var) h

Student will be required to identify within the department a research topic demonstrating both student's ability to philosophically analyze as well as ability to do cultural and historical research. (Prerequisite: Completion of all major requirements in Philosophy. Next offered: 1990-91.)

As Demand Warrants

Physical Education

- PER 100 1 Credit** **Fall and Spring**
Physical Activities and Instruction (0+3)
 Instruction, practice, and activity in a variety of physical activities, sports, and dance in separate sections. Laboratory fees for the following courses are: marksmanship, rifle marksmanship and bowling - \$35.00.
- PE 205 2 Credits** **Alternate Fall**
Introduction to the Human Movement Sciences (2+0)
 An overview of the human movement sciences that includes the inter-relationship of the biological sciences, sociopsychological, historical and philosophical foundations and the role of the humanities in physical activity, fitness, sport and dance. Clarification of career possibilities is included. (Next offered: 1990-91)
- PE 208 2 Credits** **Alternate Fall**
Advanced Life Saving (1+3)
 Knowledge and skills necessary to provide aid and treatment in aquatic emergencies. Instruction in American Red Cross Cardio-Pulmonary Resuscitation, Advanced Lifesaving, Advanced Swimmer, and Basic First Aid. (Prerequisite: Swim Test.) Certification fee: \$5.00 covers American Red Cross Advanced Life Saving Certification. (Next offered: 1991-92.)
- PE 210 1 Credit** **As Demand Warrants**
Water Safety (1+3)
 Includes review of courses instructors are eligible to teach, teaching methods relative to those courses, general teaching methods, and practice teaching. Review and practice of swimming and lifesaving skills.
- PE 211 1 Credit** **Alternate Fall***
Fundamentals of Softball (1+3)
 Basic skills in softball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1990-91.)
- PE 212 1 Credit** **Alternate Fall***
Fundamentals of Basketball (1+3)
 Basic skills in basketball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1990-91.)
- PE 213 1 Credit** **Alternate Spring***
Fundamentals of Ice Sports (1+3)
 Basic skills in ice sports will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1990-91.)
- PE 214 1 Credit** **Alternate Spring***
Fundamentals of Snow Sports (1+3)
 Basic skills in snow sports will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1991-92.)
- PE 215 1 Credit** **Alternate Fall***
Fundamentals of Volleyball (1+3)
 Basic skills in volleyball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week sessions. Next offered: 1991-92.)
- PE 216 1 Credit** **Alternate Fall***
Fundamentals of Rhythms (1+3)
 Basic skills in rhythms will be presented with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1990-91.)
- PE 217 1 Credit** **Alternate Spring***
Fundamentals of Recreational Activities (1+3)
 Basic skills in recreational activities will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1991-92.)

- PE 218 1 Credit Alternate Fall***
Fundamentals of Soccer (1+3)
 Basic skills in soccer will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1991-92.)
- PE 219 1 Credit Alternate Spring***
Fundamentals of Aquatics (1+3)
 Basic skills in aquatics will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1991-92.)
- PE 220 1 Credit Every third semester***
Fundamentals of Wrestling (1+3)
 Basic skills in wrestling will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: Spring 1988.)
- PE 221 1 Credit Alternate Fall***
Fundamentals of Gymnastics (1+3)
 Basic skills in gymnastics will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1991-92.)
- PE 222 1 Credit Alternate Spring***
Fundamentals of Track and Field (1+3)
 Basic skills in track and field will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. *(7 week session. Next offered: 1990-91.)
- PE 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: 1990-91)
- PE 246 3 Credits Fall and Spring**
Advanced First Aid (3+0)
 Knowledge and skills necessary 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 of requirements 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. *Meets for 7 weeks. (Prerequisite: PE 221. Next offered: 1991-92)
- 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. *Meets for 7 weeks. (Prerequisite: PE 212 Next offered: 1990-91.)
- 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. *Meets for 7 weeks. (Prerequisite: PE 213. Next offered 1990-91.)
- 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. *Meets for 7 weeks. (Prerequisite: PE 214. Next offered 1990-91.)
- 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. *Meets for 7 weeks. (Prerequisite: PE 215. Next offered: 1990-91.)
- 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 is on learning techniques which will free people to create from their own movement vocabularies. Some emphasis on correct body alignment and techniques of moving. *Meets for 7 weeks. (Prerequisite: PE 216. Next offered: 1991-92.)
- 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. *Meets for 7 weeks. One weekend campout will be required. Laboratory fee: \$10.00. (Prerequisite: PE 217. Next offered: 1990-91.)
- 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. *Meets for 7 weeks. (Prerequisite: PE 222. Next offered: 1990-91.)
- PE 309 2 Credits Alternate Spring**
Aquatic Instructor (1+3)
 Knowledge and skills necessary to teach swimming to children and adults, beginner through advanced swimmer and lifesaving. (Prerequisites: current American Red Cross Lifesaving Certificate and swim test.) Certification fee: \$5.00. Covers administrative fee for American Red Cross Water Safety Instructor Certificate. (Next offered: 1991-92)
- PE 310 1 Credit Every third Spring**
Techniques in Teaching Folk and Square Dance (1+3)*
 Techniques and practical application in organizing and teaching varying age and ability levels in folk and square dance. Dances will include partner and non-partner folk dances, some fad dances and traditional square dance, and some practice in cueing and calling will be provided. *Meets for 7 weeks. (Prerequisite: PE 216. Next offered: 1990-91.)
- 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: 1991-92)
- 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: 1991-92)
- PE 321 1 Credit Fall/Spring**
Practicum in Physical Education (0+3)
 Student will serve as apprentice instructor or leader in university class or with approved supervisor within the community and will assume increasing responsibility for planning and conducting activities under supervision. 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 2 Credits Spring**
Movement Activities for Children (2+0)
 A practical background of sports, games, and fundamental movement activities appropriate for the child in the environment of the home, playground, or elementary school classroom or gymnasium. For parents, teachers, or others who work with children up to age 12. Course includes progressions in activities and participation in selected activities. (Prerequisites: PSY 101, sophomore standing.)
- PE 400 2 Credits Every third Fall**
Judging and Coaching Gymnastics (1+3)
 Techniques for teaching, coaching, judging, and administering men's and women's gymnastics, including apparatus, tumbling, and floor exercise. (Prerequisite: Junior standing or previous gymnastic experience. Next offered: 1990-91.)
- 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: 1990-91.)
- PE 405 2 Credits Alternate Fall**
Concepts and Design of Physical Fitness Programs (1½+1½)
 Development of knowledge of the problems, methods of achievement, and maintenance of physical fitness in the modern world. Assessment of personal fitness status, participation in selected fitness activities, and acquisition of skills in basic physical fitness activity. (Prerequisites: BIOL 111-112. Next offered 1991-92)
- PE 406 3 Credits Alternate Fall**
Methods of Teaching Physical Education (2+3)
 Philosophy, curriculum development, methods for facilitating learning and controlling behavior, measurement and evaluation, observations, and teaching laboratories in elementary and secondary school physical education. (Prerequisite: ED 330. Next offered: 1991-92.)

PE 408 2 Credits Every third Spring

Aquatics Program Management (2+0)
Aquatic program planning and implementation, competitive swim team coaching and administration, and management of swimming pools. (Prerequisite: PE 219 or 309. Next offered: 1991-92.)

PE 411 3 Credits Alternate Spring

History and Philosophy of Sport and Physical Activity (3+0)
Examines the role of sport and physical activity from the perspective of the major philosophies. The contributions of physical activity to survival, artistic development, and classic and popular culture particularly as they have influenced the role of physical activity in the United States. (Prerequisite: Junior Standing. Next offered 1991-92.)

PE 412 3 Credits Alternate Fall

Principles and Problems in Athletic Coaching (3+0)
Philosophy and objectives of athletic competition at various age levels. The roles and responsibilities of the athletic coach. Problems of athletic coaching and management of athletes and their training. Content appropriate for those who plan to take leadership or coaching roles in any athletic programs, in schools, or in community recreation. (Prerequisite: Junior standing. Next offered: 1990-91.)

PE 421 4 Credits Alternate Fall

Physiology of Exercise (3+3) n
Study of the responses and adaptations of the human body to physical work, exercise and systematically applied stressors, including the effects of environmental stressors, especially those specific to northern regions. (Prerequisite: BIOL 111-112. Next offered: 1990-91.)

PE 425 3 Credits Alternate Fall

Administration in Physical Education and Athletics (3+0)
Principles and problems of planning, organizing, directing, and evaluating school programs in physical education, intramural sports, and interschool athletics. (Prerequisite: Junior standing. Next offered: 1991-92.)

PE 432 4 Credits Alternate Fall

Biomechanics of Human Performance (3+3) n
Mechanical analysis of human movement, focusing both internally on musculo-skeletal interactions and externally on the body with the environment, for the purpose of understanding how humans move. (Prerequisites: BIOL 111-112, MATH 107. Next offered: 1991-92.)

PE 437 3 Credits Alternate Spring

Adapted Programs of Physical Activity (3+0)
Theory and practical guidelines for developing adapted movement activities and programs for persons who are impaired, disabled, or handicapped; "mainstreaming" such individuals in to regular programs in physical education and recreation. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1990-91.)

PE 440 3 Credits Every third Spring

Care and Prevention of Athletic Injuries (3+0)
Scientific bases for the care and prevention of injuries, related to participation in sports and physical activity, rationale and strategies for taping and wrapping for injury prevention and rehabilitation, techniques in pre-activity conditioning and post-injury reconditioning, and equipment safety. (Prerequisites: BIOL 111-112, PE 205 or permission of instructor. Next offered: 1990-91.)

PE 442 3 Credits Alternate Spring

Measurements and Evaluation in Physical Education (3+0)
Theory and application of the evaluation process in Physical Education including basic statistics, formation of measurable behavioral objectives, written test construction, survey of fitness and skill tests, their selection, administration and interpretation of results, and the use of basic computer programs to calculate various statistical values. (Prerequisites: Completion of 8 credits from 211-222. Next offered: 1990-91.)

Physics

PHYS 101 3 Credits Spring

Introduction to Space Science (3+0) n
An exploration in non-mathematical terms of the discoveries of the space age for the general student. Topics include solar-terrestrial relations, the earth's upper atmosphere and magnetosphere (including the aurora), stratosphere, troposphere, and space communications, with emphasis on fundamental physical processes.

PHYS 103 4 Credits Fall

PHYS 104 4 Credits Spring
College Physics (3+3) n
Unified classical and modern physics. Laboratory Fee: \$5.00 (Prerequisite: High school algebra and geometry, PHYS 103 for PHYS 104 or permission of instructor.)

PHYS 113 1 Credit Fall

Concepts of Physics (1+0)
A general review of experimental and theoretical studies of fundamental interactions of nature which have been recognized as major advances in human knowledge will be given. Application of these discoveries to modern technologies, such as solid state electronics, lasers, holography, nuclear fusion, medical diagnostics, remote sensing, etc., will be presented.

PHYS 211 4 Credits Fall and Spring

PHYS 212 4 Credits Fall and Spring
General Physics (3+3) n
Classical physics using calculus for majors in mathematics, physical sciences, and engineering. Laboratory Fee: \$5.00. (Prerequisites: At least concurrent registration in MATH 201, PHYS 211 for PHYS 212, or permission of instructor.)

PHYS 213 4 Credits Spring

Elementary Modern Physics (3+3) n
Geometrical and physical optics: elementary-level modern physics including special relativity, atomic physics, nuclear physics, solid-state physics, elementary particles, simple transport theory, kinetic theory, and concepts of wave mechanics. (Prerequisites: PHYS 211 and 212 or permission of instructor.)

PHYS 275 3 Credits Fall

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 PHYS 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 211 and at least concurrent enrollment in MATH 302; PHYS 311 for PHYS 312, or permission of instructor.)

PHYS 313 4 Credits Fall

Thermodynamics and Statistical Physics (4+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 212 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 212 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 PHYS 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 PHYS 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, MATH 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, MATH 314 and PHYS 331 or permission of instructor.)

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| 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 672 | 3 Credits | Alternate Fall |
| Magnetospheric Physics (3+0) | | |
| PHYS 673 | 3 Credits | Alternate Spring |
| Space Physics (3+0) | | |

Political Science

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| PS 101 | 3 Credits | Fall and 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 102 | 3 Credits | Fall and Spring |
| Introduction to American Government and Politics (3+0) s | | |
| A survey of outstanding problems in policy areas of defense, energy, economic policy, civil rights, technology, social welfare, business regulation, pollution, and education. | | |
| PS 110 | 1 Credit | Fall and Spring |
| Parliamentary Procedures (1+0) | | |
| (Same as ANS 110) | | |
| Introduction to the rules and principles of parliamentary procedures and their application to group decision-making processes. | | |
| PS 201 | 3 Credits | Fall |
| Comparative Politics: Methods of Political Analysis (3+0) s | | |
| Modern methods of analyzing political behavior and processes on a cross-national basis. Specific topics to be covered in different semesters. (This course may be repeated for a maximum of 6 credits.) | | |
| PS 202 | 3 Credits | Spring |
| Comparative Politics: Contemporary Doctrines and Structures (3+0) s | | |
| Analysis of conflicting approaches to the solution of social and political problems with emphasis on nations employing various forms of ideological systems. (This course may be repeated for a maximum of 6 credits.) | | |
| PS 210 | 3 Credits | Spring |
| Alaska Government and Politics (3+0) s | | |
| A comprehensive introduction to the state's government and politics, including political history (as a territory and state), Constitution, political parties, interest groups, elections, public opinion, Governor, Legislature, Judiciary, administration; local government and public policy issues. An integrating theme of the course is the pattern of Alaska uniqueness, as compared to the contiguous-48 states. Special attention is given to relationships and responsiveness of government institutions to social, environmental and political changes of Northern communities. | | |

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| PS 211 | 3 Credits | Alternate Fall |
| State and Local Government (3+0) s | | |
| Forms, functions, and policies of state and local governments in the United States. Intergovernmental relations and comparative analysis of the politics of the 50 states. (Next offered: 1991-92.) | | |
| 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: 1990-91.) | | |
| 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.) | | |
| PS 250 | 3 Credits | Fall |
| Origins of Law (3+0) s | | |
| (Same as JUST 250) | | |
| The study of the historical, social, cultural, intellectual and political origins of the legal system, legal culture and laws of the U.S. Includes discussion of schools of jurisprudence and legal interpretation; the development of common and colonial law through constitutional interpretation; the role of legal profession; and selected current legal practices and issues. | | |
| PS 263 | 3 Credits | Fall and Spring |
| Alaska Native Politics (3+0) s | | |
| An introduction to the 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. An emphasis of the course is comparison between Alaska Native political developments and those of other circumpolar Northern Native communities. | | |
| PS 301 | 3 Credits | Alternate Fall |
| American Presidency (3+0) s | | |
| A study of the institution of the presidency in the American political system. (Prerequisite: PS 101 or consent of instructor. Next offered: 1990-91.) | | |
| PS 302 | 3 Credits | Alternate Spring |
| Congress and Public Policy (3+0) s | | |
| A study of the American Congress in the political system. (Prerequisite: PS 101. Next offered: 1991-92.) | | |
| PS 303 | 3 Credits | Fall |
| Introduction to Legal Processes (3+0) | | |
| (Same as JUST 303) | | |
| The purpose and function of law in society, with a focus on legal reasoning and decisionmaking in civil cases. (Prerequisites: PS 101, JUST 110.) | | |
| PS 310 | 3 Credits | Alternate Fall |
| The Politics of Post-Industrial States (3+0) s | | |
| Political systems of societies which have completed their industrial revolutions. The problem of the welfare state, the no-growth society, the end of ideology, the loss of the work ethic, identity in homogeneous societies. Countries: the U.S., Great Britain, Canada, Soviet Union, Germany, Scandinavian nations, Japan. (Prerequisite: PS 101 or 102 or consent of instructor. PS 201 strongly recommended. Next offered: 1991-92.) | | |
| PS 311 | 3 Credits | Alternate Spring |
| Government and Politics of the Soviet Union (3+0) s | | |
| A survey of Soviet institutions and political processes. (Prerequisites: PS 201 or permission of instructor. Next offered: 1991-92.) | | |
| PS 312 | 3 Credits | Alternate Fall |
| Government and Politics of China (3+0) s | | |
| Modern Chinese politics and society, including government institutions, political processes, foreign relations, and U.S.-China relations (Prerequisites: PS 201 or consent of instructor. Next offered: 1990-91.) | | |
| PS 315 | 3 Credits | Alternate Spring |
| American Political Thought (3+0) 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: 1990-91.) | | |

PS 321 3 Credits Fall
International Politics (3+0) s
 Introduction to the international political system. Survey of international political theory; means of influence and power in international politics; arms control and disarmament; international economic relations; contemporary conflict resolution and strategic issues (such as the movement for a nuclear-free zone in the Arctic.) (Prerequisites: PS 101 and 102 or permission of instructor.)

