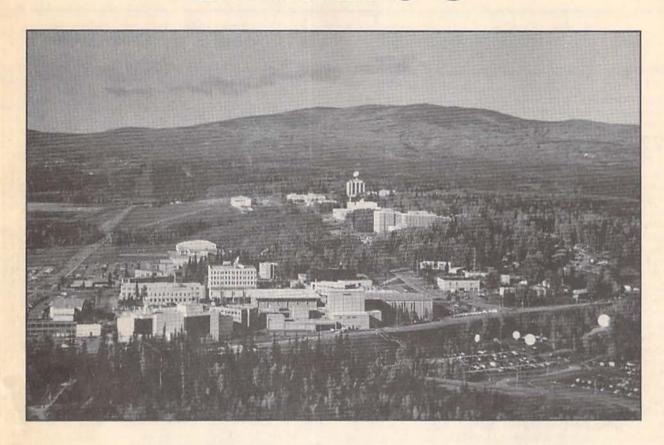
# UNDERGRADUATE CATALOG



#### Accreditation

 Commission on Colleges of the Northwest Association of Schools and Colleges

#### Specialized Accreditations

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

# About this Catalog

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

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

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

Cover: Mount McKinley North America's highest mountain, has been a part of the university's heritage since it inspired President Charles Bunnell to create the school motto, ad summun—to the summit—in 1923. © Photo by Kenneth R. Kollodge 1995.

Inside photos taken by John Brecher (page 216), Brenda Gibson (page 1, 14, 36, 39 and 45) and Cal White (page 7, 34 and 104).

# Questions? Call or write

	Information	
	TTY only	474-6709
	Academic Computing Services 428 Library	474-6564
	Administrative Services, Vice Chancellor for.	
	Administrative Services, Vice Chancellor for, 206 Administrative Services Center	474-7340
	Admissions and Records, 1st floor Signers' Hall	474-7500
	From within Alaska	478-111AF
	TTY only	474-6709
	TTY only	474 6306
	Agricultural and Forestry Experiment Station, 172 Again U	4/4*0390
	Passarch Building	474 7002
	Research Building	4/4-7083
	School of, 172 Arctic Health Research Building	474 7000
	Alacks Connective February April 11 14	4/4-/083
	Alaska Cooperative Extension, Arctic Health	171 771
	Research Building	474-7246
	Alaska Native Human Resource Development Program,	
	707 A Street, Room 205, Anchorage, AK 99501	272-9531
	Alaska Native Language Center, 218 Eielson	474-7874
	Alaska Teacher Placement, M-B-S Complex	474-6644
	Alumni Relations, 201 Constitution Hall	474-7081
	Arctic Biology, Institute of, 311 Irving	474-7640
	Arctic Research, Office of, 315 Signers' Hall	474-7314
	Associated Students of UAF, Wood Center	474-7355
	Athletics and Recreation, Patty Center	474-7205
	Bookstore, 2nd floor Constitution Hall	474-7348
	Bookstore, 2nd floor Constitution Hall	842-5100
	Business Office, 1st floor Signers' Hall	474.7551
	Career Services, 502 Gruening	474 7506
	Chancellor's Office, 3rd floor Signers' Hall	474-7390
	Chukchi Campus Pay 207 Vatrabus AV 00752	442 2400
	Chukchi Campus, Box 297, Kotzebue, AK 99752	
	Computing and Communications, 428 Library	474-6564
	Conferences and Special Events, 117 Eielson	4/4-/800
	Delta Learning Center, Box 412, Delta Junction, AK 99737	895-4292
	Development, Office of, 316 Signers' Hall	474-6402
	Developmental Studies, Downtown Center	451-7223
	Disabilities, Services for Students with, HS&S Building	474-5655
	TTY only	474-1827
	Distance Education, Center for, 129 Harper	474-5353
	Downtown Center, 510 Second Ave., Fairbanks, AK 99701	451-7223
	TTY and voice Education, School of, 7th floor Gruening	451-1985
	Education, School of, 7th floor Gruening	474-7341
	Elderhostel, 207 Gruening	. 474-6931
	Engineer, School of, 248 Duckering	474-7330
	Environmental Health and Safety, Old U Park School	474-5496
	Equal Employment Opportunity, 3rd floor Signers' Hall	474-6991
	Faculty Senate, 312 Signers' Hall	474-7064
	Financial Aid, 101 Eielson	474 7956
	Fisheries and Ocean Sciences, School of, 217 O'Neill	474 7924
	Fishery Industrial Technology Center, 900 Trident Way,	4/4-/024
	Kodiak, AK 99615	496 1500
	Kodiak, AK 99615 Geophysical Institute, Elvey Building	480-1500
	TTY and voice	4/4-7249
1	GNOSIS (Library Computing System), 457 Library	4/4-6310
1	Graduate School, 305 Signers' Hall	474-7464
	Health and Counseling, Center for, 2nd floor HS&S Buildin	g474-7043
	TTY only	474-7045
	Honors Program, 515 Copper Lane	474-6612
	Hutchison Career Center, 3750 Geist Road,	
	Fairbanks, AK 99709	474-5240
	TTY and voice	474-5249

Interior-Aleutians Campus, 145 Harper	474-5430
International Student Adviser, 514 Gruening	474-7317
Juneau Center, School of Fisheries and Ocean Sciences,	
Juneau Center, School of Fisheries and Ocean Sciences, 11120 Glacier Hwy, Juneau, AK 99801	465-6441
KSUA-FM, 303 Constitution Hall	474-7054
KUAC-FM and -TV, 208 Fine Arts/Theater	
Kuskokwim Campus, Box 368, Bethel, AK 99559	543-4500
Learning Resource Center, Downtown Center	474 7223
Liberal Arts, College of, 405 Gruening	474 7491
TTY only	474-6744
Management, School of, 201 Bunnell	474-7461
Marine Advisory Program, 2221 E. Northern Lights	
Blvd., Suite 110, Anchorage, AK 99508-4140	274-9691
Marine Science, Institute of, 233 Irving II	474-7531
McGrath Center, Box 269, McGrath, AK 99627	524-3074
Mineral Engineering, School of, 209 Brooks	474-7366
Mineral Industry Research Laboratory, 212B O'Neill	474-7135
Museum, UA NANA House	474-7505
Native Studies, 508 Gruening	474-0332
Natural Sciences, College of, 465 Duckering	474-7608
Northern Engineering, Institute of, 248 Duckering	474-7330
Northwest Campus, Box 400, Nome, AK 99762	443-2201
Patty Center	474-5057
Personnel Services, 108 Administrative Services Center	474-7700
Petroleum Development Laboratory, 425 Duckering	474-7743
Polar Ice Coring Office, 205 O'Neill	474-5585
Police Department, UAF, HS&S Building	474 7721
Provost's Office, 3rd floor Signers' Hall	474-7096
Pub, Wood Center	474-7766
Residence Life/Housing, 5th floor Gruening	474-7247
Rural Alaska Honors Institute, 507 Gruening	474-6886
Rural Alaska, College of, 503 Gruening	474-7106
Rural Student Services, 5th floor Gruening	474-7871
Sea Grant College Program, 304 Eielson	474-7086
SLED (Statewide Library Electronic Doorway)	474-6310
Small Business Development Center, Downtown Center Staff Council, 312 Signers' Hall	474-7056
Student Services, 5th floor Gruening	474-7317
TTY and voice	474-6710
TTY and voice	474-7021
Sun Star, Wood Center	474-7540
Tanana Valley Campus, Downtown Center	
TTY and voice	
Testing Services, 1st floor Signers' Hall	
Tok Center, Box 464, Tok, AK 99780 University Relations and Institutional	883-3613
Advancement, 210 Signers' Hall	474-7581
Veterans' Information, 1st floor Signers' Hall	
Women's Center, Walsh Hall	
Wood Center	474-7211
Yukon Flats Center, Box 194, Ft. Yukon, AK 99740	662-2521

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

The area code for UAF offices is (907).

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# The University of Alaska Fairbanks Experience

In 1917, just 15 years after Felix Pedro found gold in the heart of the Alaskan wilderness, the University of Alaska Fairbanks was born. It wasn't called UAF back then; it was the Alaska Agricultural College and School of Mines, created by a special act of the Alaska Territorial Legislature. In 1922 the college opened, with six faculty members and six students. A year later, commencement was held, in honor of the school's first graduate.

As Alaska grew, so did the institution. In 1931, the Agricultural Experiment Station (established in 1906 by the U.S. Department of Agriculture on a site that was later to become part of the campus) was transferred from federal ownership to the college. This action established the Agricultural and Forestry Experiment Station and its experiment farm as a unit of the college in line with agricultural experiment stations in other land-grant universities. 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 universityowned rocket range in the world.

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

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

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

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

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

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

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

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

UAF's School of Fisheries and Ocean Sciences combines programs in Juneau and Kodiak with those in Fairbanks, and administers the Alaska Sea Grant College Program and the Marine Advisory

Public service is an important part of UAF's mission. The statewide Alaska Cooperative Extension, with 10 field offices, is headquartered at UAF. UAF's public broadcasting stations KUAC-FM and -TV were the first public stations in the state; the stations offer an important resource for students who can get hands-on experience at the facilities.

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

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

#### Students

UAF students aren't afraid to be different. The University of Alaska Fairbanks isn't the right school for everyone, but if it is for you, you can take advantage of small classes, first-rate faculty and access to hands-on research-not to mention some of the most breathtaking scenery in the world.

UAF's students come from 50 states and 47 foreign countries, which can make for an exciting educational environment. A freshman from an Alaska village may share insights with a classmate from Tallahassee or even Tokyo in one year, and take advantage of a UAF exchange program located in Canada, Denmark 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 1994 was 9,274 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
- 30 is the average age
- 85 percent are Alaska residents, 12 percent are from other states, 3 percent are from foreign countries
- 91 percent are undergraduate students, 9 percent are graduate students

# **Faculty**

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

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

It's been said that "It's not what you know, but who you know."

At UAF, students get to know their faculty as friends, and not just as
the medium through which an endless stream of facts and figures are
delivered for future examination.

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

#### **UAF Mission Statement**

The University of Alaska Fairbanks was established in 1917 as the Alaska Agricultural College and School of Mines. Today, as a comprehensive land grant and sea grant university, the multi-campus University of Alaska Fairbanks exists as a vital state resource to teach, to inquire and to serve.

The University of Alaska Fairbanks offers instructional programs covering a broad postsecondary spectrum and is the major research center for Alaska. The university is committed to providing a free and open forum where ideas and issues may be professionally pursued and frankly debated in an environment of mutual respect and intellectual integrity. It seeks to provide an intellectually stimulating learning process which is culturally sensitive and empowering to its students. The university is committed to assuring that its graduates receive a balanced education in the arts, humanities, natural and social sciences through which creativity is fostered and historical and philosophic perspectives are gained. As a result, the state benefits from an educated citizenry capable of the independent pursuit of further learning, of contributing to the economic well being of the state and nation and of participating in and contributing to global society. The university seeks a culturally diverse environment that values and promotes equal treatment of sexes, races, cultural and ethnic groups throughout its academic programs, student body, faculty and staff.

The University of Alaska Fairbanks as a residential institution of higher education serves students from all of Alaska as well as from other states and nations. It is particularly committed to enhancing educational opportunities for Alaska's rural and native populations. Through its branch campuses in Bethel, Kotzebue and Nome and its rural education centers, the university is responsive to local and regional needs, including open educational access to its programs. Special strengths exist in the use of educational technology which provide for the distance delivery of selected programs to many areas of the state. In seeking to serve a broad array of students, admission to several associate degree and certificate programs is open to all. Admission requirements to all baccalaureate and graduate programs as well as some Associate of Applied Science degree programs vary depending on the specific field of study.

The University of Alaska Fairbanks offers developmental programs and certificate, associate, baccalaureate and graduate/professional programs in the arts, sciences, career fields and professions. It is a center for graduate education and is Alaska's only doctoral-granting institution. It possesses unique strengths in the physical and natural sciences and offers a broad array of engineering programs with a particular emphasis on the stresses of northern environments. UAF is a major center for the study of natural resources including minerals, forestry, wildlife, geology, agriculture, fisheries and ocean sciences and their associated economics. It has been recognized for its work in multi-cultural understanding, rural health problems, and cross-cultural interaction in the human service professions.

As a major center for research and scholarship, the University of Alaska Fairbanks is committed to the mutual enhancement of teaching and research and creative activity, and public service. Scholarship which produces new knowledge instills a vigor into teaching which in turn stimulates inquiry and the quest for further answers to the unknown. The university seeks to use its particular location in the north as a natural laboratory for the study of questions and issues, whose solutions are not only applicable to Alaskan problems but to a broader understanding of our global community. As part of a network of state research universities, this institution has an active program of basic and applied research resulting in a well earned national and international reputation. Specific recognition has been achieved in space physics, marine science, and high latitude biology, environmental sciences, engineering and geophysics. The university has recognized programs in definition, exploration, development and management of Alaska's renewable and nonrenewable resources. It is the state's center for study of Alaskan native cultures and languages.

Through its Cooperative Extension Service and Marine Advisory Programs, research results are interpreted and transferred to people of the state. Its continuing education programs extend the expertise of the university to adult learners needing alternative learning opportunities. The university's library and museum provide the state's major information resources and cultural collections with a particular strength in Alaska and polar regions. Finally, through its programs in fine and performing arts, the university provides cultural enrichment to the state's Interior-Aleutians and rural populations. In accomplishing this mission, the university seeks the advice and guidance of Alaska's residents and friends.

Board of Regents Policy 10.020.01, adopted 02-25-88
Since the mission statement was adopted, UAF has added the
Bristol Bay and Interior-Aleutians Campus sites. UAF was
granted space grant status in 1991.

# 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 and 35 miles of ski trails.

If you're interested in fitness, the main campus has a major intramural sports program, and the Student Recreation Complex offers areas for basketball, volleyball, badminton, tennis, calisthen-

ics, dance, gymnastics, judo and karate; a rifle and pistol range; courts for handball, racquetball and squash; a jogging track; a swimming pool; weight training and modern fitness equipment areas; an ice arena for recreational skating and hockey; a special aerobics area; and a climbing wall.

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

hockey and women's volleyball.

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

You'll find some of the best facilities in the state at UAF. 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 at the Davis Concert Hall or the Salisbury Theater. The Rasmuson Library is Alaska's largest, and offers traditional ways to access library materials, as well as extensive computer databases to extend the library resources beyond the state. Aside from being among the top 10 visitor attractions in the state, the UA Museum is also a student resource; its vast collections are used for demonstration and comparative studies in classrooms and labs.

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

#### Fairbanks Area

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

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

With a population of more than 70,000, the Fairbanks area offers the conveniences of a big city, yet rolling hills and spectacular

panoramas are only minutes away.

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

# **Transportation to Fairbanks**

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

to many other destinations.

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

# **Branch Campuses**

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

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

switch campuses.

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

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

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

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

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

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

apartments with space for four students in each.

Northwest Campus in Nome — This campus serves not only

the residents of Nome, but also the people in the 15 Eskimo villages surrounding Nome. Northwest offers a general program with courses leading to three baccalaureate degrees: education, social work and rural development, as well as Associate of Arts and Associate of Applied Science degrees. Vocational and applied courses involve about half the student body.

Tanana Valley Campus in Fairbanks — The Tanana Valley Campus provides general education at the certificate and associate degree levels, as well as vocational/technical training. UAF's Down-

town Center in Fairbanks is headquarters for the Tanana Valley Campus. You can take classes at the center which focus on business, computers, office professions and general developmental education. Computer labs and an office lab are also located at the center. The Hutchison Career Center, an integral part of the Tanana Valley Campus, located on Geist Road near the main campus, is the home of several vocational/technical programs. With more than 12,000 square feet of shop, classroom and office areas, the space is organized and equipped for skill development.



Sled dog teams race by the UAF Downtown Center—headquarters of the Tanana Valley Campus—each March during the Open North American Sled Dog Race, part of Winter Carnival.

# **How to Enroll**

# Applying for Admission

#### When to Apply

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

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

## How to Apply

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

 Application for Admission — A \$35 non-refundable processing fee must accompany your application.

 Transcripts — If you haven't enrolled in a college or university before, you must have your official high school transcript sent to the Office of Admissions and Records.

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

If you're a transfer applicant with less than 30 semester hours of credit, you must submit your high school transcript as well as college transcripts.

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

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

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

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

#### Conditional and Final Acceptance

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

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

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

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

#### **Immunization Policy**

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

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

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

# **Admission Requirements**

#### Freshman

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

#### **Associate Degree**

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

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

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

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

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

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

- B. If you've graduated from high school with a satisfactory GPA, but don't meet minimum entrance requirements for the baccalaureate degree, you may be provisionally accepted provided you make up deficiencies by earning at least a "C" grade in each of the appropriate developmental or university courses, and complete nine credits of general baccalaureate degree requirements with a grade of "C" in each course.
- C. If you haven't graduated from high school, are 18 years of age or older, or if you completed high school by passing the G.E.D test or its equivalent, or if you do not meet admission requirements, you may be considered for unrestricted admission to a baccalaureate degree program on a case-by-case basis. You will need to provide for review supporting evidence of your academic ability including test results from either the ACT or SAT examinations.

#### **Transfer Students**

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

#### **International Students**

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

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

#### **TOEFL Test Requirements**

- 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).
- 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.
- You must present a TOEFL score of at least 550.

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

1	English	Math	Social	Natural/
			Science	Phys. Sci
High School Co	re Cr	edits:		
Required for all freshmen (2.50 GPA in core-16 credit total)	4	3 in college preparatory mathematics (selected from Algebra I. II, geometry, trigonometry, elementary functions, precalculus or calculus)	3	3 (Includes 1 cr. lab science course in biology, chemistry or physics)
College of Liber	al Ar	ts:		
Applied Statistics, Computer Science or Mathematics majors	4	Algebra-2 Geometry-1 Trig- 1/2 Adv Math- 1/2	3	Nat. Sci2 Physics or Chemistry-1
Physical Educ, majors	4	Algebra-2 Elective-1-3 (Selected from math core above)	3	Biology-1 Physics or Chemistry-1 Elective-1
All other majors Liberal Arts		Same as entrance core		
College of Natu	ral S	ciences:		
All majors	4	Algebra-2 Geometry-1 Trig 1/2	3	Physics or Chemistry-1 Biology or Elective-2
College of Rura	Alas	ka:		2001-2010-2-10-
All majors		Same as entrance core		
School of Agricu	ılture	& Land Res	ources	Management:
Land Resources Mgt. majors	4	Algebra-2 Geometry-1 Trig- 1/2	3	Physics or Chemistry-1 Biology or Elective-2
School of Engine	eering	g:		
All majors	4	Algebra-2 Geometry-1 Trig- 1/2	3	Chemistry-1 Physics-1 Elective-1
School of Fisher	ies an	d Ocean Scie	nces:	
All majors	4	Algebra-2 Geometry-1 Trig 1/2	3	Physics or Chemistry-1 Biology and / or Elective-2
School of Manag	gemer	nt:		
All majors (Two years Foreign Language highly recommended.)	4	Algebra-2 Geometry-1 Trig- 1/2	3	Physics or Chemistry-1 Nat. Sci2
School of Miner	al En	gineering:		
All majors	4	Algebra-2 Geometry-1 Trig- 1/2	3	Physics or Chemistry-1 Nat. Sci2

#### B. Other Requirements

- 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 \$12,000. This amount covers university fees, room and board on campus, and a reasonable amount of personal expenses. It does not include transportation to and from Alaska, summer living or cold weather clothing costs. Since the application for the F-1 visa requires affirmation that you don't intend to live in the United States permanently, you aren't eligible for resident tuition fees.
- 3. Your application should reach Admissions and Records by March 1 for the fall semester or October 1 for the spring semester. Your application must be completed and accepted by August 1 for the fall semester and December 1 for the spring semester in order to allow time for your I-20 form to be issued. You can't reserve on-campus housing until your application for admission has been accepted. If you're interested in single student housing, you should file your application materials at least eight months before you plan to enroll.

# Readmission of Former Degree-Seeking Students

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

If you left UAF in good standing, haven't enrolled in an institution outside of the University of Alaska system, and haven't been absent more than two years, you must request readmission and an update of your degree status before you register. No processing fee is required if your readmission update is received by Aug. 1 for the fall semester and Dec. 1 for the spring semester. Requests for readmission received after these dates must be accompanied by a \$35 fee and will be processed if time permits.

If you were on probation at UAF, or were enrolled in an institution outside the UA system, or if it's been more than two years since you were last enrolled in your degree program at UAF, you will need to submit the regular undergraduate application for admission form, pay the \$35 processing fee and submit official transcripts from any colleges or universities you attended since you last enrolled at UAF.

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

# **Non-Degree Students**

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

#### **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 enroll, you must present written approval from your high school counselor or principal and 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 an academically exceptional freshman or sophomore high school student, you may register for one course each semester with the approval of the Director of Admissions and Records. You must submit all of the documents listed above. You may continue to take UAF courses as long as your high school and college grades are satisfactory and you have permission from your high school principal or counselor and from your parents each time you enroll. Students in elementary, junior high or middle school are not eligible to register for UAF classes.

## Students with Bachelor's Degrees

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

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

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

# Academic Bankruptcy for Returning Students

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

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

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

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

#### Course Placement

## **English and Mathematics**

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

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

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

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:

#### Foreign Language

To continue the study of a foreign language you began outside of college, you must take a placement test before enrolling. Under certain conditions, you may, with the permission of the language faculty, enroll for credit in a course up to one semester below the level at which you were placed. Work more than one semester below will

be considered remedial and will carry no credit. Contact the Department of Foreign Languages and Literatures before you enroll in any course. If you are placed in any course ranging from 102 to 302, you may ear advanced placement ("bonus") credit; for details see Alternative Ways to Earn 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:

- You're only eligible for transfer of credit if you're an undergraduate degree or certificate candidate.
- The applicability of transfer credit to your major and/or minor requirements must be approved by your major and/or minor department. As a transfer student, you must fulfill the UAF graduation and residency requirements, including those required for a particular program.
- 3. Undergraduate credits earned at the 100-level or above with a grade of "C" or higher at institutions accredited by one of the six regional accrediting agencies, will be considered for transfer. Transfer credit normally isn't granted for courses with doctrinal religious content or for graduate courses (for undergraduate programs). Credit is not transferred for advanced placement credit or credit by examination awarded by another institution.
- Transfer credit is not included in computing your UAF grade point average.
- Your class standing is based on the number of credits UAF accepts of your previous college work.
- 6. Credits may be awarded for formal service schooling and military occupational specialties (MOS) based on recommendations in the "Guide to the Evaluation of Educational Experience," published by the American Council on Education. A total of 49 credits 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.
- You will be awarded credit for your government and professional certifications which have been reviewed and approved for designated course equivalencies at UAF. A list of these programs is available in the Office of Admissions and Records.
- Credit may also be awarded for satisfactory completion of training programs, based on recommendations of the American Council on Education and the National Program on non-Collegiate Sponsored Instruction. The award of credit is subject to review and approval of appropriate UAF faculty.
- You may request special review for approval of transfer credit not meeting the requirements above by contacting the Office of Admissions and Records.

# Transfer Within the UA System

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

nents for their baccaraticate degrees. The	se merade.
Category	Credit Hours
Written communication skills	6
Oral communication skills	3
Humanities/social sciences/fine arts	15
Quantitative skills/natural sciences	10 math
Total	34 (1)

Anch-Natsa-100

#### Table of Substitutions

non-University of Alaska institutions

The following table specifies courses accepted by transfer to UAF, from institutions outside the University of Alaska systems, which may substitute for UAFs core curriculum. These substitutions apply only to courses accepted by transfer. Individuals may not use a UAF course that would otherwise qualify as a transfer course as a substitute for a UAF core curriculum course. (Students transferring from either UAA or UAS should consult the current table of substitutions for intra-UA transfers. You may obtain a copy of the table from the Admissions and Records offices at UAF, UAA or UAS.)

Core Curriculum Courses	Transfer Course
MATH 131X Concepts & Contemporary Applications of Mathematics	a 100-level or above mathematics course having a prerequisite of at least two years of high school algebra
MATH 200, 201, 202, 262, 272 Calculus	a calculus course at the 100-level or above
ENGL 111X Methods of Written Communication	the required first semester composition course at the 100-level (must be basic freshman composition and not developmental)
ENGL 211X Intermediate Exposition with Modes of Literature OR ENGL 213XIntermediate Exposition	the second half of the introductory composition series at the 100-level or above
COMM 131X Fundamentals of Oral Communication Group Context OR SPC 142X Fundamentals of Oral Communication Public Context	a 100-level or above performance course in fundamentals of speech communications, public speaking or small group communication
Natural sciences - 8 credits	courses in basic natural sciences (biology, chemistry, earth sciences, physics) with labs, at the 100-leyel or above. Non-lab courses transferable only as a second natural science course. To fulfill core requirements, a transfer student must complete two lab courses or two labs. Depth and breadth emphasis is waived. Transfer of credit for courses in a natural science other than those listed requires approval of the dean of the College of Natural Sciences.
PERSPECTIVES ON THE HUM	AN CONDITION
HIST 100X Modern World History	a Western or non-Western civilization course at the 100-level or above
ECON/PS 100X Political Economy	a foundation course in political science, economics or law
ANTH/SOC 100X Individual, Society and Culture	a foundation course in sociology, social/cultural anthropology, social psychology, psychology, language and culture, or cultural geography at the 100-level or above
ENGL/FL 200X World Literatures	a literature course taken at the 200-level or above
ART/MUS/THR 200X Aesthetic Appreciation	a history or appreciation course in art, theater or music at the 100-level or above
PHIL 322X Ethics (Values and Choices)	an upper-division course in ethics
OTHER	
Library and information skills - 0-1 credit	a 100-level library skills course
Foreign Language	a minimum of two semesters in a single, non-English language

Credit for course work successfully completed at one UA institution toward fulfillment of the general education requirements at that institution shall transfer toward fulfillment of the same categories at all other University of Alaska institutions. This applies even if there is no directly matching course work at the institution to which the student transfers. If you are a transfer student from either UAA or UAS who has completed fully all general education requirements prior to transfer to UAF you will be considered to have completed all requirements of the UAF baccalaureate core. If you are a transfer student who has not completed all general education requirements, courses taken to complete those requirements at UAA or UAS will meet UAF baccalaureate core requirements according to the current table of substitutions for intra-UA transfers. (You may obtain a copy of the current table from the Admissions and Records office at UAF, UAA or UAS.)

Completion of the 35-credit lower division requirements (100and 200-level courses) of the UAF baccalaureate core will meet the general education requirements at the University of Alaska Anchorage and the University of Alaska Southeast.

# **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 — Only freshmen with appropriate test scores may receive local advanced placement credit in English. If you're an incoming freshman with:

1. an English ACT score of 26 or higher or

an English enhanced ACT (EACT) score of 30 or higher or

 a verbal SAT score of 600 or higher (or 670 on the Recentered Scale).

you may receive credit for ENGL 111X by:

 enrolling in a 200- or 300-level literature course at UAF and completing it with a grade of "C" or better or

waiting until you have sophomore standing (30 credits or more) and completing ENGL 211X or 213X with a grade of "C" or better.

You must submit an "application for ENGL 111X credit" form to the Office of Admissions and Records at the end of the semester in which you completed an advanced English course.

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

After completing the course in which you were placed (above 101) and earning a grade of "C" or higher, you may ask to receive "bonus credit" for the two immediately preceding prerequisite courses, if any. However, credit cannot be awarded for such courses if university credit has already been granted for them (for example, through College Board A.P. national tests or credit transfer from another college). Bonus credit will not awarded for special topics courses, individual study courses, literature or culture courses.

Mathematics — If you are placed in an advanced math course and you complete MATH 201, 202, 273 or 302 at UAF with a grade of "C" or better, you may also receive credit for any prerequisite calculus course. See "Course Placement."

# College Board Advanced Placement

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

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

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

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

## Credit by Examination

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

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

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

#### A. CLEP (College Level Examination Program)

CLEP is a national testing program that awards college credit for some introductory courses. The exams cost \$40 each. and are administered by appointment. To register for a CLEP exam or to receive more information, contact Testing Services.

The following criteria apply to CLEP General Exams:

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

#### The following criteria apply to CLEP Subject Exams:

- You may not duplicate a course for which you've already been given credit, or for which you're currently enrolled.
- If you've audited a course, you can't take the CLEP Subject Exam for that course for one year.
- 3. The minimum passing scores for approved CLEP Subject Exams is 50 with the exception of the listed foreign languages. French Level I minimum score is 42; Level II - 50; German Level I - 44; Level II - 55; Spanish Level I - 45; Level II - 55.

#### CLEP Subject Exams Currently Accepted

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

#### B. DANTES-DSST (Standardized Subject Tests)

DSST is a national testing program which offers exams in traditional academic, vocational/technical and business subject areas. Although UAF doesn't administer the exams, credit is awarded for successfully completing DANTES tests as recommended by the American Council of Education. Acceptance of the DANTES exam for a specific catalog course or as a major/ minor requirement is subject to departmental approval.

<sup>\*\*</sup> Minimum score required varies on each subject level

#### C. Local Credit by Exam Program

You can be awarded credit through the local credit by exam program if you're currently enrolled. Subject to departmental approval, most courses are available for credit by exam, except those with numbers ending -90 through -99 (193, 292, 497, etc.). A course challenged for credit can't duplicate a course for which you've already been granted credit, or for which you are currently enrolled. If you've audited a class, you can't request credit by examination for that class until one year has passed since the end of the semester in which you audited the course.

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

The nonrefundable fee is \$40 per credit hour for undergraduate and graduate courses. Contact the Testing Services Office to obtain credit by examination forms or for more information on challenging a course.

#### **Independent Learning**

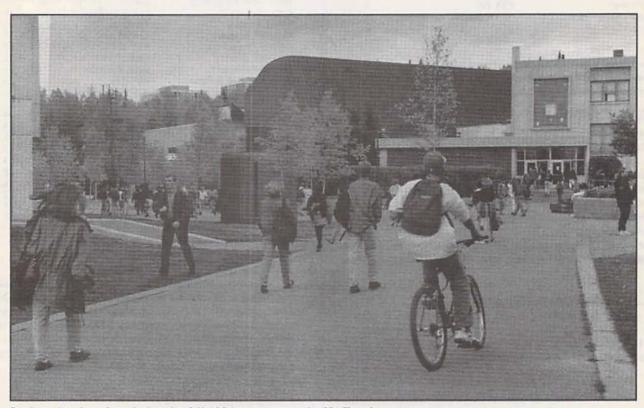
The Independent Learning Program, administered by the Center for Distance Education and Independent Learning, offers an alternative for people who seek a college education but cannot attend classes. The unique advantage of independent learning (correspondence study) is its flexibility. You select your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

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

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

#### Credit for Prior Learning

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



Students head to class during the fall 1994 semester on the UAF main campus.

# **How to Register**

# Registration

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

#### **Placement Tests**

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

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

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

#### Registration Drop Policy

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

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

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

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 made subsequent to the third Friday after classes begin must be approved by the instructor of the course. All changes must be made 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 Classes

If you wish to add, drop or withdraw from a class, you will need to follow the add/drop procedure. Your academic adviser must sign the appropriate form for either an add or drop unless you are a non-degree student. Instructors' signatures aren't required for a drop or withdrawal and the instructor will be notified of your drop or withdrawal by the Office of Admissions and Records. When you drop or withdraw from a class or classes, your signature is required. Information about the add/drop process and forms may be obtained from the Office of Admissions and Records. Adds, drops and withdrawals are not final until you have completed the appropriate procedure, paid any additional fees that are due and turned in all completed paperwork to the Admissions and Records office.

Adding a Class — You may add classes to your scheduled until the end of the published late registration period. If you are on a wait list for a class and have kept up with class activity, as vacancies occur you may be allowed to register for the class until the fourth Friday after classes begin with instructor approval.

Dropping a Class — You may drop a class during the first two weeks of the semester. Dropped classes don't appear on your academic record.

Withdrawing from a Class — If you withdraw from a class after the second week of the semester, a grade of "W" will appear on your academic record. The "W" grade does not affect your GPA. The last day you can withdraw from a class is the fourth Friday of the semester unless you are a freshman or a non-degree student. Freshman and non-degree students may withdraw from classes until the sixth Friday of the semester. The specific dates are published in the official university calendar in the front of this catalog.

Withdrawing from All of Your Classes — You will need to obtain a total withdrawal form from the Office of Admissions and Records if you want to withdraw from all of your classes. A student-initiated total withdrawal is subject to the same deadlines as withdrawal from a class (see above).

Withdrawing after the Student-Initiated Deadlines — After the last day for student-initiated withdrawals, late withdrawals are allowed for exceptional cases only and approval is not automatic. You'll need to provide evidence to support your request for a withdrawal. Acceptable reasons might include documented family emergency, major employment change, documented medical condition or other non-academic reasons such as disciplinary sanctions. Escaping

an unsatisfactory grade is not an acceptable reason for seeking a late withdrawal.

Late withdrawal from a class: To support your request to drop a class after the deadline, the dean of the college or school in which the class is offered will need to have documentation from you concerning your reasons for withdrawing. You'll also need to obtain an Add/Drop form from the Admissions and Records office and have the class instructor, department head and your adviser sign the form before presenting it to the dean.

Late withdrawal from all of your classes: If you need to withdraw from all of your classes, pick up a total withdrawal form from the Admissions and Records office and obtain your adviser's signature on that form before seeing the dean of the college or school in which your major is located. You'll need to present documentation to your dean supporting your reasons for withdrawing.

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.

Changing from Credit to Audit — You may change from a credit enrollment in a class to audit status by following the add/drop process. Subsequent to the third Friday after classes begin, all registrations for audit, including changes from credit to audit, must be approved by the instructor of the course being audited. You may not change from credit to audit after the last day for student-initiated withdrawals.

Action	Begins**	Ends	Remarks
Adding a Class or Registering Late	First day of instruction for the semester	Fifth day of instruction for the semester	Adviser's signature required for student in degree program
Dropping a Class (Class does not appear on transcript)	First day of instruction for the semester	10th day of instruction for the semester	Adviser's signature required for student in degree program
Withdrawing from a Class (Class appears on transcript with "W" grade)	11th day of instruction for the semester	Fourth Friday after classes begin (except freshmen and non-degree students) Sixth Friday after classes begin for freshmen and non-degree students	Adviser's signature required for student in degree program
Withdrawing from All of Your Classes	First day of instruction for the semester	Fourth Friday after classes begin (except freshmen and non-degree students) Sixth Friday after classes begin for freshmen and non-degree students	Adviser's signature required for student in degree program
Late Withdrawal from a Class***	After the last day for student-initiated withdrawals	Last day of instruction for the semester	Adviser's signature required for student in degree program; class instructor, department head and dean's signature required for all students
Late Withdrawal from All of Your Classes	After the last day for student-initiated withdrawals	Last day of instruction for the semester	Must be initiated by the dean of the college or school in which the student is majoring or by the Dean of Student Services for undeclared majors or non-degree students
Credit-No-Credit Option	First day of instruction for the semester	10th day of instruction for the semester	Only free electives may be taken under this option

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

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

Add, drop, withdrawal and credit-no-credit option deadlines will be adjusted proportionally for courses that are less than a semester in length.

\*\*\* Late withdrawals are allowed for exceptional cases only and approval is not automatic.

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

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

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

# **Appeal Procedure**

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

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

To appeal grades, contact the Dean of Student Services.

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

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

#### Attendance

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

If you choose to be absent from class to participate in universitysponsored 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		
Senior		

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**

#### The Baccalaureate Core

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

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

O - oral communication intensive course

W - writing intensive course

Two courses designated "O/2" are required to complete the oral communication intensive requirement.

#### Specific Degree Requirements

Courses that may be used to satisfy specific degree requirements (e.g., humanities elective for the B.A. degree, or natural science elective for the B.S. degree) are identified in the course description section of the catalog by the following designators:

h - humanities n - natural science

m - mathematics s - social science

For example, you may use ANTH 309, Arctic Prehistory (3+0)s to satisfy the "social science elective" requirement for the Bachelor of Arts degree. Some courses, including all special topics and individual study 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.

# Grading System and Grade Point Average (GPA) Computation

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

Grades appearing on academic records are as follows:

- A An honor grade, indicates originality and independent work, a thorough mastery of the subject, and the satisfactory completion of more work than is regularly required.
- 3 Indicates outstanding ability above the average level of performance
- C Indicates a satisfactory or average level of performance.
- D The lowest passing grade, indicates work of below average quality and performance.
- F Indicates failure. All "F" grades, including those earned in pass/ fail courses, are included in the GPA calculations.
- Pass The grade "pass" indicates satisfactory completion of course requirements at either the undergraduate or graduate level. A "pass" grade does not affect your grade point average but credits earned with "pass" grades may meet degree requirements and may be used as a measure of satisfactory progress. Satisfactory performance is the equivalent of a grade of "C" or better in undergraduate course work and "B" or better in graduate courses. The entire class must be graded pass/fail and the grading system is noted in the class schedule.
- Cr Indicates credit was given under the credit-no-credit option.
- DF Deferred Indicates that the course requirements cannot be completed by the end of the semester, that credit may be withheld without penalty until the course requirements are met within an approved time. This designation will be used for courses such as theses, special projects, etc., that require more than one semester to complete.
- AU Audit A registration status indicating that you've enrolled for informational instruction only. No academic credit is granted. You may be given a "W" if you don't attend a course you are auditing. See "Auditing."
- W Withdrawn Indicates withdrawal from a course after the first two weeks of a semester.
- Incomplete A temporary grade used to indicate that you've satisfactorily completed (C or better) the majority of the work in a course, but for personal reasons beyond your control, haven't been able to complete the course during the regular semester. Normally, an incomplete is assigned when you've been in class until at least the last three weeks of the semester or session. Negligence or indifference aren't acceptable reasons for an "I" grade. (The deferred grade (DF) may be used for those cases when you're unable to complete a course due to institutional reasons, such as a breakdown of laboratory equipment.)

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

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

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

#### Computing Your GPA

Your grade point average (GPA) is a weighted numerical aver-

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

Gra	ade	Grade Points per Credit
A		4.0
В		
C		2.0
D		
F		0.0

Noncredit courses, transfer credits and credit by examination do not affect the GPA calculations. Undergraduate work is not included in the GPA for graduate students. Once you complete your bachelor's degree, your GPA in future work is calculated only on the credits and grades earned since your degree was awarded. An exception to this is made if you're officially admitted to a second bachelor's degree program.

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

#### **Honor Code**

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

- 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.
- 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.
- No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors. Violations of the Honor Code will result in a failing grade for the

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

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

#### Student Behavioral Standards

Education at the university is conceived as training for citizenship as well as for personal self-improvement and development. Generally, UAF behavioral regulations are designed to help you work efficiently in courses and live responsibly in the campus environment. They are not designed to ignore your individuality but rather to encourage you to exercise self-discipline and accept your social responsibility. These regulations, in most instances, were developed jointly by staff and students. You should become familiar with campus policies and regulations as published in the student handbook.

#### Information Release

#### Access to Records

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

#### **Directory Information**

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

The following is considered directory information:

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

# Majors

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

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

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

#### Petitions

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

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

# Reserving Courses for Graduate Programs

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

# Students' Rights and Responsibilities

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

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

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

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52.7	To be completed by all:	Complete the following	in addition to the Core:	200 121 2		PERSON TEN	Difufili 2 sem
Academic Discipline	Baccalaureate Core	Bachelor of Arts	Bachelor of Science	Bacheler of Technology	Bachelor of Business Administration	Bachelor of Education	Bachelor of Music
Communications	ENGL 111X - 3 cr ENGL 211X OR ENGL 213X - 3 cr COMM 131X OR COMM 141X - 3 cr	2 designated upper-division writing intensive (W) and either 1 designated upper-division oral intensive (O) course OR 2 upper-division oral intensive courses designated O/2	2 designated upper-division writing intensive (W) and either 1 designated upper-division oral intensive (O) course OR 2 upper-division oral intensive courses designated O/2	ENGL 314 and 1 other designated upper-division writing intensive (W) and either 1 designated upper-division oral intensive (O) course OR 2 upper-division oral intensive courses designated O/2	ENGL 314 and I other designated upper-division writing intensive (W) and either I designated upper-division oral intensive (O) course OR 2 upper-division oral intensive courses designated O/2	2 designated upper-division writing intensive (W) and either 1 designated upper-division oral intensive (O) course OR 2 upper-division oral intensive courses designated O/2	2 designated upper-division writing intensive (W) and either 1 designated upper-division oral intensive (O) course OR 2 upper-division oral intensive courses designated O/2
Humanities and Social Sciences	Perspectives on the Human Condition (18 cr): ANTH/SOC 100X - 3 cr ECON/PS 100X - 3 cr HIST 100X - 3 cr HIST 100X - 3 cr ART/MUS/THR 200X OR HUM 201X - 3 cr ENGL/FL 200X - 3 cr PHIL 322X or PS 300X - 3 cr -or 12 credits from above plus 2 semester length courses in a single Alaska Native or other non-English language taken at the university level	Humanities and Social Sciences (18 credits): Any combination of courses at the 100-level or above with a minimum of 6 credits in humanities and 6 credits in social sciences or up to 12 credits of a non-English language taken at the university level and at least 6 credits of social sciences	No additional humanities or social sciences unless required by major or minor	No additional humanities or social sciences unless required by major or minor	ECON 200 - 4cr ECON 227 - 3 cr	LING 101 - 3 cr Humanities Elec - 3 cr ANTH 242 - 3 cr PSY 101 - 3 cr PSY 240 - 3 cr	No additional humanities or social sciences except those required in the major
Mathematics	MATH 131X or MATH 200, 201, 202, 262 or 272 or any math course having one of the above as a prerequisite - 3 or 4 cr	One 3-credit course at the 100-level or above from math, computer sciences or statistics	One 3-credit course at the 100-level or above from math, computer sciences or statistics	One 3-credit course at the 100-level or above from math, computer sciences or statistics	STAT 200 - 3 cr MATH 161 - 3 cr (MATH 262 should be taken to meet the core math requirement)	MATH 205 - 3 cr MATH 206 - 3 cr	One 3-credit course at the 100-level or above from math, computer sciences or statistics
Natural Sciences	Complete one emphasis:  Breadth emphasis (8 credits): BIOL 103X OR BIOL 104X - 4 cr OR BIOL 273 - 4 cr CHEM 100X - 4 cr GEOG 205X - 4 cr GEOS 100X - 4 cr OR GEOS 120X - 4 cr MSL 111X - 4 cr PHYS 102 - 4 cr PHYS 275X - 4 cr	No additional natural science unless required by the major or minor	One year sequence in one natural science beyond the core - 8 cr (The total natural science courses used to meet core and B.S, requirements must represent at least two different natural sciences.)	No additional natural science unless required by the major	No additional natural science required	No additional natural science unless required in concentration	No additional natural science required
	Depth emphasis (8 credits): (Complete one sequence) BIOL 105X and 106X - 8 cr BIOL 211X and 212X - 8 cr CHEM 103X and 104X - 8 cr CHEM 105X and 106X - 8 cr GEOS 101X and 102X - 8 cr GEOS 101X and 112X - 8 cr PHYS 103X and 104X - 8 cr PHYS 211X and 212X - 8 cr PHYS 211X and 213X - 8 cr PHYS 211X and 213X - 8 cr	tra	ns ger UAF (LAB	phys 10 ) geos	3 - AM		due trans ann 7
Library and Information Skills	Successful completion of library skills competency test or LS 100X OR 101X - 0-1 cr (to be completed during the first two years)			the versions			The state of the s
Other				Computer competency (any computer science or computer applications course) - 3 cr Technology & society - 3 cr Area of specialization - 30 or more cr Option - 33 or 38 cr	Common Body of Knowledge - 31-34 cr	Concentration - 18-31 cr Education - 48 cr	
Major Complex		At least 30 credits	At least 30 credits		At least 30 credits		85 or more cr
Minor Complex	3 denverse	Required At least 15 credits	Optional At least 15 credits		Optional for business administration and economics At least 15 credits		
Total Credits Required	38-40 cr	20 cr	120 cr	120 cr	123 to 130 cr	130 cr	120 cr

# How to Earn a Degree

# Requirements

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

#### **General University Requirements**

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

At least 15 semester credits applicable to any associate degree must be earned at UAF. If you're a bachelor's degree student, you must earn at least 30 semester credits applicable to any baccalaureate degree at UAF. For transfer students, you need to earn at UAF at least 24 hours of upper-division semester credits, at least 12 semester credits in your major and at least three semester credits in your minor for the baccalaureate degree.

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

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

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

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

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

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

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

#### What degree requirements can you use?

You may complete degree requirements that are in effect in any

one of the academic years in which you are enrolled as a degree student. Only degree requirements in effect within seven academic years prior to your graduation date for a baccalaureate degree or five years for a certificate or associate degree may be used.

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

#### Residence Credit

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

#### Graduation

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

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

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

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

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

Graduation with Honors— a 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 (including all repeated and bank-rupted credits). 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 (including repeated credits and any not accepted by transfer) 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 y' u 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.

Majors Available for Certificate Programs: Airframe and Powerplant, Applied Mining Technology, Community Health, Culinary Arts, Diesel/Heavy Equipment Mechanics, Drafting Technology, Early Childhood Development, Fire Science, Native Language Education and Office Management and Technology and Rural Health Services.

#### **Associate Degrees**

#### ASSOCIATE OF ARTS REQUIREMENTS

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

#### Requirements

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

C	ommunication (9 credits) Credi	ts
	ENGL 111X—Methods of Written Communication	
	ENGL 211X—Intermediate Exposition with Modes of Literature	
	OR *ENGL 212—Business, Grant and Report Writing OR	
	ENGL 213X—Intermediate Exposition	
	COMM 131X—Fundamentals of Oral Communication: Group	
	Context OR COMM 141X—Fundamentals of Oral	
	Communication: Public Context	

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

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

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

ECON 100X/PS 100X—Political Economy
HIST 100X—Modern World History 3
ART/MUS/THR 200X—Aesthetic Appreciation:
Interrelationship of Art, Drama and Music OR
HUM 201X—Unity in the Arts3
ENGL/FL 200X—World Literatures 3
Humanities or social science elective 3
(Two semester length courses in a single non-English language

ANTH 100X/SOC 100X-Individual, Society and Culture ..... 3

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

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

#### General electives (22-23 credits)

Credits

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

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

#### ASSOCIATE OF APPLIED SCIENCE REQUIREMENTS

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

#### Requirements

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

# Communication (9 credits) Credits FNGL 111X—Methods of Written Communication 3

ENGL HIA-Wellious of White	nec	minui	neauon
ENGL 211X—Intermediate Expo	sitio	n with	Modes of Literature
OR *ENGL 212-Business, Gran	t and	d Repo	rt Writing OR
ENGL 213X-Intermediate Expo	sitio	n	3
COMM 131X-Fundamentals	of	Oral	Communication:
Group Context OR			
COMM 141X—Fundamentals	of	Oral	Communication:
Public Context			3

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

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

#### 

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

# 

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

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

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

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

#### **Baccalaureate Degrees**

# THE BACCALAUREATE EXPERIENCE: THE CORE CURRICULUM

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

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

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

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

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

#### Requirements

Mathematics (3 credits)

of these as a prerequisite

1	ommunication (9 credits) Credi	t
	ENGL 111X—Methods of Written Communication* 3	
	ENGL 211X—Intermediate Exposition with Modes of Literature	
	OR	
	ENGL 213X—Intermediate Exposition	,
	COMM 131X—Fundamentals of Oral Communication:	
	Group Context OR	
	COMM 141X-Fundamentals of Oral Communication:	
	Public Context	,
	*ENGL 190H may be substituted.	
e	rspectives on the Human Condition (18 credits)	
	(Humanities and social sciences)	
	Complete the following six courses:	
	ANTH 100X/SOC 100X—Individual, Society and Culture 3	
	ECON 100X or PS 100X—Political Economy	
	HIST 100X—Modern World History	
	ART/MUS/THR 200X—Aesthetic Appreciation:	
	Interrelationship of Art, Drama and Music OR	
	HUM 201X—Unity in the Arts	
	ENGL/FL 200X—World Literatures	
	PS 300X—Values and Choices OR	
	PHIL 322X—Ethics	,
	OR complete 12 credits from the above courses plus two semester	
	length courses in a single Alaska Native language or other non-	
	English language taken at the university level.	
1		

Natural Sciences (8 credits)	E HARALINE LE
Complete two 4-credit courses, with labs, from approved	d natural
science core courses with depth or breadth emphasis.	t natural
Breadth emphasis: The two courses must be in different sciences or must be interdisciplinary in nature.	t naturai
Select two courses from the following:	
BIOL 103X—Biology and Society OR	
BIOL 104X—Natural History of Alaska OR	
BIOL 273X—Humans in the Earth System	4
CHEM 100X—Chemistry and the Modern World	4
GEOG 205X—Physical Geography	4
GEOS 100X—Introduction to Earth Science OR GEOS 120X—Glaciers, Earthquakes, Volcanoes	1
MSL 111X—The Oceans	4
PHYS 102X—Energy and Society	4
PHYS 275X—Astronomy	4
Depth emphasis: The two courses must be sequential co	ourses or
a two-semester survey in the basic natural sciences (	biology,
chemistry, earth science, physics). Select one sequence	from the
following:	0
BIOL 105X-106X—Fundamentals of Biology I and II. BIOL 211X-212X—Human Anatomy & Physiology I a	nd II 8
CHEM 103X-104X—Basic General Chemistry	and 11 0
Beginnings in Biochemistry	8
CHEM 105X-106X—General Chemistry	8
GEOS 101X—The Dynamic Farth and	
GEOS 102X—Environmental Geology	8
OR CERTIFICATION OF THE PROPERTY OF THE PROPER	
GEOS 101X—The Dynamic Earth and GEOS 112X—History of Earth and Life	8
PHYS 103X-104X—College Physics	
PHYS 211X-212X—General Physics	
PHYS 211X-213X—General Physics/Elementary	
Modern Physics	8
PHYS 212X-213X—General Physics/Elementary	No.
Modern Physics	8
Library and Information Skills (0-1 credit)	
Successful completion of library skills competency te	st or LS
100X or 101X prior to junior standing	0-1
Two writing intensive courses designated (W) an	
communication intensive course designated (O)	
communication intensive courses designated (O/	2), at the
upper-division level	
(see degree and/or major requirements)	0 additional
White the second control of the second contr	
Total Credits Required	38-39
PACHELOD OF ARTS DECUMPEMENTS	Credits
BACHELOR OF ARTS REQUIREMENTS	Credits
Complete the baccalaureate core	38-39
complete the baccataureate core imminimum	50 57
Complete the following B.A. requirements in add	lition to the
core:	
Humanities and social sciences	18
Any combination of courses at the 100-level or above	
minimum of 6 credits from the humanities and a minim	
credits in the social sciences OR up to 12 credits in a sir	igle non-
English language taken at the university level and a min 6 credits in social science	mum of
o credits in social science	
Mathematics	3
One course at the 100-level or above in mathematical	
(math, computer science, statistics)	
at Minor complex#	at least 15
Minor complex*	at least 15
UK	

2000 for Credits; 900 of of com singer

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

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

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

Electives ...... 12-19

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

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

Courses beyond 30 credits in a major complex and 15 credits in a minor complex which are not in the primary discipline of that major or minor may be used to fulfill the B.A. degree requirements in humanities, social sciences or mathematics. Courses used to fulfill minor degree requirements may be used at the same time to fill major or general distribution requirements if so designated.

\*Departmental requirements for majors and minors may exceed the minimums indicated. Specific requirements are listed in the

Degrees and Programs section of the catalog.

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

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

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

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, Human Services Technology and Office Management and Technology, and Paralegal Studies.

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

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

# BACHELOR OF SCIENCE REQUIREMENTS

Requirements

Credits 

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

Natural sciences ......8

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

Mathematics ......3

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

Major complex\* ..... at least 30 Minor complex (optional)\* ...... 15 or more

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

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

Courses beyond 30 credits in a major complex and 15 credits in a minor complex which are not in the primary discipline of that major or minor may be used to fulfill the B.S. degree requirements in mathematics or natural science. Courses used to fulfill minor degree requirements may be used at the same time to fill major or general distribution requirements if so designated.

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

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

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

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

Optional Minor — You may elect to complete a minor with the

B.S. degree under the following circumstances:

 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 unless so designated. The catalog used for the minor must be the same as the catalog used for the major and general degree requirements.

 You must satisfactorily complete the requirements for the minor before your B.S. degree will be awarded. The minor will be listed

on your transcript along with the B.S. degree.

# BACHELOR OF BUSINESS ADMINISTRATION REQUIREMENTS

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

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(MATH 262 should be taken to complete the mathematics requirement for the core.)

#### Social Sciences and Statistics (10 credits)

STAT 200-Elementary Prob	ability and	Stati	stics	3
ECON 200-Principles of Eco				
ECON 227-Intermediate				
Business				3

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

AIS 101-Effective Personal Computer Use OR d	emonstrated
computer literacy	0-3
ACCT 101-102—Elementary Accounting	6
AIS 310-Intro to Management Information System	
AIS 316—Accounting Information Systems	

BA 325—Financial Management
BA 330—Legal Environment of Business
BA 343—Principles of Marketing
BA 360—Operations Management 3
BA 390—Organization Theory and Behavior 3
BA 462—Administrative Policy3
ECON 324—Intermediate Macroeconomics OR
ECON 350—Money and Banking

Major complex and option*	at least 27
Minor complex** (optional)	21 or more
Electives	13 or more

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

\*\* The minor must be selected outside of the School of Management. Specific requirements are listed in the Degrees and Programs

section of the catalog.

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

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

#### BACHELOR OF EDUCATION REQUIREMENTS

See Education in Degrees and Programs section.

#### BACHELOR OF MUSIC REQUIREMENTS

See Music in Degrees and Programs section.

#### BACHELOR OF FINE ARTS REQUIREMENTS

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

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

#### BACHELOR OF TECHNOLOGY REQUIREMENTS

See Technology in Degrees and Program section.

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# Fees and Financial Aid

#### Tuition

Tuition is determined by the following:

- 1) The number of credit hours enrolled,
- 2) The level of the course, and
- 3) The residency status of the student.

	Resident	Non-resident
100-200 level courses	\$ 69/credit	\$ 207/credit
300-400 level courses	75/credit	225/credit
500-600 level courses	150/credit	300/credit

Undergraduate students are considered full time at 12 or more credits. Graduate students are considered full time at 9 or more credits.

#### **Definition: Alaska Resident**

Alaska residents, members of the United States military on active duty in Alaska and their dependents, members of the Alaska National Guard and their dependents, as well as residents of the Yukon Territory and the Northwest Territories are exempt from a nonresident tuition fee. For purposes of non-resident tuition a resident is any person who has been physically present in Alaska for one year (excepting only vacations or other absence for periods not exceeding an aggregate of 90 days with intent to return) and who declares intention to remain in Alaska indefinitely. However, any person who, within one year, has declared himself/herself to be a resident of another state, voted in another state, or did any act inconsistent with Alaska residence shall be deemed a non-resident for purposes of nonresident 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 nonresident for purposes of non-resident tuition. Students having nonimmigrant visa status are ineligible for residency.

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

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

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

# Other Fees Associated with Registration

(per semester unless otherwise indicated)

Course Fees (see course descriptions)	\$ 2 - 250
Health Fees (required for full-time students)	
Health Center Fee	65
Health Insurance Fee	approx 230
Housing Fees	
Housing Reservation/Deposit Fee	250
Residence Halls	
Double Room/Double Occupancy	900
Single Room	1,100
Student Apartment Complex	
(each student)	1,150
Married Student Apartments 4	20-680/month
Board Plan (three plans)	895-945
Board Net	
Late Add Fee	40-100
Late Payment Fee	40-100
Music Course Fees	
(music majors maximum: 135/165)	20-145
Parking Fee approx	
Payment Plan Charge	40
Priority Registration Deposit	
(applies toward registration fees)	50
Student Activity Fee (8 credits or more)	100
Student Activity Fee (3 - 7.9 credits)	25

All fees are subject to change.

# Definitions: Other Fees Associated with Registration

Course Fees — Not all courses have course fees associated with them. Fees for courses range from \$2 to \$250. See the course description section of the catalog to check on fees for individual courses.

Health Center Fee — All full-time students, students living in university housing, and students purchasing the student health insurance plan must pay the \$65 Health Center fee. For the purposes of fee payment, full-time students are undergraduate students taking 12 or more credits and graduate students taking 9 or more credits or registered for "active" extended registration. Active duty military students have the option of paying the Health Center fee. A waiver of this fee is available if: none of the student's courses meet on the main campus; the student does not live in university housing; and the student is able to waive the student health insurance plan. A health center fee waiver form may be obtained during fee payment at the beginning of the semester from the Center for Health and Counseling.

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

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

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

The student health insurance fee is approximately \$230 per semester. The exact cost will be quoted at registration during fee payment time. The plan provides basic coverage for accidents and illnesses that are not pre-existing. Questions regarding the student health insurance plan can be directed to the insurance coordinator at the Center for Health and Counseling.

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

The international student health insurance plan provides the same benefits as the domestic plan. In addition, it provides coverage for medical evaluation or repatriation. International students are required to purchase annual international insurance. The cost for F-1 visa international student health insurance is approximately \$625 for the year. The exact cost will be quoted during registration at fee payment time. In general, waivers are not available. Students seeking waivers must present evidence, in English, of equivalent coverage, to the insurance coordinator at the Center for Health and Counseling. Waivers will not be granted unless requested in advance of the fee payment period. Students with J-1 visas have different health insurance requirements. Contact the International Student Adviser for more information.

A brochure entitled *The Student Health Insurance Plan* is available at the Center for Health and Counseling.

Housing Fees — When applying for housing, you need to send a \$250 (\$25 non-refundable processing fee, \$225 refundable deposit) reservation damage deposit to the Housing Office with your completed application. Room rent, along with all other fees, is due in full at registration (see Payment of Fees). When registering, each residence hall student is required to buy a board plan for cafeteria meals. Meal tickets become effective at the evening meal of the first day of registration each semester. For more information, see Housing. If you don't live on campus, you may be authorized by the Housing Office to purchase a board program. The cost includes the price of the board program selected plus a board net charge of \$110. This additional charge is used to maintain the dining facilities and equipment.

Late Add Fee/Late Registration Fee — If you pay fees or add a class later than the last day designated for that purpose, you'll have to pay a late fee of \$40 for the first working day, plus \$10 for each succeeding working day to a maximum of \$100. No late fee will be charged when you change from one section of a course to another or when you have to add another course to replace a canceled course in which you were previously registered. This fee is refunded only if all classes for which you've registered are canceled.

Music Course Fees — Fees are charged for the following services or facilities: private instruction (per applied music course), \$145 (fee for music major is \$75); class instruction (class lesson course), \$70 (fee for music major is \$35); class instruction (functional piano course), \$70 (fee for music major is \$35). Music majors carrying less than 12 credits must pay full fees. Full-time music

majors (12 credits or more) will not have to pay more than \$135 (fall 1995) or \$165 (spring 1996) 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 — Approximately \$150-\$200 per year is charged for on-campus automobile parking. If you park on campus, you need a decal.

Payment Plan Charge — A processing fee of \$40 is added to the total amount due when you're approved for a payment plan. See Paying Fees.

Student Activity Fee — If you're enrolled in at least three, but fewer than eight credit hours (including both on- and off-campus courses), you will be charged a \$25 per semester student activity fee. If you're carrying eight or more credit hours (including both on- and off-campus courses), you will be charged a flat \$100 per semester student fee. This fee is made up of a \$25 ASUAF fee and a \$75 Student Recreation Center fee. If you live in university housing, you will be charged the \$100 fee regardless of the number of credit hours you take. If you're taking fewer than eight credit hours, you have the option of paying the additional \$75 Student Recreation Center fee, but are not required to do so.

The \$25 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 UAF student newspaper.

Paying the \$25 or \$100 fee also entitles you to student rates at all ASUAF functions and services, including dances, concerts, rentals, ombudsman, legal advice, ASUAF aerobics, use of Wood Center facilities; and participation in student elections; and are admitted at student prices to university-sponsored athletic events. Contact the Associated Students of the University of Alaska Fairbanks at (907) 474-7355 for more information.

#### Other General Fees

(per use unless otherwise indicated)

Certificate, Associate, Baccalaureate or Graduate
Degree Application for Admission \$ 35
Credit by Examination fee
Duplicate Copy Fee
Graduation Application
Late Placement and Guidance Test Fee
Program Plan Fee
Records Duplication Charge5/document
Textbooks (approximate)
Transcript (Official) Fee
Regular Service
Priority Service
Transcript (Unofficial)/Counseling Report Fee (for pickup only)
Immediate Service
Overnight Service
Verification of Enrollment5

All fees are subject to change.

#### Definitions: Other General Fees

Admission Processing Fee — You must submit a \$35 processing fee with your application for admission.

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

**Duplicate Copy Fee** — If you lose your registration paperwork, there is a \$5 charge for replacing it. A duplicate copy of your fee statement may be obtained at the Business Office; duplicate registration forms may be obtained at Admissions and Records.

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

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

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

Records Duplication Charge — You may obtain copies of documents in your file in the Admissions and Records Office (excluding transcripts from any school) if time permits, by making a written request, for a cost of \$5 per document. 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 \$325 per semester for textbooks.

Transcript (Official) Fee — Official transcripts of UAF academic records are prepared for a fee of \$5 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, within 36 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 priority service for two transcripts, the fee is \$15. All requests for transcripts must be submitted in writing. Information to be included in the request includes dates and places of attendance, social security number and date of birth.

Transcript (Unofficial)/Counseling Report Fee — If you wish an unofficial copy of your academic records in either a transcript or counseling report format, you may request a copy for pickup at the Admissions and Records office. If you need a copy immediately, there is a \$2 fee. Overnight service is \$1 per copy. These unofficial records are printed on plain paper and are used for academic advising. The unofficial transcripts or counseling reports are available for pickup only.

Verification of Enrollment Fee — If you need written verification of your enrollment for the current semester for insurance, loan, scholarship or other purposes, you may request one from the Office of Admissions

# **Paying Fees**

At registration, you are expected to pay all charges due for the entire semester. This includes tuition and fees, room rent, meal ticket costs, student activity fees, health fees and deposits. In addition, any charges unpaid at the end of the previous semester are due and must be paid before you can re-enroll at the university. If you have a past due debt with the university and submit an enrollment form and payment for the current semester, you will not be enrolled into your classes and the payment will be applied toward your past due debt.

Registration is not complete until you have paid your fees.

If you're unable to pay all charges at the beginning of the semester, you may apply for a payment plan. The Financial Aid Office provides applications. Approval is based on your expected receipt of financial aid, your credit history at UAF and your academic background including your GPA and the number of credits you've completed at UAF.

Provisions of the payment plan are as follows:

 You must pay the entire amount due for your housing and food costs during fee payment.