PS 322 3 Credits Alternate Spring
International Law and Organizations (3+0) s
 Introduction to international law, including development of law (for example, the Law of the Seas). Regional and international organizations; non-state actors in the world system (for example, the Inuit Circumpolar Conference, Greenpeace); international political integration. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1990-91.)

PS 325 3 Credits Spring
Native Self Government (3+0) s
 (Same as ANS 325)
 Comparative study of indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance federal Indian Law and Alaska state chartered local government with comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people. (Prerequisites: HIST 100, PS 263.)

PS 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, JUST 110.)

PS 401 3 Credits Alternate Spring
Political Behavior: Organizations (3+0) s
 How organizations and groups in the U.S. behave. Focus on political parties, labor unions, business, and ethnic associations. Class research project on impact of organizations in modern political life. (Prerequisites: PS 101, 102 and 400 or permission of instructor. Next offered: 1990-91.)

PS 402 3 Credits Alternate Spring
Political Behavior: Individuals (3+0) s
 How individuals behave in the U.S. polity. Focus on political parties, labor unions, business, and ethnic associations. Class research project on impact of political opinions, attitudes, beliefs, and values in modern political life. (Prerequisites: PS 101 and 102 or permission of instructor; PS 222 strongly recommended. Next offered: 1990-91.)

PS 403 3 Credits Alternate Spring
Public Policy (3+0) s
 Discussion of the way in which the policy process works and how policy analysis is carried out. Examples of policy issues from recent cases, especially in Alaska. (Prerequisites: PS 101 and junior standing. Next offered: 1991-92.)

PS 404 3 Credits Spring
Introduction to Legal Research and Writing (3+0)
 (Same as JUST 404)
 The methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101, JUST 110, JUST/PS 303.)

PS 411 3 Credits 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 and 102 or consent of instructor. Next offered: 1991-92.)

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 and 102 or consent of instructor; PS 411 strongly recommended. Next offered: 1991-92.)

PS 415 3 Credits Alternate Fall
Contemporary Political Theory (3+0) s
 Theories of types of democratic regimes, including individualist and socialist. Analysis of underlying values and structural differences, drawing upon contemporary national state cases. (Prerequisites: PS 101 and 102 or permission of instructor; PS 412 strongly recommended. Next offered: 1990-91.)

PS 420 3 Credits Alternate Fall
Environmental Politics (3+0) s
 Examination of the politics of environmental policy decisions at the federal level of government, focusing on the environmental movement as a force reshaping American society. Topics include the limits to growth thesis, impact assessment policy, and wilderness politics. (Next offered: 1990-91.)

PS 435 3 Credits Alternate Fall
The Supreme Court and the American Legal System (3+0) s
 The role of the Supreme Court in the development of American law with emphasis on the influence of social, political, and economic factors on the behavior of courts. (Prerequisites: PS 101 and 102 or permission of instructor. Next offered: 1990-91.)

PS 436 3 Credits Alternate Spring
The Courts and Civil Liberties (3+0) s
 Origin and development of civil and political liberties; responsibility of the branches of government and the people for their maintenance. (Prerequisite: PS 101. Next offered: 1990-91.)

PS 437 3 Credits Alternate Spring
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 and 102 or permission of instructor. Next offered: 1991-92.)

PS 450 3 Credits Alternate Spring
Comparative Aboriginal Rights and Policies (3+0) s
 (Same as ANS 450)
 Use of the case-study approach to develop comparative frameworks for assessing scope and nature of Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations are examined for factors promoting or limiting Aboriginal self-determination. (Prerequisites: Upper division standing or instructor's permission. Next offered: 1991-92.)

PS 475 3 Credits Fall and Spring
Internship in Public Affairs (3+0)
 Study of public agencies or organizations through actual experience. (Admission by permission of the instructor.)

PS 480 1-3 Credits Fall and Spring
Model United Nations (1-3+0) s
 The history, organization, functions, and procedures of the United Nations. Can be taken for any combination of parts A, B, C for a total of 6 credits.

PS 480A Model U.N.: Member Nations Fall
 Introduction to United Nations organization and procedures. 1 credit (may be repeated for a maximum of 2 credits).

PS 480B Model U.N.: Simulation Spring
 Introduction to the use of simulation in international policymaking and administration, focusing on a United Nations member nation. 1 credit (may be repeated for a maximum of 2 credits).

PS 480C Model U.N.: Conference Participation Spring
 Participation in the Annual Session of the Model United Nations. 1 credit (may be repeated for a maximum of 2 credits). (Prerequisite: PS 321 or permission of instructor.)

PS 481 3 Credits As Demand Warrants
Geopolitics and the International Environment (3+0) s
 Survey of the relationship of the international environment and world politics, with a focus on resource politics. Energy policies from an international perspective, including bi-lateral and multi-lateral negotiations (concerning acid rain and global warming, for example) and negotiations between host states and trans-national corporations over management and the distribution of the costs and benefits of resource exploitation. (Prerequisites: PS 101 or 102 or permission of instructor; PS 321 strongly recommended.)

Psychology

PSY 101 3 Credits Fall and Spring
Introduction to Psychology (3+0) s
 Fundamentals and basic principles of general psychology emphasizing both the natural science orientation and the social science orientation including the cultural, environment, heredity, and psychological basis for integrated behavior; visual perception and its sensory basis; audition and the other senses; motivation and emotion; basic processes in learning, problem solving, and thinking; personality; psychological disorders; and the prevention, treatment, and therapeutic strategies. Also available via Independent Learning or via television as a self-paced, computer-aided course; special telecourse fee: \$20.00.

- PSY 110 1 Credit** **Fall and Spring**
Orientation to College (2+0)
 (Same as DEVS 110)
 An overview of the university as an institution with strategies and resources available to ensure a successful transition to college life in general, and specifically, the University of Alaska Fairbanks. Topics include academic and developmental skill building strategies, such as study skills, time management, career planning and stress management. An examination of Alaska's past, present and future from social, cultural, political and economic perspectives, including Pacific Rim and international/global issues. Graded Pass/Fail.
- PSY 116 2 Credits** **As Demand Warrants**
Loosening the Grip: A Survey of Alcohol Information (2+0)
 An alcohol education course covering such topics as factors affecting alcohol use; the effects of alcohol; the symptoms and causes of alcoholism and alcoholic behavior; intervention and treatment; and special treatment considerations (the family of the alcoholic, special populations and prevention).
- PSY 161 3 Credits** **As Demand Warrants**
Counseling Skills I (3+0)
 The study and acquisition of counseling techniques centered on the development of a helping relationship. Emphasis on communication skills including forms of questioning, responses and leads, non-verbal communication. Other topics include delineation of the counselor role, ethics and confidentiality and making referrals. Extensive use of role playing and videotaping as learning approaches.
- PSY 210 3 Credits** **Alternate Spring**
Cross-Cultural Psychology (3+0) s
 A survey of the concepts, premises, and methods of cross-cultural psychology emphasizing its use in testing, extending, and refining psychological theories developed in Western settings. Topics include perceptions, cognition, social behavior, psychopathology, and social change as they relate to cultural variation. (Prerequisite: PSY 101. Next offered: 1991-92.)
- PSY 230 3 Credits** **As Demand Warrants**
Psychology of Adjustment (3+0) s
 Study of the psychology of adjustment, growth, and creativity, including advances in personal psychology, understanding personality patterning, and an exploration of burgeoning techniques and methods for furthering creative potential. (Prerequisite: PSY 101.)
- PSY 240 3 Credits** **Fall and Spring**
Developmental Psychology in Cross-Cultural Perspective (3+0) s
 The development of the individual is examined from both a psychological and cross-cultural perspective. Key topics will be the development of cognition, personality, and social behavior with attention to relevant research on those cultures found in Alaska. Also available via Independent Learning. (Prerequisite: PSY 101.)
- PSY 245 3 Credits** **As Demand Warrants**
Child Development (3+0)
 (Same as ECHD 245)
 Study of development from prenatal through middle childhood including the cognitive, emotional, social and physical aspects of the young child. Course includes child observations. Emphasis is on the roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)
- PSY 250 3 Credits** **Fall and Spring**
Introductory Statistics for Behavioral Sciences (3+0)
 (Same as SOC 250)
 Introduction to the purposes and procedures of statistics: calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means.
- PSY 255 3 Credits** **Fall**
Foundations of Counseling I (3+0)
 (Same as HMSV 255)
 This course is a survey of counseling philosophy and the various types of counseling systems that are used in most settings. An examination of the appropriate approach and system match will be undertaken so that the student will be able to make intelligent decisions concerning which approach to use. Some of the approaches examined will be psychoanalysis, behavior therapy, and humanistic approaches. Offshoots of these approaches will be surveyed if they are in fairly wide use. Counseling ethics will be studied and ethical problems illustrated and discussed. (Prerequisites: PSY 101 and PSY 240 or permission of instructor.)
- PSY 261 3 Credits** **As Demand Warrants**
Counseling Skills II (3+0)
 A continuation of PSY 161 to further develop counseling skills and increase sophistication in the application of skills. Topics include specific counseling strategies and techniques, goal-setting, termination issues and methods of self-critique for paraprofessional counselors. Extensive use in class 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 set against the backdrop of family therapy. Teaching of family therapists will be applied to the solution of problems of everyday living and those presented to local human service agencies. Students are encouraged to integrate theoretical learning with their own style. (Prerequisites: PSY 101, 161, or permission of instructor.)
- PSY 267 3 Credits** **As Demand Warrants**
Stress and the Family (3+0)
 A study of family in the context of both producing and reacting to stress. Focus is on sources of stress from inside and outside the family system. Concentration is on the normal, gradual and cumulative life stressors experienced during the life cycle of the family as well as the extraordinary stressors which occur suddenly and which frequently overwhelm the family's ability to cope. (Prerequisite: PSY 101 or permission of instructor.)
- PSY 304 3 Credits** **Fall**
Personality (3+0) s
 Psychological and social/cultural determinants of personality formation including appropriate theories in both areas. (Prerequisite: PSY 101.)
- PSY 330 3 Credits** **Spring**
Social Psychology (3+0) s
 (Same as SOC 330)
 An analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and the various aspects of collective behavior on group and person. Of special concern are those aspects of social interaction that have cultural and intercultural variation. (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 to the study of comparative psychology emphasizing the basic premises, causal factors, functional consequences and interrelationships, and synthesis of animal behavior and ethology in the development and maintenance of behavioral patterns extant within both individual organisms and social groups. (Prerequisites: PSY 101, BIOL 105-106 and/or permission of instructor. Next offered: 1991-92.)
- PSY 356 3 Credits** **Spring**
Foundations of Counseling II (3+0)
 (Same as HMSV 356)
 This course is a continuation of HMSV 350-Foundations of Counseling I. Specific counseling strategies will be studied in-depth such as crisis intervention, individual techniques such as the rational therapies and specific behavioral approaches. The role of the counselor in community education and consultation will be explored as will methods of promoting community change. Issues in cross-cultural counseling will be studied to include those likely to be encountered in Alaska. (Prerequisites: HMSV 255 or PSY 255.)
- PSY 360 3 Credits** **Alternate Spring**
Psychology of Women Across Cultures (3+0) s
 A presentation of the major theories in the field of the psychology of women. Research and empirical data which describes the psychology of women as a discrete field with unique characteristics will be presented. Philosophical values of feminism and the history of women's roles in society will be considered throughout. The impact of culture on women interpersonally and intrapsychically will be examined across cultures. (Prerequisite: PSY 101 or permission of instructor.)
- PSY 370 3 Credits** **Alternate Fall**
Drugs and Drug Dependence (3+0) s
 (Same as SOC 370)
 A multidisciplinary approach to the study of drugs and drug abuse emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological aspects of drug abuse, psychological and sociological causes and manifestations of drug abuse, recommended drug education alternatives and plans, and the treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1990-91.)

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| PSY 380 3 Credits Human Behavior in the Arctic (3+0) s A study of human behavior as it relates to cold climates. Emphasis will be placed on living systems in Alaska and behavioral characteristics that have to do with stress and isolation. Material will include structural design as related to behavioral research. (Prerequisite: PSY 101. Next offered: 1991-92.) | Alternate Fall |
| PSY 440 3 Credits Learning (3+0) s Survey of theory and research on the fundamentals of learning. Topics to be covered 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: 1990-91.) | Alternate Spring |
| PSY 445 3 Credits Community Psychology (3+0) s (Same as HMSV 445) Community psychology foundations to include community assessment and consultation with regard to areas for study, surveys, evaluation of services, and use of results for programming. During the community consultation portion, education, prevention, and service issues are covered with particular attention given to rural and small community assessment and change, especially as it applied to Alaska. (Prerequisites: PSY 101, SOC 101.) | Fall |
| PSY 450 4 Credits Experimental Psychology (2+6) s An integrated approach to the study of experimental psychology. Emphasis will be placed on the research methodologies and techniques extant in the diverse areas of experimental psychology. Students will engage in the design, execution, and analysis of individual projects involving both animal and human subjects, which relate to fields of current research interest in psychology. (Prerequisites: PSY 101, PSY 250 or STAT 301, and CS course(s) strongly recommended and/or permission of instructor.) | Spring |
| PSY 460 4 Credits Physiological Psychology (3+3) n An integrated multidisciplinary approach to the study of physiological psychology — neuroanatomy and neurophysiology — emphasizing the basic principles, cortical and subcortical organization, functional mechanisms, and the physical-chemical foundations extant in the physiological bases of behavior with special reference to such disciplines as neuroanatomy, neurochemistry, and electrophysiological measures employed in the study of behavior and brain activity; research methods and techniques, and extensive exploration into areas of current research interest, including brain dynamics, the neural bases of learning, the neural substrates of emotion and motivation, states of consciousness, and stress and psychosomatic relationships. (Prerequisite: PSY 101, BIOL 105-106 or BIOL 111-112 strongly recommended; and/or permission of instructor. Next offered: 1991-92.) | Alternate Fall |
| PSY 470 3 Credits Sensation and Perception (3+0) n An integrated psychophysiological inquiry into the study of sensation and perception emphasizing the essential principles, functions and organization, fundamental mechanisms, and the structural complexity extant in the sensory physiology of the special sensory processes — audition, gustation, kinesthesia, olfaction, proprioception, somesthesia, and vision — as well as an examination of the theoretical models and systems of perception with special reference to the biological, cultural, developmental, hereditary, physiological, psychological, and social effects on the interpretation of perceptual and sensory phenomena. (Prerequisite: PSY 101, PSY 460, and BIOL 105-106 or BIOL 111-112 strongly recommended; and/or permission of instructor. Next offered: 1991-92.) | Alternate Spring |
| PSY 473 3 Credits 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). | Fall |
| PSY 610 3 Credits Alcohol: Pharmacology and Behavior (3+0) | Fall |
| PSY 615 3 Credits Drug Action: Physiology and Behavior (3+0) | As Demand Warrants |
| PSY 618 3 Credits Community Treatment Alternatives (3+0) | As Demand Warrants |
| PSY 620 3 Credits Treatment of Drug and Alcohol Dependency (3+0) | As Demand Warrants |
| PSY 625 3 Credits Prevention of Alcohol and Drug Dependency (3+0) | As Demand Warrants |
| PSY 630 3 Credits Community Psychology (3+0) | Fall |
| PSY 631 Credits Community Psychology: Cross-cultural Applications and the Ethics of Change (3+0) | Spring |
| PSY 635 3 Credits Field-Based Research Methods (3+0) | Spring |
| PSY 638 3 Credits Social Policy and Social Change (3+0) (Same as SOC 638) | Alternate Fall |
| PSY 645 3 Credits Prevention Theories and Strategies (3+0) (Same as SOC 645) | Alternate Fall |
| PSY 646 3 Credits Consultation (3+3) (Same as COUN 646) | As Demand Warrants |
| PSY 650 3 Credits Cross-Cultural Psychopathology (3+0) | As Demand Warrants |
| PSY 655 3 Credits Healing: Implications for Clinical/Community Practice (3+0) | Alternate Spring |
| PSY 660 4 Credits Principles and Techniques of Individual Counseling (3+3) (Same as COUN 623) | Fall |
| PSY 661 3 Credits (Same as COUN 660) Cross-Cultural Counseling (3+0) | Spring |
| PSY 662 3 Credits Transformational Development and Psychotherapy (3+0) | Alternate Spring |
| PSY 663 3 Credits Clinical Methods and Assessment (3+0) | Fall |
| PSY 664 3 Credits Behavior Therapy (3+0) | As Demand Warrants |
| PSY 665 3 Credits Psychoanalytic Theory and Clinical Method (3+0) | Alternate Spring |
| PSY 666 3 Credits Family and Network Therapy (3+0) | As Demand Warrants |
| PSY 667 3 Credits Existential Psychotherapy (3+0) | As Demand Warrants |
| PSY 668 3 Credits Crisis Intervention (3+0) | Spring |
| PSY 674 3 Credits Group Counseling (3+0) (Same as COUN 674) | Spring |
| PSY 677 3 Credits Psychological Assessment - Intelligence (3+0) | As Demand Warrants |
| PSY 678 3 Credits Psychological Assessment - Personality (3+0) | As Demand Warrants |
| PSY 688 3 Credits Practicum in Community Psychology (2+7) | Fall and Spring |
| PSY 690 3-12 credits Internship in Community Psychology (0+40) | Fall and Spring |

Religion

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| RELG 205 3 Credits Introduction to the Bible (3+0) h A study of the Bible as literature of ancient Israel and the early Christian Church. | As Demand Warrants |
| RELG 211 Credits Arranged Survey of Shamanism An indepth survey of Shamanism with emphasis on North American and Arctic Shamanism. Understanding general concepts of Shamanism and an introduction to the traditional functions of Shamanism, past and present perceptions of Shamanism and the basic principles and beliefs related to Shamanism. | As Demand Warrants |
| RELG 221 3 Credits 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. | As Demand Warrants |

Rural Development

RD 200 3 Credits **Fall**

Community Development in the North (3+0)
Examines rural community development efforts in Circumpolar countries and the impact of these efforts on Northern communities and indigenous peoples.

RD 255 3 Credits **As Demand Warrants**

Rural Alaska Land Issues (3+0)
The history and significance of ANCSA, ANILA and other land issues in rural areas of Alaska.

RD 265 3 Credits **Fall**

Perspectives on Subsistence in Alaska (3+0)
Examines the socio-economic, cultural, legal and political dimensions of subsistence lifestyles in Alaska.

RD 300 3 Credits **Fall**

Rural Development in a Global Perspective (3+0) 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 as they impact tribal peoples in third and fourth world societies. Particular attention is given to the implications of these processes for Alaska Native people. (Prerequisites: Junior standing or permission of instructor. Next offered: 1991-92.)

RD 325 3 Credits **Spring**

Community Development Strategies (3+0) 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)

An examination of both theory and evidence linking varied forms of education to economic growth and development. A comparative approach is utilized to explore similarities and differences between rural Alaskan regional development and systematic nation-building efforts in developing countries. (Prerequisite: Permission of instructor.)

RD 350 3 Credits **Fall**

Community Research and Planning Techniques (3+0)
Basic techniques and concepts associated with long range community level research, planning and evaluation, activities related to the needs of Native corporations, rural communities and the rural school districts, including practical experience in grant writing.

RD 375 3 Credits **As Demand Warrants**

Women and Development (3+0) s
The effect of modernization and development processes on the role of women in a variety of Third World and tribal world contexts as well as the increasingly important "new" role women play in these complex processes.

RD 400 3 Credits **Fall and Spring**

Rural Development Internship
Structured experience in an appropriate educational, agency or corporate setting. An approved project required. Enrollment only by prior arrangement with the instructor.

RD 425 3 Credits **As Demand Warrants**

Cultural Impact Analysis (3+0)
An examination of the potential impacts of development projects on cultural systems, and then how we can use this information to shape the actual project in positive directions. Particular attention will be paid to data gathering and analysis techniques related to impact predictions. Students will be required to carry out an impact analysis as part of the course. (Prerequisite: RD 350 or permission of instructor.)

RD 450 3 Credits **Spring**

Managing Community Development Programs (3+0)
Examines appropriate management and accountability approaches for small-scale, community-based programs and projects, particularly those found in rural and/or cross-cultural contexts. (Prerequisite: RD 325 or permission of instructor.)

RD 475 3 Credits **Fall and Spring**

Rural Development Senior Project
Under faculty supervision, the student will be required to complete a major theoretical, research and/or applied project which relates the student's applied emphasis area to rural development considerations. (Prerequisite: Senior standing or permission of instructor.)

Russian

For information on studying in the Soviet Union, see Study Abroad.

RUSS 075 3 Credits **As Demand Warrants**

RUSS 076 3 Credits **As Demand Warrants**

Conversational Russian I and II (3+0)
An introductory course for students who wish to acquire the ability to speak Russian. Students first learn to understand simple spoken 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 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 750 words, exploration of the cultural dimension, implicitly through language, and explicitly through texts and audio-visual materials; use of Foreign Language Learning Center.

RUSS 201 4 Credits **Fall**

RUSS 202 4 Credits **Spring**

Intermediate Russian I and II (4+0) 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 288 2 Credits **Alternate Spring**

Individual Study: Reading Russian h
Emphasis on expanding passive vocabulary and recognizing basic grammatical structures; modern Soviet texts. (Prerequisites: RUSS 201, equivalent training or permission of instructor. Recommended to be taken concurrently with RUSS 202. Next offered: 1991-92.)

RUSS 301 3 Credits **Alternate Fall**

RUSS 303 3 Credits **Alternate Fall**

Advanced Russian (3+0) h
Discussions and essays on more difficult subjects or texts: translations, stylistic exercises, and special grammatical problems. Conducted in Russian. (Prerequisite: RUSS 202 or instructor's permission. Next offered: RUSS 301, 1991-92; RUSS 303, 1990-91.)

RUSS 387 2 Credits **Alternate Fall**

Individual Study: Semantics h
Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. (Prerequisite: Two years of Russian or permission of instructor. Next offered: 1991-92.)

RUSS 432 3 Credits **Spring**

Studies in Russian Literature and Civilization (3+0) h
Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in Russian. Student may repeat course for credit when topics vary. (Prerequisites: RUSS 301 or 303 or equivalent, and at least sophomore standing, or permission of instructor.)

RUSS 487 2 Credits **Alternate Fall**

Individual Study: Translation (2+0) 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. (Prerequisites: RUSS 301 or 303 or equivalent and at least sophomore standing, or permission of instructor. Next offered: 1990-91.)

Science Application

Science application courses are not offered on the Fairbanks campus.

SCIA 100 1 Credits **As Demand Warrants**

Introducing Astronomy (1+0)
Course on the history of astronomy, the structure of the universe and its parts and the techniques used for studying the universe. Students will use various optical instruments to observe celestial bodies.

- SCIA 101 3 Credits Independent Learning Only**
Fundamentals of Petroleum
 Designed to give an overall view of the petroleum industry in terms that are understandable by the layperson 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)
 A study of the physical properties of igneous, sedimentary and metamorphic rocks. These properties will be applied toward sight identification of rocks with emphasis on rocks found on the Seward Peninsula.
- SCIA 109 1 Credit As Demand Warrants**
Mineral Identification (1+0)
 A study of the physical and field identifiable chemical properties of rocks and minerals. Emphasis will be on minerals found on the Seward Peninsula.
- SCIA 130 1 Credit As Demand Warrants**
Moose Ecology (1+0)
 Using the natural history of moose, the ecological concepts of energy flow, nutrient cycling, food webs and population dynamics are presented. Special attention is given to the Seward Peninsula moose population and the factors that are considered in making wildlife management decisions.
- SCIA 150 1 Credit As Demand Warrants**
Subarctic Horticulture (0+3)
 General study of horticultural techniques in a subarctic environment. Emphasis on development and care of greenhouses and gardens in the Nome area. Topics covered will be soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques.
- SCIA 161 1 Credit As Demand Warrants**
Birds of Alaska (1+0)
 The biology and identification of birds including behavior, anatomy, physiology, ecology, systematics and field identification. Birds of the Seward Peninsula will be emphasized.
- SCIA 230 2 Credits As Demand Warrants**
Biology and Management of King Crab in Norton Sound (1+3)
 Study of the biology and management of King Crab in Norton Sound. Anatomy, physiology and ecology of the King Crab will be covered. Selected topics in scientific methodology, field biologist's duties and problems of fishery management will be presented. Students will work with Alaska Department of Fish and Game Biologists who are conducting an ongoing study of Norton Sound King Crab. 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)
 Topics studied are plant anatomy, physiology, genetics, ecology, propagation, insect and disease control, soils, greenhouse construction and care and gardening techniques. Students will develop and carry out a horticultural research project in the Nome area.

Social Work

- SWK 103 3 Credits Fall and Spring**
Social Work in the Human Services (3+0)
 Introduction to the profession of social work and the human services delivery system. Examines the historical development of social work focusing on the knowledge, values, and skills that characterize the social worker. Provides an orientation to the context for social work, including the diversity of human needs, human services, social policy and legislation which constitute society's response to social problems. Services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.
- SWK 225 2 Credits As Demand Warrants**
Case Management (2+0)
 (same as HMSV 225)
 Introduction to basic knowledge and skills needed to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management are considered and discussed. (Prerequisite: PSY 101, SOC 101 or permission of instructor.)
- SWK 306 3 Credits Spring**
Social Welfare: Policies and Issues (3+0)
 Social policies and how they effect the delivery of social services. Factors that have influenced the development of the current social service system and its place in the total social structure. Analysis of the dilemmas which develop in a welfare system attempting to deal with rapid social change. Exploration of alternative approaches to the solution of social problems and possible future developments in the social service system. (Prerequisite: SWK 103.)
- SWK 320 3 Credits Spring**
Rural Social Work (3+0)
 Preparation for practice in rural areas where there is a need for more than one delivery system, an understanding of rural customs, and a scarcity of resources. Emphasis will be on preparation for practice nationally with unique features of Alaska incorporated at key points. (Prerequisites: SWK 103, SOC 101.)
- SWK 360 3 Credits Fall**
Child Abuse and Neglect (3+0)
 This course is designed to enable participants to identify and understand the dynamics, implications and treatments of child abuse and neglect for individuals and families in rural and urban Alaska. (Prerequisites: SWK 103 or permission of instructor.)
- SWK 442 3 Credits Fall**
Human Behavior in the Social Environment (3+0)
 This course presents theoretical frameworks considered useful for organizing knowledge about the understanding of personality development and social behavior of individuals. The course will encompass the study of the life cycle, including the processes that shape the individual differences. (Prerequisites: SWK 103, SOC 101, PSY 240, social work major, senior standing and concurrent with SWK 460, SWK 461.)
- SWK 460 3 Credits 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 are discussed. (Prerequisites: SWK 306, social work major, senior standing, concurrent with SWK 461, SWK 442.)
- SWK 461 6 Credits Fall**
Practicum in Social Work I (0+15)
 Application of knowledge and skills to practice in agency setting as practitioners in problem-solving process, including problem assessment, planning and negotiating contracts, implementation and goal attainment and termination and evaluation. Beginning generic skills are practiced in work with individuals, groups and families. Students complete 200 hours of direct practice in an approved agency under the supervision of a field instructor. (Prerequisites: SWK 306, social work major, senior standing, concurrent with SWK 460, SWK 442.)
- SWK 463 3 Credits 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. Heavy emphasis placed on aspects of rural practice such as utilization of community associations and the informal helping network. (Prerequisites: SWK 460, SWK 461, SWK 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 experience of direct practice with client groups, development and use of beginning skills in community work including social planning, indirect or macro-social work methods focus. Emphasis placed on social work methods adapted to rural and cross-cultural settings. Students complete 200 hours of practice in an approved agency under the supervision of a field instructor. (Prerequisites: SWK 460, SWK 461, SWK 442, social work major, senior standing, concurrent with SWK 463.)
- SWK 484 3 Credits As Demand Warrants**
Seminar in Social Work Practice Areas (3+0)
 The course covers problem areas in which social work is involved. Allows students to learn application of basic social work skills in special settings. Problem areas are covered separately in different semesters. Content will be announced in class schedule prior to each semester offered. Course may be repeated for credit when topic varies. (Prerequisites: SWK 103, junior or senior standing or permission of instructor.)

Sociology

SOC 101 3 Credits Fall and Spring

Introduction to Sociology (3+0) s

An introduction to the science of the individual as a social being, emphasizing the interactional, structural, and normative aspects of social behavior. An attempt is made to construct a cross-cultural framework in understanding 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 and Spring

Social Institutions (3+0) s

A continuation of SOC 101: application of the concepts learned by developing and carrying out short surveys of sociological phenomena. Institutions of society, such as family, political and economic order, are examined, including their operation in the Alaska rural and 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 the major problems facing contemporary society, including analysis of factors giving rise these problems. Emphasis is given to cross-cultural differences in Alaska and other parts of the world. (Also available via television as a self-paced, computer-aided course; special telecourse fee: \$20.00.)

SOC 242 3 Credits Spring

The Family: A Cross-Cultural Perspective (3+0) s

The study of contemporary patterns of marriage and family relationships. Various approaches such as the developmental, systems, and social psychological are used to analyze these relationships. The family is followed through the stages of the family life cycle, such as mate selection, marriage, early marital interaction, parenthood, the middle and later years, and possible dissolution. Attention is given to cross-cultural differences in Alaska as well as in other parts of the world. Also available via Independent Learning. (Prerequisites: SOC 101 or permission of instructor.)

SOC 250 3 Credits Fall and Spring

Introductory Statistics for Behavioral Sciences (3+0)

(Same as PSY 250.)

Introduction to the purposes and procedures of statistics; calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means.

SOC 301 3 Credits Spring

Rural Sociology (3+0) s

Application of the principles of sociology to the study of rural social systems in the U. S. and abroad. Topics covered include: societal processes, changing values, economic development, demographic change, agrarian reforms, planned change, and rural community networks. Part of the focus will be on the rural communities of Alaska. (Prerequisites: SOC 101 or permission of instructor.)