- You must pay a minimum of 50 percent (50%) of all assessed fees
  at fee payment unless payment is guaranteed by financial aid.
  Guaranteed financial aid is defined as aid: a) which you applied
  for at least three months prior to the start of the semester, and b)
  which you are eligible to receive when it arrives, i.e., your student
  status and/or grades will not prohibit distribution of the aid to
  you.
- The balance is due in a maximum of two equal payments. You will be informed of these due dates when the payment plan is approved.

4. A \$40 processing fee is added to the total amount due.

- Proceeds of any financial aid will be used to pay all outstanding fees when the financial aid is disbursed to you, regardless of the payment due dates.
- You must complete an application for a payment plan and give it to the cashier during fee payment. You will be charged a late fee if you fail to do this.
- Each delinquent payment is subject to a \$35 late fee. You are responsible for meeting this obligation; no bills are mailed.

Senior Citizen Tuition Waiver — Alaska residents 60 years of age or older may enroll without tuition charges in any course for which they are qualified and in which space is available. Course material fees and registration fees for non-credit courses are not waived. Senior citizen tuition waivers are available when fees are paid.

## Consequences of not Paying

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

Your registration, meal plan and housing contract may be canceled at any time if you fail to meet installment contract payments or financial obligations. If you fully satisfy your financial obligation and are allowed to re-enroll, you will be charged a \$100 reinstatement fee. The registration process is not complete until you have paid all fees and charges due the university.

# Refunds

# **Housing and Meals**

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

Class days 1-5
Class days 6-15
Class days 16-30
Beyond 30 days

Refund Amount
75% of the semester housing charge
50% of the semester housing charge
25% of the semester housing charge
No refund will be issued.

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

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

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

# Refunds — General University Tuition and Fees

Course Length	100% Refund Tuition and Fees	50% Refund Tuition Only	On or after the 11th day of instruction for the semester**	
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**		
Courses meeting more than one week but less than a semester  Courses meeting less than one week in length  Prior to and during the first 7 calendar cays of the course***		8th through 14th calendar day of the course***	On or after the 15th calendar day of the course***	
		None	After the first day of the course	

- Drop/Add and Total Withdrawal forms must be submitted to the Office of Admissions and Records by the deadlines to qualify for refunds.
- \*\* The first day of instruction for semester-length courses is the first day of instruction listed in the semester registration class schedule.

  \*\*\* Student initiated withdrawals are permitted only during the first 60
- \*\*\* 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 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:
    - 100 percent refund of tuition and fees withdrawal prior to and during the first five days of instruction for the semester.
    - 50 percent refund of tuition only withdrawal on or after the sixth day through the tenth day of instruction for the semester.
    - No refund or exchange of tuition withdrawal on or after the eleventh day of instruction for the semester.
    - For the purpose of the refund policy in A. 1., 2., and 3., the first day of instruction is the date as indicated in the official semester registration class schedule.
  - B. For courses meeting more than one week but less than a semester:
    - 100 percent refund of tuition and fees withdrawal prior to and during the first seven calendar days of the course.
    - 50 percent refund of tuition only withdrawal on or after the eighth calendar day through the fourteenth calendar day of the course.
    - No refund withdrawal on or after the last day for student-initiated withdrawals.
    - For the purpose of the refund policy in B. 1., 2., and 3., the first day of instruction is the course start date as indicated in the semester registration class schedule. No refunds will be issued after the official withdrawal deadline for any course.
  - C. For courses meeting less than one week:
    - 100 percent refund of tuition and fees withdrawal on or before the first day of the course.

- No refund withdrawal after the first day of the course.
- For the purpose of the refund policy in C. 1. and 2., the first day of the course is the course start date as indicated in the semester registration class schedule.
- The date of withdrawal on your official withdrawal form determines your eligibility for a refund.
- 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.
- Vocational/technical course fees are subject to this refund schedule.
- 6. In case the operations of UAF are adversely affected by war, riot, natural act, action of civil authority, strike or other emergency or condition, the university reserves the right to take action to curtail part or all of its operations, including action to cancel classes and action to discontinue services. In any case in which a significant curtailment is judged proper by UAF, the university's liability is limited to (at most) a refund of tuition and fees paid.

## Financial Aid

#### What is Financial Aid?

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

## Who Can Apply?

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

#### Who Receives Financial Aid?

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

To receive any financial aid, you must:

- 1. Be admitted by the Office of Admissions and Records.
- Be enrolled in a program leading to a degree, diploma or certificate.
- Be making satisfactory academic progress toward your educational goal.
- 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 first floor of the Eielson 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 and the fax number is (907) 474-7900.

# How Do Students Apply?

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

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

You may apply for the federal Pell Grant and federal loans throughout the school year.

## How is Eligibility Determined?

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 undergraduate

students for the school year:

	Married Couple or Single Parent	Single Student Lives Alone	Single Student Lives in UAF Residence Hall
Tuition, fees*	\$ 2,860	\$ 2,860	\$ 2,860
Books, supplies	650	650	650
Food, housing	10,170	7,830	4,090
Transportation	1,710	1,710	324
Misc./personal	2,700	1,890	1,980
TOTAL	\$18,090	\$14,940	\$9,904

\*Tuition for non-Alaska residents, add \$4,260

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. Since eligibility is based on prior year income, you may request a review of your eligibility when your income changes from loss of job, divorce, death or

Residence and physical presence in Alaska for at least one year immediately before applying establishes eligibility for the Alaska Student Loan program. Additional information on residency and eligibility requirements can be obtained from the Alaska Commission on Postsecondary Education, P.O. Box 110505, Juneau, Alaska 99811.

# What Types of Aid are Available?

#### Grants and scholarships

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

The federal Pell Grant is a grant for undergraduates to help start paying college costs. Since this grant is based on financial need, every undergraduate should apply for it. Once you have applied, the federal processor will send you a Student Aid Report (SAR) indicating whether you qualify for a federal Pell Grant. Send the SAR to the Financial Aid Office. Federal Pell Grants range up to \$2,300 for the 1995-96 school year.

The Federal Supplemental Educational Opportunity Grant (FSEOG) is a grant for exceptionally needy undergraduate students. FSEOGs at UAF could range from \$400 to \$1,000 each year.

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

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

Some regional and village corporations provide scholarships to shareholders. Contact your local corporation for details on eligibility and application procedures or call UAF Rural Student Services at (907) 474-7871.

To apply for UAF scholarships, contact the Financial Aid Office, First Floor Eielson Building, Fairbanks, Alaska 99775, telephone (907) 474-7256. Statewide scholarships for students enrolled at the University of Alaska in Anchorage, Juneau and Fairbanks are administered by the UA Foundation, P.O. Box 755080, Fairbanks, Alaska 99775, telephone (907) 474-7687. Scholarship amounts vary greatly depending on the funding source.

Chancellor's Scholarships and Talent Awards are available in limited numbers to first-time freshmen. You should apply by March 15 to the Office of Admissions Counseling, P.O. Box 757480,

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 work no more than 20 hours each week. Pay rates are based on the job classifications and average pay can vary from \$150 to \$400 each month. Further information on student employment can be obtained from Personnel Services, 108 Administrative Services Center, P.O. Box 757860, Fairbanks, Alaska 99775, telephone (907) 474-7700.

Federal Work Study (FWS) 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. To qualify for FWS, students must be eligible for federal financial aid as determined by the Financial Aid Office.

#### 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 one year before applying. This program is the major source of financial aid for students at UAF. Students attending part time (6 to 11 credits each semester) may borrow for the cost of tuition fees, books and supplies up to \$2,000 as an undergraduate and up to \$2,500 as a graduate student. Full-time students enrolled in 12 or more credits each semester may borrow for food and housing costs as well as tuition, fees, books and supplies up to \$5,500 as an undergraduate and up to \$9,500 as a graduate student. The Alaska Student Loan, combined with estimated income for the school year, cannot exceed estimated cost of education as determined by the Alaska Student Loan Office. Repayment begins no later than one year after the borrower ceases full-time study. The finance charge is 8

percent interest a year on the outstanding balance. The state of Alaska will pay the interest for students during the qualifying period.

The priority deadline for receipt of applications is May 15 for the school year beginning in the fall. Applicants must apply each year. Applications are available throughout the state at high schools and postsecondary schools. Further information about the Alaska Student Loan Program can be obtained from the Division of Student Financial Aid, Alaska Commission on Postsecondary Education, Box 110505, Juneau, Alaska 99811, telephone (907) 465-2962.

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

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

The federal Stafford Student Loan Program provides subsidized student loans from a participating lender, such as a bank, credit union or savings and loan association. Yearly loan limits are \$2,625 for first-year students, \$3,500 for second year students and \$5,500 for upper level undergraduates, with a cumulative maximum of \$23,000. Graduate students may borrow \$8,500 each year. Since this loan is based on financial need, students must apply for the federal Pell Grant before the loan application can be approved by the Financial Aid Office. A variable rate, not to exceed 9 percent, is determined each year for the federal Stafford program.

The unsubsidized federal Stafford Loan is available to dependent students who may not qualify for a subsidized federal Stafford loan or who qualify for less than the full annual amount. Unsubsidized means the federal government does not pay interest to the lender on your behalf at any time. You may be eligible to receive both subsidized and unsubsidized loans, but the total of both loans must not exceed the federal loan limits. Independent undergraduate students may borrow, in addition to the subsidized federal Stafford Loan, up to \$4,000 as a first or second year student, and up to \$5,000 as a junior or senior. Graduate students may borrow \$10,000 each year.

Many national 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.

The federal Parent Loan for Undergraduate Students (PLUS) is a program for parents of dependent students. The cost of attending UAF determines the annual and aggregate loan limits. A variable interest rate or finance charge, not to exceed 10 percent, is determined each year for the federal PLUS programs.

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

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

To apply for an emergency loan, you must be in good academic

standing and have no outstanding debt with UAF. You are required to verify your need for the loan. Applications will be accepted from the first day of registration until Nov. 1 for the fall semester and until April 1 for the spring semester. A service charge of \$10 will be charged for each loan.

To be eligible for the federal student aid programs, 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 federal Pell Grant Program. More information about the federal programs is given in the "Student Guide." The Federal Student Aid Information Center has a toll free number, 1-800-4-FEDAID, 9 a.m. to 5:30 p.m., Monday through Friday, eastern time, for students, parents and educators to inquire about student aid and the application process.

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

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

# What are the Application Deadlines?

Applications Priority deadlines
Alaska Student Loan May 15
Federal Pell Grant Anytime during the school year

# What Does it Take to Remain Eligible?

To continue to receive financial aid, you must be "in good standing" which means undergraduates must earn a cumulative 2.0 or higher grade point average for all course work for which financial aid was paid; graduate students must maintain at least a 3.0 GPA to be eligible. The semester GPA must be 1.5 for undergraduates or 2.5 or higher for graduate students. The Financial Aid Office monitors the academic progress of aid recipients. Both semester and cumulative GPA must be maintained for continued eligibility. If eligible, you can receive aid for a maximum of 12 semesters or 195 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 appeal committee which will determine if the satisfactory progress requirements will be waived. The satisfactory academic progress requirements are subject to change due to changes in federal or state law and institutional policy. A complete description of the satisfactory progress requirements is available at the Financial Aid Office.

# How is Payment Made to the Student?

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

Proceeds of any financial aid will be used to pay any outstanding amount due the university on a payment plan, and all other past due amounts, when the financial aid is disbursed to you, regardless of the payment plan due dates.

You should allow at least five days for processing after the financial aid notice 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. The exact refund amount is determined by federal law. Any refund due will first be applied to the federal, state and

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

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

#### Your rights

As a financial aid recipient at UAF, you have the right to:

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

Eligibility Requirements	Federal Pell Grants	BIA Grants	Federal Supplemental Educational Opportunity Grants (SEOG)	Federal Work Study (FWS)	UAF Scholar- ships	Federal Stafford Loans	Alaska Studen Loans
Undergraduate	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Graduate	No	Yes	No	Yes	Yes	Yes	Yes
Must be admitted to degree or certificate program at UAF	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Must be U.S. citizen or eligible non- citizen	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Must have financial need	Yes	Yes	Yes	Yes	No	Yes	No
Must be making satisfactory academic progress	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Must apply by May 15	No*	No	Yes	Yes	Separate deadline	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

<sup>\*</sup> Can apply throughout the school year

<sup>\*\*</sup> Priority deadline is May 15

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.
- E. Know the limits and conditions of financial aid programs.
- F. Notify the Financial Aid Office of any change of address, name, marital status, attendance status or receipt of additional awards.

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



Ringo Jimmy as "Elder" (sitting), Erin Downing as "Eagle" (left) and Greg McGuire as "Shaman" prepare for Tuma Theater's spring 1994 production of Agayu.

# **Housing (Residence Life)**

#### Residence Halls

Each hall has staff assigned to the building from the Department of Residence Life. Senior hall staff are responsible for the administration and programming within the building. Resident assistants are full-time students who work with senior staff in planning and administering a program of social, recreational and cultural activities.

#### Who is Eligible?

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

## How do Students Apply?

If you request housing information on your application for admission, your name will be forwarded to the Office of Residence Life. Upon confirmation of admission, you will be mailed a housing contract and a brochure. Complete the contract and return it with the necessary deposit to: Office of Residence Life, P.O. Box 756860, Fairbanks, AK 99775-6860. You will be sent confirmation of acceptance into housing and a receipt for your deposit.

#### What Does it Cost?

Room Rent — Along with all other fees, room rent is due in full at registration. Current semester room charges are \$900 per person in double rooms; \$1,100 for single rooms; and \$1,150 per person in apartments. These rates are subject to change prior to July 1. Room fees permit the use of hall services such as lounge and recreation rooms, laundry areas and campus telephone service.

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

#### Withdrawal Period Refund Amount

Class days 1-5
Class days 6-15
Class days 16-30
Beyond 30 days

75% of the semester housing charge
25% of the semester housing charge
No refund will be issued.

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

Refund of Deposits — A \$250 room reservation/damage deposit/application is due when you return your completed housing contract. This deposit (minus the \$25 application fee) will be refunded to you if you withdraw your housing contract by sending a written statement to the Office of Residence Life by Aug. 1 for fall semester and Dec. 1 for spring semester.

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 Office of Residence Life 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 Office of Residence Life). You may be released from contracts because of marriage, health reasons or other emergencies deemed appropriate by the Director of Residence Life.

#### What about Meals?

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

There are 19 scheduled meals per week (breakfast, lunch and dinner are served Monday through Friday and brunch and dinner are served Saturday and Sunday). Three different board plan options are available to students.

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

#### What Facilities are Available?

Bartlett Hall houses 316 male and female students in double and single rooms on eight floors.

Lathrop Hall houses 136 male and female students in double rooms.

McIntosh Hall houses 98 male students in double rooms on four floors.

Moore Hall houses up to 315 students in double and single rooms within its eight floors.

Nerland Hall houses 98 male and female students in double and single rooms on four floors.

Skarland Hall houses 135 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 98 male and female students in double and single rooms on four floors.

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

The Student Apartment Complex (SAC) is comprised of 60

two-bedroom apartments accommodating 240 upper class single students. A board plan is not required for apartment residents. This complex includes six apartments which were designed to accommodate mobility/hearing impaired students.

#### What are the Rooms Like?

Student rooms are equipped with a bed, desk, chair, mirror and closet space for each resident. You'll need to provide your own bedding (sheets, pillows, blankets), towels and face cloths. Each hall has recreation-lounge and laundry facilities. Regular custodial service is provided in common areas such as corridors, lounges and centrally located bathrooms.

Residence hall students are permitted to remain on campus during the Thanksgiving and spring vacation periods at no additional cost. Students approved to stay anytime during the break between the end of the fall semester and the beginning of the spring semester will be charged \$100 and may be consolidated into other areas.

## What about Room Assignments?

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

Current resident graduate and upper class students are given preference over incoming students for single rooms and apartments. Single room applications are available to juniors, seniors and graduate students after the Office of Residence Life has confirmed the acceptance of housing contracts. Single room applications are due March 1 and November 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. Most apartments are furnished. Student managers reside in family housing and are available to help.

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

## Who is Eligible?

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

#### How do Students Apply?

Applications for student family housing are mailed upon request by the Office of Residence Life when proof of admission is received. A non-refundable \$25 processing fee is due with the completed application. An additional \$225 cleaning/damage deposit is required upon assignment to apartments.

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

For more information about family housing, write: Office of Residence Life, P.O. Box 756860, Fairbanks, AK 99775-6860.

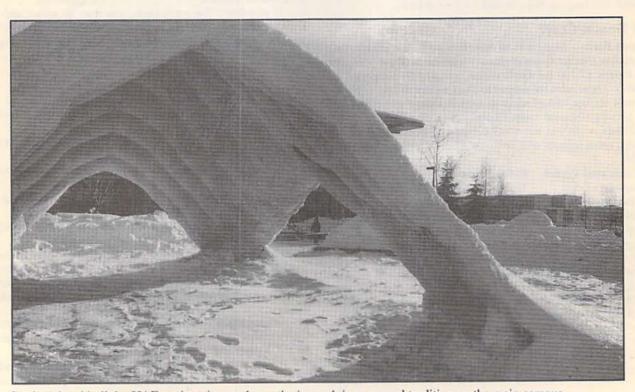
## What Facilities are Available?

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

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

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

Walsh Hall has 12 one-bedroom furnished apartments occupied by married couples without children.



Designed and built by UAF engineering students, the ice arch is an annual tradition on the main campus.

# Student Services: Helping You Stay on Track

# Academic Advising and Career Development

# Academic Advising and the Advising Center

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

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

for specific assignment of a faculty adviser.

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

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

The Advising Center assists students with non-traditional credit options, interdisciplinary undergraduate degrees and the Bachelor of Technology degree program. The Advising Center can also provide information on pre-professional programs.

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

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

### Alaska Teacher Placement

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

Job announcements received at ATP are sent to qualified registrants who may be from Alaska, the Lower 48, or other countries. To facilitate the interviewing process, ATP hosts a Spring Job Fair in Anchorage, and two or three summer Job Fairs in Fairbanks. Forty to 50 school districts participate in these fairs.

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

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

# Career Development Center

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

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

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

The center is a component of the Tanana Valley Campus Student Development and Learning Center. It is located at the Downtown Center, (907) 451-7223.

### **Career Services**

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

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

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

# **Developmental Studies**

Developmental studies courses are designed to prepare students 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 students who want to improve their skills but are not necessarily enrolled in a program.

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

# **International Student Advising**

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

The international student adviser is located on the fifth floor of

the Gruening Building, (907) 474-7317.

### **Rural Student Services**

"Rural Student Services is committed to responding to student needs by providing quality services to Native and rural students who expend positive effort in the pursuit of higher education and its opportunities"—from Rural Student Services Mission Statement.

Rural Student Services (RSS) facilitates the transition from a small school and village environment to university life. RSS advisers/counselors provide comprehensive academic advising and referrals to various academic support services on the UAF main campus. Other services provided by RSS include assistance with paperwork required to attend the university, personal counseling and student advocacy.

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 tutorial services for individual courses on request. Please contact ASUAF (the student government) for more information, (907) 474-7355 or 474-7601.

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

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

with course materials or LRC resources.

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

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

The Student Support Services Project provides tutoring in a variety of subject areas for eligible students, based on academic and financial need. For more information, call (907) 474-6887.

The Writing Center is staffed by English graduate students and

outstanding undergraduate students. It is open Monday through Friday and Sunday; it is available to all enrolled students. The staff will review student writing projects during the successive draft process. They also can help you improve your grammar and usage. For 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) 474-7500.

# **Admissions and Records**

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

The Admissions and Records Office is located on the first floor of Signers' Hall, (907) 474-7500 or 474-6708 (TTY).

# **Bookstore**

The bookstore is operated by the university as a non-profit selfsupport auxiliary enterprise and is administered by the student service division. Its mission is to support the academic programs of the university by providing books and supplies required for course work. The bookstore also maintains wide selections of general reading books, college supplies, soft goods, calculators, personal care items, greeting cards and other merchandise which contribute to the overall experience offered by the university.

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

# Center for Health and Counseling

The Center for Health and Counseling offers services in five areas: medical, counseling, disabilities, health education and health insurance. Students must pay the Health Center fee to be eligible for medical, counseling and health insurance services.

Primary health care and some continued care is provided by a physician, three nurse practitioners and a medical technologist. Office visits, medications, laboratory services and medical supplies are available at reduced costs. Students should call for appointments.

The counseling staff offers individual, group and crisis intervention counseling. Counselors, all with graduate training, provide assistance with a variety of personal and interpersonal issues. Students are encouraged to schedule appointments. In an emergency, however, every effort is made to see a student as soon as possible.

The center also provides coordination of services for students experiencing disabilities, including advocacy and assistance with arrangements for special services such as readers, scribes and interpreters. Services are free of charge, and available to all students with disabilities. See Services for Students with Disabilities.

Staff provide information and referral for individuals and groups seeking to maintain or improve upon physical and mental health.

ADARE offers outreach to prevent abuse of alcohol and other drugs and to prevent the negative impact of such abuse.

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

The Center for Health and Counseling is located in the Health, Safety and Security Building, (907) 474-7043 or 474-7045 (TTY). The center is open weekdays during the regular academic year.

# **Orientation Program**

UAF's orientation program is offered to students new to UAF. If you are a first-time freshman, a transfer, graduate, international or exchange student, or an adult returning to college, this program was designed with you in mind.

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

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

# Services for Students with Disabilities

The University of Alaska Fairbanks is committed to equal opportunity for students experiencing disabilities. Students with disabilities are encouraged to contact the coordinator of Services for Students with Disabilities at the Center for Health and Counseling at (907) 474-5655 or (907) 474-7043 or TTY (907) 474-1827. To accommodate students' disabilities, early contact with the coordinator is extremely important.

Services provided include assisting in determining accommodations needed, advocacy and help with arrangements for special services such as readers, scribes and interpreters. Services are free of charge, and available to all students with permanent and temporary disabilities, regardless of the number of credits taken.

Curb cuts and ramps have been installed at UAF. Almost all campus buildings contain accessible restroom facilities and elevators. The library and museum are accessible and the swimming pool is equipped with a hydraulic lift. Accessible living accommodations are available.

UAF works with students with disabilities to ensure a positive educational experience. If students aren't satisfied with actions taken by the University of Alaska Fairbanks in response to requests for assistance or accommodation, they may obtain a copy of the university's grievance procedures from either the coordinator of Services for Students with Disabilities, or Personnel Services, 108 Administrative Services Center, (907) 474-7700.

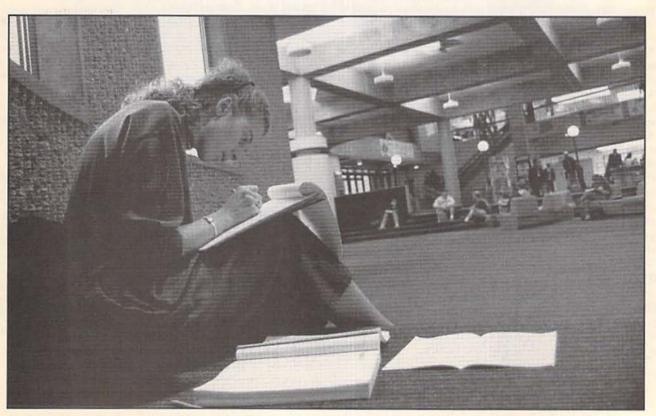
# **Wood Center**

Wood Center is the center of campus activities. Its services and facilities are available to all students, faculty, staff, alumni and university guests.

Wood Center offers many services: eating facilities; a recreational area featuring bowling, billiards and video games; a laundry room and shower facilities; and darkrooms. Wood Center also provides campus information, lost and found, meeting rooms and recreational equipment rentals.

The Wood Center Pub offers a wide variety of entertainment each evening Monday through Saturday. The Pub offers a wide selection of domestic and imported beers, microbrews, fine wines and nonalcoholic beverages (must be 21 to enter).

Get acquainted with the Wood Center and make it your leisuretime home! You'll find that it is much more than just a building.



Jizela Dutka studies in the Wood Center Multi-Level Lounge between classes. Dutka is a UAF student from Brazil.

# Campus Resources: What's Available

# **ASUAF**

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

# **Academic Computing**

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

Primary academic computing support for UAF is provided through a Digital Equipment Corporation VAX 7620 (Aurora). Aurora is currently configured with 256 megabytes of main memory, 16 gigabytes of disk storage and the VMS operating system. Similar VAX systems are located at the university's Juneau and Anchorage locations, and are accessible through the UACN network. Aurora is also connected to NorthWestNet (Internet), facilitating data transfer with several thousand other academic and research computers worldwide.

The Academic Computing office is located in the Rasmuson Library all hours study area in the office in the rear of the terminal lab; the phone number is (907) 474-6564.

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

Undergraduate students enrolled in specific courses may use the Arctic Region Supercomputing Center (ARSC), which supports environmental research and science with an emphasis on high latitudes and the Arctic. See course descriptions for details. Undergraduate students with a faculty sponsor may submit research project proposals to apply for supercomputer use. The ARSC is a national computing resource available to researchers on UA campuses and to scientists worldwide.

# **Alumni Relations**

The UAF Alumni Association is an active part of the UAF campus. A network of more than 16,000 graduates and former students provides widespread support for UAF programs, athletics and events. The UAFAA was established in 1986 to provide assistance to the university and its students and faculty.

# Athletics and Recreation

For information on recreational activities or intramurals, call (907) 474-6814. For intercollegiate athletics information, call (907) 474-7205.

### **Facilities**

The Student Recreation Center, completed in 1994, is the newest addition to UAF's Student Recreation Complex (SRC). Along with the Patty Center and Ice Arena, the complex houses a variety of sports and physical activities facilities: multi-purpose areas for basketball, volleyball, badminton, tennis, calisthenics, dance, gymnastics, judo and karate; rifle and pistol range; courts for handball, racquetball and squash; an elevated 200-meter three-lane jogging track; a swimming pool; weight training and modern fitness equipment areas; an ice arena for recreational skating and hockey; a special aerobics area; and a three-story climbing wall.

A soccer and softball field is adjacent to the center and the campus has many miles of cross-country trails for running and skiing, including a lighted ski trail.

The Patty Center gymnasium is the location for all spectator events, with seating for 2,000.

Locker and shower facilities are adjacent to the swimming pool. Cubicle lockers are available for rent, on a semester basis, by all activity card holders. A limited number of full length lockers are also rented by the semester or year.

The SRC is open from 7 a.m. to 10 p.m. Monday through Saturday, and noon to 7 p.m. on Sundays, with exceptions to the schedule during holiday periods. Many areas are available for use on a drop-in basis unless an activity is scheduled in that area. Areas requiring supervising (swimming pool, rifle range, etc.) provide a consistent schedule of recreational hours.

A student's activity sticker permits access to the SRC. Children under age 18 are not allowed to use SRC facilities unless they are accompanied by a parent or legal guardian.

# **Intramural Sports**

A wide variety of structured recreational activities—such as intramural leagues and competitions, aerobic workouts, fitness and recreation instruction—are offered to allow all students to use their leisure time to learn new lifetime skills, to play using those they already have, and to stay fit. Additionally, unstructured use of the recreational facilities through the scheduling of both traditional and non-traditional sport and activity use allows students, faculty and staff to pursue diverse fitness and recreational interests. Development and support of sport clubs is in response to student interest and resources.

Students with disabilities are encouraged to use the Student Recreation Complex and the intramural and recreational sport program. Please contact the SRC office if confronted with any barriers to participation.

# Intercollegiate Athletics

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

To be eligible to participate in intercollegiate athletics:

If you are an entering freshman, you must:

- Be certified through the NCAA Clearinghouse. For more information, see your high school counselor or call the UAF athletic department at (907) 474-7205.
- Be admitted to UAF in good academic standing;
- Provide transcripts for any college courses taken.

If you are a transferring student you must:

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

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

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

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

# **Continuing Education**

UAF's Tanana Valley Campus, a component of the College of Rural Alaska, responds to individual and community needs for innovative training and high quality continuing education programs. Academic short courses and non-credit workshops are designed to meet the needs of practitioners in the trades or professions. TVC provides in-service training for teachers, supervisory skill seminars for local businesses and agencies, and general programs for cultural enrichment.

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

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

# Exchange Programs in the U.S. and Abroad

# National Student Exchange

UAF is one of 115 public colleges and universities throughout the United States and its territories with membership in the National Student Exchange (NSE). Through this program, qualified students at member institutions may apply for exchange enrollment at another participating school. NSE enables students to study in different geographical areas of the country and take advantage of specialized courses on unique programs that may not be available on their home campuses. Participation in the program is limited to one year.

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

# Study Abroad Programs

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

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

Study abroad programs are administered by the UAF Office of International Programs, 202 Eielson Building, (907) 474-5327.

Hokkaido University of Education, Sapporo Campus — Hokkaido University of Education belongs to an elite group of national universities in Japan responsible for the preparation of teachers. HUE enrolls about 5,000 students on five different campuses. The program provides the opportunity to gain first-hand knowledge of the design and operation of urban and rural schools in Japan's northern prefecture of Hokkaido. This is a one-month intensive internship, including a course of introduction to the basic tenets of Japan's educational system, its culture, and its people. Students live with a Japanese host family. The School of Education sponsors and administers this student exchange program. For more information call (907) 474-6453.

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

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

Magadan University — The International Educational University at Magadan is located in the city of Magadan in the Russian Far East. Magadan is the capital city and business hub of the Magadan region. The School of Education sponsors a student exchange program in which UAF students can earn UAF credit while studying at Magadan. For more information, call (907) 474-6133.

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

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

University of Guadalajara, Mexico — The Center for Foreign Student Studies of the University of Guadalajara offers a well-established program of instruction in the Spanish language and Mexican history, culture and society. Students must attend at least two six-week terms to earn full-time semester status. Guadalajara, Mexico's second largest city, is a bustling metropolis that retains touches of Mexico's colonial past. This program features home stays, with students living in the homes of Mexican host families.

University of Copenhagen, Denmark — The University of Copenhagen, founded in 1479, is a modern, comprehensive university steeped in old world tradition. University buildings are spread about one of Europe's most beautiful cities. Courses are offered at both undergraduate and graduate level the colleges of Theology, Medicine, Social Sciences, Humanities and Natural Sciences. Intensive Danish language classes are arranged in Copenhagen.

The Agricultural University of Norway — This program offers special opportunities for students interested in agriculture, natural resource management, biology, wildlife management and related fields. The Agricultural University is located in Ås, at the base of Oslo Fjord. Students will study Norwegian while at the Agricultural University.

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

Study in Europe — UAF belongs to NCSA (the Northwest Council on Study Abroad), a consortium of colleges and universities in the Pacific Northwest that pool their resources to provide study abroad programs in Europe at modest cost. NCSA programs offer three terms per year (September through December, January through March, and April through June); students may elect to attend successive terms at the same or different sites. A comprehensive fee of

approximately \$4,400 per term covers tuition, room and board with a host family, textbooks, and excursions integrated with the courses. Intensive language study is offered (except in London), as well as content courses, primarily in the social sciences and humanities, taught in English. Home stays offer a chance to practice the language, develop close personal ties and experience the everyday culture of the country.

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

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

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

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

# Western Undergraduate Exchange

UAF participates in the Western Undergraduate Exchange (WUE) administered by the Western Interstate Commission for Higher Education (WICHE). Residents of Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah and Wyoming may enroll in designated degree programs at a reduced tuition rate (the in-state tuition plus 50 percent of that amount). For a complete list of applicable degree programs or more information, contact the UAF Admissions Counseling, Office of Admissions and Records, 102 Signers' Hall, (907) 474-7822.

# **Honor Societies**

The following honor societies are active at UAF. Alpha Phi Sigma (for criminal justice students) Gamma Theta Upsilon (for geography 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 3.60, a composite ACT score of no less than 28. Sophomores applying to the program must have a cumulative college GPA of 3.50 and clear admission to UAF.