SOC 307 3 Credits Spring

Demography (3+0) s

The study of formal demographic variables such as Fertility, Mortality, and Migration and their interaction with social demographic variables like social class, religion, race, residence, attitudes, and values. The course also focuses on the Alaskan population dynamics.

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 content. (Next offered: 1990-91.)

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 in other societies. (Prerequisite: SOC 101. Next offered: 1990-91.)

SOC 330 3 Credits Spring

Social Psychology (3+0) s

(Same as PSY 330)

An analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and the various aspects of collective behavior on group and person. Of special concern are those aspects of social interaction that have cultural and intercultural variation. (Prerequisites: SOC 101 or PSY 101.)

SOC 335 3 Credits Fall

Sociology of Deviant Behavior (3+0)

A study of the causes of deviant behavior, both criminal and non-criminal, with emphasis on the nature of social interaction and an examination of the social control groups and institutions. (Prerequisite: SOC 101.)

SOC 345 3 Credits As Demand Warrants

Sociology of Education (3+0)

(Same as ED 345)

Examination of the ways in which social, political, and economic forces influence what happens in schools with focus on how the organization of schools affects what teachers can do in the classroom, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisites: SOC 101 and junior standing.)

SOC 363 3 Credits Fall

Social Stratification (3+0) s

The study of the differential distribution of social power, privilege, and life chances in class and caste as the basis for social organization. Emphasis on occupational, educational, and other correlates which determine social structure. Also includes a comparative study of class and caste in India and the United States. (Prerequisite: SOC 101.)

SOC 370 3 Credits Alternate Fall

Drugs and Drug Dependence (3+0) s

(Same as PSY 370)

A multidisciplinary approach to the study of drugs and drug abuse emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological aspects of drug abuse, psychological and sociological causes and manifestations of drug abuse, recommended drug education alternatives and plans, and the treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1991-92.)

SOC 402 3 Credits Spring

Theories of Sociology (3+0) 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. (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. (Prerequisites: 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 will be considered. (Prerequisite: SOC 101. Next offered: 1990-91.)

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 relations are applied to American and Alaskan racial and ethnic groups. (Prerequisite: SOC 101. Next offered: 1991-92.)

SOC 473 3 Credits Fall

Social Science Research Methods (3+0) 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

Social Policy and Social Change (3+0)

(Same as PSY 638.)

SOC 645 3 Credits Alternate Fall

Prevention Theories and Strategies (3+0)

(Same as PSY 645.)

Spanish

For information on studying in Europe, see Study Abroad.

SPAN 075 3 Credits As Demand Warrants
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; use of Foreign Language Learning Center. (Prerequisite for SPAN 102: SPAN 101 or 100B or the equivalent.)

SPAN 113 3 Credits As Demand Warrants
Spanish for Tourists (3+0)

For students with no background in Spanish who wish to learn useful phrases and basic language. Cultural and travel information on Spain and Latin America.

SPAN 201 3 Credits Fall
SPAN 202 3 Credits Spring= Intermediate Spanish I and II (3+0) h

Continuation of SPAN 102. Increasing emphasis on reading ability and culture material. Conducted in Spanish. (Prerequisite: SPAN 102 or equivalent.)

SPAN 288 2 Credits Spring

Individual Study: Reading Spanish h

Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures, development of true reading skill, and modern literary and/or non-literary texts. (Prerequisites: SPAN 201, equivalent training or permission of instructor. Recommended to be taken concurrently with SPAN 202.)

SPAN 301 3 Credits Alternate Fall
SPAN 303 3 Credits Alternate Fall

Advanced Spanish (3+0) h

Discussions and essays on more difficult subjects or texts, translations, stylistic exercises, and special grammatical problems. Conducted in Spanish. (Prerequisite: SPAN 202 or equivalent. SPAN 301 next offered: 1991-92; SPAN 303: 1990-91.)

SPAN 387 2 Credits Alternate Fall

Individual Study: Semantics h

Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. Conducted in Spanish. (Prerequisite: SPAN 202 or permission of instructor. Next offered: 1991-92.)

SPAN 432 3 Credits Spring

Studies in Hispanic Literature and Culture (3+0) h

Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in Spanish. Student may repeat course for credit when topics vary. (Prerequisite: SPAN 301 or 303 or equivalent and at least sophomore standing or permission of instructor.)

SPAN 487 2 Credits Alternate Fall

Individual Study: Translation of Texts

Expansion of vocabulary and grammatical knowledge; emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language, and literary and non-literary texts. Student may repeat course for credit if materials vary. Conducted in Spanish. (Prerequisite: SPAN 301 or 303 or equivalent and at least sophomore standing, or permission of instructor. Next offered: 1990-91.)

SPAN 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. 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 121, 131 and 141) even if they have preregistered.

SPC 111 3 Credits As Demand Warrants
Fundamentals of Oral Communication (3+0) o

An introduction to the concepts and processes of oral communication. Focuses on increased understanding of and effective performance in common interpersonal, group, and public communication situations.

SPC 121 3 Credits Fall and Spring
Fundamentals of Oral Communication: Interpersonal Emphasis (3+0) o

An introduction to the communication process. Focuses on the core concepts of listening, perception, verbal and non-verbal communication, and organizing materials. Emphasizes increased understanding of and effective performance in TWO-PERSON COMMUNICATION SITUATIONS.

SPC 131 3 Credits Fall and Spring
Fundamentals of Oral Communication: Small Group Emphasis (3+0) o

An introduction to the communication process. Focuses on the core concepts of listening, perception, verbal and non-verbal communication, and organizing material. Emphasizes increased understanding of and effective performance in SMALL GROUP COMMUNICATION SITUATIONS.

SPC 141 3 Credits Fall and Spring
Fundamentals of Oral Communication: Public Speaking Emphasis (3+0) o

An introduction to the communication process. Focuses on the core concepts of listening, perception, verbal and non-verbal communication, and organizing material. Emphasizes increased understanding of and effective performance in PUBLIC SPEAKING SITUATIONS.

SPC 211 3 Credits As Demand Warrants
Voice and Diction (2+2)

Development of fluency and clearness in the voice, study and practice to improve speech and eliminate faults of articulation and pronunciation, phrasing, inflection, and emphasis, including individual analysis and tape recording. (Prerequisite: Any 100 level oral communication course or permission of instructor.)

SPC 231 3 Credits Alternate Years
Business and Professional Communication (3+0) s

A pre-professional course designed to help business, professional, and communication students enhance their oral communication skills, focusing on superior/subordinate communication, interviewing, conference and meeting techniques, and presentational speaking. (Prerequisites: Any 100 level oral communication course or permission of instructor. Next offered: Spring 1991.)

SPC 251 3 Credits Alternate Years
Argumentation and Debate (3+0)

Principles and practices in contemporary debate. Review and analysis of relevant argumentation principles as applied to a debate situation. Practice in preparation, defense, and refutation of cases developed in reference to a given debate resolution. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: Fall 1990.)

SPC 261 3 Credits Alternate Years
Oral Interpretation (3+0) h

Interpretive reading of a variety of literary forms. Focuses on the development of (1) intellectual and emotional responsiveness to literature for increased understanding and appreciation, and (2) expressional skills of voice and body for effective oral interpretation of literature. (Prerequisites: Any 100 level oral communication course, THR 221, or permission of instructor. Next offered: Fall 1991.)

- SPC 282 3 Credits Alternate Years**
Communication Research Methods (3+0)
 Empirical and rhetorical-critical research methodologies employed in communication studies, including assumptions, key issues, and applications. (Prerequisites: Any 100 level oral communication course or permission of instructor. Next offered: Fall 1990.)
- SPC 320 3 Credits Alternate Years**
Communication and Language (3+0)
 The role of language and meaning in human communication. (Prerequisite: Any lower division speech communication course or permission of instructor. Next offered: Fall 1991.)
- SPC 321 3 Credits Alternate Years**
Nonverbal Communication (3+0) s
 The role of non-verbal behavior in human communication. Includes consideration of the roles of space, physical environment, physical appearance and dress, kinesics, facial expression, and non-verbal vocal behavior. (Prerequisite: Any lower division Speech Communication course or permission of instructor. Next offered: Fall 1991.)
- SPC 322 3 Credits Alternate Years**
Interpersonal Communication (3+0) s
 Study of humanistic approaches to interpersonal communication. Emphasis is on dialogic/transactive communication within two person situations. In-depth exploration of theoretical materials related to many types of relational interchanges. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: Spring 1991.)
- 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. Special emphasis on problems in intercultural communication in Alaska. (Prerequisite: Any lower division Speech Communication course or permission of instructor. Next offered: Fall 1990.)
- SPC 331 3 Credits Alternate Years**
Group Communication (3+0) s
 Current research and theory in intergroup and intragroup relations. Topics will include the study of leadership, power, group structure, participation, and conflict. (Prerequisites: Any 100 level Speech Communication course or permission of instructor. Next offered: Fall 1991.)
- SPC 335 3 Credits Alternate Years**
Organizational Communication (3+0) s
 The scope and nature of communication networks within and between organization, concentrating on message flow, interaction patterns, and environmental-structural interactions in organizational settings. (Prerequisite: Completion of one lower division Speech Communication course or permission of the instructor. Next offered: Spring 1992.)
- SPC 342 3 Credits Alternate Years**
Advanced Public Speaking (3+0) s
 Advanced opportunities to study and critique methods of speech preparation and delivery. Performance and criticism of original speeches to develop understanding of sophisticated techniques of public discourse. (Prerequisite: Any lower division Speech Communication course or permission of the instructor. Next offered: Spring 1992.)
- SPC 425 3 Credits Alternate Years**
Communication Theory (3+0) s
 Study of theories of human communication, as well as of the nature of inquiry into human communication phenomena. Issues covered 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: Fall 1991.)
- 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: Spring 1992.)
- SPC 443 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 will be studied. (Prerequisite: Any 300 level oral communication course or permission of the instructor. Next offered: Spring 1991.)

- SPC 475 3 Credits Alternate Years**
Speech Communication in Education and Training (3+0)
 Issues pertaining to the research and development of instructional units in speech communication for educational and professional courses. Issues covered include student needs analysis, syllabi development, behavioral objectives, unit packages, competency, models, and program integration. (Prerequisites: Any 300 level Speech Communication course or permission of instructor. Next offered: Fall 1990.)

- SPC 482 3 Credits Alternate Years**
Seminar in Speech Communication (3+0)
 Current trends and theory in key-areas of the discipline of Speech Communication are examined. Students will concentrate their research in their specialty area while examining selected topics in all the areas. (Prerequisite: Any 300 level Speech Communication course or permission of instructor. Next offered: Spring 1992.)

Statistics

- STAT 301 3 Credits Fall and 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. (Prerequisites: MATH 107 and junior standing or consent of instructor)

- STAT 351 2 Credits Spring**
Statistical Computing Packages (1+3)
 A study of the use of BMDP, SPSS, MINITAB, IMSL, and other miscellaneous statistical computing packages. Comparison of output for similar analyses. (Prerequisite: STAT 301.)

- STAT 400 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 301 and STAT 400 to meet the requirement of a year's sequence course in statistics. (Prerequisites: MATH 200, 272, or 162.)

- STAT 401 4 Credits Fairbanks, Fall
Juneau, As Demand Warrants**
Regression and Analysis of Variance (3+3)
 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. (Prerequisite: STAT 301 [J STAT 373].)

- STAT 402 3 Credits Fall and Spring**
Scientific Sampling (2+3)
 Sampling methods, including simple random, stratified and systematic; estimation procedures, including ratio and regression methods; special area and point sampling procedures; optimum allocation. (Prerequisite: STAT 301)

- STAT 461 3 Credits Alternate Spring**
Applied Multivariate Statistics (3+0)
 A study of multivariate statistical methods of estimation and hypothesis testing, multivariate normality and its assessment, multivariate one and two sample tests, confidence regions, multivariate analysis of variance, discrimination and classification, principal components, factor analysis clustering techniques, and graphical presentation. Statistical computing packages utilized in assignments. (Prerequisites: STAT 401 or consent of instructor. Next offered: 1991-92.)

- STAT 602 3 Credits Fairbanks and Juneau
As Demand Warrants**
Experimental Design (3+0)

- STAT 621 3 Credits Fairbanks, Alternate Fall
Juneau, As Demand Warrants**
Distribution-Free Statistics (3+0)

- STAT 640 3 Credits Fairbanks and Juneau
As Demand Warrants**
Exploratory Data Analysis (2+2)

- STAT 661 3 Credits Fairbanks and Juneau
As Demand Warrants**
Sampling Theory (3+0)

STAT 680 4 Credits
Data Analysis in Biology (3+3)
 (Same as BIOL 680)

Alternate Fall

Note: The following courses are statistical in orientation. A course description and listing of prerequisites may be found in the appropriate departmental course listings.

ANTH 421 — Analytical Techniques
 BA 360 — Operations Management
 BA 606 — Quantitative Analysis
 BA 684 — Quantitative Methods for Management
 GEOS 430 — Statistical and Data Analysis in Geology
 ECON 226 — Introduction to Statistics for Economics and Business
 ECON 227 — Statistical Methods
 ECON 626 — Econometrics
 ESM 621 — Operations Research
 MATH 371 — Probability
 MATH 408 — Mathematical Statistics
 PSY 250 — Introduction to Statistics for Behavioral Sciences
 FISH 630 — Quantitative Fisheries Science

Theater

THR 101, 201
THR 301, 401 1-3 Credits

Fall and Spring

Theater Practicum (0+Var.) h
 Participation in Drama Workshop or lab production as performer or technical staff member. Graded pass/fail only. (Credit in this course may not be applied to a major program in theater.)

THR 121 3 Credits
Fundamentals of Acting (3+0) h

Fall and Spring

Basic stage acting techniques for persons with little or no prior acting experience. Emphasis will be given to develop physical, emotional and imaginative awareness. Scene work fundamentals introduced.

THR 161 3 Credits
Introduction to Tuma Theatre (3+0) h
 (Same as ANS 161)

Fall

Introduction to the development and performance of original and traditional theatrical works derived from various Alaska Native cultural heritages and experiences. This course is a prerequisite for ANS/THR 361, Advanced Tuma Theatre and for membership in the Tuma Theatre touring company.

THR 211 3 Credits
Theater Appreciation (3+0) h

Fall and Spring

A guide to the richer appreciation of theater through a study of the main periods, styles and playwrights from the classical period to the present.

THR 221 3 Credits
Intermediate Acting (1+4) h

Spring

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
Movement for the Actor (1+4) h

Alternate Spring

Principles of stage movement, body awareness, and control as explored through analysis, exercise, study of historical dance and scene work. (Next offered: 1991-92.)

THR 241 3 Credits
Basic Stagecraft (2+2) h

Fall

Materials of scene construction and painting and their use.

THR 321 3 Credits
Advanced Acting I (1+4) h

Alternate Fall

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: 1990-91.)

THR 325 3 Credits
Theater Speech (2+2) h

Alternate Fall

Vocal techniques for actors. Standard stage diction and foreign dialects. (Prerequisite: THR 221 or permission of instructor. Next offered: 1990-91.)

THR 331 3 Credits
Fundamentals of Stage Direction (1+4) h

Alternate Spring

Introduction to the history, theory, basic concepts of stage direction, interpretative script analysis, creative visualization, conceptualization, use of space, working with actors and designers. Direction of short scenes and plays. (Prerequisite: THR 221 or permission of the instructor. Next offered: 1990-91.)

THR 341 3 Credits
Intermediate Stagecraft (2+2) h

Spring

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. Next offered: 1990-91.)

THR 343 3 Credits
Scene Design (3+0) h

Alternate Fall

Principles and techniques of theatrical scene design. The student will design projects directed at solving particular scenic problems or working in a specific scenic style with specific physical limitations. (Prerequisite: THR 241 or permission of the instructor. Students will spend approximately \$40 for materials. Next offered: 1990-91.)

THR 347 3 Credits
Lighting Design (3+0) h

Alternate Spring

Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained from the experiments. (Prerequisite: THR 343 or permission of the instructor. May be taken concurrently with THR 343. Students will spend approximately \$40 for materials. Next offered: 1990-91.)

THR 351 3 Credits
Makeup for Theater (1+4) h

Spring

Theatrical makeup for actors, teachers, directors, and other theater workers; makeup materials and use, straight and character makeup, illusory and plastic relief, national types, and influence of lighting. (Students will spend approximately \$85 for materials.) (Prerequisite: Any lower division theater course or permission of the instructor.)

THR 354 3 Credits
Costume Construction and Design (3+0) h

Fall

The processes of research, design, and construction of period and modern clothing for the stage. The student will research and design projects representative of specific periods of dress, as well as be given practical experience in the areas of pattern drafting, theatrical construction methods, and drawing and rendering techniques. (Prerequisite: THR 211 or permission of the instructor.)

THR 355 3 Credits
History of Stage Costume (3+0) h

Alternate Spring

Stage costume and contemporary dress of the major theatrical periods. Emphasis will be placed on the process of selection of costumes for representative plays of each period. (Prerequisite: THR 211 or permission of instructor. The student is expected to have basic knowledge of theater practice and the interpretation of dramatic literature. Next offered: 1990-91.)

THR 361 3 Credits
Advanced Tuma Theatre (3+0) h
 (Same as ANS 361)

Fall

Continuation of ANS/THR 161 with emphasis on performance of previously prepared materials. Rehearsals during the first half of the semester will be followed by local area performances. Upon successful completion of the course, students will be eligible for the Tuma Theatre Company's spring and summer tours (see THR 101-401). (Prerequisites: ANS/THR 161 and one of the following: THR 221, THR 241, THR 343, THR 347 or permission of instructor.)

THR 411 3 Credits
Theater History I (3+0) h

Alternate Years

Intensive examination of theatrical form and practice from its origins in storytelling and ritual through the French Neo-classic Theater. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1991-92.)

THR 412 3 Credits
Theater History II (3+0) h

Alternate Years

Intensive examination of theatrical form and practice from the English Restoration through the present. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1990-91.)

THR 413 3 Credits
Playscript Analysis (3+0) h

Alternate Fall

Intensive investigation of the structure of playscripts designed to develop skills in analysis and interpretation for performance. (Prerequisites: Junior Standing, THR 211 or permission of instructor. Next offered: 1991-92.)

- THR 421 3 Credits** **Alternate Spring**
Advanced Acting II (1+4) h
 Introduction of acting techniques for periods and styles. Intensive scene and monologue work. Introduction of ensemble work. Public performance of short plays. Intensive audition work. (Prerequisite: THR 221 or permission of the instructor. Next offered: 1991-92.)
- THR 435 3 Credits** **Alternate Spring**
Advanced Stage Direction (1+4) h
 Study of major theories and current trends in stage direction. Working with different styles, periods and stage configurations. Emphasis on practical preparation for production: from concept to execution of a one act play for public performance. (Prerequisite: THR 331 or permission of instructor. Next offered: 1991-92.)
- THR 456 3 Credits** **Alternate Spring**
Intermediate Costuming (3+0) h
 Examination of theatrical costuming materials and methods and the continuation of the study of period styles. Special projects concerning drafting, construction, composition and design. (Prerequisites: THR 211, THR 354 or permission of instructor. Next offered: 1990-91.)
- THR 471 3 Credits** **Alternate Years**
Methods in Secondary Theatre Education (3+0)
 Principles and methods of teaching theatre in junior and senior high school with emphasis on philosophies, management, objectives, and teaching techniques for classroom and extracurricular theatre activities. Includes development and implementation of specific unit packages and rehearsal methods. (Prerequisite: THR 211 or permission of instructor. Next offered: Fall 1990.)

Trades and Technology

Trades and technology courses are not offered on the Fairbanks campus.

- 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 include 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
 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 as applied to industry, including arithmetic review, ratios and proportion, powers and roots, algebra, geometry and trigonometry. Mathematical applications of basic physics with reference to units of measurement, use of precision measuring tools, measurement of forces, temperature, fluids and electricity.
- TTCH 132 3 Credits** **As Demand Warrants**
Building Maintenance Materials (3+0)
 Discusses the basic properties, processes and uses of metals and non-metals in tools, machines and building materials. Practical application of these materials to building maintenance situations will be emphasized.
- TTCH 133 3 Credits** **As Demand Warrants**
Basic Hand and Power Tools (3+0)
 Includes proper nomenclature, uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.
- TTCH 134 1 Credit** **As Demand Warrants**
Maintenance Safety (1+0)
 Introduction to industrial safety including the following: recognizing safety hazards; working safely; handling materials safely; using machinery safely; personal protective equipment; electrical safety; fire protection and government safety regulations.
- TTCH 135 1 Credit** **As Demand Warrants**
Basic Maintenance Troubleshooting (1+0)
 Basic troubleshooting procedures used by building maintenance personnel in the repair of plant equipment and systems. Systematic approaches to troubleshooting, scheduled and unscheduled maintenance.
- TTCH 136 3 Credits** **As Demand Warrants**
Basic Shielded Metal-Arc Welding (3+0)
 Introduction to welding in preparation of further study. Topics included are welding safety, electrical welding equipment, electrode identification and selection. Welding practice on mild steel in various welder positions. Assumes no previous knowledge on part of student.
- TTCH 146 2 Credits** **As Demand Warrants**
Furnace Repair (2+0)
 Introduction to theory of operation, maintenance, repair of oil burning furnaces, both forced air and radiant. Course is designed to familiarize the homeowner with routine maintenance and upkeep of a furnace and trouble shooting procedures for emergency servicing.
- TTCH 147 1 Credit** **As Demand Warrants**
Burner Maintenance and Repair (1+2)
 Students will learn to troubleshoot 10 common problems, read manuals, change parts, set electrodes, change nozzles, understand controls and order replacement parts.
- TTCH 214 3 Credits** **As Demand Warrants**
Heating Systems Design (3+0)
 Comprehensive instruction in installation and design of heating systems. Topics include installation procedures of current systems, heat loss calculation, heat distribution through hydronic and air systems, and boiler and furnace sizing. Major emphasis is placed upon systems approach to heating system design.
- TTCH 099, 199, 299 1-3 Credits** **As Demand Warrants**
Practicum
 Allows the student to work on and develop the skills learned in prior courses. Designed to meet the needs of individual students.

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. Course presented in a "hands-on" fashion.
- 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)
 Covers arc welding techniques and basic MIG and TIG welding. (Prerequisite: WMT 103 or permission of instructor.) Materials fee: \$200.00.

WMT 110 1-3 Credits As Demand Warrants
Oxy-Acetylene Welding (OAW)
 Up to three credits will be awarded toward the program for successful completion of any of the four sections; 110A-Certif OAW (1G); 110B-Certif OAW (2G); 110C-Certif OAW (3G); 110D-Certif OAW (4G). Courses are presented in competency based manner.

WMT 115 1 Credit As Demand Warrants
Bronze Gas Welding (OAW Bronze) (1+0)
 One credit will be granted for successful completion of the certification test. WMT 115A-Certif OAW (1G). Course presented in competency based manner.

WMT 130 1-3 Credits As Demand Warrants
Shielded Metal Arc Welding (SMAW)
 All positions will be emphasized for multiple pass fillet welds. Up to three credits will be awarded toward the program for successful completion of any of the four sections; 130A-Certif SMAW (1F); 130B-Certif SMAW (2F); 130C-Certif SMAW (3F); 130D-Certif SMAW (4F). Course presented in competency based manner.

WMT 150 1-3 Credits As Demand Warrants
Gas Tungsten Arc Welding (GTAW)
 Use of tungsten and argon gas to do aluminum and stainless steel gas welding. (Formerly call Heliarc.) Up to three credits will be awarded toward the program 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). Course presented in competency based manner.

WMT 160 1-3 Credits As Demand Warrants
Gas Metal Arc Weld Alum (GMAW)
 Course designed to prepare student to work on Microwire processes. Up to three credits will be awarded toward the program for successful completion of any of the four sections; 160A-Certif GMAW M.Steel (1F); 160B-Certif GMAW M. Steel (2F); 160C-Certif GMAW M. Steel (3F); 160D-Certif GMAW M. Steel (4F). Course presented in competency based manner.

WMT 241 3 Credits As Demand Warrants
Gas, MIG and TIG Welding (3+0)
 Course covers gas shield welding with three common methods used in industry. Emphasis on metal specifications, cap joints, butt joints, tee joints and tube welding on steel, aluminum and stainless. Materials fee: \$250.00. (Prerequisite: WMT 103 and 105.)

WMT 261 3 Credits As Demand Warrants
Aviation Welding (2+2)
 Tungsten inert gas and oxyacetylene will be used to weld Moly steel aircraft structural parts. Basic aircraft joints and sheet metal joints will be welded. Recommended as a review for licensed Aircraft and Power mechanics as well as those contemplating an A & P license.

Wildlife

WLF 101 1 Credit Spring
Survey of Wildlife Science (1+0)
 Survey of the history and nature of wildlife work. Lectures, supplemented by guest presentations, will introduce major aspects of wildlife biology and management as well as the research of local wildlife biologists and the programs of management agencies. (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, examples in the use of computers and quantitative methods in wildlife work. Some field trips may be included. (Prerequisites: BIOL 271, familiarity with computer usage desirable.)

WLF 303 3 Credits Fall
Wildlife Management Techniques (2+3)
 Study of procedures used by wildlife biologists and managers to collect, analyze, and disseminate information. A brief discussion of the usefulness of a technique will precede its description or application. Topics covered include: using the wildlife literature and scientific writing; behavioral sampling; nomenclature, identification, and sexing and aging of wildlife; census methods; habitat evaluation and manipulation; biotelemetry; home range; food habits and modeling; and necropsy procedures, animal condition, and wildlife diseases. A term paper is required. Laboratory fee: \$10.00. (Prerequisites: WLF 201 or equivalent, BIOL 271.)

WLF 304 1-3 Credits Fall and Spring
Wildlife Internships
 Programs designed to provide undergraduate students with practical experience in wildlife management in public or private agencies. Projects are approved by faculty member and supervised by professional agency staff. Not substitutable for courses required for major. (Prerequisites: Permission of instructor.)

WLF 305 3 Credits Alternate Spring
Wildlife Diseases (2+3)
 Basic concepts of parasitic, infectious, environmental, and nutritional diseases. Specific study of Alaskan wildlife diseases. Basic necropsy technique and chemical immobilization. Laboratory fee: \$10.00. (Prerequisites: BIOL 105, 106 or equivalent and permission of instructor. Recommended: BIOL 205 or 222 and BIOL 210. Next offered: 1991-92.)

WLF 360 3 Credits Fall
Nutrition and Physiological Ecology of Wildlife (3+0)
 Concepts and techniques of nutrition and physiological ecology used by wildlife managers to understand relationships between wild animals and habitats they occupy. Includes techniques for constructing energy and nutrient budgets of wild animals and applications of these budgets to population level processes and habitat management. (Prerequisites: BIOL 210, 271, WLF 201.)

WLF 410 3 Credits Spring
Wildlife Populations and Their Management (2+3)
 The characteristics and ecology of wildlife populations and the knowledge necessary for their wise management. Measures of abundance, dispersal, fecundity and mortality, population modeling, competition and predation, and the management of rare species and their habitats. Laboratory fee: \$10.00. (Prerequisites: BIOL 271, STAT 301, WLF 303.)

WLF 417 2 Credits Alternate Spring
Wildlife Management: Forest and Tundra (2+0)
 Description of tundra and forest ecosystems including major groups of birds and mammals. Biological, economic, and political factors important in the conservation of major species. (Prerequisites: BIOL 425 and BIOL 426 or permission of the instructor. Next offered: 1991-92.)

WLF 419 4 Credits Alternate Fall
Waterfowl and Wetlands Ecology and Management (3+3)
 Ecology of waterfowl and their associated wetland habitats. Management of populations, including harvest and manipulation of habitats. Distribution, abundance, taxonomy and identification of North American waterfowl. (Prerequisite: BIOL 271, 426, and WLF 201 or permission of instructor. Next offered: 1991-92.)

WLF 420 3 Credits Spring
Wildlife Policy and Administration (3+0)
 Study of laws and agencies shaping wildlife management in North America. History and current status of major policy issues. Organization of and funding sources for state and federal programs in wildlife conservation. (Prerequisite: A 3 credit course in wildlife management principles or permission of instructor.)

WLF 611 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 and Spring
Graduate Seminar (0+0+1)

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- Benson, Carl S.**, Professor of Geophysics and Geology, Emeritus, University of Minnesota '50, B.A.; '56, M.S.; California Institute of Technology '60, Ph.D. (1960-1987)
- Bernet, John William**, Professor of English, Emeritus, State University of Iowa '51, B.A.; University of North Dakota '57, M.A.; Stanford University '69, M.A.; '69, Ph.D. (1959-1964; 1970-1988)
- Brundage, Arthur L.**, Professor of Animal Science, Emeritus, Cornell University '50, B.S.; University of Minnesota '52, M.S.; '55, Ph.D. (1968-1985)
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- Clark, Bettie H.**, Head, Alumni Services and Career Planning and Placement, Emeritus, University of Alaska '35, B.S. (1962-1972)
- Clark, Vena A.**, Associate Professor of Home Economics, Emeritus, Cotner College '25, A.B.; Iowa State University '33, M.S. (1953-1967)
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- Dieterich, Robert A.**, Professor of Veterinary Science, Emeritus, University of California '61, B.S.; '63, D.V.M. (1967-1987)
- Dinkel, Don H.**, Professor of Plant Physiology, Emeritus, University of Minnesota '54, B.S.; '60, Ph.D. (1960-1966, 1968-1983)
- Deehr, Charles Sterling**, Professor of Physics, Emeritus, Reed College '58, B.A.; University of Alaska '61, M.S.; '68, Ph.D. (1958-1988)
- Elsner, Robert**, Professor of Marine Science, Emeritus, New York University '50, B.A.; University of Washington '55, M.S.; '59, Ph.D. (1973-1988)
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- Fohn-Hansen, Lydia**, Associate Director of Cooperative Extension, Emeritus, Iowa State College '19, B.S.; '22, M.S.; University of Alaska '59, D.Hum. (1925-1936, 1940-1959)
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- Gordon, Bruce R.**, Professor of French and Spanish, Emeritus, Brown University '37, A.B.; New York State College for Teachers '42, M.A.; Syracuse University '50, Ph.D. (1963-1977)
- Griese, Arnold**, Professor of Education, Emeritus, Georgetown University '48, B.A.; University of Miami '57, M.Ed.; University of Arizona '60, Ph.D. (1960-1980)
- Harbo, Samuel J.**, Professor of Wildlife Management and Biometrics, Emeritus, University of Nebraska '51, B.S.; University of Alaska '58, M.S.; North Carolina State University, Raleigh '72, Ph.D.
- Head, Thomas J.**, Professor of Mathematics and Computer Science, Emeritus, University of Oklahoma '54, B.S.; '55, M.A.; University of Kansas '62, Ph.D. (1965-1988)
- Hessler, Victor P.**, Professor of Geophysics, Emeritus, Oregon State University '26, B.S.; Iowa State University '27, M.S.; '34, Ph.D. (1955-1968)
- Hollerbach, Wolf**, Professor of French and Spanish, Emeritus, Universite de Rennes '61, Doctorat d'Universite, University of Bonn '62, Wissenschaftliches Staatsexamen. (1965-1988)
- Hood, Donald W.**, Professor of Marine Science, Emeritus, Pennsylvania State University '40, B.S.; Oklahoma State University '42, M.S.; Texas A&M University '50, Ph.D. (1965-1978)
- Hunsucker, Robert**, Professor of Electrical Engineering, Emeritus and Professor of Physics, Emeritus, Oregon State University '54, B.S.; '58, M.S.; University of Colorado '69, Ph.D. (1971-1987)
- Hunt, William**, Professor of History, Emeritus, Seattle University '51, B.S.S.; University of Washington '58, J.D.; '66, M.A.; '67, Ph.D. (1967-1979)
- Irving, Laurence**, Professor of Zoophysiology, Emeritus, Bowdoin College '16, A.B.; '59, D.Sc. (Hon.); Harvard University '17, A.M.; Stanford University '24, Ph.D.; University of Oslo '56, M.D. (Hon.); University of Alaska '68, D.Sc. (Hon.) (1962-1975) Deceased
- Jones, Laura**, Director of Admissions and Registrar, Emeritus, University of Denver '41, B.A. (1956-1971) Deceased
- Keim, Charles J.**, Professor of Journalism and English, Emeritus, University of Washington '48, B.A.; '50, M.A. (1954-1977)
- Keller, William K.**, Professor of Education, Emeritus, State College of Washington '21, A.B. and M.A.; '41, Ed.D.; University of Alaska '61, LL.D. (1952-1961) Deceased
- Klebasadel, Leslie J.**, Professor of Agronomy, Emeritus, University of Wisconsin '55, B.S.; '56, M.S.; '58, Ph.D. (1957-1988)