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

# **Program Features**

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

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

A typical semester's offering in the Honors Program would include three sciences, a mathematics course, English composition, one or more courses from the core Perspectives on the Human Condition, and four or more courses from speech, business, humanities and social science.

A summer honors reading course is offered each year.

For more information and application forms, contact: The Honors Program, Box 750120, University of Alaska Fairbanks, Fairbanks, Alaska 99775, or call the Honors House, 515 Copper Lane, (907) 474-6612.

# Library

The Elmer E. Rasmuson Library is the largest in the state, with more than 1.75 million volumes. Highly qualified and innovative library faculty and staff, together with computer and telecommunication links, help students access information whether in the UAF collections or found through the expanding web of international information resources.

The library also provides extensive reference and instructional services to students. The library information and research course, LS 101, is part of the core curriculum and teaches research methods and how to find and use information in a variety of disciplines.

Electronic catalogs give access to the Rasmuson book collections, as well as to some 5.5 million titles held at our sister University of Alaska systemwide institutions, as well as to libraries in the Pacific Northwest and nationwide. The computer network also provides periodical and newspaper indexes, a government documents index, an electronic encyclopedia and a statistical index. Document delivery and interlibrary loan services allow UAF students to borrow, at no charge, materials owned by other libraries.

Databases cover resources for the humanities, the social sciences, education, management, engineering and the sciences, with special attention to arctic and polar regions information. The electronic indexes provide more than 26 million citations.

This network is available at terminals in the library, through the university computer network and through dial-up access. SLED, the Statewide Library Electronic Doorway, gives students access to Internet resources.

Special collections include world-class Alaska and Polar Regions Collections, covering books, periodicals, archives, manuscripts, historical photographs, oral histories and maps. The Rasmuson Library is also a federal documents depository, receiving 65 percent of the materials published by the U.S. Government Printing Office.

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

The Bio-Sciences Library, located in the Arctic Health Research Building on the West Ridge, is a branch of the Rasmuson Library. Collections in the Bio-Sciences Library number approximately 76,000 volumes, the majority of which are periodicals.

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

# Museum

While some 140,000 people visit the University of Alaska Museum each year, the museum is more than a place to look at interesting objects. The museum is also a campus resource and research center, and the staff conducts field work, teaches university courses and publishes reports.

Resources at the museum include the aquatic, archaeological, art, ethnographic, geology, herbarium, mammal and ornithology collections, the Alaska Native Heritage Film Center and the Alaska Quaternary Center.

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

# **Student Support Services Project**

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

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

# **Summer Sessions**

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

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

# **Graduate School**

# **Programs of Study**

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

UAF is the only doctoral-granting institution in the state, and doctoral programs are offered in the areas of anthropology, atmospheric sciences, biochemistry/molecular biology, biological sciences (options in botany, wildlife biology and zoology), fisheries, geology, geophysics, mathematics, oceanography, physics and space physics. Master's degrees are offered in over 50 fields: in the humanities, social sciences, northern studies, computer science, physical and natural sciences, and in professional fields such as engineering, education, and business administration. Interdisciplinary programs are possible for 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 \$7,980 to \$9,500 for the school year are available through departments. Full tuition is waived for full-time 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. For deadline dates and required application information, contact the department or program in which you are interested.

# Cost of Living

Campus housing available to graduate students includes residence hall accommodations (\$900 to \$1,150 per semester) and family housing apartments (\$410 to \$680 per month). There is limited availability of on-campus housing, so please apply as early as possible. The cost of living in the Fairbanks area is generally higher than the national average.

## Student Group

There are about 800 graduate students at UAF. Forty-one percent of the graduate students at UAF are women, and about 53 percent attend part time. Graduate students from 35 states and more than 28 foreign countries are enrolled.

### Admission to Graduate Study

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

Scores from the Graduate Record Examination (GRE) are required for all applicants to graduate programs at UAF except for the M.B.A. program in which the GMAT is required. 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 \$35 application fee, three letters of reference, official transcripts from each college or university attended, and official test scores. Interdisciplinary applicants should contact the Graduate School office for information on application requirements.

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

Qualified applicants can be accepted for admission while enrolled in their last semester of college. However, the acceptance may be conditional upon receipt of official transcripts indicating satisfactory completion of the work in progress at the time of acceptance and completion of graduation requirements. Final acceptance to the university for the purpose of earning scholastic credit becomes complete only when all credentials have been received and accepted by the dean of the Graduate School.

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: atmospheric sciences, biology, botany, fisheries, marine biology, mining engineering, natural resources management, oceanography, space physics, wildlife management and zoology.

# Correspondence and Information

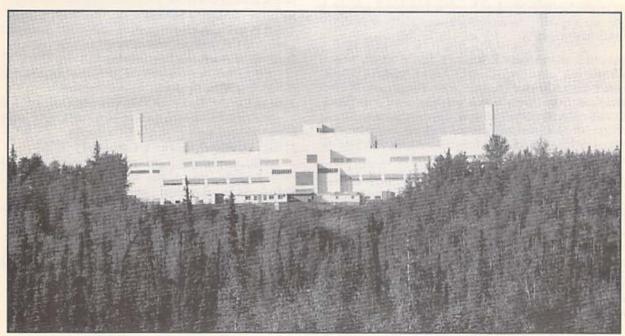
For general information:
Graduate School (907) 474-7464
305 Signers' Hall
P.O. Box 757560
University of Alaska Fairbanks
Fairbanks, AK 99775-7560

# **Graduate Degree Programs**

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

Anthropology	M.A., Ph.D.
Arctic Engineering	M.S
Atmospheric Science	M.S., Ph.D.
Behavioral Modification	Ph.D.**
Biochemistry	M.S., Ph.D.
Biology	M.S., M.A.T., Ph.D.
Bio-Geophysics	Ph.D.**
Botany	M.S., Ph.D.
Business Administration	M.B.A.
Chemistry	M.A., M.S.
Civil Engineering	M.C.E., M.S., Ph.D.**
Climatology	Ph.D.**
Clinical Psychology	Ph.D.**
Coastal Engineering	Ph.D.**
Community Psychology	M.A.
Computation Mechanics	Ph.D.**
Computer Science	M.S.
Creative Writing	M.F.A.
Education	Ed.S., M.Ed., Ph.D.**
Electrical Engineering	M.E.E., M.S., Ph.D.**
Engineering Management	M.S.
English	M.A.
Environmental Chemistry	M.S., Ph.D.**
Environmental Hydrology	Ph.D.**
Environmental Policy and Management	Ph.D.**
Environmental Quality Engineering	M.S., Ph.D.**
Environmental Quality Science	M.S., Ph.D,**
Fisheries	M.S., Ph.D.

Forest Ecology	Ph.D.**
Geological Engineering	M.S., Ph.D.**
Geology	M.A.T., M.S., Ph.D.
Geophysics	M.S., Ph.D.
Guidance and Counseling	M.Ed.
Human Nutrition	Ph.D.**
Hydrology	M.S.**, Ph.D.**
Marine Biology	M.S., Ph.D.**
Mathematical Engineering	Ph.D.**
Mathematics	M.A.T., M.S., Ph.D.
Mechanical Engineering	M.S., Ph.D.** M.S.
Mineral Preparation Engineering	M.S., E.M.
Mining Engineering Mining Reclamation	M.S., E.W. M.S.**
Molecular Genetics	Ph.D.**
Music	M.A.
TATALOG CONTROL CONTRO	M.A. M.S.
Natural Resources Management Neuroscience	
Northern Studies	Ph.D.**
	M.A.
Oceanography (Biological, Chemical, Fisheries and	M.S., Ph.D. Geological)
Outdoor Recreation	Ph.D.**
Petroleum Engineering	M.S., Ph.D.**
Physics	M.A.T., M.S., Ph.D.
Professional Communications	M.A.
Psychology	Ph.D.**
Quaternary Science	M.S.**
Recreation Management	Ph.D.**
Resource Economics	M.S.
Science Education	Ph.D.**
Science Management	M.S.
Soil Microbiology	M.S.**
Space Physics	M.S., Ph.D.
Statistical Quality Control	Ph.D.**
Water Research Engineering	Ph.D.**
Wildlife Biology	M.S., Ph.D.
Zoology	M.S., Ph.D.
** Interdisciplinary Degree	



The National Sciences Facility, which is scheduled to open in fall 1995, will house the departments of chemistry, physics and geology.

# Research

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

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

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

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

- Institute of Arctic Biology scientists discovered "supercooling" in arctic ground squirrels. Understanding the mechanisms the animals use to hibernate at below freezing body-temperature could have a major impact on the practice of human medicine.
- A UAF agricultural researcher has isolated and tested a natural agent to help fight plant disease without chemicals.
- Geophysical Institute faculty and staff developed computer models and visualization techniques to produce 3-D images of volcanic plumes to help pilots approaching Anchorage International Airport to steer clear of airborne ash.
- UAF researchers have developed rapid and inexpensive methods to use microorganisms for monitoring water quality of southcentral Alaskan streams.
- Agricultural and Forestry Experiment Station faculty have a leadership role in the Long-Term Ecological Research (LTER) program funded by the National Science Foundation. The Bonanza Creek Experimental Forest, near Fairbanks, is the principal LTER field research site for work in the northern boreal forest of North America. Results from this work are determining the structure and function of these forest ecosystems which are the basis for sustainable forest management practices.
- Glaciologists from the Geophysical Institute discovered and measured the deepest glacier-filled gorge in North America and perhaps the world, near Mt. McKinley.
- Geophysical Institute faculty discovered a new phenomenon called a "sprite," an upward discharge from the top of thunderclouds to the ionosphere.
- UAF's Mineral Industry Research Laboratory is investigating a process that has the potential to reduce the cost of recovering minerals from Alaskan ores.

# Institutes, Stations and Centers

### Agricultural and Forestry Experiment Station

AFES research increases the efficiency of production of food and wood products, and helps Alaska develop, sustain or protect its natural resources to meet human needs and values.

### Alaska Cooperative Fish 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 research focuses on high-latitude geophysical phenomena in space physics, aeronomy, atmospheric sciences, solid earth research and satellite remote sensing.

### Institute of Arctic Biology

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

### **Institute of Marine Science**

IMS has research programs in biological, chemical, fisheries, geological 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, School of Fisheries and Ocean Sciences

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

#### Mineral Industry Research Laboratory

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

#### Petroleum Development Laboratory

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

#### University of Alaska Museum

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

# **Colleges and Schools**

UAF's academic units offer degrees in more than 70 fields of study with a host of options within many of the degree programs, as well as a wide range of technical/vocational programs.

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

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

Graduates of the School of Agriculture and Land Resources Management use their academic training to facilitate the wise management of Alaska's land-based renewable resources. The undergraduate programs at the school lead to a Bachelor of Science degree in natural resources management with options in resources; plant, animal and soil sciences; and forestry. Research is conducted through the Agricultural and Forestry Experiment Station, with facilities in Fairbanks and Palmer, and through the Forest Soils Laboratory in Fairbanks. SALRM's courses and programs were developed in close cooperation with many university units, local, state and federal agencies and private industry. Through these cooperative arrangements, students are provided with opportunities for field work and/or internships in the management degree options listed above, as well as in the areas of outdoor recreation, water resources management, park and wilderness management, geographic information systems and research planning and administration.

### **Education**, School of

College of Liberal Arts

Pamela J. Keating, Director

The School of Education in the College of Liberal Arts offers both undergraduate and graduate courses culminating in three degrees: Bachelor of Education, Master of Education and Education Specialist, as well as teacher certification. In addition, an M.Ed. degree program in guidance and counseling prepares educators to be elementary and secondary school counselors. Students applying for the guidance and counseling program choose either to study for an endorsement of the Type A teaching certificate or Type C certification. The UAF School of Education is accredited by the National Council of Accreditation (NCATE) and is approved by the Alaska Department of Education to recommend its graduates for Alaska certification as elementary teachers, secondary teachers, school counselors and school administrators. One-third of the faculty hold their academic appointments on UAF's rural campuses and courses are available on-site and by distance delivery in Nome, Kotzebue, Bethel, Dillingham and in the Interior, as well as on the Fairbanks campus, in keeping with the school's commitment to preparing educators for rural Alaska. Faculty research in language and literature, crosscultural communication, small and rural schools, curriculum and instruction, and subject area studies support the school's academic programs.

### Engineering, School of

Frank Williams, Dean

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

#### Fisheries and Ocean Sciences, School of

Vera Alexander, Dean

The School of Fisheries and Ocean Sciences offers the Bachelor of Science degree in fisheries through the Division of Fisheries. Graduate degrees including the M.S. and Ph.D. are offered in various marine and fisheries areas. Created in 1987, the school is responsible for coordinating the university's statewide programs in marine education, research, technology and extension relating to Alaska's vast fisheries and marine environment. Undergraduate majors in the school are well-prepared for graduate study or to enter management, law enforcement and/or public information-education fields related to fisheries and often are able to find summer field work opportunities during their undergraduate studies through cooperating state and federal agencies. The school operates coastal facilities at Juneau, Kodiak, Seward and Kasitsna Bay and also the 133-foot National Science Foundation oceanographic vessel R/V Alpha Helix for seagoing research and education.

### Liberal Arts, College of

Gorden Hedahl, Dean

The College of Liberal Arts provides a broad liberal arts education to UAF students whatever their specialization. Its courses also emphasize writing, oral communication and mathematics skills, and foster an appreciation for the arts through active programs in visual art, music, theater and Alaska Native arts. The College of Liberal Arts provides a variety of courses to satisfy core curriculum requirements for students, and aims to increase its international reputation in northern studies. In addition, it offers courses in Russian and Japanese studies 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 and the Alaska Native Elders Program, which bring men and women to the campus who have helped shape the state of Alaska. The college is organized into six divisions, which include: 1) the School of Education; 2) Arts and Communication, with departments of Art, Communication, Journalism/Broadcasting, Music and Theater; 3) Humanities, with departments of English, Philosophy and Humanities; 4) Languages and

Cultures, with departments of Anthropology, Alaska Native Studies and Languages, Foreign Languages and Literatures, Geography and Linguistics; 5) Mathematical Sciences; and 6) Social Sciences, with departments of History, Justice, Military Science, Northern Studies, Political Science, Psychology, Social Work and Sociology. The College of Liberal Arts also includes the Alaska Native Language Center, Elderhostel, KUAC, Library Sciences, the Rural Alaska Honors Institute and the UAF Honors Program.

### Management, School of

David O. Porter, 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 generalists with special knowledge about Alaska, the Pacific Rim and the circumpolar North. The Bachelor of Business Administration and the Master of Business Administration degree programs are nationally accredited and place UAF among 112 of more than 2,000 business education programs in the U.S. with similar accreditation. All of the degree programs include problems and circumstances appropriate to Alaska, including entrepreneurship, human resource 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

Robert H. Trent, Dean

The emergence and progress of human society is marked by passage from one metal age to another. The keystone to our present economy is measured in minerals and energy and it would be difficult to conceive of a modern life without them. Within the career fields of minerals and energy, the opportunities are limited only by a person's ability to apply engineering principles in new and imaginative ways.

The School of Mineral Engineering is composed of the Department of Mining and Geological Engineering, the Department of Petroleum Engineering, the Mineral Industry Research Laboratory and the Petroleum Development Laboratory.

### Natural Sciences, College of

Paul Reichardt, Dean

Students in the College of Natural Sciences have one of the most exciting natural laboratories in which to learn. CNS has undergraduate programs in biology, geology, chemistry, physics and wildlife management, all of which offer research opportunities. The college also offers two interdisciplinary programs, in earth sciences and

general sciences, intended especially for those seeking teaching certificates. The College of Natural Sciences also provides students with a variety of courses to satisfy science requirements for graduation. The research institutes associated with the college—the Geophysical Institute, the Institute of Arctic Biology and the Alaska Cooperative Wildlife Research Unit—are nationally and internationally recognized. CNS includes the departments of biology and wildlife, chemistry, geology and geophysics, and physics. In addition, the University of Alaska Museum is an integral part of the college, providing instructional, research and public service opportunities for students, faculty and the general public.

### Rural Alaska, College of

Ralph Gabrielli, Acting Executive Dean

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

# **Degrees and Programs**

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 Physics, B.S. Applied Business, A.A.S. Arctic Engineering, M.S. Art, B.A., B.F.A. Asian Studies (minor only) Associate of Arts, A.A. Athletic Coaching (minor only) Atmospheric Sciences, M.S., Ph.D. Aviation Technology, A.A.S. Biochemistry and Molecular Biology, M.S., Ph.D. Biological Sciences, B.A., B.S. Biology, M.S., M.A.T., Ph.D. Botany, M.S., Ph.D. Business Administration, B.B.A. Finance Human Resource Management International Business Management Marketing Travel Industry Management Business Administration, M.B.A. Chemistry, B.A., B.S., M.A., M.S. Civil Engineering, B.S., M.C.E., M.S. Communication, B.A. Community Health, Cert., A.A.S. Community Psychology, M.A. Computer Information Systems (minor only) Computer Science, B.S., M.S. Creative Writing, M.F.A. Culinary Arts, Cert., A.A.S. Dentistry (Pre-Professional) Diesel/Heavy Equipment Mechanics, Cert. Drafting Technology, Cert. Early Childhood Development, Cert., A.A.S. Early Childhood Education, A.A.S. Earth Science, B.A. Economics, B.A., B.B.A. Education, Elementary, B.Ed.

Cert. - Certificate

Education, M.Ed. Cross-Cultural Curriculum and Instruction Distance Education Educational Leadership (Type B Cert.) Language and Literacy Leadership Development Education, Ed.S. Electrical Engineering, B.S., M.E.E., M.S. Engineering Management, M.S. English, B.A. Forms and Techniques of Writing Literature Teaching English, M.A. Environmental Quality Engineering, M.S. Environmental Quality Science, M.S. Eskimo, B.A. Inupiaq Eskimo Yup'ik Eskimo Exercise Science, B.S. Film Studies (minor only) Fire Science, Cert., A.A.S. Fisheries, B.S. Research Management Fisheries, M.S., Ph.D. Food Science and Nutrition (Cooperative) Foreign Languages, B.A. French German Russian Spanish Forestry (Cooperative) General Science, B.S., M.S. Geography, B.A., B.S. Geological Engineering, B.S., M.S. Geology, B.S. Economic Geology General Geology Petroleum Geology Solid Earth Geophysics Geology, M.A.T., Ph.D. Geology, M.S. Economic Geology General Geology Petroleum Geology Geophysics, M.S. Snow, Ice and Permafrost Geophysics Solid Earth Geophysics Geophysics, Ph.D. Guidance and Counseling, M.Ed. Elementary Secondary History, B.A. Human Services, B.A. Human Services Technology, A.A.S. Interdisciplinary Studies Option, A.A.S., B.A., B.S., B.T., M.A., M.S., Ph.D. Japanese Studies, B.A. Journalism, B.A. Broadcast News-Editorial Professional Communication, M.A. Justice, B.A.

Law (Pre-Professional) Law and Society (minor only) Library Science (Pre-Professional) Linguistics, B.A. Marine Biology, M.S. Mathematics, B.A., B.S., M.S., M.A.T., Ph.D. Mechanical Engineering, B.S., M.S. Medical Technology (Cooperative) Medicine (Pre-Professional) Military Science/Army ROTC (minor only) Mineral Preparation Engineering, M.S. Mining Engineering, B.S., M.S., E.M. Music, B.A. Music, B.M. Music Education Performance Music, M.A. Alaska Ethnomusicology Music Education Music History Performance Theory/Composition Native Language Education, Cert., A.A.S. Natural Resources Management, B.S. Agriculture Forestry Natural Resources Management, M.S. Northern Studies, B.A., M.A. Oceanography, Ph.D. Oceanography, Biological, M.S. Oceanography, Chemical, M.S. Oceanography, Fisheries, M.S. Oceanography, Geological, M.S. Oceanography, Physical, M.S. Office Management and Technology, Cert., A.A.S. Paralegal Studies, A.A.S. Petroleum Engineering, B.S., M.S. Philosophy, B.A. Physical Education, B.A. Physics, B.A., B.S., M.S., M.A.T., Ph.D. Political Science, B.A. Professional Communication, M.A. Psychology, B.A., B.S. Renewable Resources, A.A.S. Resource Economics, M.S. Rural Development, B.A. Community Organizations and Services Community Research and Cultural Documenta-Land/Renewable Resources Local Government Administration Small Business Management Rural Human Services, Cert. Russian Studies, B.A. Science Management, M.S. Social Work, B.A. Sociology, B.A., B.S. Space Physics, M.S., Ph.D. Statistics, B.S. Technology, B.T. Theater, B.A. Veterinary Medicine (Pre-Professional) Wildlife Biology, B.S., M.S., Ph.D. Women's Studies (minor only) Zoology, M.S., Ph.D.

# Accounting

# School of Management Department of Accounting and Information Systems

(907) 474-7121

Degree: B.B.A.

Minimum Requirements for Degree: 123 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. In 1997 applicants for the Certified Public Accounting Certificate in Alaska will be required to complete a 150 credit hour education program. Please see the UAF graduate catalog for information regarding UAF's Master of Business Administration degree with concentration in Accounting.

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. Admittance to 300 or 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course. A \$25.00 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON). This fee is in addition to any lab/material fees. B.B.A. students must, during their first 30 hours, attain computer literacy by either testing or earning a "C" or better in a basic computer literacy course.

Re	quirements
Ac	counting — B.B.A. Degree
1.	Complete general university requirements and B.B.A. degree requirements.
	(As part of core, complete PHIL 322-Ethics.)
2.	Complete the following requirement:
	ENGL 314 — Technical Writing
3.	ENGL 314 — Technical Writing
	ACCT 101, 102 — Elementary Accounting
	AIS 101 — Effective Personal Computer Use
	or demonstrated computer literacy0-3
	AIS 316 — Acct. Information Systems
	BA 325 — Financial Management
	BA 330 — Legal Environment of Business
	BA 343 — Principles of Marketing
	BA 360 — Production/Operations Management
	BA 390 — Organizational Theory and Behavior 3
	BA 462 — Corporate Strategy
	ECON 324 — Intermediate Macroeconomics
	or ECON 350 — Money & Banking
4.	Complete the following major complex requirements (18 credits):
	ACCT 303 — Governmental and Non-Profit Accounting
	ACCT 310 — Income Tax
	ACCT 342 — Managerial Cost Accounting
	ACCT 361, 362 — Intermediate Accounting
	ACCT 452 — Auditing
	Complete two of the following (6 credits):
	ACCT 401 — Advanced Accounting 3 ACCT 403 — Advanced Taxes 3
	ACCT 404 — Advanced Taxes
	ACCT 404 — Advanced Cost Accounting and Controllership 3
	ACCT 472 — Computer Control and Adv. Auditing
5.	AIS 473 — Applied Systems Design
3.	
	(At least 8 credits must be outside the School of Management with
	the exception of introductory computer literacy credits. None of the
6.	free electives may be additional accounting electives.)
0.	Minimum credits required for degree
	administration and economics credits to be earned in residence at UAF
	administration and economics credits to be earned in residence at UAF

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

MINOR in Accounting\*

# Airframe and Powerplant

# College of Rural Alaska Tanana Valley Campus

(907) 474-5081

Certificate; Degree: A.A.S.

Minimum Requirements for Degree: 64 credits; 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

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

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

	Ciedits	
	Communications:	
	ENGL 111X and ENGL 211X, 212*, or 213X	
	COMM 131X or 141X	
	Mathematics or Natural Science:	
	A math or natural science course at the 100 level or above 3	
	Humanities, social sciences, mathematics, natural science or Pe	
	spective on the Human Condition	
2.	Complete the following major degree requirements: Same as	
	Airframe and Powerplant Certificate Program	
3.	Degree Total	
	*ENGL 212 does not fulfill the second half of the written communi-	
	cation requirement for the baccalaureate degree.	

Airframe and Powerplant — Certificate

The airframe and powerplant mechanics certificate program allows students to complete requirements for the Federal Aviation Administration mechanics certificate with both airframe and powerplant ratings in as little as one year. This program is a one-year course, usually starting at the end of May or 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 some AFPM class. See the department for details.

NOTE: Most 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

Credits Summer Semester AFPM 145 — Basic Mathematics ...... 1.0 AFPM 148 — Aircraft Drawing ...... 1.0 AFPM 149 — Fluid Lines and Fitting ...... 0.5 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 Fall Semester AFPM 231 — Powerplant Electrical Systems ...... 1.5 

AFPM 250 — Powerplant Exhaust Systems ...... 0.5

#### 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	
AFPM 153 — Weight and Balance	1.0
AFPM 154 — Aircraft Ground Operations and Servici	ng 0.5
AFPM 251 — Fuel Systems	1.5
AFPM 255 — Fire Protection Systems	0.5
AFPM 257 — Instrument Systems	0.5
Total	13.0
Fall Semester	
AFPM 254 — Ice and Rain Control Systems	0.5
AFPM 256 — Communication/Navigation Systems	0.5
AFPM 258 — Cabin Atmosphere Control Systems	
AFPM 259 — Hydraulic and Pneumatic Systems	
AFPM 261 — Non-Metallic Structures	1.0
AFPM 264 — Sheet Metal Structures	3.0
AFPM 265 — Aircraft Welding	1.5
Total	9.0
Spring Semester	
AFPM 230 — Aircraft Electrical Systems	2.5
AFPM 253 — Transport Category Aircraft	1.0
AFPM 260 — Aircraft Landing Gear Systems	1.5
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	
Total	
Certificate Total	31.0
complant Contificate	

#### 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	
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	
Total	3.0
Fall Semester	
AFPM 231 — Powerplant Electrical Systems	15
AFPM 235 — Fowerplant Electrical Systems  AFPM 235 — Aircraft Reciprocating Engines	
AFPM 240 — Turbine Engines	
Total	0.0
Spring Semester	
AFPM 244 — Lubrication Systems	
AFPM 245 — Ignition Systems	2.0
AFPM 246 — Fuel Metering Systems	2.0
AFPM 248 — Induction Systems	
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	1.0

#### **Evening Airframe and Powerplant Program**

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

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

Alternate Fall Semester	Credits
AFPM 111 — Basic Airframe and Powerplant	4
AFPM 205 — Fundamentals of Airframe Structures	5
AFPM 206 — Fundamentals of Airframe Systems and	
Components	3
Total	12
Alternate Spring Semester	
AFPM 215 - Powerplant Theory and Maintenance	6
AFPM 216 — Powerplant Structures and Systems	6
Total	12
Evening Program Total	24

# **Alaska Native Languages**

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

(907) 474-7874

Minor only

There are 20 different Alaska Native languages: Aleut, Alutiiq (also called Aleut or Sugpiaq), Central Yup'ik 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 Yup'ik Eskimo is spoken by the largest number of people, and Inupiaq by the next largest. In these two languages major and minor curricula are now offered. Courses are also regularly offered in Kutchin Athabaskan. For work in all other languages, individual or small-group instruction is offered under special topics. Thus there have frequently been instruction, seminars, and workshops also in Tlingit, Haida, St. Lawrence Island Eskimo, Aleut and Kutchin, comparative Eskimo and comparative Athabaskan.

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

#### Requirements

#### MINOR in Alaska Native Languages:

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

(See also "Eskimo.")

# Alaska Native Studies

# College of Liberal Arts Department of Alaska Native Studies

(907) 474-7181

Degree: B.A.

#### Minimum Requirements for Degree: 130 Credits

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

The Alaska Native studies program is designed to offer a second major or a minor for many bachelor's degree candidates. It seeks students from many fields of specialization who anticipate either direct or indirect professional involvement in Alaskan Native communities specifically and in multicultural

settings generally

### Requirements

Ke	quirements
Ala	ska Native Studies — B.A. Degree
1.	Complete general university requirements and B.A. degree requirements.
2.	Complete the following program (major) requirements: Credits Prerequisites (12 Credits):
	Select 4 courses from the following group:
	ANL 215 — Eskimo-Aleut Languages
	ANTH 242 — Native Cultures of Alaska
	HIST 110 — History of Alaska Natives 3
	PS 263 — Alaska Native Politics
7.4	Core Courses (24 Credits):
A.	Complete the following required courses (15 credits): ANS 310 — The Alaska Native Lands Settlement
	ANS 320 — Language and Culture: Applications to Alaska 3
	ANS/ENGL 340 — Contemporary Native American Literature
	or ANS/ENGL 349 — Narrative Art of Alaska Native Peoples (in
	translation)
	ANS/PS 425 — Federal Indian Law and Alaska Natives
	or ANS/PS 450 — Comparative Aboriginal Rights and Policies 3
В.	Complete 9 credits of the following:
	ANS 160 — Alaska Native Dance
	MUS 223 — Native Alaskan Music
	ANS 220 — Cultural Differences in Institutional Settings 3
	ANS 250 — Current Alaska Native Leadership Perspectives 3
	ANS 251 — Practicum in Native Cultural Expression
	Experience
	ANS/RD 315 — Tribal People and Development
	ANS/PS 325 — Alaska Native Self Government
	ANS 351 — Practicum in Native Cultural Expression
	ANS 360 — Advanced Alaska Native Dance
	ANS/ART 365 — Native Arts of Alaska
	ANS 375 — Native American Religion and Philosophy
	SOC 408 — American Minority Groups
	ANS/ED 420 — Alaska Native Education
	The state of the s

#### MINOR in Alaska Native Studies

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

# Anthropology

# College of Liberal Arts Department of Anthropology

(907) 474-7288

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

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

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

### Requirements

Anthropology - B.S. or B.A. Degree

Complete general university requirements and B.A. or B.S. degree requirements.

Complete the following program (major) requirements:

Required Anthropology Courses: ANTH 103 — Human Evolution and World Prehistory ANTH 104 — Social/Cultural Anthropology	
Historical Science: (Select 6 credits from the following group) ANTH 211 — Fundamentals of Archaeology	3
Social Science: (Select 6 credits from the following group) ANTH 306 — Economic Anthropology ANTH 320 — Language and Culture ANTH 407 - Kinship and Social Organization ANTH 409 - Religion ANTH 410 — History of Social/Cultural Anthropology	
Area Courses (Select one 3 credit ethnographic area course and one prehistory area course) ANTH 210 — New World Prehistory ANTH 212 — Old World Prehistory ANTH 301 — World Ethnography: region* ANTH 302 — Anthropology of Siberia Open program electives at 200 level or above	

#### MINOR in Anthropology:

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

Anthropology - M.A. Degree

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

#### Anthropology - Ph.D.

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

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

# **Applied Accounting**

# College of Rural Alaska Tanana Valley Campus

(907) 451-7223

3

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

The applied accounting program prepares students for entry-level accounting positions in payables and/or receivables, bookkeeping and payroll accounting. This program covers financial decision-making tools for the small business operator as well. The courses in this program address the concerns of modern business people and provide the training necessary to enhance success in business. Many classes are scheduled in the evening in order to accommodate working students. Microcomputer and office technology labs are available for "hands on" training.

### Requirements

Applied Accounting - A.A.S. Degree

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

	Credits
	Communications:
	ENGL 111X and ENGL 211X, 212*, or 213X
	COMM 131X or 141X
	Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	Humanities, social sciences, mathematics, natural science or Per-
	spectives on the Human Condition
2.	Complete the following major degree requirements:
	ACCT 101 — Elementary Accounting I
	ACCT 102 — Elementary Accounting II
	ABUS 141 — Payroll Accounting
	ABUS 211 — Tax for Business Entities
	ABUS 221 — Microcomputer Accounting
	ABUS 230 — Applied Intermediate Accounting
	A DATE 242 A - Had Cont A
	ABUS 243 — Applied Cost Accounting
	BA 151 — Introduction to Business
	ABUS 179 — Fundamentals of Supervision 3
	ABUS 241 — Business Law
	ABUS 155 — Business Math
	CAPS 150 — Computer Business Applications
	Economics Elective
	OMT 203 — Calculating Machines
	Subtotal
3.	Complete a total of four general electives credits (4)
	Degree Total
	*ENGL 212 does not fulfill the second half of the written communi-

# **Applied Business**

# College of Rural Alaska Tanana Valley Campus

(907) 451-7223

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

cation requirement for the baccalaureate degree.

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

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

ENGL 211X — Intermediate Exposition, with Modes of Literature	
or ENGL 212* — Business, Grant, and Report Writing or ENGL 213X — Intermediate Exposition	
COMM 131X — Fund of Oral Comm: Group Context	
or COMM 141X — Fund of Oral Comm: Public Context	
Mathematics:	
MATH 107 — Functions for Calculus	
or MATH 131X - Concepts and Contemp Applications of Math-	
ematics	
or MATH 161 — Algebra for Business and Economics	
Elective selected from Humanities, Social Science, Mathematics,	
Natural Science or Perspectives on the Human Condition 3	
Complete the following major degree requirements (30 credits):	
(courses may be completed in 1-3 credit modules) BA 151 — Introduction to Business	
CAPS 150 Computer Pusiness Applications	
CAPS 150 — Computer Business Applications ACCT 101 — Elementary Accounting	
ACCT 107 — Elementary Accounting 3	
or ABUS 188— Personal Income Tax	
and ABUS 211 — Taxes for Business Entities 3	
ABUS 154 — Human Relations	
ABUS 179 — Fundamentals of Supervision 3	
ABUS 232 — Contemporary Management Issues	
ABUS 241 — Applied Business Law	
Economics Elective at the 100 level or above	
ABUS, BA, CAPS, CAH, OMT, PLS, or RD Elective	
Complete the requirements for one of the three areas of specialization (A, B, or C) as listed below (15 credits):	
A. Entrepreneurship (courses may be completed in 1-3 credit	
modules):	
9 credits as follows:	
ABUS 233 — Financial Management	
ABUS 272 — Small Business Planning 3	
ABUS 273 — Managing a Small Business	
plus 6 elective credits from the following:	
ABUS 141 — Payroll Accounting	
ABUS 151 — Village Based Entrepreneurship	
ABUS 250 — Introduction to Manageriai Accounting	
ABUS 254 — Salesmanship	
OMT 221 — Records Management	
OMT 231 — Business Communications	
other courses may be used with program approval	
B. Tourism (courses may be completed in 1-3 credit modules):	
ABUS 158 — Introduction to Tourism         3           ABUS 255 — Marketing in Tourism         3	
ABUS 255 — Marketing in Tourism	
ABUS 299 — Practicum in Tourism	
6 credits selected from: ABUS 256 — Small Hotel, Bed and Breakfast and Lodge	
Operations	
ABUS 267 — Transportation and Logistics 1-3	
ABUS 268 - Attraction/Destination Development and	
Management1-3	
ABUS 269 — Food and Beverage Management 1-3	
C. Computer Applications (courses may be completed in 1-3	
credit modules):	
Complete 15 credits as follows:	
CAPS 126 — Micro Computer Operating Systems	
CAPS 126 — Micro Computer Operating Systems	
CAPS 220 — Micro Computer Graphics or Deskton Publishing 3	
CAPS 220 — Micro Computer Graphics or Desktop Publishing . 3 CAPS 260 — Advanced Word Processing	
CAPS 275 — Micro Computer Databases	
CAPS or OMT elective1	
other courses may be used with program approval	
*ENGL 212 does not fulfill the second half of the written communi-	
cation requirement for the baccalaureate degree	

# Applied Mining Technology

College of Rural Alaska Tanana Valley Campus

(907) 451-7223

Certificate

At the present time, no students are being accepted into the Applied Mining Technology Program.

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

	Credits
1.	Complete the following major specialty courses:
	MIN 101 — Minerals, Man and the Environment
	AMIT 101 — General Mining Technology or
	GEOS 101 — The Dynamic Earth
	AMIT 109 — Underground Mine Safety
	AMIT 110 — New Underground Miner Training 2
	AMIT 120 — Explosives I
	AMIT 125 — Mineral Exploration Techniques
	AMIT 129 — Surface Mining Safety
	AMIT 130 — Surface Mining Operations
	AMIT 140 — Environmental Permitting 1
	AMIT 170 — Fundamentals of Coal Mining
	Subtotal24
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
	AMIT 154 — Water Quality and Flocculents
	AMIT 155 — Drilling Technology
	AMIT 156 — Applied Cartography
	AMIT 161 — Alaskan Ore Deposits
	AMIT 162 — Geochemical Sampling 1
	AMIT 180 — Colored Stone Evaluation I
	AMIT 185 — Diamond Grading and Evaluation 3
	AMIT 193 — Special Topics
	AMIT 205 — Geomagnetic Surveying
	AMIT 206 — Electromagnetic Surveying
	AMIT 210 — Advanced Underground Mining
	AMIT 220 — Explosives II
	AMIT 230 — Field Methods
	AMIT 231 — Heap Leaching
	AMIT 280 — Colored Stone Evaluation II
	AMIT 282 — Cooperative Work Experience
	AVTY 231 — Arctic Survival 3
	HLTH 120 — Industrial First Aid and CPR 1
	Subtotal
3.	Any approved Applied Business, Computer Application, Drafting
***	Technology, 100 level or above university science course, Mechan-
	ics, Welding, or School of Mineral Engineering course. NOTE: Only
	a maximum of three approved elective credits can be taken which
	must be approved in advance (in writing) by the adviser of the Mining
	mast or approved in advance (in writing) by the adviser of the withing

# **Applied Physics**

# College of Natural Sciences Department of Physics

Technology Program (3) Certificate total .....

(907) 474-7339

Minimum Requirements for Degree: 130 credits

#### Requirements

Applied Physics - B.S. Degree

- Complete the general university requirements and B.S. degree re-
- 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

Minimum credits required \* 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 Bachelor's Degree in Engineering)

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

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

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

# Art

# College of Liberal Arts Department of Art

(907) 474-7530

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

Minimum Requirements for Degrees: 130 credits

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

The bachelor of fine arts is a professionally oriented degree designed to prepare students for careers in art. This degree is also the usual prerequisite for graduate studies in art. Enrollment in the B.F.A. program is recommended only for those students willing to make the considerable commitment of time and energy necessary to strive for professional competence in their major areas. Admission to the B.F.A. program requires a portfolio review by the art faculty and is generally done in the junior year.

#### Requirements

#### Art - B.A. Degree

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

٨.	Lower Division (27 credits)	Credits
	ART 105 — Beginning Drawing	3
	ART 205 — Intermediate Drawing	3
	ART 261-262 — History of World Art	6
	ART 211 — Beginning Sculpture	
	ART 213 — Beginning Oil Painting	
	Take two of the following:	
	ART 161 — Two-Dimensional Design (3)	
	ART 162 — Color and Design (3)	
	ART 163 — Three-Dimensional Design (3)	
	One elective chosen from:	3
	ART 201 — Beginning Ceramics (3)	
	ART 207 — Beginning Printmaking (3)	
	ART 209 — Beginning Metalsmithing and Jewelry (3	0
0		

- Upper Division (12 credits)

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

Sculpture Drawing Painting Ceramics Printmaking Metalsmithing

	Upper division Art History
	Minimum credits required for major
	Minimum credits required for degree
mu	Transfer students who are candidates for the B.A. degree or a B.F.A. in Art tomplete 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 require- ments; 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
	ART 205 — Intermediate Drawing
	ART 261-262 — History of World Art 6
	ART 211 — Beginning Sculpture
	ART 213 — Beginning Oil Painting
	Take two of the following:
	ART 161 — Two-Dimensional Design (3)
	ART 162 — Color and Design (3)
	ART 163 — Three-Dimensional Design (3)
	One of the following
	ART 201 — Beginning Ceramics (3)
	or ART 207 — Beginning Printmaking (3)
	or ART 209 — Beginning Metalsmithing and Jewelry (3)
	or ART 268 — Beginning Native Art Studio (3)
B.	Upper Division (48 credits)
	*Upper division Art History
	Major Program approved by BFA thesis committee, to include at
	least two and no more than three studio areas, one area of which must
	include a minimum of 15 credits, and a second area of which must
	include a minimum of 9 credits
	Upper Division Art Electives
	Thesis Project
	Minimum credits required for degree
	Total Control (1996) (1997) (1997)

All studio areas in the department are eligible for fulfillment of specialization requirements -- painting, drawing, printmaking, sculpture, ceramics, metalsmithing, and Native art. Computer art courses may also be used as one of the 2-3 required areas of a program plan.
\*HUM 332, ART 365, ART 366, ART 367, or ANTH 412 may apply

toward this requirement.

#### MINOR in Art

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

#### Art Program for Teachers

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

### **Asian Studies**

## Interdisciplinary

(907) 474-6516

#### Minor only

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

### Requirements

### MINOR in Asian Studies

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

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

# Associate of Arts

(907) 842-5109
(907) 442-3400
(907) 474-5439

Kuskokwim Campus	(907) 543-4500
Northwest Campus	(907) 443-2201
Tanana Valley Campus	(907) 451-7223
Degree: A.A.	
Minimum Requirements for Degree: 60 credit The associate of arts degree offers a rigo serious student who eventually intends to transf	rous program of study for the
Requirements All credit for the A.A. degree must be at credits at the 200-level or above, and be distribe Communication (9 credits) ENGL 111X—Methods of Written Comm ENGL 211X—Intermediate Exposition with or *ENGL 212—Business, Grant and Report ENGL 213X—Intermediate Exposition COMM 131X—Fundamentals of Oral Commemphasis or COMM 141X—Fundamentals of Oral Speaking	the 100-level or above with 20 uted as follows:  unication
Successful completion of library skills com- or LS 101X substitute for	quirement be completed
before enrolling in the 200-level English of it be completed concurrently with enrollm glish course requirement.) General Electives (22-23 Credits) Any combination of courses.	ourse requirement or that nent in the 200-level En-
(Students planning to go on to the baccalau to select courses meeting remaining core n designated within baccalaureate majors an	equirements and courses

designated within baccalaureate majors and minors.)

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

# Athletic Coaching

# College of Liberal Arts

Department of Physical Education

(907) 474-7382

Minor only

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

### Requirements

MINOR in Athletic Coaching	MINOR in	Athletic	Coaching
----------------------------	----------	----------	----------

	i tore in remetic concining	
1.	Complete the following required courses:	Credits
	PE 411—History and Philosophy of Sport and Physical Act	ivity 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
2.	Complete the remaining credits in approved courses which will
	develop competency in the area selected for coaching
(No	te: This minor is not available with a physical education major.)

# Atmospheric Sciences

# College of Natural Sciences Department of Physics

(907) 474-7339

Degrees: M.S., Ph.D.

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

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

(See also "Space Physics.")

# Aviation Technology

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

(907) 474-5688

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 university and A.A.S. requirements:

	Credits
	Communications:
	ENGL 111X and ENGL 211X, 212*, or 213X
	COMM 131X or 141X
	Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	Humanities, social sciences, mathematics, natural science or Per-
	spective on the Human Condition
2.	Complete the following major degree requirements:
100.0	AVTY 100 — Private Pilot Ground School 4
	AVTY 101 — Private Pilot Flight Training
	AVTY 102 — Commercial Ground Instruction
	AVTY 103 — Commercial Flying
	AVTY 155 — Preventive Maintenance for Pilots
	AVTY 200 — Instrument Ground School
	AVTY 201 — Instrument Flight Training
	AVTY 231 — Arctic Survival
	AVTY 235 — Elements of Weather
	Subtotal 26
3.	Complete the following major specialty electives:
3.	Select 15 credits from the following:
	AVTY 105 — Seaplane Flight Training
	AVTY 107 — Multi-Engine Flight Training
	AVTY 108 — Introduction to Skis
	AVTY 109 — Glider Flight Training
	AVTY 110 — Biennial Flight Review
	AVTY 116 — Aviation History
	AVTY 117 — Aviation Weather
	AVTY 202 — Flight Instructor Ground School
	AVTY 203 — Flight Instructor Flight Training
	AVTY 205 — Instrument Instructor Flying
	AVTY 206 — Transport Pilot Ground School 4
	AVTY 207 — Transport Pilot Flight Instruction
	AVTY 208 — Flight Simulator Operations

	AVTY 226 — Flight Engineer Ground School 4
	AVTY 232 — Aviation Astronomy and Navigation 3
	AVTY 233 — Loran C and GPS Navigation 1
	AVTY 239 — Aircraft Dispatcher 4
	Subtotal
4.	General Electives
	Degree Total
	*ENGL 212 does not fulfill the second half of the written communi-
	cation requirement for the baccalaureate degree.

MINOR in Aviation Technology

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

Foundation Courses (7 cr	edits) Credits
AVTY 100 - Private Pi	ot Ground School
	nentals of Aviation3-
	Veather
Core Courses (6 credits)	cauler
	vival
AVTY 305 — Aviation I	aw
Elective Courses	
Choose three credits from	the following courses:
AVTY 301 — Air Worke	r Strategies
	Collection
	ta Collection Lab
	anagement
	Aircraft Operations
A VIII 403 Advanced	Ancian Operations

# **Biochemistry and Molecular Biology**

### College of Natural Sciences

Department of Chemistry and Biochemistry (907) 474-7525

Degrees: M.S., Ph.D.

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

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

# **Biological Sciences**

### College of Natural Sciences Department of Biology and Wildlife

(907) 474-7542

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

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

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

Complete the general university requirements and B.A. degree requirements. (As part of the core, complete CHEM 105X-106X.)

Complete the following requirements for the major: BIOL 303 — Principles of Metabolism and Biochemistry (4) or CHEM 321-322 — Organic Chemistry (6) .......4-6 BIOL 310 - Animal Physiology (4) or BIOL 211-212 - Human Anatomy and Physiology I and II (8)

	or BIOL 334 — Structure and Function in Vascular Plants (4)
	or BIOL 342 — Microbiology (4)
	BIOL 481 — Processes of Evolution
	or BIOL 482 — Patterns of Evolution
3.	Biology Elective
	Minimum credits required
	logical Sciences — B.S. Degree
1.	Complete the general university requirements and B.S. degree re-
-	quirements. (As part of the core, complete CHEM 105X-106X.)
2.	Complete the following requirements for the major:
	BIOL 105X — Fundamentals of Biology I         4           BIOL 106X — Fundamentals of Biology II         4
	RIOL 262 — Principles of Genetics
	BIOL 262 — Principles of Genetics
	BIOL 303 — Principles of Metabolism and Biochemistry (4)
	or CHEM 321-322 — Organic Chemistry (6)
	BIOL 310 — Animal Physiology (4)
	or BIOL 211-212 — Human Anatomy and Physiology I and II (8)
	or BIOL 334 — Structure and Function in Vascular Plants (4)
	or BIOL 342 — Microbiology (4)
	BIOL 481 — Processes of Evolution
	or BIOL 482 — Patterns of Evolution
	MATH 200X — Calculus (4)
	or MATH 272X — Calculus for Life Sciences (3)
	STAT 200 — Elementary Probability and Statistics or STAT 300 - Statistics
	Biology Electives* 24
	Select two electives from:
	Chemistry (200 level or above), Geosciences, Marine Science,
	Mathematics (200 level or above), Physics, Space Physics and
	Atmospheric Sciences, or Statistics 6 or more
3.	Minimum credits required for degree
	*A maximum of six credits of independent study (-97) may be
	applied to this requirement. Students may petition to substitute
	chemistry courses (up to 10 credits) for the biology electives required for the B.S. degree.
	In addition, Foreign Language is encouraged by the department.
MII	OR in Biological Sciences
	A minor in biological sciences requires 20 credits in biology, including:
	BIOL 105X — Fundamentals of Biology I
	and three of the following:
	BIOL 262 — Principles of Genetics 4
	BIOL 271 — Principles of Ecology
	BIOL 262 — Principles of Genetics
	BIOL 310 — Animal Physiology (4)
	or BIOL 211-212 — Human Anat and Physiol I and II (8) 4-8
	BIOL 334 — Structure and Function in Vascular Plants
	BIOL 342 — Microbiology
	BIOL 481 — Processes of Evolution
	or BIOL 482 — Patterns of Evolution 4
-	
Stu	lents from Other Departments
	Candidates for the bachelor of science degree in general science wishing a
maje	or in biological sciences must satisfy both the requirements of their major

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

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

# Biology

# College of Natural Sciences

Department of Biology and Wildlife (907) 474-7542

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

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

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

# Botany

# College of Natural Sciences

Department of Biology and Wildlife

(907) 474-7542

Degree: M.S.

Minimum Requirements for Degree: 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.: 123 credits; M.B.A.: 30 additional credits

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

All majors must earn a "C" or better in all Common Body of Knowledge courses, department specific general requirements, major specific requirements, and specific math and statistics requirements. Admittance to 300 or 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course. A \$25.00 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON). This fee is in addition to any lab/material fees. B.B.A. students must, during their first 30 hours, attain computer literacy by either testing or earning a "C" or better in a basic computer literacy course.

### Requirements

Business Administration - B.B.A. Degree

- Complete general university requirements and B.B.A. degree requirements. (As part of the core, complete PHIL 322-Ethics.) Complete the following requirement: ENGL 314 — Technical Writing ..... Complete the Common Body of Knowledge (CBK) (31-34 credits): ACCT 101 and 102 — Elementary Accounting ....... 6 AIS 101 - Effective Personal Computer Use or demonstrated computer literacy ..... AIS 310 — Intro. to Management Information Systems or AIS 316 — Accounting Information Systems ..... BA 330 — The Legal Environment of Business ...... 4 BA 360 — Production/Operations Management ...... 3 BA 390 — Organizational Theory and Behavior ...... 3 BA 462 — Corporate Strategy ..... ECON 324 — Inter. Macroeconomics

Option (selected from below)	Complete at least two of the following:
<ol><li>Complete a minor complex (optional) or free electives</li></ol>	BA 355 — Personal Finance
(All must be outside the School of Management with the exception	BA 425 — Advanced Corporate Financial Problems
of introductory computer literacy credits. The minor may not be from	BA 461 — International Finance
the School of Management.)	BA 430 — Current Topics in Finance
OPTIONS: (An option is required for the BBA degree in Business	BA 350 — Introduction to Real Estate and Land Economics 3
Administration.) Students are expected to have completed 300 level	BA 454 — Student Investment Fund
coursework before enrolling in 400 level option courses.	
Option in Finance:	MINOR in Human Resource Management*:
BA 423 — Investment Management	AIS 101 — Effective Personal Computer Use
BA 425 — Adv. Corp. Financial Problems	BA 151 — Introduction to Business
BA 430 — Current Topics in Finance	BA 307 — Personnel Management
BA 461 — International Finance	BA 390 — Organizational Theory and Behavior 3
Upper-division electives approved in writing by an option	Complete at least one of the following:
advisor	BA 317 — Employment Law
Option in Human Resource Management:	BA 327 — Collective Bargaining and Labor Relations
BA 317 — Employment Law	MINOR in Marketing*:
BA 317 — Employment Law	BA 343 — Principles of Marketing
BA 447 — Compensation Management	BA 436 — Consumer Behavior
BA 456 — Small Business Management	BA 441 — Promotion Management
BA 457 — Training and Management Development	BA 490 — Services Marketing 3
Option in International Business:	Complete at least one of the following:
ECON 463 — International Economics	BA 445 — Marketing Research
Two academic years of one foreign language* 12-18	BA/JB 326 — Principles of Advertising 3
(German, Japanese, Russian, Spanish, French)	JB 433 — Public Relations****
PS 321 or 322 — International Politics	****Note: JB 301 or permission of instructor is prerequisite for JB
Complete one of the following (appropriate to language concentra-	433.
tion):	MINOR in Travel Industry Management*:
GEOG 305 — Geography of Europe (Except USSR) or	1. Complete the following:
GEOG 306 — Geography of Russia or	BA 160 — Principles of Tourism
GEOG 311 — Geography of Asia or	BA 372 — Management of Hospitality and Tourism Industry 3
GEOG 405 — Political Geography	BA 373 — Community Tourism Development
Approved upper division electives	BA 471 — Tourism Seminar
(*Note: Foreign language credit may also meet 6 hours of core	<ol><li>Select one of the following courses:</li></ol>
degree requirements.)	ANS 220 — Cultural Differences in Institutional Settings 3
Option in Management:	ANS 365 — Native Art of Alaska
BA 317 — Employment Law	ANTH 242 — Native Cultures of Alaska
BA 327 — Collective Bargaining and Labor Relations	BIOL 104 — Natural History of Alaska 3
BA 425 — Advanced Corporate Financial Problems 3	ECON 237 — The Alaska Economy3
BA 441 — Promotion Management	ENGL 349 — Narrative Art of Alaska Native People
BA 456 — Small Bus. Management	ENGL 350 — Literature of Alaska and the Yukon Territory 3
Option in Marketing:	HIST 110 — History of Alaska Natives 3
BA 436 — Consumer Behavior	HIST 115 — Alaska, Land and Its People
BA 441 — Promotion Management	HIST 341 — History of Alaska
BA 445 — Marketing Research	NORS 484 — Seminar in Northern Studies
BA 490 — Services Marketing	NRM 101 — Natural Resources Conservation and Policy
Upper division elective approved in writing by an option advisor 3	NRM 304 — Perspectives in Natural Resources Management 3 PS 210 — Alaska Government and Politics
Option in Travel Industry Management:	PS 263 — Alaska Native Politics
BA 160 — Principles of Tourism	Total
BA 372 — Management of Hospitality and Tourism Industry 3	10141
BA 373 — Community Tourism Development	*For a Bachelor of Arts or Bachelor of Science Degree.
BA 471 — Tourism Seminar	
BA 490 — Services Marketing	Business Administration — M.B.A. Degree
6. Minimum credits required	For complete information on the graduate program in business administra-
Note: The B.B.A. degree requires 50% of the accounting, business	tion, see the UAF Graduate Catalog.
administration and economics credits to be earned in residence at the	
University of Alaska Fairbanks.	Chemistry
MINOR in General Business*:	Chemistry
Complete at least one course from each group:	
BA 151 — Introduction to Business	College of Notional Colonges
or ECON 200 — Principles of Economics	College of Natural Sciences
2. ACCT 101 — Elementary Accounting	Department of Chemistry and Biochemistry (907) 474-7525
3. BA 343 — Principles of Marketing	Democra PA PC MA MC DLD
or BA 390 — Organizational Theory and Behavior 3	Degrees: B.A., B.S., M.A., M.S., Ph.D.
4. BA 307 — Personnel Management	Minimum Requirements for Degrees: B.A., B.S.: 130 credits; M.A., M.S.: 30
or BA 360 — Operations Management** 3	additional credits; Ph.D.: open
5. BA 355 — Personal Finance	Graduates in chemistry qualify in many fields as teachers of chemistry;
or BA 325 — Financial Management** 3	supervisors in industry; technical sales personnel; research chemists in federal,
**Notes: ACCT 102, ECON 200 and 227, and MATH 262 are	state, municipal, academic, or industrial laboratories; in pre-medicine; or as
prerequisites for BA 360; ECON 200 and STAT 200 are prerequi-	laboratory technicians. The rapid introduction of chemical techniques in all
sites for BA 325.	branches of commerce and the creation of the many synthetic products has
MINOR in Finance*:	caused substantial growth in the profession. In addition to the traditional
	employment opportunities in chemistry, well-qualified graduates find positions
ACCT 101 — Elementary Accounting	in the fields of environmental science, oceanography, and related interdiscipli-
BA 423 — Investment Management	nary 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 pre-medicine.

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

The chemistry department's four-year B.S. curricula in Chemistry and Biochemistry/Molecular Biology option are accredited by the American Chemical Society.

### Requirements

#### Chemistry - B.A. Degree

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

Credits
CHEM 105X-106X — General Chemistry 8
CHEM 202 — Basic Inorganic
CHEM 212 — Chemical Equilibrium & Analysis
CHEM 213 — Quantitative Analysis Laboratory
CHEM 321-322 — Organic Chemistry
CHEM 324 — Organic Laboratory
CHEM 331-332 — Physical Chemistry
CHEM 412 — Instrumental Analytical Methods
CHEM 413 — Analytical Instrumental Lab
CHEM 434 — Instrumental Methods in Physical Chemistry 3
CHEM 482 — Seminar (seniors)
MATH 200X-201X-202X — Calculus
PHYS 103-104 or 211-212 — General Physics
Total Credits Required 130

### Chemistry — B.S. Degree

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

#### Credite

Complete the courses required for a B.A. degree with a major in Chemistry as listed above. Complete the following additional Chemistry courses:

*CHEM 402 — Inorganic Chemistry	
*CHEM 488 — Research	4
One additional 400 or 600 level chemistry	y course 3
. Total Credits Required	130

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

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

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

\* Advanced courses in the physical or biological sciences or mathematics may be substituted with permission of the head of the Chemistry and Biochemistry 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 re-
- Complete the following program (major) requirements:

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

or BIOL 461 — Cell Biology
or BIOL 418 - Developmental Biology
or BIOL 262 — Principles of Genetics
CHEM 105X-106X — General Chemistry 8
CHEM 212 — Chemical Equilibrium & Analysis
CHEM 213 — Quantitative Analysis Laboratory 1
CHEM 321-322 — Organic Chemistry
CHEM 324 — Organic Laboratory
CHEM 331-332 — Physical Chemistry
CHEM 331-332 — Physical Chemistry
or CHEM 434 — Instrumental Methods in Physical Chemistry . 3
CHEM 451 — General Biochemistry
CHEM 452 — Biochemistry Laboratory
or CHEM 488 — Research
CHEM 482 — Seminar
MATH 200X-201X-202X — Calculus
PHYS 103X-104X or 211X-212X — General Physics
Major elective (approved by department head)***
Total Credits Required

\*\* Requires CHEM 412 as prerequisite.

\*\*\* CHEM 402 required for ACS accredited degree.

#### MINOR in Chemistry

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

### Biochemistry and Molecular Biology - M.S., Ph.D.

#### Chemistry - M.A. or M.S. Degree

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

# Civil Engineering

# School of Engineering Department of Civil Engineering

(907) 474-724

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

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

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

Civil engineers are leading users of today's sophisticated high technology and are in the forefront of high technology's newest applications. They employ the latest concepts in computer-aided engineering (CAE/CAD) during design, construction, project scheduling and cost control.

Civil engineers are problem solvers involved in community development and improvement and as sure are meeting the challenges of polluting, the deteriorating infrastructure, traffic congestion, energy needs, floods, earthquakes, urban redevelopment and community planning.

The opportunity for creativity is unlimited given the wide scope of projects

covered by civil engineering.

The civil engineering program at UAF began in 1922, had its first graduate in 1931 and since has graduated more than 500 men and women. Many of these graduates work in Alaska's cities, towns and villages in a wide range of responsible positions. More than 60 percent of Alaska's professional engineers practice in civil engineering. Civil engineers 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

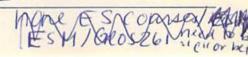
## Civil Engineering — B.S. Degree

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

	First Year	
	Fall Semester	ts
	ENGL 111X — Methods of Comm	.3
	MATH 200X — Calculus	4
	ES-101 — Introduction to Engineering	2
-	CHEM 105 — General Chemistry	4

Only Ct/Jech tlect

"c" or better



Perspectives on the Human Condition
Spring Semester
COMM 131X or COMM 141X
MATH 201X — Calculus
CE 112 — Elementary Surveying
ES 201 — Computer Techniques
Second Year Fall Semester
MATH 202X — Calculus 4
PHYS 211 — General Physics 4
ENGL 211X or 213X
ES 209 — Statics
Perspectives on the Human Condition
Spring Semester
MATH 302 — Differential Equations
PHYS 212 — General Physics 4
ES 210 — Dynamics
GE 261 — General Geology for Engineers
Perspectives on the Human Condition
Third Year
Fall Semester
CE 334 — Properties of Materials
ES 301 — Engineering Analysis       3         ES 331 — Mechanics of Materials       3
ES 341 — Fluid Mechanics
CE 402 — Intro. to Transportation Engineering
Spring Semester
ES 346 — Basic Thermodynamics
CE 326 — Intro. to Geotech. Engineering
CE 441 — Environ. Engineering
CE 431 — Structural Engineering I
Perspectives on the Human Condition
Fourth Year
Fall Semester
CE 344 — Water Res. Engr
CE 432 — Structural Engineering II
ES 307 — Elem. of Electrical Engineering
Technical Elective*
Technical Elective* 3 Perspectives on the Human Condition 3
CE 400 — EIT Exam (Fall or Spring)
Spring Semester
ESM 450 — Economic Analysis and Operations
CE 438 — Design of Engr. Systems 3
Perspectives on the Human Condition
Technical Elective*
Technical Elective* 3 Technical Elective* 3
Technical Elective*

\*The technical electives must include 12 credits of CE or EQE courses and three credits of approved technical courses. The student should consult his/her advisor. Four out of five electives must be taken from the list of approved CE electives or EQE elective graduate courses. Only one graduate level course may count toward graduation as a technical elective and the student must be within 30 credits of graduation and have at least a 3.0 gpa to enroll.

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

# Civil Engineering - M.S. or M.C.E. Degree

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

### Communication

# College of Liberal Arts Department of Communication

(907) 474-6591

Degree: B.A.

Minimum Requirements for Degree: 120 credits

Course work in Communication prepares an individual to handle the challenges of communicating effectively in a rapidly changing world characterized by diversity in gender, cultural background, and belief. The major and minor programs in Communication provide the student with a comprehensive back-

ground in the discipline in preparation for employment or further education. Individuals majoring in a wide variety of other disciplines will also find Communication electives to be valuable additions to their programs.

#### Requirements

Communication - B.A. Degree

 Complete the general university degree requirements and B.A. degree requirements, including one of the two Fundamentals of Oral Communication courses required in the Core Curriculum.

2.	Complete the following requirements for the major:
	COMM 180 — Introduction to Human Communication 3
	COMM 280 - Communication and Diversity
	COMM 330 - Intercultural Communication
	or COMM 351 - Gender Communication
	COMM 401 - Communication Research Methods
	COMM 425 - Communication Theory
3.	Complete a minimum of 15 additional credits, selected from courses
100000	listed below, 9 of which must be at the 300 or 400 level.
	200 Level
	COMM 222 — Fundamentals of Interpersonal Communication 3
	COMM 231 — Business and Professional Communication 3
	COMM 251 — Argumentation and Conflict Communication 3
	300 Level*
	COMM 320 — Communication and Language
	COMM 321 — Nonverbal Communication
	COMM 330** — Intercultural Communication
	COMM 331 — Advanced Group Communication
	COMM 335 — Organizational Communication
	COMM 351** — Gender Communication
	COMM 352 — Family Communication
	400 Level*
	COMM 422 — Interpersonal Communication
	COMM 441 — Persuasion
	COMM 462 — Communication in Health Contexts
	COMM 475 — Applied Communication in Training and
	Development

<sup>\*</sup> With approval of advisor, an appropriate level special topics or independent studies course in Communication may be used to meet this requirement.

\*\*If not taken to fulfill requirement 2, above.

#### MINOR in Communication:

A minor in Communication requires the completion of 15 credits in Communication courses beyond the courses taken to satisfy the university oral communication requirement. These 15 credits must include COMM 180 and COMM 280 and at least 6 credits at the 300 level or higher. Courses designated as social science that are taken for the minor may also be used to fulfill social science distribution requirements for the B.A. degree.