Leekley, James R., Senior Scientist in Charge, Petersburg Fur Farm, Emeritus. Oregon State University '38, B.S. (1941-1972)

Logsdon, Charles E., Professor of Plant Pathology, Emeritus. University of Kansas City '42, B.A.; University of Minnesota '54, Ph.D. (1953-1978)

Mark Anthony, Leo, Professor of Mining Extension, Emeritus. University of Alaska '52, B.S. (1952-1987)

Mather, Keith B., Director of the Geophysical Institute, Emeritus and Professor of Physics, Emeritus. Adelaide University '42, B.Sc.; '44, M.Sc.; University of Alaska '68 (Hon.) D.Sc.

Matthews, James W., Professor of Extension, Emeritus. North Dakota State University '52, B.S.; University of Wisconsin '61, M.S.; '70, Ph.D. (1957-1987)

Mendenhall, William W., Professor of Civil Engineering, Emeritus. Cornell University '49, B.C.E.; '60, M.S.; P.E.; L.S. (1955-1987)

Merritt, Robert P., Professor of Electrical Engineering, Emeritus. Oregon State College '49, B.S.; Stanford University '68, M.S.; P.E. (1955-1966; 1968-1987)

Milan, Frederick A., Professor of Human Ecology and Anthropology, Emeritus. University of Alaska '52, B.A.; University of Wisconsin '59, M.S.; '62, Ph.D. (1971-1987)

Miller, Orlando W., Professor of History, Emeritus. Muhlenberg College '47, B.A.; Columbia University '48, M.A.; '66, Ph.D. (1957-1978)

Mitchell, William W., Professor of Agronomy, Emeritus. University of Montana '57, B.A.; '58, M.A.; Iowa State University '62, Ph.D. (1963-1988)

Moore, Terris, President Emeritus and Professor of the University. Williams College '29, A.B.; Harvard '33, M.B.A.; '37, D.C.S.; University of Alaska '67, LL.D.; (President 1949-1953, Prof. 1953-1972)

Morrison, Peter R., Professor of Zoophysiology, Emeritus. Swarthmore College '40, A.B.; Harvard University '47, Ph.D. (1963-1974)

Morrow, James E., Professor of Zoology, Emeritus. Middlebury College '40, A.B.; '42, M.S.; Yale University '44, M.S.; '49, Ph.D. (1960-1977)

Neiland, Bonita J., Professor of Land Resources and Botany, Emeritus. University of Oregon '49, B.S.; Oregon State College '51, M.A.; University of Wisconsin '54, Ph.D. (1961-1988)

Novatney, Dorothy H., Professor of English, Emeritus. Pomona College '28, B.A.; Claremont College '30, M.A.; Teachers College '38, Ed.D. (1943-1945, 1956-1963)

Ohtake, Takeshi, Professor of Physics, Emeritus. Tohoku University '52, B.Sc.; '61, D.Sc. (1964-1988)

Orvik, James M., Professor of Psychology, Emeritus. San Diego State College '63, B.A.; '65, M.S.; Colorado University '70, Ph.D. (1969-1988)

Parthasarathy, Raghavaiyengar, Professor of Physics, Emeritus. Annamalai University '50, B.S.; '52, M.S. (1958-1980)

Rae, Kenneth M., Vice President for Research and Professor of Marine Science, Emeritus. University College, London '35, B.Sc.; '58, Ph.D. (1961-1976)

Renner, Louis L., Professor of German, Emeritus. Gonzaga University '50, A.B.; '51, M.A.; University of Santa Clara '58, M.S.T.; University of Munich '65, Ph.D. (1965-1980)

Restad, Sigmund H., Assistant Director, Emeritus. Alaska Agricultural and Forestry Experiment Station. University of Minnesota '53, B.S.; '54, M.S. (1958-1962; 1968-1987)

Rice, Elbert F., Professor of Civil Engineering, Emeritus. University of Idaho '48, B.S.; Oregon State College '49, M.S.; '55, Ph.D.; P.E. (1952-1982) Deceased

Roberts, Thomas D., Professor of Electrical Engineering, Emeritus and Director of the Institute of Northern Engineering, Emeritus. University of Alabama '59, B.S.; Oregon State University '65, Ph.D., P.E. (1966-1987)

Rogers, George W., Professor of Economics, Emeritus. University of California, Berkeley '42, B.A.; '43, M.A.; Harvard University '50, Ph.D. (1960-1983)

Romick, Gerald J., Professor of Geophysics, Emeritus. University of Alaska '52, B.S.; University of California, Los Angeles '54, M.S.; University of Alaska '64, Ph.D. (1951-1984)

Rowinski, L. J., Director of University of Alaska Museum, Emeritus. Cornell University '51, B.S.; University of Alaska '58, M.S. (1957-1980)

Ryberg, H. Theodore, Director of Libraries, Emeritus. Gettysburg College '55, A.B.; Western Reserve University '57, M.S. (1962-1980)

Salisbury, Lee H., Professor of Speech and Drama, Emeritus. New York University '49, B.S.; Columbia University '50, M.A. (1952-1988)

Sargent, Charles, Dean, College of Mathematics, Physical Sciences and Engineering, Emeritus. University of Idaho '48, B.S.C.E.; Stanford University '58, M.S. (Professor 1953-1961, Dean 1961-1967)

Senungetuk, Ronald W., Professor of Art, Emeritus. Rochester Institute of Technology '60, A.A.S. and B.F.A.; Statens Håndværks og Kunstindustriskole, Oslo, Norway '61, Diploma. (1961-1987)

Sheridan, J. Roger, Professor of Physics, Emeritus. Reed College '55, B.A.; University of Washington '64, Ph.D. (1964-1987)

Sivjee, Abas, Professor of Physics, Emeritus. University of London '63, B.S.; Johns Hopkins University '70, Ph.D. (1972-1988)

Slotnick, Herman E., Professor of History, Emeritus. University of Idaho '39, B.A.; University of Washington '58, Ph.D. (1955-1978)

Smith, R. London, Professor of Political Science, Emeritus. College of St. Joseph '54, B.A.; University of Oklahoma '55, M.A.; American University '64, Ph.D. (1965-1984)

Stetson, Marguerite, Professor of Extension, Emeritus. Oregon State University '57, B.S.; University of Alaska '72, M.A.T. (1974-1987)

Sunnell, Agnes S., Associate Professor of Extension, Emeritus. University of Washington '31, B.S.; Washington State University '44, M.S. (1960-1970)

Swartz, L. Gerard, Professor of Biological Sciences, Emeritus. University of Illinois '53, B.S.; '54, M.S.; '58, Ph.D. (1958-1988)

Taylor, Roscoe L., Professor of Agronomy, Emeritus. South Dakota State University '48, B.S.; Iowa State University '51, M.S. (1951-1988)

Tiedemann, James B., Professor of Mechanical Engineering, Emeritus. University of Wisconsin '45, B.S.; '49, M.S.; '55, Ph.D.; P.E.

Tilly, Lola Cremeans, Professor of Home Economics, Emeritus. University of Illinois '20, A.B.; '21, M.S.; University of Alaska '63, D.Hum. (1929-1937, 1942-1963)

Turner, Donald L., Professor of Geology, Emeritus. University of California, Berkeley, '60, A.B.; '68, Ph.D. (1970-1988)

Turner, John L., Professor of Education, Emeritus. McMurry College '51, B.S.; North Texas State University '55, M.Ed.; New Mexico State University '68, Ed.S. (1966-1989)

Van Veldhuizen, Philip, Professor of Mathematics, Emeritus. Central College '52, B.A.; State University of Iowa '60, M.S. (1963-1988)

Wells, Minnie, Professor of English, Emeritus. University of Missouri '25, B.S.; New York University '38, Ph.D. (1945-1971)

Wilson, Charles R., Professor of Physics, Emeritus. Case Institute of Technology '51, B.S.; University of New Mexico '56, M.S.; University of Alaska '63, Ph.D.

Wilson, William S., Head, Department of General Science, and Professor of Chemistry and General Science, Emeritus. Brown University '31, B.Sc.; '34, M.Sc.; Yale University '36, Ph.D. (1947-1972) Deceased

Wood, William R., President Emeritus. Illinois College '27, A.B.; '60, LL.D. (Hon.); University of Iowa '36, M.A.; '39, Ph.D. (1960-1973)

Wright, Gordon B., Professor of Music, Emeritus. College of Wooster '57, B.M.; University of Wisconsin '61, M.A. (1969-89)

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Housing, Eric Joziak, Associate Director of Residence Life
Student Affairs, Patty Kastelic
Advising Center, Wanda Martin, Director
Rural Student Services, Clara Johnson, Director
Testing Services

UNIVERSITY OF ALASKA FAIRBANKS GOVERNANCE

Staff Council, Lola Oliver, President
Faculty Senate, John Leipzig, 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:

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| AFES | Agricultural and Forestry Experiment Station |
| ATHREC | Athletics and Recreation |
| C&I | Conferences and Institutes |
| CC | Chukchi Campus |
| CLA | College of Liberal Arts |
| CNS | College of Natural Sciences |
| CES | Cooperative Extension Service |
| FITC | Fishery Industrial Technology Center |
| GI | Geophysical Institute |
| IAB | Institute of Arctic Biology |
| IMS | Institute of Marine Science |
| INE | Institute of Northern Engineering |
| JCFOS | Jeanu Center for Fisheries and Ocean Sciences |
| KUC | Kuskokwim Campus |
| LIB | Elmer Rasmuson Library |
| MAP | Marine Advisory Program |
| NWC | Northwest Campus |
| RC | Rural College |
| RCTR | Rural Centers |
| SALRM | School of Agriculture and Land Resources Management |
| SCCE | School of Career and Continuing Education |
| SOE | School of Engineering |
| SFOS | School of Fisheries and Ocean Sciences |
| SG | Alaska Sea Grant College Program |
| SME | School of Mineral Engineering |
| SOM | School of Management |
| STUAFF | Student Affairs |
| UAM | University of Alaska Museum |
| VCA | Vice Chancellor for Administration |
| VCAA | Vice Chancellor for Academic Affairs |
| VCR | Vice Chancellor for Research |

Abrahams, Sherry Lynn — 1964 — Associate Professor of Library Science (1975). LIB. Bowling Green State University '58, B.A.; University of Illinois '59, M.S.L.S.

Adams, John L. — 1982 — Music Director, KUAC-FM (1985). CLA. California Institute of the Arts '73, B.F.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.

Albertson, LaMont E. — 1987 — Director and Instructor of Education (1987). KUC/RC. Oklahoma Baptist University '66, B.A.; Florida Atlantic University '67, M.Ed.

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.

Allen, Jane B. — 1989 — Instructor of Developmental Studies (1989). KUC. 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.

Anderl, Robert — 1990 — Associate Professor of Library Science (1990). LIB. Syracuse University '65, M.S.L.S.

Anderson, Betty — 1988 — Instructor of Biology, Independent Learning Program, (1988). RC.

Anderson, Candice M. — 1970 — Coordinator (1986). VCA. B.A.

Anderson, James H. — 1970 — Research Associate (1976). IAB. University of Washington '63, B.S.; Michigan State University '70, Ph.D.

Anderson, Jennifer — 1989 — Head Resident (1989). STUAFF. Wisconsin, Stevens Point '85, B.S.; Colorado State University '89, M.E.

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 — Associate Professor of Mathematics (1977). CLA. University of Illinois '55, B.S.; University of Missouri '58, M.A.; University of California at Santa Barbara '76, Ph.D.

Andrews, Susan B. — 1989 — Assistant Professor of General Studies and Adjunct Assistant Professor of Journalism and Broadcasting (1989). CC. Smith College '81, B.A.; University of Oregon '83, M.A.

Antohin, Anatoly — 1989 — Associate Professor of Theatre (1989). CLA. Institute of Cinematography, U.S.S.R. '75, M.F.A.

Argall, Marcia C. — 1987 — Coordinator of Nenana Center (1987). RCTR/RC. University of Washington '79, B.A.

Armbruster, W. Scott — 1980 — Associate Professor of Botany (1987). CNS, IAB. University of California, Santa Barbara '72, B.A.; University of California, Davis '77, M.S.; '81, Ph.D.

Arps, Peggy J. — 1989 — Assistant Professor of Biochemistry (1989). CNS. Cornell University, B.A.; Johns Hopkins University, M.S.; '83, Ph.D.

Arundale, Robert — 1979 — Associate Professor of Speech Communication (1985). CLA. Rensselaer Polytechnic Institute '63, B.S.; '64, M.S.; Michigan State University '71, Ph.D.

Arundale, Wendy H. — 1979 — Senior Research Associate (1979). IAB. Brown University '67, A.B.; Michigan State University '72, M.A.; '76, Ph.D.

Aspnes, John D. — 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.

Bachner, Nancy — 1974 — Acting Director (1988) and Conference Coordinator (1981). C&I.

Badger, Mark O. — 1982 — Director of Production, KUAC-TV (1988). CLA.

Baker, E. Kirk — 1983 — Associate Professor and Resource Economist (1983). CES. Oklahoma State University '49, B.S.; Kansas State University '66, M.S.

Baker, Elisha R. — 1989 — Visiting Associate Professor (1989). SOE. Clemson University '70, B.S.; '72, M.S.; '75, Ph.D.

Baker, Grant C. — 1988 — Visiting Assistant Professor of Mechanical Engineering (1988). SOE. University of Washington, B.S.; University of Alaska Fairbanks, M.S.; Ph.D.

Baker, Jill H. — 1988 — Assistant Professor of Social Work (1988). RC. University of Texas '68, B.A.; University of Hawaii '81, M.S.W.

Baldridge, James N. — 1969 — Senior Programmer/Analyst (1976). GI.

Bandopadhyay, Sukumar — 1982 — Associate Professor of Mining Engineering (1987). 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.

Barnes, Brian M. — 1986 — Assistant Professor of Zoophysiology (1986). IAB. CNS. University of California, Riverside '77, B.S.; University of Washington '83, Ph.D.