# Community Health

College of Rural Alaska Campuses

(907) 543-4540

Credits

Certificate; Degree: A.A.S

Minimum Requirements for Degree: 60 credits; for Certificate: 34 credits
CHAP Training Centers

Carrier armining Centers		
Anchorage CHA Training Program, ANMC	(907)	257-1302
Norton Sound Health Corporation, Nome	(907)	443-3404
Southeast Alaska Regional Health Corp., Sitka	(907)	966-2451
Yukon-Kuskokwim Health Corp., Bethel	(907)	543-4471

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

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

approved emergency care course, completion of a skills checklist, a supervised clinical preceptorship and passing the CHP statewide examination.

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

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

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

NOTE: For more information about the CHA/P basic training program, please contact one of the CHA/P training centers. For more information about the A.A.S. degree, contact the Kuskokwim Campus, (907) 543-4540.

### Requirements

Community Health - Certificate

	Basic CHA/P courses are: Credits
	CHP 131 — Community Health Aide, Session I
	CHP 132 — Community Health Aide, Session II
	CHP 133 — Community Health Aide, Session III
	CHP 134 — Community Health Aide, Session IV
	CHP 135 — Community Health Aide, Preceptorship
	Total
	The above course sequence replaces the CHP 120 series listed in the
	UAF 1992-93 catalog. The course designator changes represents the
	addition of a Session IV and the integration of the field experience
	within each eight-credit session.
	within each eight-credit session.
	Prior to Session I the CHA may have an optional course when
	regionally available.
	CHP 082 — Community Health Aide, Presession I
Co	mmunity Health — A.A.S. Degree
1.	Complete the following general university and A.A.S. requirements:
	Credits
	ENGL 111X and ENGL 211X, 212 or 213X
	COMM 131X or 141X
	Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	Humanities, social sciences, mathematics, natural science or Per-
	spectives on the Human Condition
	Total15
2.	Major Specialty Requirements:
-	CHP 131 — Community Health Aide, Session I
	CHP 132 — Community Health Aide, Session II
	CHP 133 — Community Health Aide, Session III
	CHP 134 — Community Health Aide, Session IV
	CHP 135 — Community Health Aide, Preceptorship
	Total
	CHP 203 — Clinical Update for CHPs (1-3)
	CHP 206 — Mental Health/Substance Abuse (1-3)
	CHP 207 — Maternal and Infant Health (1-3)
	CHP 208 — Communicable Disease (1-3)
	CHP 211 — Health Education (1-3)
	CHP 212 — Diabetes: Primary Prevention and Village Care (1-3)
	CHP 215 — Death and Dying (2)
	CHP 293 — Special topic courses
	EMS — any 200 level courses
	HLTH — any 200 level courses
	Total credits
3.	Electives
	Total credits

# Community Psychology

College of Liberal Arts Department of Behavioral Sciences and Human Services

(907) 474-7240

Degree: M.A.

Minimum Requirements for Degree: 48 credits

The M.A. program in community psychology seeks to train graduate level practitioners in mental health and community development who can work

sensitively and effectively in cross-cultural community contexts, and particularly in Native settings in rural areas and urban settings with multicultural populations. The program attempts to meet the demand for trained mental health professionals in rural Alaska.

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

# **Computer Applications**

# College of Rural Alaska Tanana Valley Campus

(907) 451-7223

Tanana Valley Campus Computer Applications Program (CAPS)

The purpose of the CAPS program is to teach current computer applications. Both Macintosh and Windows computer lab are available and classes are offered in current software including word processing, spreadsheets, graphics, CAD, databases, and desktop publishing.

All classes are taught using hands-on lessons and exercises and are offered for students with beginning to intermediate skills.

Students who are currently employed may take CAPS classes to improve their computer applications skills. Those who are unemployed may take these classes to develop the computer skills necessary for employment. All classes are limited to a capacity of 12 to 16 students per lab.

CAPS classes may apply to the Computer Application specialty of the Applied Business degree.

# **Computer Information Systems**

### School of Management

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

Minor only

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

#### Requirements

#### **MINOR** in Computer Information Systems

Credits
ACCT 101 — Elementary Accounting I
ACCT 102 — Elementary Accounting II
AIS 101 - Effective Personal Computer Use 3
AIS 312 - Information Systems Technology
AIS 316 — Accounting Information Systems
Total

# **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

A student may declare a major in Computer Science only when she/he is ready to matriculate into MATH 200, Calculus I.

Computer Science — B.S. Degree

Complete the general university requirements and B.S. degree requirements. A portion of the Perspectives on the Human Condition requirement should be met with ethics (PHIL 322X). The mathematics requirement for the B.S. should be met with MATH 200X-201X. A portion of the science requirement for the B.S. should be met with a one year physics sequence, PHYS 103X-104X or PHYS 211X-212X.

2.	Complete the following mathematics requirement: Credits	
	MATH 307 — Discrete Mathematical Structures	
	STAT 300 — Statistics	
	One of the following:	
	MATH 302 — Differential Equations	
	MATH 308 — Abstract Algebra 3	
	MATH 310 — Numerical Analysis 3	
	MATH 314 — Linear Algebra	
	MATH 371 — Probability 3	
	MATH 408 — Mathematical Statistics	
	MATH 460 — Mathematical Modeling	
3.	Complete the following major requirements:	

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 System	3
	CS 331 — Programming Languages	3
	CS 402 — Senior Project and Professional Practice	3
	CS 411 — Analysis of Algorithms	

	EE 341 — Computer Organization I
	EE 342 — Computer Organization II
	Upper Division electives: either CS courses
	or approved electives such as AIS 310, EE 443, EE 454 9
4.	Total Credits Required 120

### MINOR in Computer Science

CS 202 — Computer Programming II ..... Three upper division elective courses from CS, EE 341, AIS 310, MATH 310, MATH 460 or approved by CS advisor ......9 These courses can be used to simultaneously satisfy other major or general distribution requirements.

Computer Science - M.S. Degree

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

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

# Cross-Cultural Communications

# College of Liberal Arts Cross-Cultural Communications Program

(907) 474-7181

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 by Alaska Native and rural students. It enables such students to make the transition more quickly than might otherwise be the case.

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

# **Culinary Arts**

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

Culinary Arts - A.A.S. Degree

(907) 474-5074

Certificate: Degree: A.A.S.

Minimum Requirements for Certificate: 31 credits; for Degree: 67 credits

The Culinary Arts Program prepares students for a career in the expanding field of culinary arts. Graduates can seek employment in food production or in the management of restaurants, bakeries, hotels, hospitals, camps or any facility that requires food service as part of its operation. This department offers both an associate degree and certificate programs.

### Requirements

Cui	mary Arts — A.A.S. Degree
1.	Complete the following general university and A.A.S. requirements (all credits must be at the 100-level or above):  Credits
	Communication (9 credits):
	ENGL 111X — Methods of Written Communication
	ENGL 211X — Intermediate Exposition with Modes of Lit 3 or
	ENGL 212* — Business, Grant and Report Writing
	FNGL 213X — Intermediate Exposition
	COMM 131X — Fund, of Oral Commun: Group Context 3
	COMM 141X — Fund. of Oral Commun: Public Context 3 Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	Humanities, social sciences, mathematics, natural science or Per-
	spective on the Human Condition
2.	Complete the following major degree requirements:
	CAH 105 — Principles of Food Service
-	CAH 140 — Food Production I
E	CAH 141 — Food Production II
0	CAH 145 — Bakery Production I
13	CAH 146 — Bakery Production II
1	CAH 150 — Food Service Sanitation 1
	CAH 152 — Supervisory Skills
	CAH 242 — Food Production III
	CAH 243 — Food Production IV
	CAH 247 — Bakery Production III
	CAH 248 — Bakery Production IV
	CAH 250 — Garde Manger
	CAH 253 — Storeroom Purchasing and Receiving
	CAH 255 — Food Service Management
	Subtotal 52
	Degree Total 67
	*ENGL 212 does not fulfill the second half of the written communi-
	cation requirement for the baccalaureate degree.
P	1 - 1 - 0 - 15 - 1

#### Culinary Arts Certificate

	Suggested Course Sequence:	
	First Semester	15 Credits
	CAH 105 — Principles of Food Service	3
	CAH 140 — Food Production I	5
	CAH 145 — Bakery Production I	5
	CAH 150 — Food Service Sanitation	
	CAH 161 — Pastry Tube Art	
	Second Semester	16 Credits
	CAH 141 — Food Production II	5
	CAH 146 — Bakery Production II	
	CAH 152 — Supervisory Skills	
	CAH 256 — Food Service Accounting	2
	Culinary Specialty Electives	2
	Certificate Total	
li	linary Arts Certificate — Baking	

Suggested Course Sequence:
First Semester
CAH 105 — Principles of Food Service
CAH 140 — Food Production I
CAH 145 — Bakery Production I 5
CAH 150 — Food Service Sanitation 1
CAH 161 — Pastry Tube Art 1
Second Semester
CAH 146 — Bakery Production II

(907) 474-5264

CAH 152 — Supervisory Skills	
CAH 247 — Bakery Production III	4
CAH 256 — Food Service Accounting	
Culinary Specialty Electives	
Certificate Total	31
Culinary Arts Certificate — Cooking	
Suggested Course Sequence:	
First Semester	15 Can 114
CAH 105 — Principles of Food Service	15 Credits
CAH 140 — Food Production I	
CAH 145 Pology Production I	
CAH 145 — Bakery Production I	
CAH 150 — Food Service Sanitation	
CAH 161 — Pastry Tube Art	l
Second Semester	16 Credits
CAH 141 — Food Production II	5
CAH 152 — Supervisory Skills	2
CAH 242 — Food Production III	
CAH 256 — Food Service Accounting	
Culinay Specialty Electives	
Certificate Total	31
Major Specialty Electives for Certificate Programs	
CAH 116 — Beginning Cake Decorating	1
CAH 117 — Intermediate Cake Decorating	
CAH 154 — Dining Room Service	2
CAH 160 — Principles of Nutrition	
CAH 170 — Gourmet Cooking	
CAH 171 — Gournet Baking	
CAH 172 — Gourmet Asian/Oriental Cooking	2
CAH 175 — Introduction to Meat Cutting	2
CAH 257 — Oenology Hospitality I	
CAH 258 — Oenology Hospitality II	

# Dentistry

# Pre-Professional Advising (907) 474-6396

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

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

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

# **Diesel / Heavy Equipment Mechanics**

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

Minimum Requirements for Certificate: 34 credits

Certificate

The diesel and heavy equipment mechanics program offers the student training in the maintenance and repair of trucks, buses and heavy equipment. This one-year certificate program emphasizes "hands-on" training and in-class experience as students perform preventive maintenance inspections, determine causes of equipment problems and make necessary repairs and adjustment from tune-ups to complete engine and equipment overhauls. Students work on large truck fuel, electrical and air systems, diesel engines, transmissions, differentials,

and crawler tractor undercarriages, steering and final drives. Class size is limited to 16 students to encourage instructor-student interaction and allow for individualized assistance. An applied math proficiency exam must be passed to complete certificate requirements. A student may request credit by examination for any DSLT or MECN class. See the department for details.

### Requirements

Diesel/Heavy Equipment Mechanics — Certificate	
Suggested Course Sequence	
Fall Semester	Credits
DSLT 150 — Diesel Mechanics I	7
DSLT 152 — Diesel Mechanics II	7
WMT 103 — Welding I	3
Subtotal	
Spring Semester	
MECN 101 — Heavy Equipment/Mechanics I	7
MECN 102 — Heavy Equipment/Mechanics II	
WMT 105 — Welding II	
Subtotal	
Certificate Total	

# **Drafting Technology**

# College of Rural Alaska Tanana Valley Campus

Certificate

Minimum Requirements Certificate: 33 credits

Three options in the drafting technology certificate program are offered: architectural drafting, civil drafting, and architectural and civil drafting. The architectural certificate or the civil certificate are 33 credits, while an architectural and civil certificate requires 35 credits.

The courses 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 architectural 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, utilizing both conventional drawing techniques and computer aided drafting.

A student may request credit by examination for any DRT class.

### Requirements

#### Drafting Technology - Certificate

	ral and Civil): all Semester Credits
F	all Semester Credits
D	RT 101 — Beginning Drafting I
D	RT 121 — Building Trades Blueprint Reading
	RT 170 — Beginning AutoCad
	IATH 107 — Elementary Functions
	pring Semester
	RT 102 — Beginning Drafting II
	RT 270 — Advanced AutoCad
M	IATH 108 — Trigonometry
F	or all Drafting Certificates: Take one of the following:
	MT 131 — Business English
	MT 231 — Business Communications
	NGL 212 — Business, Grant, and Report Writing
F	or Architectural Certificate complete:
D	or Architectural Certificate complete: RT 140 — Architectural Drafting4
D	RT 151 — Civil Concepts
F	or Civil Certificate complete:
D	RT 141 — Architectural Concepts
D	RT 150 — Civil Drafting4
F	or Architectural and Civil Certificate complete:
	RT 140 — Architectural Drafting
D	RT 150 — Civil Drafting
C	omplete a minimum of three credits from:
D	RT 115 — Graphics I
D	RT 123 — Uniform Building code

DRT 125 — Lettering I
DRT 130 — Perspective Drafting I
DRT 132 — Perspective Drafting II
DRT 160 — Drafting Co-Op Work Experience2-3
DRT 250 — Civil Drafting III - Advanced
ART 104 — Introduction to Drawing 1-3
ART 105 — Beginning Drawing
ART 161 — Two Dimensional Design
ART 162 — Color and Design
ART 163 — Three Dimensional Design
ART 205 — Intermediate Drawing
ES 101 — Introduction to Engineering
ES 201 — Computer Techniques
Total Credits

# EarlyChildhood Development

# College of Rural Alaska Tanana Valley Campus

(907) 474-5240

Certificate; Degree: A.A.S.

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

The A.A.S. degree in early childhood development prepares students to find employment or to improve present job skills in early childhood and child care programs. Positions in child care centers, head start programs, early childhood education programs, child welfare service agencies and public school aid programs are potential career directions for program graduates. The A.A.S. degree in early childhood development also leads to state certification as an Early Childhood Education Associate II. A certificate program (30 credits) in early childhood development is also available.

### Requirements

Ear	ly Childhood Development — A.A.S. Degree
1.	Complete the following general university and A.A.S. requirements
	Credits
	ENGL 111X and ENGL 211X, 212*, or 213X
	COMM 131X or 141X
	COMM 131X or 141X
	Natural science**
	Humanities**
	PSY 101 — Introduction to Psychology 3
2.	Complete the following major degree requirements:
	ECHD 245 — Child Development
	ECHD 100 — Introduction to Early Childhood
	ECHD 110 - Practical Paths to Discipline and Guidance 1
	ECHD 120 — Child Nutrition, Health and Safety
	ECHD 131 — Group Management
	ECHD 135 — Infant/Toddler Care
	ECHD 250 — Practicum I
	ECHD 251 — Practicum II
	ECHD 255 — Curriculum and Acivities for Young Children 3
	ECHD 260 — Introduction to the Exceptional Child
	or ECHD 261 — Mainstreaming Exceptional Children
	ECHD 265 — Culture Learning and the Young Child
	SOC 242 — The Family
3.	Complete 9 credits of general electives 9
er.	Degree Total
	Recommended Electives: Any ECHD catalog or special topics
	(ECHD 193 or 293) courses and others which have been approved by
	the ECHD adviser.
	*ENGL 212 does not fulfill the second half of the written communi-
	cation requirement for the baccalaureate degree.
	**Courses should be selected that meet general degree requirements
	for baccalaureate degrees.
Ear	ly Childhood Development — Certificate
1.	

	ECHD 250 — Practicum I
	ECHD 255 — Curriculum and Activities for Young Children 3
	Subtotal
2.	Math competency: Student must demonstrate a level of competence in math equivalent to DEVM 050. Requirement may be satisfied by math placement exam score above DEVM 050 level or by earning a
	grade of "B" or above in DEVM 050 class.
3.	Complete 5 credits of general electives.
	Certificate Total

# **Early Childhood Education**

### College of Rural Alaska

 Bristol Bay Campus
 (907) 842-5109

 Interior Campus
 (907) 474-5207

 Kuskokwim Campus
 (907) 543-4500

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

The associate of applied science degree in early childhood education is the second step on the early childhood career ladder, which begins with the nationally recognized Child Development Associate (CDA) credential.

The CDA credential is valid proof of the holder's ability to work effectively with a group of children from three to five years old and serves as a seal of approval from the early childhood profession. The CDA student can receive competency based on-the-job training with the preschool classroom serving as a lab which comprises the six competencies of the CDA credential.

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

#### Requirements

Complete the following major specialty requirements: ECDD 121 — Physical Activities for Young Children ...... 1 ECDD 122 — Cognitive Activities for Young Children ...... 1 ECDD 124 — Creative Activities for Young Children ...... 1 ECDD 145 - Nutrition ..... ECDD 211 - Developing Positive Self-Concepts in Children .... 1 ECDD 212 — Developing Individual Strengths in Children ........ I ECDD 221 — Positive Home-Center Relationships ...... 1 ECDD 289 — Final Assessment for Child Development Associate ECDD 299 — Practicum in Early Childhood Education ......... 2-3 ECDD 100 — Introduction to Early Childhood Education ........ 3 Complete 11 credits of general electives.

Note: Students in ECDD courses must spend 32 hours per credit in

an approved early childhood center.

Cradite

# **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 programareas: 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

- 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 CHÉM 103X and 104X or PHYS 103X and 104X
  - Complete one semester of computer science approved by major subject emphasis program head.
  - (NOTE: A, and B, may be used to meet general degree requirements, but C. is in addition to the 6 credit mathematics core and B.A. degree requirements.)
- 3. For the major complex, complete 19 credits in the following courses (labs are optional but it is strongly recommended they be taken if offered): GEOG 205, 309 or 339, and 402; GEOS 101 or GE 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.
- Complete an additional 12 credits of the following or approved alternative courses (can also be used to meet basic degree requirements and to apply toward minor requirements): NRM 101, 204, 310, 380, 430; BIOL 103 or 105-106, 271; GEOG 301, 482; 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.
- 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.: 123 Credits
Economics is the study of those social activities which are concerned with
the production, distribution, and consumption of goods and services. In today's

complex world, nearly all social phenomena and problems have economic aspects. Organized knowledge of the functioning of our economy and its relations with other economic systems is therefore essential to an understanding

of the world in which we live.

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

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

All B.B.A. 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.

Admittance to 300 or 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course. A \$25.00 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON). This fee is in addition to any lab/material fees. B.B.A. students must, during their first 30 hours, attain computer literacy by either testing or earning a "C" or better in a basic computer literacy course.

### Requirements

Economics - B.A. Degree

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

Credits
ECON 200 — Principles of Economics4
MATH 161 — Algebra for Business and Economics
Political Science elective
Other foundation courses:
ACCT 101 — Elementary Accounting
STAT 200 — Elementary Statistics
Complete 30 additional credits in Economics including: ECON 227
- Intermediate Statistics for Economics and Business
ECON 321 — Intermediate Microeconomics
ECON 324 — Intermediate Macroeconomics
ECON 463 — International Economics
Economics electives18
(Must be 300-level or higher, 6 credits of the following courses may
be included: BA 325, 343, 360, 423, 461. At least 6 credits of elec-
tives must be in courses designated as writing intensive (W) courses.)
Minimum credits required
111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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

Economics - B.B.A. Degree

Complete the general university and B.B.A degree requirements.

2.	Complete the following Common Body of Knowledge (CBK) (31-34 credits):  Credits
	ACCT 101 and 102 — Elementary Accounting
	AIS 101 — Effective Personal Computer Use
	or demonstrated computer literacy 0-3
	AIS 310 — Intro. to Management Information Systems
	or AIS 316 — Accounting Information Systems
	BA 325 — Financial Management
	BA 330 — Legal Environment of Business
	BA 343 — Principles of Marketing
	BA 360 — Operations Management
	BA 390 — Organizational Behavior
	BA 462 — Corporate Strategy
	ECON 324 — Intermediate Macroeconomics
	or ECON 350 — Money and Banking 3
3.	Complete the following major complex requirements:
-	Political Science elective
	ECON 321 — Intermediate Microeconomics
	ECON 324 - Intermediate Macroeconomics (if not taken in
	CBK)
	ECON 463 — International Economics
	Economics electives
	(Only 15 credits of economics electives are required if ECON 350 is
	taken as part of the CBK. At least 6 credits must be taken in courses
	designated as writing intensive courses.)
	G 1 - 1 - 20 21 fee dealers

NOTE: The B.B.A. degree requires 50% of the accounting, business administration and economics credits to be earned in residence at the University of Alaska Fairbanks.

#### MINOR in Economics:

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

ECON 20 12 credit		economics			
4	*.*				

# Education

### College of Liberal Arts School of Education

(907) 474-7341

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

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

### I. CERTIFICATION AND ACCREDITATION INFORMATION

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

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

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

### II. ADMISSION TO TEACHER EDUCATION

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

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

### III. EDUCATION PROGRAMS

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

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

# A. Fairbanks Campus Resident Program:

Offered at the Fairbanks campus are resident programs leading to both elementary and secondary teaching certificates. These programs are designed for full-time students, although part-time students are accommodated when possible. The professional year, the last year in the program, is an intensive compressed integrated curriculum that incorporates university classwork with practicum experiences and culminates in student teaching. It requires a full-time commitment since students are placed in the school for methods' practicum experiences and student teaching.

Available at the Fairbanks campus are a Bachelor of Education degree program in elementary education, an elementary education minor with certification, an elementary education minor without certification, a general education minor, a post-baccalaureate elementary education program (a minimum of the elementary minor), and a secondary certification program (the Teachers for Alaska Program). A Bachelors of Education degree in secondary education is no longer available at the Fairbanks campus. A student wishing to be certified for

secondary teaching must complete the bachelor's degree requirements, including all requirements for a certifiable major, before entering the Teachers for Alaska program.

# B. Rural Campuses Cross-Cultural Education Development Program (X-CED)

The X-CED program is the teacher education program offered through the University of Alaska Fairbanks' rural campuses to serve the unique educational needs of Alaska's village residents. Full-time education faculty members are responsible for coordinating program activities within each region through the regional campuses. The X-CED program offers full-time undergraduate coursework in education for students seeking a B.Ed. degree in either elementary or secondary education. Available degree majors, minors and concentration areas are limited by faculty resources. Priority for enrollment in field-based courses is given to students formally admitted to the program, but are available to other students on a space-available basis and with permission of the instructor. Applicants for admission to the program are reviewed and recommended by regional panels.

In addition, the X-CED program provides supplemental services including workshops, technical assistance and other support services as time and resources permit. All inquiries should be addressed to the program coordinator's office at each campus, or the Program Head, X-CED, School of Education, Fairbanks campus.

#### IV. ELEMENTARY EDUCATION PROGRAMS

To be recommended for an elementary teaching certificate, a student must complete the requirements of one of the following three options: A) B.Ed. in Elementary Education, B) Minor in Elementary Education with certification, or C) Post-Baccalaureate Certification in Elementary Education. All three options are available both at the Fairbanks campus and through the X-CED program.

Students admitted to either the Fairbanks Teacher Education program or the X-CED program may transfer between programs without reapplying for admission. However, it is important to note that the programs have different requirements, placement procedures, and timetables. The Office of Certification and Advising will assist transferring students.

Students graduating under earlier catalog requirements will substitute ED 410, 411, 412, and 413 for the past required courses ED 381, 419 and 421.

#### Requirements

# A. Elementary Education — B.Ed. Degree

1. Complete general university requirements.

2.	Complete the following degree and program (major) requirements:
a.	Humanities (9 credits)
	LING 101 — Nature of Language
	Electives
b.	Social Sciences (9 credits)
	ANTH 242 — Native Cultures of Alaska
	PSY 101 — Introduction to Psychology
	PSY 240 — Devel. Psychology in Cultural Perspective
C.	Mathematics (6 credits)
	MATH 205 — Math. for Elementary School Teachers I
	MATH 206 - Math. for Elementary School Teachers II
d.	Complete one of the concentrations listed below:

Each concentration must have a minimum of 12 upper division credits (except Early Childhood). Core requirements (except Communication requirements) may be counted toward these concentrations.

1. Humanities (30 credits)

velopment ..

At least 12 credits concentrated in Art, or English, or Music

Social Science (30 credits)

At least 12 credits concentrated in one discipline

Mathematics and/or Science (29 credits)

At least 12 credits concentrated in one discipline

 4. ESL/Applied Linguistics (21 credits)

 ENGL 318 — Modern English Grammar
 3

 ENGL 462 — Applied English Linguistics
 3

 ANS 320 — Language and Ethnicity
 3

 Credits in a language
 6

 Approved linguistics courses
 6

 5. Alaska Native Language/Bilingual (25-27 credits)

 Credits in one Alaska Native language
 16-18

 ANL 287-288 — Teaching Methods/Curriculum and Materials De 

12 credits of approved Early Childhood Development courses plus 6 upper division credits from one of the following: Art Physical Education
Early Childhood Speech
English Theater

Music Education - complete the following: Foundation/Theory Courses ED 350 — Communications in Cross-Cultural Classrooms ....... 3 ED 375 — The Exceptional Learner ..... Education Foundation Elective (ED 345, 346, 380, 440, 450, 422, or ANS 420) ..... Physical Education Elective (PE 316, 317 or 327) ......2 or 3 Methods Block Courses ED 411 - Strat. for Reading/Writing Instr. in Multicult. ED 412 - Lang. Arts and Social Studies: Methods and Student Teaching (Candidates who have successfully taught full-time in selfcontained elementary classrooms may request a reduced student teaching experience. Contact the Office of Practica Experience for

#### B. MINOR in Education — With or Without Teacher Credential Endorsement

further information.)

Majors in other departments who wish to obtain an Elementary Certificate should contact the UAF School of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. Students must have completed the necessary prerequisites and have been admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching. Students may have a minor in education without student teaching, but they must complete student teaching if they wish to meet certification requirements for teaching.

# MINOR in Elementary Education (WITH credential endorsement):

Foundation/Theory Courses
PSY 240 - Developmental Psychology in Cross-Cultural
Perspective
ED 201 — Introduction to Education
ED 304 — Literature for Children
ED 330 — Diagnosis and Evaluation of Learning
ED 375 — The Exceptional Learner
Education Foundation Elective (ED 345, 346, 350, 380, 422, 440, or
ANS 420)
MATH 205 - Mathematics for Elementary School Teachers I 3
MATH Elective (100-level or above)
Methods Block Courses
ED 410 — Foundations of Literacy Development
ED 411 - Strat. for Reading/Writing Instr. in Multicultural
Classrooms
ED 412 - Lang. Arts and Social Studies: Methods and
Curriculum Development
ED 413 — Math. and Science: Methods and Curric. Dev
Student Teaching
ED 452 — Elementary Student Teaching
12 Total Continuity Student reaching

### MINOR in Elementary Education (WITHOUT credential endorsement):

Complete the Elementary Education minor requirements excluding ED 452 — Elementary Student Teaching.

### C. Post-Baccalaureate Elementary Certification Program:

Post-baccalaureate students who wish to obtain an Elementary Certificate should contact the UAF School of Education to obtain course requirements and application procedures for admission to the Teacher Education Program. Students must have completed the necessary prerequisites and have been admitted to the Teacher Education Program prior to acceptance for placement in methods courses and student teaching.

Course requirements are the same as those for Elementary Education Minor with Certification.

#### ADMISSION REQUIREMENTS - ELEMENTARY

The Elementary Education Program is a selective teacher education program. In order to obtain an elementary teaching certificate, all students (B.Ed.

majors, elementary education minors, and post-baccalaureate) must not only complete one of the three above options, they also must apply and be admitted to the Elementary Teacher Education Program. Admission to UAF as a degree student majoring in education does not automatically qualify a student for admission to the Elementary Teacher Education Program. Admission to the program is based on a comprehensive system that includes more than one measure and is used by the education faculty to assess the personal characteristics, communications, and basic skills proficiency of candidates preparing to teach.

Once in the program, there is ongoing professional assessment with two formal reviews which monitor the progress of elementary education students from admission through completion of their professional education program. One review is prior to entry to the professional year (which begins with the methods block), and one prior to entry to student teaching. These reviews include an evaluation of grades, observations, faculty recommendations, demonstrated competence in academic work, and recommendations from the appropriate professionals in the schools. Consistent procedures and relevant criteria are used to determine eligibility for student teaching. Systematic approaches are used to assist education students who are making unsatisfactory progress in this program. Specific admission procedures and criteria for each of these three steps for the Fairbanks and X-CED programs are described in the following sections.

#### Fairbanks Campus Program - Elementary

- Admission to elementary education program (B.Ed. major, elementary education minor, and certification)
   In order to be considered for admission to the elementary education
  - In order to be considered for admission to the elementary education program, students must:
  - Submit a complete application, including all required transcripts and references, in accordance with deadlines.
  - Complete a minimum of 45 semester credits, (up to 30 transfer credits may be used).
  - c. Students will be chosen for the program based on the following multiple measures which will be weighed and assessed by various means, including but not limited to faculty rating forms, letters of reference, university transcripts, writing samples, and evaluations from University-sponsored practicum placements. The range and balance in these four areas will be considered in a review by the faculty. Questions faculty will ask in this review include: does the student have:
    - a solid academic background (a minimum cumulative GPA of 2.7),
    - 2) interpersonal, intercultural, and communication skills,
    - successful experience in one or more of the following contexts:
      - a. preschool or public school classrooms,
      - b. other settings with children,
      - c. rural Alaska,
      - d. culturally diverse settings, and
    - ) practical skills and life experiences
- Review criteria for entry to elementary education professional year (methods block and student teaching)
  - a. Acceptance to the elementary education program.
  - b. Placement information form on file with Elementary Education Office by October 1 to begin the professional year during the spring semester or by February 15 to begin the professional year during the fall semester. Students are admitted for a specific semester, and must reapply if their schedule changes.
  - c. Completion of 100 credits leading to a bachelor's degree.
     d. Completion of all required education courses (except ED 410, 411, 412, and 413) and all required math courses, with a minimum grade of "C" in education and math courses and a minimum cumulative GPA of 2.7.
  - Approval of Elementary Education Committee to enter the professional year.
  - A maximum of 15 credits per semester is recommended while enrolled in the professional year.
- Review criteria for entry to elementary education student teaching
  - Successful completion of Methods Block.
    - b. Placement information for student teaching on file with the Office of Practica Experience by October 1 for student teaching in the spring semester or by February 15 for student teaching in the fall semester.
    - c. A completed physical examination.
    - d. Approval of faculty to enter student teaching. Students who feel they have experience comparable to student teaching may petition to have the requirement reduced or

teaching may petition to have the requirement reduced or waived. See the Coordinator of the Office of Practica Experience regarding this procedure.

Rural placements for student teaching are also available. Contact the Office of Practica Experience for further information.

Students who meet all of the above requirements at another university must complete at least 9 credits in Education courses

#### X-CED Program - Elementary

Students outside the Fairbanks area should contact the X-CED Program faculty at the nearest UAF rural campus for specific admission and degree requirements.

#### V. SECONDARY EDUCATION PROGRAMS

To be recommended for a secondary teaching certificate, a student must complete the requirements of one of the following three options: A) Secondary Certification: Teachers for Alaska Program (Fairbanks Campus only), B) B.Ed in Secondary Education (X-CED Program, distance delivery only), or C) Secondary Certification: X-CED Program (distance delivery only).

Admission procedures and criteria for admission to the X-CED secondary education program are the same as those for the X-CED elementary education program. Admission procedures and criteria for admission to Fairbanks' Teachers for Alaska Program are dis-

cussed below.

### Program Requirements - Secondary

A. Fairbanks Campus Secondary Certification Program: Teachers for

Alaska (TFA) Program

The Teachers for Alaska Program (TFA) is a professional certification program which prepares highly qualified teachers for secondary (7-12) school positions. The program is especially designed for students who want to teach at the secondary school level either in small rural schools or in Alaska's urban multicultural secondary schools. It is an intensive, extended two-semester program which students begin before the start of one academic semester, and complete after the end of the following academic semester. For further information on the program, please contact the Coordinator of the UAF Office of Certification and Advising in the School of Education.

Admission Requirements - Secondary TFA

Applicants for the TFA program must meet credit requirements for certification in a specific subject area as approved by the Alaska Department of Education. Eligible applicants include 1) UAF undergraduates who will have completed bachelor's degree requirements for an Alaska State Department of education certifiable subject area by the start of the first semester of the TFA program; and 2) post-baccalaureate students who already possess a bachelor degree in a certifiable subject area. Certifiable subject areas are: Alaska Native Languages, Anthropology, Art, Biological Science, Chemistry, English, Foreign Languages, General Science, Geography, History, Journalism and Broadcasting, Mathematics, Music, Physical Education, Physics, Political Science, Speech Communication, Theatre Arts, Language Arts/Humanities (interdisciplinary), Social Science (interdisciplinary), or Math/Science (interdisciplinary). The Office of Certification and Advising will evaluate past degrees to determine eligibility.

Acceptance to TFA is contingent upon acceptance into the University of Alaska Fairbanks and completion of a TFA application form

obtained from the School of Education.

All application materials, including transcripts and letters of reference, must be received by February 15 in order to be reviewed for

admission in the following fall semester. Teachers for Alaska is a selective teacher education program. A comprehensive system that includes more than one measure is used to assess the personal characteristics, communication, and basic skills proficiency of candidates preparing to teach. This system includes, but is not limited to, the following multiple measures which will be weighed and assessed by various means, including a review of transcripts, essays and/or writing proficiency exams, and letters of reference. Faculty may also require interviews. The range and balance of these four areas will be considered in a review by the faculty.

- clude: Does the student have a diverse, solid academic background (GPA of 2.7 or higher),
- interpersonal, intercultural, and communication skills, successful experience in one or more of the following contexts:

Questions the faculty will ask in making admissions decisions in-

- 1) public school classrooms,
- other settings with students,

2) rural students.

culturally diverse settings, and 4)

practical skills and life experiences to contribute to educational programs

Once accepted into the program, TFA has a systematic procedure for monitoring the progress of education students from admission through completion of their professional education program to determine if they should continue in the program, be advanced to student teaching, or be recommended for a teaching certificate. In assessing student progress, faculty review grades, observations, faculty recommendations, demonstrated academic competence, and recommendations from the appropriate professionals in the schools. Systematic approaches are used to assist education students who are making unsatisfactory progress in their programs.

Reciprocity will be maintained with rural campus programs. Specific criteria for entry to secondary education student teaching are as

follows:

Successful completion of the first block in TFA.

Placement information for student teaching on file with the Office of Practica Experience by October 1 for student teaching in the spring semester, or by February 15 for student teaching in the fall semester.

A completed physical examination.

Approval of faculty to enter student teaching.

Students who feel they have experience comparable to student teaching may petition to have the requirement reduced or waived. See the Coordinator of the Office of Practica Experience regarding

eligibility and procedure.

X-CED students wishing to complete their professional year on the Fairbanks campus must send intent to enroll information to the Office of Certification and Advising. Please contact your advisor and the Coordinator for the Office of Certification and Advising for further information.

Secondary teacher candidates seeking initial certification who are interested in an additional elementary endorsement should contact the Office of Certification and Advising for details during the application process for TFA. TFA students interested in separate Elementary certification must meet admission requirements for the elementary program.

# Course Requirements: TFA Secondary Subject Area Endorsement

First Block (18 credits): ED 632 — Teaching as Reflective Inquiry ...... 4 ED 634— Teaching as Decision Making and Invention ...... 8 Second Block (18 credits): ED 643- Reflective Inquiry into Multicultural Classrooms and

Communities ..... Secondary Education Transition Policy

Students graduating under the requirements in any catalog before the 1991-92 catalog year will substitute ED 451, 453, 632 and

634 for the following past required courses: B.T. Secondary B.Ed. Secondary Education minor ED 201 ED 201 ED 201 ED 330 ED 330 ED 330 ED 375 ED 375 ED 350 Education Education ED 375 foundation foundation elective elective PSY 240 PSY 240 Education foundation elective ED 402 ED 402 Health/nutrition elective ED 407 ED 402 ED 407 ED 424 or 425 ED 424 or 425 ED 407 ED 453 ED 430 ED 453 ED 490 ED 453

In order to be eligible for certification, students must also complete ED 643 and ED 644.

### B. Rural Secondary Education Degree - B.Ed. Degree (Minimum Credits - 130) (X-CED Program)

Students outside the Fairbanks area should contact the X-CED program faculty at the nearest UAF rural campus for specific admissions and degree requirements.

Complete the general university core requirements, including the
baccalaureate core.  Complete the following degree and program (major) requirements:  Credits
a. Humanities (9 credits) LING 101 — Nature of Language
Humanities Electives 6
b. Social Sciences (9 credits)
ANTH 242 — Native Cultures of Alaska 3
PSY 101 — Introduction to Psychology
c. Mathematics (6 credits) Math Electives
d. Complete one of the 3 interdisciplinary major/minors listed
below:
Each major/minor must have a minimum of 12 upper division
credits. 1) Language Arts/Humanities (48 credits)
Core English requirements
Core Humanities requirements
English Electives
Journalism, Speech Communication and Theater
Literature, Linguistics
Alaska Native Studies (courses classified as humanities
only), Art, Humanities, Music, Philosophy9
Electives from above areas
Social Sciences (48 credits) Core Social Science requirements
History Electives3
(Recommended: HIST 101-102 - Western Civilization,
HIST 131-132 — History of the U.S.)
Anthropology Electives
ANTH 242 — Native Cultures of Alaska)
Political Science Electives
(Recommended: PS 101 — Intro. to Amer. Govt. and Politics,
PS 263 — Alaska Native Politics) Geography Electives
(Recommended: GEOG 101 — Intro. Geography or
CONTRACT THE PARTY OF CONTRACT
Economics Electives 6
(Recommended: ECON 202 — Princ. of Econ. I, ECON 201 — Princ. of Econ. II, or ECON 137 — The
Alaskan Economy, or ECON 235 — Intro. to Natural
Resources Economics
Upper Division Social Science Electives
Selected from the following areas (minimum of 9 credits in one area): History, Anthropology, Sociology,
Geography, Political Science, Economics.
Math/Science (45 credits)
Core Math requirements
HUM 202 — Unity in the Sciences
Core Science requirements
Science Electives (minimum 6 credits upper division) 19
Included in the 8 credit core science requirement and 19 credit
science electives must be a minimum of 6 credits from each of the following fields: Biology, Chemistry, Phys-
ics, Geoscience.
e. Education - Complete the following:
Foundation/Theory Courses ED 201 — Introduction to Education
ED 201 — Introduction to Education
ED 350 — Communications in Cross-Cultural Classrooms 3
ED 375 — The Exceptional Learner
ANS 420)3 Approved Health/Nutrition Elective (HMSV 205, EMS 103, PE 246,
ECHD 120, HLTH 203)
Methods Block Courses
ED 407 — Reading Strategies for Secondary Teachers
or ED 425 — Community as an Educational Resource
ED 402 — Methods of Teaching in the Secondary School
or approved substitute
Student Teaching
ED 453 — Secondary Student Teaching

2

(Candidates who have successfully taught full-time in secondary schools may request a reduced student teaching experience. Contact the Office of Practica Experience for further information.) 

### C. X-CED Secondary Certification Program

(For non-Fairbanks campus students who already hold a baccalaureate degree in a certifiable teaching subject area.) Foundation/Theory Courses PSY 240 - Developmental Psychology in Cross-Cultural Perspective ...... Education Foundation Elective (ED 345, 346, 350, 380, 450, or Methods Courses ED 402 — Methods of Teaching in the Secondary School .......... 3 ED 424 — Small High School Programs Student Teaching ED 453 — Secondary Student Teaching ..... (Candidates who have successfully taught full-time in secondary schools may request a reduced student teaching experience. Contact

#### VI. OTHER PROGRAMS

#### MINOR in General Education

For those students interested in exploring the possibility of a career in education before beginning the elementary education professional year or the TFA program, and for those students who are interested in education but who may not wish to pursue certification, there is the option of completing a minor in general education that is not linked to certification or admission to either education program. Students may also elect to take one or more of the following courses according to their own personal interests. The minor consists of the following courses:

the Office of Practica Experience for further information.) 

Credi	12
ED 201 — Introduction to Education	3
ED 299 — Practicum in Education	3
ED 350 — Communication in Cross-Cultural Classrooms	3
Two approved education electives	6
PSY 240 — Devel. Psych. in Cross Cultural Perspective	3

#### International Exchange Programs

The School of Education offers two international exchange programs, one with the Soviet Union and one with Japan. Both programs offer students an excellent opportunity to study and teach abroad. The Soviet Exchange Program is with Magadan State Pedagogical Institute, and allows a short term exchange (3 to 4 weeks) and a long term exchange (one semester or one academic year). The Japan Exchange Program is with Hokkaido University of Education in Sapporo, Japan. During the one month exchange, UAF students who have completed student teaching will complete a three-week teaching internship in Japanese schools and participate in an orientation and program debriefing at Hokkaido University. Students interested in these programs are encouraged to begin language study in the appropriate language as undergraduates. Please contact the School of Education for further information on these programs.

This program offers several options from which a person selects an area of specialization. Inquiries concerning options and the specific requirements of each option should be directed to the School of Education, Coordinator of Graduate Programs.

This is a post-master's degree for school administrators who desire advanced study in educational leadership. It requires 36 semester hours beyond the master's degree or 60 beyond the bachelor's degree. Educators interested in pursuing this degree should confer with the Coordinator of Graduate Studies.

# **Electrical Engineering**

# School of Engineering

Department of Electrical Engineering

(907) 474-7137

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

Minimum Requirements for Degrees: B.S.: 135 credits; M.S.: 30 additional credits; M.E.E.: 32 additional credits

Electrical engineering encompasses the areas of computer applications and design, electrical power transmission and distribution, telecommunications and electronics. The electrical engineer designs and oversees the construction, 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, magneto hydrodynamics, integrated circuits, satellites, and mini and microcomputers. The process controls in the extraction, transmission and refining of petroleum products are largely the responsibility of the electrical and computer engineer. Development of techniques for utilizing new energy sources presents a challenge, requiring much imagination and resourcefulness. Advanced training in engineering science and mathematics is required for creative work in these areas.

The curriculum is designed to insure that basic fundamentals are learned, as well as specialized skills. The practical needs of engineers who plan to enter practice immediately upon graduation, as well as the theoretical background needed for individuals planning to pursue graduate studies, have been taken into account in our program. Candidates for the bachelor of science degree will be required to take the State of Alaska Engineer-In-Training Examination in their general field.

Students must plan their elective courses in consultation with their electrical engineering faculty advisor, and all elective courses must

#### Requirements

Third Year

Fall Semester ...

Electrical Engineering — B.S. Degree

Complete the general university requirements.
 Complete the following degree and program (major) requirements.

be approved by their electrical engineering faculty advisor. First Year MATH 200X — Calculus ...... 4 CHEM 105 — General Chemistry ..... MATH 201X — Calculus ...... 4 CHEM 106 — General Chemistry ...... 4 Second Year ...... 18 credits Fall Semester ..... MATH 202X — Calculus ...... 4 PHYS 211 — General Physics ......4 

ENGL 211X — Intermediate Exposition with Modes of Lit

MATH 302 — Differential Equations 3
PHYS 212 — General Physics 4

LS 101 — Library Information and Research ....... 1

EE 333 — Physical Electronics ....... 4

EE 353 — Circuit Theory I
EE 333 — Circuit Theory 1
Approved Math Elective**
Perspectives on the Human Condition
Option I: Communications
EE 311 — Applied Engineering Electromagnetics
EE 331 — High Frequency Lab
Option II: Power and Control
EE 303 — Electrical Machinery
Option III: Computer Engineering
EE 343 — Digital Syst. Anal. & Design I
Spring Semester 18 credits
EE 334 — Electronic Circuit Design
EE 354 — Engineering Signal Analysis
Perspectives on the Human Condition
EE 471 — Fundamentals of Automatic Control
Option I: Communications
EE 312 — Electromagnetic Waves and Devices
EE 332 — Electromagnetics Laboratory
Option II: Power and Control
EE 404 — Electric Power Systems
Option III. Computer Engineering
Option III: Computer Engineering EE 443 — Digital Systems Analysis and Design II
EE 445 — Digital Systems Analysis and Design II
Fourth Year
Fall Semester
Perspectives on the Human Condition
Option I: Communications
Approved Engineering Science Elective***
EE 303 — Electrical Machinery4
EE 461 — Communications Systems
Option II: Power and Control
Approved Engineering Science Elective***
EE 311 — Applied Engineering Electromagnetics
EE 331 — High Frequency Lab
EE 406 — Electrical Power Engineering 4
EE 343 — Digital Systems Analysis and Design I
Ontion III: Computer Engineering
EE 303 — Electrical Machinery
EE 311 — Applied Engineering Electromagnetics
EE 331 — High Frequency Lab
EE 451 — Digital Signal Processing 4
EE 461 — Communications Systems 4
Spring Semester
ESM 450 — Economic Analysis and Operation
Perspectives on the Human Condition 3
Approved Engineering Science Elective***
Approved EE Elective
Approved EE Design Elective
Must take State of Alaska Engineer-in-Training Examination
Must take state of Alaska Engineer-in-Training Examination

\* Perspectives on the Human Condition and ES 201 may be interchanged if student's mathematics preparation allows.

\*\* Mathematics elective to be chosen from the following advanced topics: linear algebra and matrices, probability and statistics, partial differential

equations, numerical analysis, advanced calculus or complex variables.

\*\*\* Engineering science elective to be chosen from ES 331, ME 334, ES 341 and ES 346.

Electrical Engineering — M.S. or M.E.E. Degree

Graduate degree programs in electrical engineering are closely connected with research activities of the faculty. Research areas in electrical engineering emphasize high latitude problems. They include data communications, telecommunications, electromagnetic wave propagation, satellite communications, digital and physical electronics, computer and microcomputer applications including remote biomedical and environmental instrumentation, electric energy system analyses, electric power quality improvement, geomagnetic storm interaction with electric energy systems, system identification and simulation and digital signal processing.

The M.S. degree program includes research and advanced specialized study with a thesis. The M.E.E. degree program is composed of coursework with the possibility of a research project.

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

# **Engineering Management**

# School of Engineering Department of Engineering and Science Management

(907) 474-6121

Degrees: M.S.

Minimum Requirements for Degrees: 33 credits (beyond a bachelor's degree in an engineering field)

The engineering management curriculum is designed for graduate engineers who will hold executive or managerial positions in engineering, construction, industrial, or governmental organizations. It includes human relations, financial, economic, quantitative, technical and legal subjects useful in solving problems of management.

The curriculum includes graduate-level core courses in the subjects named above, plus additional course work either directed toward special problems such as arctic engineering or in one of the more general fields of engineering through projects or research in the application of management principles. In addition to an undergraduate degree, a candidate should have had on-the-job experience in engineering.

Candidates for the engineering management degree must hold a previous degree in an engineering discipline. (See also "Science Management".)

For complete information of the graduate program in engineering management, see the UAF Graduate Catalog.

# **English**

### College of Liberal Arts Department of English

(907) 474-7193

Degrees: B.A., M.A., M.F.A.

Minimum Requirements for Degrees; B.A.: 120 credits; M.A.: 30 additional credits; M.F.A.: 45 additional credits

The work of the Department of English includes the two functions traditionally associated with the discipline — teaching basic and advanced courses in writing and offering survey and advanced courses in English, American and world literature both to English majors and minors and to students in other fields who may choose the courses as electives. In addition, the department offers courses in English linguistics and Alaskan literature.

#### Requirements

#### English - B.A. Degree

- A. Emphasis: Literature
  - Complete the general university requirements and B.A. degree
    requirements.
  - Complete the following program (major) requirements: 36 credits in English besides English 111X and English 211X or 213X, including:

213	X, including:
	Credits
a.	ENGL 301 — Continental Literature in Translation:
	From the Ancient World through the Renaissance 3
	ENGL 310 — Literary Criticism
b.	Complete three courses from the following:
	ENGL 306 — Survey of American Literature: Beginnings to the Civil War
	ENGL 307 — Survey of American Literature: Civil War to the Present
	ENGL 308 — Survey of British Literature: Beowulf to the Romantic Period
	ENGL 309 — Survey of British Literature: Romantic

	ENGL 309 — Survey of British Literature: Romantic
	Period to the Present
c.	One course from the following:
	ENGL 403 — American Renaissance
	ENGL 404 — American Realism
	ENGL 405 — British Writers of the 19th Century: Ro- mantic Period
	ENGL 406 — British Writers of the 19th Century. Victorian Period
	ENGL 407 — English Writers of the 18th Century: Restoration and Neo-Classical Period

	c.	One course from the following:
		ENGL 317 — Traditional English Grammar
		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
	2.5	at least two courses on 400 level
		at least two courses on 400 level
	2 140	in Codity President
		nimum Credits Required
В.	Emphasi	s: Writing
		mplete the general university requirements and B.A. degree
		uirements.
		mplete the following program (major) requirements: 36
	cre	dits in English besides English 111X and English 211X or
	213	3X including:
		Credits
	a, t	o, c, and d as listed in the requirements for a major with
	1000	emphasis on literature
	e.	Two courses from the following:
		ENGL 444 — Fiction in Translation
		ENGL 445 — 20th Century Drama: From Chekhov to
		Ionesco
		ENGL 446 — Major Modern and Contemporary Poetry
		ENGL 447 — 20th Century British Prose ENGL 448 — 20th Century American Prose
		ENGL 448 — 20th Century American Prose
		ENGL 452 — The British Novel to 1900
	f.	ENGL 313 — Writing Non-Fiction Prose
		ENGL 371 — Intermediate Creative Writing
	g.	One course chosen from 300-400 English Department
		Courses
	3. Min	nimum Credits Required 120
C.	Emphasi	s: Teaching
	1. Con	mplete the general university requirements and B.A. degree
		uirements.
	2. Con	mplete the following program (major) requirements: 36
		dits in English besides English 111X and English 211X or
		3X, including:
	27020	Credits
	a.	Same as listed under a, b, and d for literature
		emphasis 18
	b.	emphasis
	o.	or ENGL 318 — Modern English Grammar
	14	ENGL 472 — History of the English Language 3
	c.	ENGL 313 — Writing Non-Fiction Prose
		ENGL 485 — Teaching Composition in the Schools . 3
	d.	Two elective courses from the following
		All 300-level English, ENGL 444, 445, 446, 447, 448,
		or 462
	3.	Minimum Credits Required 120
MIN	NOR in Er	polish:
	An	ningr in English requires 18 credits distributed as follows:
	9	ninor in English requires 18 credits distributed as follows: Two courses from the following:
		ENGL 301 - Continental Literature in Translation 3
		ENGL 306 - Survey of American Literature: Beginnings
		to the Civil Wes
		to the Civil War
		ENGL 307 - Survey of American Literature: Civil War to
		the Present
		ENGL 308 - Survey of British Literature: Beowulf to the
		Romantic Period
		ENGL 309 - Survey of British Literature: Romantic
		Period to the Present
	b.	ENGL 422 or 425 - Shakespeare
	C	Any 300, or 400-level English electives 0

English - M.A. Degree; Creative Writing - M.F.A. Degree

c.

The master of arts degree focuses on scholarly research in British and American literature. The master of fine arts degree centers on the writing of original, imaginative work in poetry, fiction, drama, and/or nonfiction. Each degree program requires students to take a large proportion of graduate literature courses and to engage in research and writing. Master of arts candidates write theses in literary scholarship. Any graduate student may apply for one of the department's teaching assistantships.

Any 300- or 400-level English electives ......9

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

# **Environmental Quality Engineering** and Science

### School of Engineering Department of Civil Engineering

(907) 474-6129

Degrees: M.S.

Minimum Requirements for Degree: 30 credits (beyond a bachelor's degree)

The environmental quality engineering curriculum is administered through

the civil engineering department and is designed for graduate engineers and science majors who will pursue careers in the areas of water supply,

treatment, and distribution; waste treatment, stream pollution, air pollution, solid- waste disposal, hazardous and toxic waste management, and environmental impact evaluation. Consideration is given for broad study of the environment, prevention and abatement of quality deterioration, and solutions to environmental problems. Graduates will be prepared to hold positions in federal, state, and municipal organizations as well as in consulting engineering offices. For students having non-engineering degrees, an interdisciplinary program is available leading to the master of science in environmental quality science.

For complete information on the graduate program in environmental quality engineering and science, see the UAF Graduate Catalog.

# Eskimo

# College of Liberal Arts Department of Alaska Native Languages

(907) 474-7874

Credits

Degree: B.A.

3. Yur

2.

Minimum Requirements for Degree: 130 credits

#### Requirements

Inupiaq Eskimo — B.A. Degree

Complete the general university requirements and B.A. degree requirements.

2. Complete the following program (major) requirements:

	Credits
	ESK 111-112 — Elementary Inupiag Eskimo
	ESK 211-212 — Intermediate Inupiag Eskimo
	ANL 215 — Eskimo-Aleut Languages
	ESK 417 — Advanced Inupiag Eskimo
	LING 101 — The Nature of Language
	or ANS 320 — Language and Culture
	Complete three of the following:
	ESK 417 — (Additional) Adv. Inupiaq Eskimo
	ANL 287 — Teaching Methods for Alaska Native Languages 3
	ANTH 242 — Native Cultures of Alaska
	ANTH 380 — Peoples of Alaska Southwest
	ANTH 380 — Peoples of Alaska Southwest
	ANTH 361 — Inuplay and Tup it reopte
	HIST 110 — History of Alaska Natives
	PS 263 — Alaska Native Politics
	ENGL 349 — Narrative Art of Alaska Native Peoples
	(in English translation)
	LING 318 — Phonology
	LING 320 — Syntax
	LING 410 — Second Language Teaching
	LING/ED 303 — Language and Literacy Development
	LING 350 — Historical Linguistics
	LING 450 — Language Policy and Planning
	ANL 216 — Indian Languages of Alaska
	A course in Yup'ik Eskimo or other approved subject 3
	MUS 223 — Native Alaskan Music
	Minimum Credits Required 130
p	'ik Eskimo — B.A. Degree
	Complete general university requirements and B.A. degree requirements.
	Complete the following program (major) requirements:
	Credits

ESK 301 — Advanced Central Yup'ik Eskimo	3
ESK 415 — Additional Topics in Advanced Yup'ik Eskimo	3
ANL 215 — Alaska Native Languages	
LING 101 — Nature of Language	
or ANS 320 — Language and Culture	3
Complete two of the following:	
ANL 287 — Teaching Methods for Alaska Native Languages	3
ANTH 242 — Native Cultures of Alaska	
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	
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
Minimum Credits Required 13	30
Attitution at a series and a series	The same

#### MINOR in Eskimo

A minor in Eskimo requires 15 credits in Eskimo.

### Film Studies

# College of Liberal Arts Department of Theater

(907) 474-7751

MINOR in Film Studies

15 credits: ENGL 217, JB 308, THR 380 and JB 105 required plus 3 credits from approved electives.

# **Fire Science**

## College of Rural Alaska Tanana Valley Campus

(907) 474-5264

Certificate; Degree: A.A.S.

Minimum Requirements for Degree: 60-63 credits; for Certificate: 30 credits
The UAF Fire Science Program provides a unique learning environment where students can obtain classroom education, hands-on training and practical vocational experience through 10 local fire and rescue organizations. The program offers students a fundamental working knowledge of the various aspects of municipal fire, wildland fire, emergency medical services and hazardous materials control. A large pool of instructors provides a high level of technical expertise on a variety of specialty emergency services. The primary goal of this program is to make our students the most attractive candidates for job openings and promotions within the fire service and related fields. Associate degrees and certificate programs in municipal fire control, wildland fire control and hazardous materials fire control are offered.

#### Requirements

Hazardous Materials Control - A.A.S. Degree

	attuous interest control
1.	Complete the following general university and A.A. S. requirements:  Credits
	Communications:
	ENGL 111X and ENGL 211X, 212*, or 213X
	COMM 131X or 141X
	Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	Humanities, social sciences, mathematics, natural science or Per-
	spectives on the Human Condition3
2.	Complete the following major degree requirements:
	EMS 103 - Emergency Trauma Training (ETT)
	or EMS 119 - Emergency Medical Technician I
	FIRE 110 - Introduction to Hazardous Waste Operations and Emer-
	gency Response 3
	FIRE 111 - Management and Supervision for Emergency
	Services
	FIRE 120 - Introduction to Fire Chemistry and Physics

11-95 ust be ther

	FIRE 203 - Hazardous Materials I	Municipal Fire Control — Certificate
No	FIRE 205 - Hazardous Materials II	Suggested Course Sequence
K	FIRE 207 - Hazardous Materials II 3 FIRE 207 - Hazardous Materials III 3 FIRE 200 Hazardous Materials IV 3	Fall Semester
W.	FIRE 209 - Hazardous Materials IV	FIRE 101 — Introduction to Fire Science
	Subtotal	FIRE 111 — Supervision and Management for Emergency
9.	Complete 6 credits from the following major elective courses: FIRE 221 - Hazardous Materials Contingency Planning	Services   3   3   5   1   1   1   1   1   1   1   1   1
	FIRE 231 - Hazardous Materials Contingency Flamming	FIRE 202 — Fire Hydraulies
	FIRE 241 - Hazardous Materials Inspector	
	FIRE 249 - Computer Aided Management of Emergency	Major specialty electives
	Operations	Spring Semester
	Subtotal 6	
4.	Complete 15 general electives credits.	FIRE 105 — Fundamentals of Fire Prevention
320	Degree Total	FIRE 117 — Rescue Practices I
	Note: Major electives and general electives must be approved by the	EMS 103 — Emergency Trauma Training (ETT)
	student's advisor.	
	*ENGL 212 does not fulfill the second half of the written communi-	First Responder
	cation requirement for the baccalaureate degree.	Major specialty electives
		Subtotal
Ha	zardous Materials Control - Certificate	Certificate Total
	Suggested Course Sequence	
	Fall Semester:	Wildlands Fire Control — A.A.S. Degree
	FIRE 110 - Introduction to Hazardous Waste Operations and Emer-	<ol> <li>Complete the following general university and A.A.S. requirements</li> </ol>
	gency Response	Credits
	FIRE 111 - Management and Supervision for Emergency	Communications:
	Services	ENGL 111X and ENGL 211X, 212*, or 213X
	FIRE 120 - Introduction to Fire Chemistry and Physics	COMM 131X or 141X
	FIRE 203 - Hazardous Materials I	Mathematics or Natural Science:
	FIRE 207 - Hazardous Materials III	A math or natural science course at the 100 level or above 3
	Subtotal	Humanities, social sciences, mathematics, natural science or Per-
	Spring Semester:	spectives on the Human Condition
	FIRE 205 - Hazardous Materials II	Complete the following major degree requirements:
	FIRE 209 - Hazardous Materials IV	EMS 103 — Emergency Trauma Training (ETT)
	EMS 103 - Emergency Trauma Training (ETT) First Responder	First Responder
	or EMS 119 - Emergency Medical Technician I	or EMS 119 — Emergency Medical Technician I
	Major electives	FIRE 151 — Wildland Fire Control I
	Certificate Total	FIRE 155 — Wildland Fire Behavior
Mu	nicipal Fire Control — A.A.S. Degree	FIRE 157 — Wildland Air Operations and Safety
1.	Complete the following general university and A.A.S. requirements:	FIRE 159 — Wildland Fire Operations Function
	Creits	FIRE 252 — Wildland Fire Prevention
	Communications:	FIRE 254 — Wildland Fire Business Management
	ENGL 111X and ENGL 211X, 212*, or 213X6	FIRE 262 — Wildland Fire Control II
	COMM 131X or 141X	Subtotal
	Mathematics or Natural Science:	Complete 6 credits from the following major elective courses:
	A math or natural science course at the 100 level or above 3	EMS 124 — Emergency Medical Technician Refresher
	Humanities, social sciences, mathematics, natural science or Per-	EMS 230 — Emergency Medical Technician II
	spectives on the Human Condition	FIRE 161 — Wildland Fire Logistics Function
2.	Complete the following major degree requirements:	FIRE 165 — Wildland Fire Planning Function
	EMS 103 — Emergency Trauma Training (ETT)	FIRE 203 — Hazardous Materials I
	First Responder	FIRE 216 — Methods of Instruct for Fire Service Training 3
	or EMS 119 — Emergency Medical Technician I	FIRE 256 — Fire Planning and Multiple Use Management 3
	FIRE 101 — Introduction to Fire Science	FIRE 258 — Wildland Fuels Management
	FIRE 105 — Fundamentals of Fire Prevention	FIRE 260 — Fire Research and Development
	FIRE 107 — Municipal Fire Tactics and Strategy	FIRE 270 — Wildland Fire Command Function
	FIRE 111 — Supervision and Management for Emergency	Complete 15 general electives credits.
	Services	Degree Total
	FIRE 117 — Rescue Practices I	Note: Major electives and general electives must be approved by the
	FIRE 202 — Fire Hydraulics	studet's advisor.
	FIRE 203 — Hazardous Materials I	*ENGL 212 does not fulfill the second half of the written communi-
	Subtotal	cation requirement for the baccalaureate degree.
3.	Complete 6 credits from the following major specialty electives:	
	EMS 124 — Emergency Medical Technician Refresher	Wildlands Fire Control — Certificate
	EMS 230— Emergency Medical Technician II	Suggested Course Sequence
	FIRE 115 — Fire Apparatus and Equipment	all Semester
	FIRE 120 — Introduction to Fire Chemistry and Physics	FIRE 157 — Wildland Air Operations Safety
	FIRE 123 — Fire Investigation	FIRE 159 — Fire Operations Functions
	FIRE 151 — Wildland Fire Control I	FIRE 254 — Wildland Fire Business Management
	FIRE 205 — Hazardous Materials II	FIRE 262 — Wildland Fire Control II
	FIRE 206 — Building Construction for Fire Protection	Major electives
	FIRE 08 — Fire Service Records and Reports	Subtotal
	FIRE 212 — Building and Fire Codes	Spring Semester
	FIRE 214 — Fire Protection Equipment and Systems	EMS 103 — Emergency Trauma Training (ETT)
	FIRE 216 — Methods of Instruct for Fire Service Training 3	First Responder
4	Subtotal 6	and major electives
4.	Complete 15 general electives credits.	or EMS 119 — Emergency Medical Technician I
	Degree Total 60-61	FIRE 151 — Wildfire Control I
	Note: Major electives and general electives must be approved by the	FIRE 155 — Wildland Fire Behavior
	student's advisor. *ENGL 212 does not fulfill the second half of the written community	FIRE 252 — Wildland Fire Prevention
	*ENGL 212 does not fulfill the second half of the written communi-	Subtotal
	cation requirement for the baccalaureate degree.	Certificate Total

## **Fisheries**

## School of Fisheries and Ocean Sciences Program in Fisheries

(907) 474-7289

Credits

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

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

The fisheries undergraduate curriculum program is intended to provide broad basic education and training. Holders of the bachelor's degree will be qualified to enter the management, law enforcement, and public information-education phases of fisheries work. Students contemplating careers in research, administration, advanced management, or teaching will find the bachelor's curriculum a solid foundation for graduate study. The undergraduate program is offered at Fairbanks only.

The geographic location of UAF is advantageous for the study of interior Alaska aquatic habitats. A number of subarctic streams and lakes are within easy reach. Main access to the marine environment from the Fairbanks campus is in Prince William Sound and Cook Inlet.