Barnhardt, Carol — 1988 — Instructor of Education, Independent Learning Program (1988). RC.

Barnhardt, Raymond J. — 1970 — Professor of Cross-Cultural Education and Rural Development (1980). RC. 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. Shippensburg University of Pennsylvania '74, B.A.; '78 M.S.; Southern Illinois University-Carbondale '82, M.S.; '83, 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 (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 — Assistant Professor of Anthropology and Cross-Cultural Communication and Coordinator of Linguistics (1988). CLA. Arizona State University '67, B.A.; San Jose State University '77, M.A.; University of Michigan '86, Ph.D.

- Basham, Lynn** — 1986 — Instructor of Linguistics, Independent Learning Program (1988), RC and Instructor of Cross Cultural Communication (1988), CLA. Can 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 — Financial Analyst (1985), VCA. Central Michigan University '69, B.S.; University of Alaska Fairbanks '85, M.B.A.; CPA; CIA.
- Beget, James E.** — 1984 — Assistant Professor of Geology (1984), CNS. Columbia University '74, B.S.; University of Washington '77, M.S.; '81, Ph.D.
- Benesch, Walter J.** — 1963 — Professor of Philosophy (1973), CLA. University of Denver '55, B.A.; University of Montana '56, M.A.; Leopold Franzens Universität, Innsbruck '63, Ph.D.
- Benevento, John** — 1979 — Supervisor, Electronics Shop, (1979), GI. Massachusetts Institute of Technology '63, A.E.
- 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 — Associate Professor of Sociology and Social Work (1980), RC. University of Michigan '56, B.A.; Case Western Reserve University '63, M.S.W.; '70, Ph.D.
- Bigjim, Fred** — 1988 — Instructor of Alaska Native Politics, Independent Learning Program (1988), RC. University of Alaska Fairbanks '72, B.A.; Harvard University '73, M.Ed.
- Billington, Margaret M.** — 1970 — Coordinator (1989), IMS, SFOS. University of California, Berkeley '66, B.A.; University of Alaska Fairbanks '81, M.S.
- Bird, Roy K.** — 1984 — Associate Professor of English (1986), CLA. Brigham Young University '72, M.A.; William Marsh Rice University '82, Ph.D.
- Birkeland, Mary M.** — 1987 — Assistant Professor of Education and Field Coordinator (1987), RC. Western Washington State College '76, B.Ed.; University of Oregon '84, M.Ed.; '87, Ph.D.
- 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.
- Blacher, Maurice** — 1987 — Assistant Professor of Military Science (1987), CLA. Rutgers University '80, B.S.; University of Louisville '86, M.Ed.
- 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. University of Saskatchewan '87, M.S.; '90, D.V.M.
- Blalock, Susan Elizabeth** — 1986 — Assistant Professor of English (1989), Director, Writing Center (1986), CLA. Louisiana State University '68, B.A.; New York University '70, M.A.; University of Texas '83, Ph.D.
- Blood, Charles** Coordinator, Delta Learning Center, SCCE, University of Texas '78, Ph.D.
- Blurton, David M.** — 1989 — Assistant Professor of Rural Development and Field Coordinator (1990), RC. Humboldt State University, California '75, B.S.; University of Montana '85, J.D.
- Book, Patricia A.** — 1986 — Dean, School of Career and Continuing Education (1988); Associate Dean, SCCE (1988); Associate Faculty of Anthropology (1987), Oakland University '72, B.A.; University of Connecticut '75, M.A.; '80, Ph.D.
- Borchert, Mary Ann** — 1971 — Assistant to Vice Chancellor of 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.
- Boyce, John** — 1988 — Assistant Professor of Economics (1988), SOM. Montana State University '82, B.A.; University of California, Davis '90, Ph.D.
- Brady, Philip L.** — 1989 — Instructor of Education (1989), RC. University of California, Riverside '71, B.A.; University of Washington '75, M.A.
- Bradley, Claudette** — 1989 — Assistant Professor of Education for the Center for Cross-Regional Education Programs (1989), RC. University of Connecticut '64, B.A.; '67, M.S.; Harvard Graduate School of Education '87, Ed.D.
- Braley, W. Alan** — 1981 — Research Associate (1983), INE. University of South Florida '76, B.A.; University of Alaska Fairbanks '80, M.S.
- Brashears, Patricia K.** — 1987 — Visiting Assistant Professor of Mechanical Engineering (1987), SOE. University of Nebraska '71, B.S.M.E.; Michigan Technological University '73, M.S.Met.E.; P.E.
- Brelsford, Taylor W.** — 1988 — Instructor of Rural Development (1988), RC. University of Alaska Anchorage '77, B.A.; McGill University '83, M.A.
- Brennen, E. Clifford** — 1984 — Professor of Social Work (1984), RC. 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), CLA. University of Oklahoma '66, B.F.A.; '71, M.F.A.; '75, Ph.D.
- Brody, Arthur W.** — 1967 — Professor of Art (1984), CLA. Harvey Mudd College '65, B.S.; Claremont Graduate School '67, M.F.A.
- Brody, Bonnie** — 1988 — Director, Alaska Teacher Placement (1988), STUAFF. Ripon College '73, B.A.; University of Alaska Fairbanks '83, M.Ed.
- Brown, Carol W.** — 1965 — Assistant Director, Wood Center and Student Activities (1985), STUAFF.
- Brown, Edward J.** — 1975 — Professor of Microbiology (1988), Associate Director, INE (1986), INE. University of Minnesota '70, B.S.; University of Wisconsin '73, M.S.; '75, Ph.D.
- Brown, Neal** — 1966 — Assistant Professor of Geophysics (1969), CNS. Washington State University '61, B.S.; University of Alaska '66, M.S.
- Browne, Dauna B.** — 1989 — Associate Professor of Guidance and Counseling (1989), RC. 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 Mexico State University '73, B.S.; '77, M.S.; '79, Ph.D.
- Bryant, John P.** — 1985 — Assistant Professor of Plant Ecology (1985), 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), FITC. Bowling Green State University '75, B.S.; University of Alaska '81, M.S.
- Burns, Laurel** — 1986 — Affiliate Assistant Professor of Geology (1986), CNS. University of Alaska '78, B.S.; Stanford University '81, M.S.; '83, Ph.D.
- Burton, James R.** — 1973 — Supervisor of Photo-Graphics Service Center (1983), GI.
- Butcher, Barbara** — 1980 — Associate Professor of Home Economics (1987), CES. Indiana University '63, B.S.; '70, M.S.
- Butler-Hopkins, Kathleen M.** — 1979 — Associate Professor of Music (1983), 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), IMS. CNS. Wisconsin State College '55, B.S.; University of Wisconsin '61, M.S.; '64, Ph.D.
- Byers, Kurt M.** — 1988 — Editor (1988), SG. University of Michigan '85, B.S.
- Byrne, Jonathan** — 1987 — Instructor of English (1987), CC/RC. University of Minnesota '83, B.A.
- Cain, Seth** — 1987 — Buyer (1988), VCA.
- Callahan, Thomas J.** — 1988 — Master, R/V Alpha Helix (1988), IMS. Loras College '65, B.A.
- Calkins, Harry** — 1988 — Visiting Instructor of Art (1988), CLA. San Jose State College '65, B.A.; '67, M.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.
- Cardin, Barbara D.** — 1978 — Business Manager (1988), CES.
- Carling, Donald E.** — 1981 — Associate Professor of Horticulture (1986), SALRM. St. Cloud State '67, B.A.; University of Missouri-Columbia '69, M.S.; University of Missouri-Columbia '75, Ph.D.
- Carlson, Robert F.** — 1965 — Professor of Civil Engineering (1974), SOE. University of Wisconsin '61, B.S.; '63, M.S.; '67, Ph.D.; P.E.
- Carr-Lundfeld, Cathi** — 1984 — Director of Employee Relations (1984), VCA. University of Alaska '67, B.A.; '71, M.A.
- Carter, Sandra** — 1987 — Women's Volleyball Coach (1987), ATHREC.
- Castellini, Michael A.** — 1989 — Assistant Professor of Marine Science (1989), 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), RC. University of California-Berkeley '73, B.S.; '73, B.A.
- Cedzo, Karen L.** — 1979 — Director of Office of University Relations (1985), University of Wisconsin '73, B.A.; '75, M.A.
- Chadwick, Jerah** — 1982 — Instructor of English and Coordinator, Aleutians Center (1988), RC. Lake Forest College, Illinois '78, B.A.; University of Alaska Fairbanks '88, M.F.A.
- Chamberlain, Steve** — 1987 — Instructor of Liberal Arts (1987), KUC/RC. Wayne State University '71, B.S.; University of Montana '73, M.F.A.
- Champion, Charles A.** — 1973 — Adjunct Associate Professor of Petroleum Engineering (1979), SME. Colorado School of Mines '52, B.S.; University of Southern California '62, M.S.; P.E.
- Charlton, Issac** — 1989 — Instructor of Accounting, Independent Learning Center (1989), RC. Eastern Illinois University '64, B.S.; Indiana University '71, M.S.
- Chin, Wanda W.** — 1979 — Coordinator of Exhibits, UAM. University of California, Los Angeles '74, B.A.
- Choy, Terence Tin-Ho** — 1970 — Professor of Art (1981), CLA. San Francisco State College '65, B.A.; University of California, Berkeley '67, M.A.
- Christensen, Douglas** — 1988 — Assistant Professor of Geophysics (1988), CNS, GI. University of Utah '77, B.S.; University of Michigan '79, M.S.; '87, Ph.D.

- Clark, Claudia C.** — Assistant Professor of Journalism/Broadcasting (1989). CLA. Feather River College '77, A.A.; Montana State University '83, B.S.; '88 M.Ed.
- Clausen, Richard** — 1979 — Instructor of Mathematics (CLA). University of Alaska '75, B.S.; University of Oregon '77, M.S.
- Clausen, Thomas** — 1975 — Senior Research Associate (1982). IAB. University of Alaska Fairbanks '75, B.S.; Michigan State University '80, Ph.D.
- Cochran, Verlan L.** — Affiliate Associate Professor of Agronomy (1985). SALRM. California State Polytechnic College '66, B.S.; Washington State University '71, M.S.
- Cole, Terrence M.** — 1988 — Assistant Professor of History (1988). CLA. University of California, Berkeley '76, B.A.; '78, M.A.; University of Washington '83, Ph.D.
- Collie, Jeremy S.** — 1988 — Assistant Professor of Fisheries (1988). JCFO. University of York, England '80, B.Sc.; Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program in Oceanography '85, Ph.D.
- Colligan-Taylor, Karen** — 1984 — Associate Professor of Japanese and Department Head (1986). CLA. University of California, Berkeley '71, B.A.; '75, M.A.; Stanford University '85, Ph.D.
- Collins, Raymond L.** — 1987 — Coordinator of McGrath Center (1987). RCTR/RC. University of Alaska Fairbanks '74, B.S.
- Conley, Edgar G.** — 1986 — Assistant Professor of Mechanical Engineering (1986). SOE. Michigan State University '71, B.S.M.E.; '79, M.S.M.E.; '86, Ph.D.; P.E.
- Conn, Jeffrey S.** — 1980 — Associate Professor of Weed Science (1980). SALRM. University of Arizona '73, B.S.; '76, M.S.; North Carolina State University '80, Ph.D.
- Connor, William** — 1983 — Director, Center for Health and Counseling (1989). STUAFF, and Assistant Professor of Psychology (1983). RC. State University College at Cortland, New York '72, B.S.; University of Delaware '74, M.Ed.; University of Missouri-Columbia, '83, Ph.D.; Licensed Psychologist '85.
- Cooney, R. Theodore** — 1970 — Associate Professor of Marine Science (1976). IMS. University of Washington '64, B.S.; '67, M.S.; '71, Ph.D.
- Copeland, Audrey** — 1989 — Instructor of History, Independent Learning Program (1989). RC. University of Michigan '64, B.A.
- Copus, Gary** — 1980 — Associate Professor of Criminal Justice (1974) and Head, Department of Political Science/Justice (1988). CLA. Georgia Institute of Technology '67, B.S.; Sam Houston State University '68, M.S.; University of Missouri '72, Ph.D.
- Cordova, Viola F.** — 1989 — Instructor of Philosophy (1989). CLA. Idaho State University '80, B.A.; University of New Mexico '85, M.A.
- Cornwall, Marguerite** — 1982 — Gnosis Systems Manager (1987). VCAA. University of Toronto '62, B.A.; University of Michigan '66, A.M.L.S.
- Cornwall, Peter G.** — 1971 — Associate Professor of History (1973). CLA. University of Toronto '62, B.A.; University of Michigan '63, A.M.; '70, Ph.D.
- Cottam, Martha L.** — 1989 — Associate Professor of Political Science (1989). CLA. University of Wisconsin '76, B.A.; University of California '77, M.A.; '83, Ph.D.
- Coughenower, D. Douglas** — 1982 — Marine Extension Agent (1982) and Associate Professor of Fisheries (1988). MAP. Oregon State University '63, B.S.; '72, M.S.; '74, M.S.
- Courier, Marsha D.** — 1983 — Financial Aid Advisor (1984). STUAFF. Kearney State College '61, B.A.; University of Alaska Fairbanks '82, M.S.
- Cox, Clifford T.** — 1980 — Associate Professor of Accounting (1987). SOM. University of Northern Iowa '71, B.B.A.; Kansas State University '75, M.B.A.; University of Kansas, C.P.A.; University of Iowa '81, Ph.D.
- Coyle, Kenneth O.** — 1971 — Research Associate (1988). IMS. University of Washington '72, B.S.; University of Alaska '74, M.S.
- Crandall, Bonnie** — 1976 — Fiscal Analyst (1985). SOE.
- Crapo, Charles A.** — 1983 — Assistant Professor of Seafood Technology (1983). FITC. MAP. Oregon State University '74, B.S.; '83, M.S.
- Crawford, Dennis L.** — 1989 — Associate Professor of Extension 4-H (1989) and State 4-H Program Leader (1989). CES. Linfield College '55, B.A.; Colgate Rochester Divinity School '58, M.Div.; Oregon State University '67, M.Ed.; '76, Ph.D.
- Creed, John** — 1987 — Instructor of English/Journalism (1987). CC/RC. University of Massachusetts, Amherst '75, B.A.; University of Oregon '83, M.A.
- Cridle, Keith R.** — 1989 — Assistant Professor of Economics (1989). SOM. California State University, Sacramento '82, B.S.; University of California, Davis '84, M.S.; '89, Ph.D.
- Cridge, Edmund S.** — 1977 — Associate Professor of Library Science (1983). LIB. State University of New York, Oswego '62, B.S.; State University of New York, Buffalo '66, M.S.; '70, M.Ed.; '77, Ed.D.
- Crowder, R. Keith** — 1983 — Assistant Professor of Geology (1983). CNS. Radford University '78, B.S.; University of Arkansas '80, M.S.; University of Iowa '83, Ph.D.
- Cullenberg, Paula J.** — 1986 — Marine Extension Agent and Assistant Professor of Fisheries (1989). MAP. Brown University '77, B.A.; University of Washington '82, M.S.
- Currier, Janice** — 1981 — Program Development Specialist, ANHRDP (1982). RC. University of Northern Colorado '74, B.A.; California State University, Dominguez Hills '88, M.A.
- Curtis, Kevin** — 1988 — Assistant Professor of Civil Engineering (1988). SOE. Purdue University '80, B.S.C.E.; Colorado State University '85, M.S.C.E.; '88, Ph.D.
- Dart, Joe** — 1982 — Associate Professor of Computer Applications, SCCE. Goddard College '72, B.A.
- Daro, Hazel** — 1977 — Assistant to the Director, University of Alaska Museum (1986). UAM. University of Alaska Fairbanks '72, A.O.A.
- Das, Deben K.** — 1984 — Associate Professor of Mechanical Engineering (1988). SOE. Sambalpur University '72, B.S.; Brown University '74, Sc.M.; University of Rhode Island '83, Ph.D., P.E.
- Davies, John** — 1986 — State Seismologist (1987). GI. Affiliate Associate Professor of Geology (1987). CNS. Reed College '67, B.A.; University of Alaska Fairbanks '70, M.S.; '75, Ph.D.
- Davis, Frank** — 1981 — Instructor of Culinary Arts, SCCE. Tanana Valley Community College '79, A.A.S., C.C.C., C.C.E.
- Dean, Frederick C.** — 1954 — Professor of Wildlife Management (1966). CNS. University of Maine '50, B.S.; '52, M.S.; State University of New York '57, Ph.D.
- Dean, Kenneson G.** — 1977 — Remote Sensing Geologist, (1979) GI. Northern Arizona University '72, B.S.; University of Alaska '79, M.S.
- Dearborn, Ronald K.** — 1985 — Director, Alaska Sea Grant College College Program, Acting Associate Dean for External Affairs (1987). SG, SFOS. University of Maine '65, B.S.; University of Massachusetts '75, M.S.; P.E.
- DeBevec, Jackie** — 1987 — Admissions Counselor (1989). STUAFF. University of Colorado, Boulder '84, B.A.
- DeCorso, Theodore** — 1974 — Professor of Music (1984). CLA. University of Connecticut '65, B.S.; The Juilliard School '67, M.S.; University of Connecticut '77, Ph.D.
- Deehr, Charles D.** — 1958 — Scientific Director, PFRR (1989). GI. University of Alaska '68, Ph.D.
- Dehghani, Kaveh** — 1983 — Associate Professor of Petroleum Engineering (1989). SME. Abadan Institute of Technology '75, B.S.; University of Southern California '78, M.S.; '83, Ph.D.
- Dehner, Ann E.** — 1985 — Development Director, KUAC (1986). CLA. Indiana University '75, B.S.; '79, M.S.
- Delana, Brett S.** — 1975 — Senior Project Engineer (1986). GI. Oregon Tate University '71, B.S.E.E.; University of Alaska '73, M.S.
- Demmert, Dennis** — 1974 — Associate Professor of Education (1987). RC. Harvard University '72, Ed.M.
- DeSorcie, Doug** — 1982 — Coordinator, Student Activities, Wood Center and Student Activities (1988). STUAFF. University of Alaska Fairbanks '85, B.S.; '87, M.S.
- Desrochers, James L.** — 1989 — Project Engineer (1989). GI. University of Alaska Fairbanks '88, B.S.
- Deviche, Pierre** — 1988 — Associate Professor of Zoophysiology (1987). CNS. University of Liege, Belgium '75, B.S.; '80, Ph.D.
- Dexter, Charles N.** — 1985 — Director, Small Business Development Center (1989). SCCE; and Lecturer, Business Administration (1985). SOM. University of Alaska Fairbanks '77, B.A.; '83, M.B.A.
- DiCecco, Bruno** — 1981 — Associate Professor of Music (1983). CLA. Yale University School of Music, '57, B.M.; '58, M.M.
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Pencils, paper and a computer all come in handy for Tiny Remm during a course at the UAF Downtown Center.

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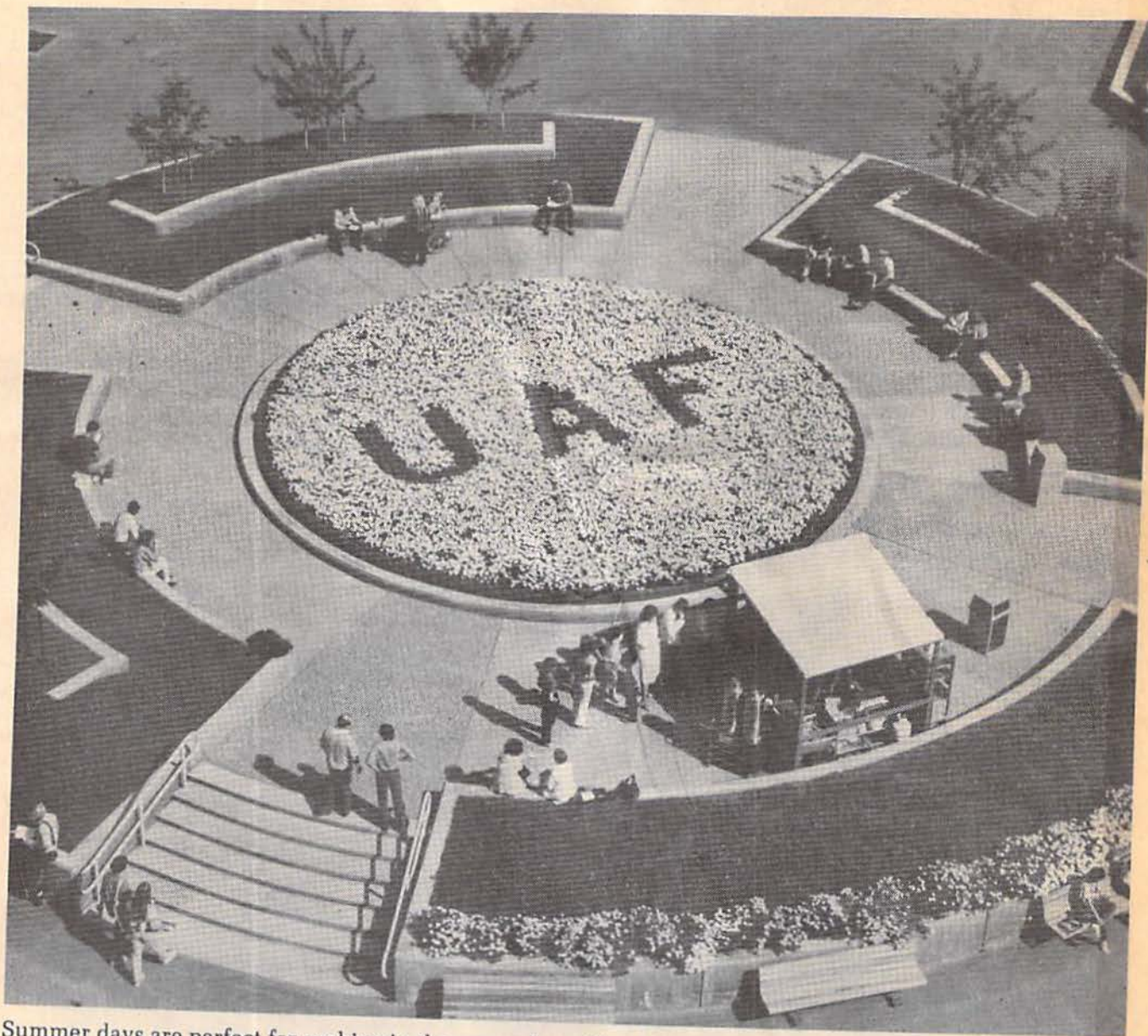
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Senior Christopher Bias stands out in a crowd during the 1989 graduation ceremony.

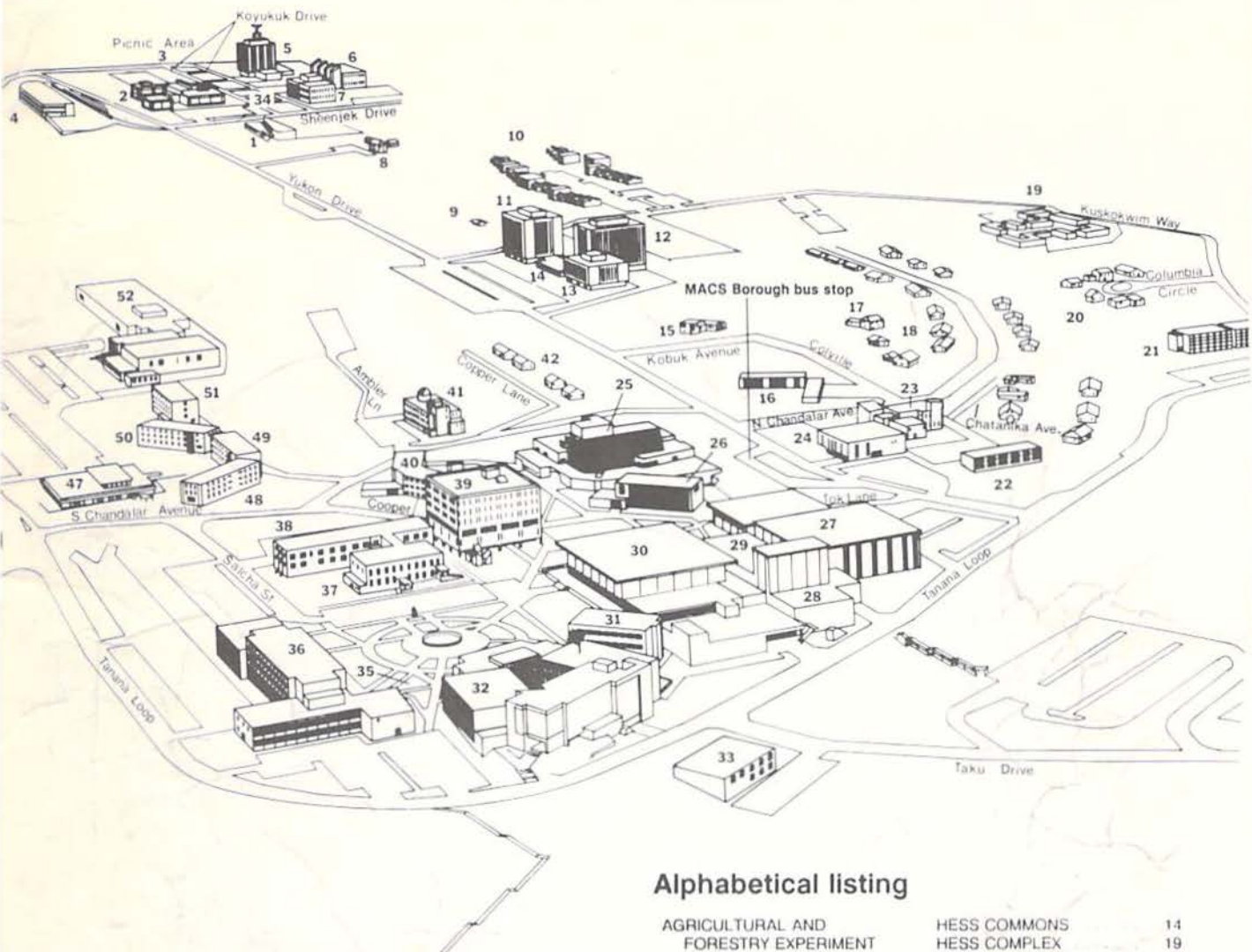
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Summer days are perfect for soaking in the sun and smelling the flowers, as these students demonstrate between classes in Constitution Park.

Fairbanks Campus Map



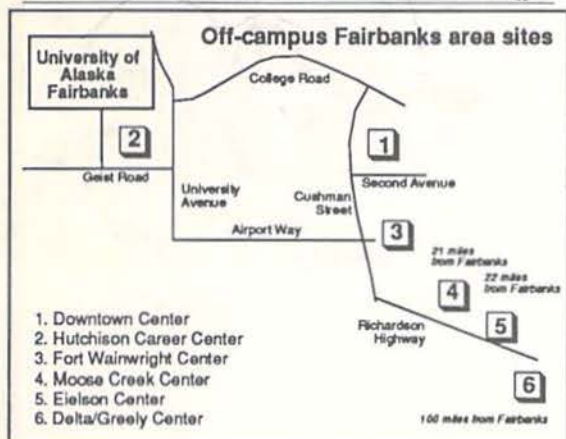
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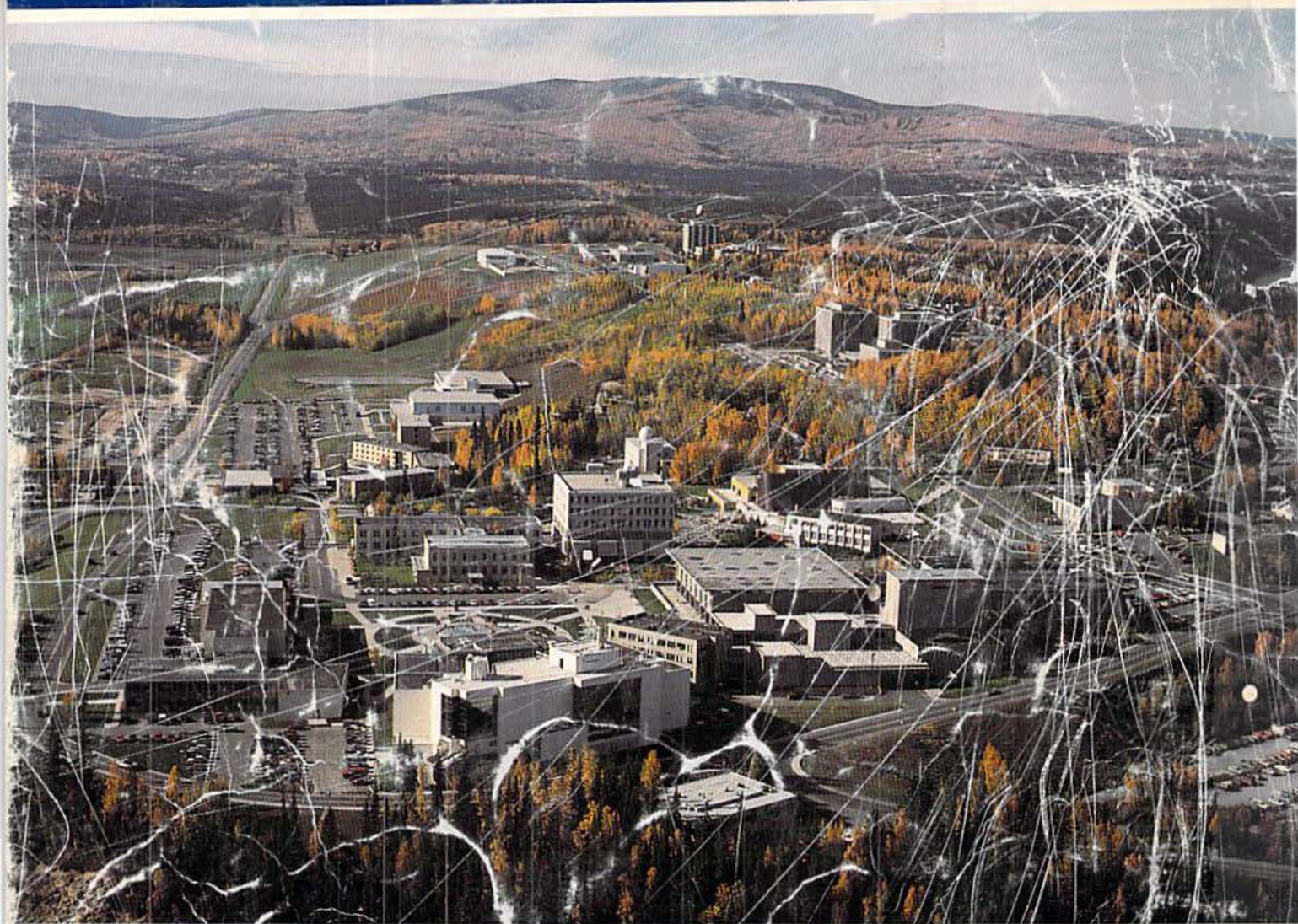
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