The Juneau Center, School of Fisheries and Ocean Sciences (JCSFOS) houses the UAF Fisheries Science Program in southeast Alaska.\* JCSFOS has well-equipped labs located near the Auke Bay National Marine Fisheries Laboratory. Students matriculating at Juneau can also register for University of Alaska Southeast 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.

#### Requirments

### Fisheries - B.S. Degree

- Complete the general university and B.S. degree requirements. Some
  of the Fisheries core courses below may be used to meet these
  requirements as indicated by \*.
- Complete the following major requirements. A total of 130 credits
  must be earned for the Bachelor of Science in Fisheries. Courses
  completed in A, B and C areas must be graded "C" or better.
- A. Fisheries Core Courses (79-84 credits):

#### General (39-42 credits)

0.10010
CHEM 105X, 106X — General Chemistry
CS or CAPS courses
ECON 200 — Principles of Economics
or ECON 235 — Natural Resource Economics
or both ECON 201 and 202 - Principles of Economics I & II 3-6
ENGL 314 — Technical Writing
or ENGL 414 — Research Writing
*MATH 200X and 201X — Introduction to Calculus
NRM 101 — Conservation of Natural Resources
PHYS 103X-104X — College Physics
STAT 200 — Elementary Probability and Statistics
or STAT 300 — Statistics
Biology (27 credits)
*BIOL 105X, 106X — Fundamentals in Biol. I and II
BIOL 262 — Principles of Genetics
BIOL 271 — Principles of Ecology
BIOL 310 — Animal Physiology
BIOL 473 — Limnology
or MSL 411 — Current Topics in Oceanographic Research
or BIOL 477 — Ecology of Streams and Rivers
MSL 111X — The Oceans
*May be applied to general University requirements simultaneously.
Fisheries (13-15 credits)
FISH 336 — Aquaculture of Marine Species
or FISH 380 — Marine Fishes of Alaska
or FISH 384 — Biology of Freshwater Fish of Alaska
or FISH 385 — Biology of Economically Important Fish and Inver-
tebrates3-4
FISH 400 — Fisheries Science
FISH 401 — Fisheries Management
FISH 427 — Ichthyology
or BIOL 305 — Invertebrate Zoology4-5
Fisheries Electives (18 credits):
(Choose any Fisheries course (FISH) not already applied to require-

ments of any courses from the following list to total 18 credits.)
BIOL 305 — Invertebrate Zoology
BIOL 328 — Biology of Marine Organisms
BIOL 473 — Limnology
BIOL 477 — Ecology of Streams and Rivers
CHEM 212 — Chemical Equilibrium and Analysis
and CHEM 213 — Quantitative Analysis I aboratory 4
and CHEM 213 — Quantitative Analysis Laboratory 4 CHEM 321-322 — Organic Chemistry
and CHEM 324 — Organic Laboratory
GEOG 205 — Elements of Physical Geography
MSL 411 — Current Topics in Oceanographic Research
STAT 401 — Regression and Analysis of Variance
and/or STAT 402   Selectific Complies
and/or STAT 402 — Scientific Sampling
Electives to total 130 credits.
Fisheries majors are encouraged to reinforce their fisheries qualifi-
cations by earning a minor in a program related to fisheries. Some
examples are Biology, Business Management, Chemistry, Econom-
ics, Mathematics, Natural Resources Management (Animal Sci-
ence), Northern Studies, Statistics, Wildlife Biology. Recommended
electives (other courses may be substituted) include:
ANTH 242 — Native Cultures of Alaska
BA 307 — Personnel Management
BIOL 317 — Comparative Anatomy of Vertebrates 4
BIOL 342 — Microbiology 4
BIOL 407 — Aquatic Entomology
BIOL 418 — Developmental Biology 3
BIOL 442 — Bacteriology and Immunology
BIOL 471 — Population Ecology
BIOL 472 — Communities and Ecosystems
BIOL 477 — Ecology of Streams and Rivers
BIOL 480 — Water Pollution Biology
CHEM 451 — General Biochemistry
CHEM 452 — Biochemistry Laboratory
ECON 438 — The Economics of Fisheries Management 3
GEOG 338 — Introduction to Geographic Information Systems . 3
GEOG 302 — Geography of Alaska
GEOG 402 — Resources and Environment 3
GEOS 304 — Geomorphology (3 credits)
JB 101 — Intro. to Mass Communication
JB 311 — Magazine Article Writing 3
NRM 204 — Natural Resources Legislation and Policy 3
NRM 277 — Introduction to Conservation Biology
NRM 303 — Environmental Ethics and Actions
NRM 370 — Introduction to Watershed Management
NRM 407 — Environmental Law
DC 201 Compositive Politics 2

ments or any courses from the following list to total 18 credits.)

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.

 PS 201 — Comparative Politics
 3

 PS 212 — Intro. to Public Administration
 3

 PS 263 — Alaska Native Politics
 3

 PS 302 — Congress and Public Policy
 3

 PS 420 — Environmental Politics
 3

 SOC 309 — Urban Sociology
 3

 WLF 303 — Wildlife Management Techniques
 3

 WLF 419 — Waterfowl and Wetlands Ecology and Management 3

 Minimum credits required
 130

## Fisheries - M.S. and Ph.D. Degrees

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

## **Food Science and Nutrition**

School of Fisheries and Ocean Sciences/ School of Agriculture and Land Resources Management Cross-School Program (907) 474-7289/(907) 474-5550

Food Science is the study of the chemical, biological, and engineering aspects of food and its components. Knowledge from diverse scientific disciplines is integrated to develop new methods for the processing and fabrication of foods while assuring safe, nutritious, and acceptable products. From a chemical, microbiological and physical standpoint, food is the most complex of all natural

products. Whereas food science is a high-technology field, the results of research and development reach people and animals daily, as safe, nutritious and acceptable foods.

The Food Science and Nutrition (FSN) program at UAF emphasizes the food uses of fisheries, game, and other traditional foods. The program provides UAF students majoring in a natural science, engineering, northern agriculture, or management with a strong emphasis area in food science and nutrition. The food industry is the largest employer in the United States and job openings are available for people trained as food technologists.

The following undergraduate courses are currently offered as part of the FSN program. See the UAF Graduate Catalog for information on the FSN

graduate offerings.

NRM 122 - Food Facts, Fads and Consumer Choices

FISH 261 - Introduction to Seafood Science and Nutrition NRM 305 - Nutrition for Children, Adolescents and Adults

NRM 310 - Agriculture Concepts

NRM 321 - Applied Animal Nutrition

NRM 420 - Animal Nutrition and Metabolism

NRM 445 - Managing Food Production Systems

FSN 460-K (FISH 460-K) - Food Science and Technology Intern-

## University of Alaska Fairbanks/ **Oregon State University** Cooperative Program

(907) 474-7289

For students interested in a Bachelor of Science degree in food science and technology, UAF offers a program in cooperation with Oregon State University (OSU). Students enrolled in this program complete their freshman and sophomore years at UAF, then transfer to Corvallis, Oregon to complete their junior and senior years and earn a B.S. degree in Food Science and Technology from OSU under the Western Undergraduate Exchange (WUE) program. The academic program combines principles and concepts acquired in the life sciences, chemistry, physics, and engineering. The core curriculum at OSU is approved by the Education Committee of the Institute of Food Technologists, the professional society of international food scientists.

## **Foreign Languages**

## College of Liberal Arts Department of Foreign Languages and Literatures

(907) 474-7396

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.

Ke	quii	rements	
or	eign	Language — B.A. Degree	
		mplete the general university and B.A. degree requirer	nents.
	Co	mplete the following program (major) requirements:	Credits
	I.	Background-related Requirements	24
	Op	tion A (Liberal Arts Option)	
	a.		
		or LING 216 — Languages of the World	3
		ENGL 310 — Literary Criticism	3
		ENGL 318 — Modern English Grammar	3
		HUM 411 — Dimensions of Literature	3
	b.	6 credits in literature courses other than those of the	e field of
		specialization	6
	C.	6 credits from among the following:	
		PHIL 201 — Introduction to Philosophy	3
		History: ne or two courses in student's language are	a; if two,
		one course must be upper division	
		ART 261 or 262 — History of World Art	
		One course from the following as related to student's focus:	language
		GEOG 305 — Geography of Europe (except U.S.S.I.	2) 3

French/ Russian

	GE	OG 306 — Geography of Russia 3		
		OG 311 — Geography of Asia		
	GE	OG 402 — Resources and Environment		
Opt	ion B	(Career-oriented Option)		
a.	LIN	NG 101 — Nature of Language		
	or I	LING 216 — Languages of the World 3		
b.		credits in major-related courses in other disciplines, such as		
	agr	iness, education, journalism, political science, etc. (to be eed upon with the advisor according to the student's career ferences)		
II.	Major Requirements (two languages required) First Language (French, German, Russian or Spanish) (above 100			
		el)		
	1.	Complete the following courses in the first language: 201/202 — 6-8 credits 301/302 — 6 credits		
		488 — 3 credits		
	2.	Complete a minimum of nine (9) credits in the first		

language at the 400-level in addition to 488. Students may repeat a 400-level course for credit if the topics vary but may not count any one course more than twice in fulfillment of this requirement.

Complete the following courses in the second language (French, German, Japanese, Russian or Spanish):

201/202; 301/302 ...... 12-14 The second language does not satisfy the minor requirements.

Where appropriate, courses required under any option above and courses in the first and second language repeated for credit, may be counted toward fulfillment of B.A. requirements

listed under 1. In addition, 100-level language courses (which are preparatory to, but not part of the foreign language degree) may be counted toward fulfillment of requirements specified under Perspectives on the Human Condition and/or Humanities, Each language counts as a separate discipline.

Foreign language majors are encouraged to spend one or both semesters of their junior year in an exchange program appropriate to their language focus.

MINOR in Foreign Languages A minor in foreign languages requires 15 credits, 12 of which must be at the 200 level or above.

## Forestry

## University of Alaska Fairbanks/ Northern Arizona University Cooperative Program

(907) 474-5276

UAF provides training in forest sciences through the Natural Resource Management/Forestry program. The program provides students with a foundation in the biological, social and physical sciences and professional education in forest sciences. The academic program is a blend of classroom, laboratory, and field work to develop skills for a professional career in forestry.

For students interested in pursuing a forestry degree outside of Alaska, UAF's School of Agriculture and Land Resources Management offers a program in cooperation with Northern Arizona University. Students enrolled in Natural Resources Management complete the first two years of their program at UAF, then transfer to Northern Arizona University's forestry program to complete their junior and senior years. The forestry program at Northern Arizona University is accredited by the Society of American Foresters.

The pre-forestry program at UAF introduces students to land resources management and provides lower level courses common to most forestry curricula. Students desiring to transfer to a forestry degree program outside of Alaska should consult their faculty advisor before registering for classes. This will ensure a schedule that provides for the expeditious transfer of credit.

Students who are considering forestry as a career choice should contact the student affairs coordinator within the School of Agriculture and Land Resources Management at (907) 474-5276.

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## General Science

## College of Natural Sciences Department of Physics

(907) 474-6108

Degrees: B.S., M.S.

Minimum Requirements for Degrees: B.S.: 130 credits; M.S.: 30 additional credits

The B.S. in General Science has been designed to provide a broad background in the Natural Sciences and to allow for specialization in at least two of the disciplines within the Natural Sciences as well as an additional area of associated interest. This degree offers more breadth in the Natural Sciences than the other degree programs and may be classified as an interdisciplinary degree.

### Requirements

### General Science — B.S. Degree

Complete the general university requirements.

Complete the following degree and program (major) requirements:

...... 17 credits MATH 107-108 — Functions for Calculus/Trigonometry .......... 6 CHEM 105X\* — General Chemistry or PHYS 103X\* — College Physics ...... 4 BIOL 105X — Fundamentals of Biology ..... Spring Semester ..... Second Year GEOS 101X — The Dynamic Earth ...... 4 ENGL 211X — Intermediate Exposition with Modes of Literature GEOS 112X — Historical Geology ...... 4 \*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 natual sciences or mathematics, while the other may be selected from the following disciplines: anthropology, English, French, German, Spanish, Russian, history, political science, or economics. 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:

All prerequisites of courses elected must be met.

- A grade of "C" or better must be attained in all courses for the major
- One year of German or Russian is recommended.

Courses selected to complete the remaining general degree requirements must be the remaining required courses from Perspectives on the Human Condition section of the baccalaureate core.

A student does not need to take MATH 107-108 if he/she successfully completes MATH 200X with a grade of "C" or better.

General Science - M.S. Degree

Complete the general University and Master's Degree requirements.

Complete a minimum of 30 credits of approved courses. At least 24 credits, including thesis and/or research, must be at the 600 level.

The Department of General Science offers a M.S. in Biological Sciences, Chemistry, Geosciences, and Physics. This degree may be described as a "breadth" rather than a "depth" degree, and a candidate is ordinarily pursuing a course of study in which one of these disciplines is cooperating with at least one other discipline within the University. A prospective candidate must meet the general requirements for admission and for the awarding of the degree. At least 21 credits must be earned in science and mathematics. At least 12 credits must be earned in the major discipline selected. A thesis (maximum of three credits) or project (no credit) must be completed in the major discipline. It is not intended that the individual courses comprising the program merely satisfy the credit requirements; each course should contribute to the specific aim of the candidate, and the thesis or project should reflect this aim.

For complete information on the graduate program in general

science, seethe UAF Graduate Catalog.

## Geography

## College of Liberal Arts Deprtment 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

GEOG 309 - Cartography (4)

- Complete the general university requirements and B.A. degree requirements.
- Complete the following program (major) requirements:
  - Complete 33 or 34 credits in geography as follows: GEOG 482 — Geography Seminar ......3 Select three of the following regional courses: GEOG 302 — Geography of Alaska (3) GEOG 303 — Geography of the U.S. and Canada (3) GEOG 305 — Geography of Europe (Except U.S.S.R.) (3) GEOG 306 — Geography of Russia (3) Select two of the following cultural courses: GEOG 402 — Resources and Environment (3) GEOG 404 — Urban Geography (3) Select one of the following technique courses:

В.	GEOG 408 — Quantitative Research Techniques (3)
Geo	ography — B.S. Degree
1.	Complete general university requirements and B.S. degree require- ments.
2.	Complete the following program (major) requirements:
A.	Complete 34 credits in geography as follows:
	GEOG 101 — Introductory Geography or
	GEO 203 — World Economic Geography
	GEOG 205 — Elements of Physical Geography
	GEOG 309 — Cartography
	GEOG 339 — Maps and Landscape Analysis
	GEOG 401 — Weather and Climate
	GEOG 402 — Resources and Environment
	GEOG 408 — Quantitative Research Techniques 3
	GEOG 482 — Geography Seminar
	Select two of the following regional courses:
	GEOG 302 — Geography of Alaska (3)
	GEOG 303 — Geography of the U.S. and Canada (3)
	GEOG 305 — Geography of Europe (Except U.S.S.R.) (3)
	GEOG 306 — Geography of Russia (3)
	GEOG 311 — Geography of Asia (3)
	GEOG 327 — Cold Lands (3)
	Geography elective
B.	Approved electives to complete 120 credits.
341	NOR to Comments

#### MINOR in Geography

A minor in geography requires 15 credits in geography including GEOG 101 or 203 and 205.

## **Geological Engineering**

# School of Mineral Engineering Department of Mining and Geological Engineering (907) 474-7388

Degrees: B.S., M.S.

Minimum Requirements for Degree: B.S. — 137 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 heir general field (completion of the State of Alaska Engineering-in-Training examination will satisfy the requirement). The State of Alaska Engineer-in-Training examination is a first step toward registration as professional engineers.

Graduates of the program are employed by industry, consulting companies, and government agencies.

Students may initiate their geological engineering program in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years. Such students should be in communication with a faculty member of the Department of Mining and Geological Engineering, UAF.

### Requirements

#### Geological Engineering — B.S. Degree

1. Complete the general university requirements.

Complete the following degree and program (major) requirements:

First Year	
Fall Semester	17 Credits
GE 101 - Introduction to Geological Engineeri	ng 1
ENGL 111X - Methods of Written Communication	ations 3
MATH 200X — Calculus	4
CHEM 105X — General Chemistry	4
ES 101 — Introduction to Engineering	2
Perspectives on the Human Condition	
Spring Semester	
COMM 131X or 141X	3
MATH 201X — Calculus	
GE 261 — General Geology for Engineers	3
CHEM 106X — General Chemistry	4

LS 101 — Library Information and Research	
Perspectives on the Human Condition	
The state of the s	
Second Year	
Fall Semester 18 Credits	
Fall Semester 18 Credits MATH 202X — Calculus	
GEOS 213 — Mineralogy	
PHYS 211X — General Physics	
ENGL 211X or 213X — Intermediate Exposition	
MIN 202 — Mine Surveying	
S S	
ES 201 — Computer Techniques	
PHYS 212X — General Physics	
FS 200 — Statics 3	
ES 209 — Statics	
Perspectives on the Human Condition	
reispectives on the Human Condition	
Third Year Fall Semester 18 Credits	
Fall Semester 18 Credits	
ES 210 — Dynamics3	
ES 331 — Mechanics of Materials	
GF 365 Geological Engineering I 3	
GE 365 — Geological Engineering I	
GEOS 221 Sedimentology 3	
GEOS 321 — Sedimentology	
Spring Semester 16 Credits	
ES 341 — Fluid Mechanics	
GEOS 332 — Ore Deposits and Structure3	
GE 372 — Rock Engineering	
MATH 302 — Differential Equations	
MIN 370 — Rock Mechanics	
Summer 6 Credits	
GE 381 — Field Methods and Applied Design I	
GE 382 — Field Methods and Applied Design II	
OE 362 — Field Methods and Applied Design II	
Fourth Year	
Fall Samester 16 Credits	
GF 405 — Exploration Geophysics	
Fourth Year Fall Semester 16 Credits GE 405 — Exploration Geophysics 4 GE 471 — Remote Sensing for Engineering 3	
Technical Electives3	
Perspectives on the Human Condition	
Spring Semester         18 Credits           GE 420 — Subsurface Hydrology	
GE 480 — Geological Engineering II 3	
MIN 409 Mineral Valuation and Economics 3	
Technical Electives 3	
Perspectives on the Human Condition 6	
* At least three out of the six technical elective credits must	
contain engineering design and be selected by the student in confer-	
ance with his or has adviser and approved by the department	
ence with his or her advisor and approved by the department. Technical electives are selected from a list of approved technical	
electives from the Geological Equipment a list of approved technical	
electives from the Geological Engineering and other programs.	

Geological Engineering - M.S. Degree

The graduate program allows for awarding the master of science degree in geological engineering. The degree consists of a core program and electives in either geotechnical engineering or exploration engineering. University policy pertaining to graduate study leading to a master's degree apply as approved by the student's adviser and the Department of Mining and Geological Engineering faculty.

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

## Geology

## College of Natural Sciences Department of Geology and Geophysics

(907) 474-7565

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

Minimum Requirements for Degrees: B.S.: 126-136 credits including summer field courses; M.S.: 30 additional credits, including thesis; Ph.D. (open)

Graduates in geology will have broad backgrounds in the earth sciences with firm foundations in mathematics, physics, and chemistry. There are many options available in the geological sciences, and the suggested curricula are

intended to be flexible enough to allow the students to pursue their own emphases in the junior and senior years. The bachelor's degree should prepare one for positions with industry or government or for graduate studies. Graduate programs are tailored around minimal core course requirements (M.S. only) to the special research and study interest of the student. In addition to courses listed under the geology and geophysics program, students should check the course listings under the School of Mineral Engineering and the Marine Science program.

All serious students of the geological sciences at UAF should note that in addition to the facilities available directly through the instructional program, there are active research laboratories in the fields of seismology, volcanology, paleomagnetism, isotope geochronology, glaciology and ice physics which are housed in the Geophysical Institute (see also Geophysical Institute under Research). These laboratories can frequently provide topics for M.S. and Ph.D. theses. Other laboratories are also available in other divisions on campus, as listed under Research. There are about 40 profssional geoscientists in residence on campus, and graduate students normally participate in the ongoing research of these professionals. Similar possibilities exist for the motivated undergradu-

ate.	
Re	quirements
Ge	ology — B.S. Degree
1.	Complete the general university requirements.
2.	Complete the following degree and program (major) requirements:  Credits
	ENGL 111X — Methods of Written Communication
	ENGL 211X — Intermed. Expos. with Modes of Literature
	or ENGL 213X — Intermed. Exposition
	COMM 131X or 141X
	Perspectives on the Human Condition
	Mathematics (Select appropriate series)
	300-Statistics(3)
	For Geophysics Option: MATH 200X, 201X, 202X-Calculus (12),
	MATH 302-Differential Equations (3)
	PHYS 211X-212X — General Physics (PHYS 103X-104X may be
	taken for General Geology Option) 8
	CHEM 105X-106X — General Chemistry
	Computer literacy equivalent to BA 100 or CS 2010-3
3.	For General Geology, Economic Geology and Petroleum Geology
	options, complete the following requirements: Geology Core Courses:
	GEOS 101X — The Dynamic Farth 4
	GEOS 101X — The Dynamic Earth
	GEOS 213 — Mineralogy 4
	GEOS 214 — Petrology and Petrography 4
	GEOS 215 — Paleobiology and Paleontology         3           GEOS 304 — Geomorphology         3           GEOS 314 — Structural Geology         3
	GEOS 304 — Geomorphology
	GEOS 314 — Structural Geology
	GEOS 322 — Stratigraphy and Sedimentation 4
	GEOS 322 — Stratigraphy and Sedimentation         4           GEOS 351 — Field Geology*         6           GEOS 430 — Statistics and Data Analysis         3
	General Geology Option:
	Complete at least 5 credits from the courses listed below:
	GEOS 401 — Invertebrate Paleontology (3)
	GEOS 408 — Photogeology (2)
	GEOS 417 — Introduction to Geochemistry (3)
	GEOS 418 — Basic Geophysics (3)
	Economic Geology Option:
	GEOS 304 — Geomorphology
	GEOS 432L — Geology of Mineral Resources Laboratory 2 or 3
	One of the following
	MIN 202 — Mine Surveying (3 credits)
	MIN 304 — Intro. to Metallurgy (3 credits)
	MIN 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:
	GEOS 410 — Potential Methods in Geonhysics (2 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
	Petroleum Geology Option:
	PETE 205 — Intro. to Petroleum Drilling and Production 3
	PETE 302 — Well Logging

	GEOS 411 — Seismic Exploration
	GEOS 410 — Potential Methods in Geophysics or
	GEOS 412 — Electrical Methods in Geophysics
	Electives (professional & general) to bring total to
4.	For the Geophysics Option, complete the following requirements:
	GEOS 101X — The Dynamic Earth
	GEOS 213 — Mineralogy
	GEOS 418 — Basic Geophysics
	GEOS 419 — Continuum Mechanics
	MATH 421 — Applied Analysis I 4
	MATH 422 — Applied Analysis II
	PHYS 213 — Elements of Modern Physics
	PHYS 311 — Mechanics I
	PHYS 331 — Electricity and Magnetism
	Choose a minimum of 6 credits from the following courses:
	GEOS 112X — Historical Geology
	GEOS 204 — Fetrology and Fetrography
	GEOS 304 — Geomorphology
	GEOS 321 Sedimentology 3
	GEOS 321 — Sedimentology
	Choose a minimum of 6 credits from the following from the follow-
	ing courses:
	GEOS 417 — Geochemistry
	GEOS 420 —Elements of Seismology
	GEOS 430 — Statistics and Data Analysis
	ES 341 — Fluid Mechanics
	Complete either Plan A or Plan B
	Carrier Control Contro
	Plan A — Exploration Geophysics:
	Complete the following requirements:
	GEOS 410 — Potential Methods in Geophysics
	GEOS 411 — Seismic Exploration
	GEOS 412 — Electrical Methods in Geophysics
	GEOS 451 — Field Geophysics
	Complete at least 6 credits from the following or from courses listed
	as options above that were not used:
	GEOS 351 — Field Geology*
	GEOS 422 — Remote Sensing
	GE 365 — Geological Engineering 3 GE 372 — Rock Engineering 3
	DETE 302 Formation Wall Logging 2
	PETE 302 — Formation Well Logging 2 PHYS 312 — Mechanics II 4
	EE 341 — Computer Organization
	EB 341 — Computer Organization
	Plan B — General Geophysics
	Complete at least one course from the following:
	GEOS 410 — Potential Methods in Geophysics
	GEOS 411 — Seismic Exploration
	GEOS 412 — Electrical Methods in Geophysics
	Complete at least 12 credits from the following or from courses listed
	as options above that were not used:
	GEOS 414 — Glaciology
	GEOS 422 — Remote Sensing
	GE 420 — Subsurface Hydrology
	PHYS 312 — Mechanics II
	PHYS 313 — Thermodynamics
	EE 341 — Computer Organization
	ME 441 — Heat and Mass Transfer
	Absorption3
	Absorption
	Electives (professional or general) to oring total to
	*GEOS 351 is offered at UAF when there is sufficient demand. In
	years when GEOS 351 is not offered (decision made early in fall
	semester), students are required to take a 6 credit field geology class
	at another institution. The Department of Geology and Geophysics
	will offer financial assistance to geology majors when GEOS 351 is
	not offered to attend an approved field camp at another institution.
	Amount of the assistance is dependent on the number of students
	involved, but will typically be about \$500. The Geology and Geo-
	physics undergraduate advisor will assist students in placement in a
	field geology class and will inform the department head about
	students requiring financial aid,
	**Strongly recommended for students interested in exploration
	geophysics.

MINOR in Geology:

A minor in geology requires 12-16 credits of approved geosciences courses.

Geology - M.S., M.A.T., or Ph.D. Degrees

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

## Geophysics

### College of Natural Sciences

Department of Geology and Geophysics (907) 474-7565

Degrees: M.S., Ph.D.

Minimum Requirements for Degrees: M.S.: 36 credits (beyond a bachelor's degree), Ph.D.: open

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

## **Guidance and Counseling**

## College of Liberal Arts School of Education

(907) 474-7341

Degree: M.Ed.

Minimum Requirements for Degree: M.Ed.: 42 credits

For complete information on the graduate program in Guidance and Counseling, see the UAF Graduate Catalog.

## History

## College of Liberal Arts Department of History

(907) 474-7126

Degrees: B.A.

Minimum Requirements for Degrees: B.A.: 120 credits

The history department seeks to make the student aware of the human cultural heritage, the great problems that have faced humans throughout history and how we have sought to solve them.

The department also trains the student in applying the historical method which offers analysis based on the dimension of time. Discussion, focused on concrete, specific events, persons and judgments explains why things are as they are. Students will learn effective historical research and writing.

Through the study of history, students may prepare for careers in public service agencies; as members of management teams, particularly in the area of policy analysis; for careers in teaching, or for advanced work in history and other social sciences.

### Requirements

### History - B.A. Degree

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

Complete the following program (major) requirements:
Complete any four of the following: Credits
*HIST 100X — Modern World History
HIST 101 — Western Civilization
HIST 102 — Western Civilization
HIST 121 — ast Asian Civilization
HIST 122 — East Asian Civilization
HIST 131 — History of the U.S
HIST 132 — History of the U.S
HIST 141 — Africa to 1800
HIST 142 — Africa Since 1800
Complete the following: HIST 475 — Historiography
HIST 476 — Historical Method
*If used to fulfill core requirements, HIST 100X may not also count towards a History major.
Complete 15 upper division elective credits in history, including courses from at least two of the following fields: European History,
U.S. History, Northern History, Asian History
European History
HIST 305 — Europe 1789-1850

	HIST 306 — Europe 1850-1900	
	HIST 315 — Europe 1900-1945	3
	HIST 316 — Europe Since 1945	3
	HIST 320 — Modern Scandinavia	
	HIST 321 — English History	3
	HIST 322 — English History	3
	HIST 401 — Renaissance & Reformation	3
	HIST 402 — 17th & 18th Century Europe	3
	HIST 405 — Modern Germany	3
	HIST 464— Modern Russia	3
	U.S. History	
	HIST 430 — American Colonial History	3
	HIST 435 — Civil War & Reconstruction	3
	HIST 440 — Westward Expansion 1763-1867	3
	HIST 441 — American & Canadian West 1867-Present	3
	HIST 450 — 20th Century America	3
	HIST 451 - U.S. Foreign Policy (Independent Learning on	ly) 3
	Northern History	2011
	HIST 320 — Modern Scandinavia	3
	HIST 345 - Maritime History of Alaska (Independent Le	
	only)	
	HIST 354 — Canadian History to 1867	3
	HIST 355 — Canadian History: 1867 to the Present	3
	HIST 375 — History of the Northern Pacific	3
	HIST 460 — Russian America	3
	HIST 461 — History of Alaska	
	HIST 465 — Russian Eastward Expansion	
	HIST 470 — Researching and Writing Alaskan History	3
	HIST 481 — Polar Exploration and its Literature	3
	HIST 482 — Circumpolar Research	
	HIST 483 — 20th Century Circumpolar History	3
	Asian History	
	HIST 330 — Modern China	3
	HIST 331 — Modern Japan	
	HIST 350 — People's Republic of China	3
3.	Minimum credits required	120
	Students who intend to pursue a career in secondary edu	
		1000000

Students who intend to pursue a career in secondary education are strongly encouraged to complete HIST 461 — History of Alaska, plus at least one upper division course in each of the following areas: European History, U.S. History.

Students are strongly urged to consult with the History Department regarding the selection of a minor.

### MINOR in History:

A minor in history requires the completion of 18 credits in history, six of which must be at the 300 level or above.

## **Human Services**

# College of Liberal Arts Department of Behavioral Sciences and Human Services

(907) 474-7240

Degree: B.A.

At the present time, no students are being accepted into the Human Services program.

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

campuse

#### Requirements

#### Human Services — B.A. Degree

- Complete the general university requirements and B.A. degree requirements.
- Complete the following integrated major-minor requirements: Behavioral sciences core (24 credits)

Credits
HMSV 201 — Introduction to Human Services 3
PSY/SOC 250 — Introductory Statistics for Behavioral Sciences 3
SOC 301 — Rural Sociology
SOC 301 — Rural Sociology
PSY 310 — Cross-Cultural Psychology
PSY 345 — Abnormal Psychology
or SOC 335 — Sociology of Deviant Behavior 3
SOC 408 — American Minority Groups
PSY 101 — Introduction to Psychology
Departmental core (15 credits)
(These courses also may be applied to fill general distribution
requirements.)
SOC 101 — Introduction to Sociology
PSY 240 — Developmental Psychology in Cross-Cultural
Perspective
PSY 304 — Personality
PSY 380 — Human Behavior in the Arctic
ANTH 242 — Native Cultures of Alaska
Human Services (18)
Select 18 credits from the following:
HMSV 210 — Crisis Intervention
HMSV 255 — Foundations of Counseling I
HMSV 356 — Foundations of Counseling II
HMSV 230 — Alcoholism: Theories of Etiology
HMSV 330 — Alcoholism: Treatment and Prevention
HMSV 360 — The Helping Role in Child Abuse and Neglect 3
HMSV 410 — Management of Human Services Programs 3
HMSV 415 — Group Counseling
HMSV 488 — Practicum in Human Services
*HMSV/PSY 445 — Community Psychology
*PSY/SOC 370 — Drugs and Drug Dependence
*SOC 310 — Sociology of Later Life
*SOC 242 — The Family: A Cross-Cultural Perspective
RD 325 — Community Organization and Development
Strategies 3
Minimum Credits Required for Degree

<sup>\*</sup> These courses, when not applied towards the major, may be applied to fill distribution requirements.

#### **MINOR in Human Services:**

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

## **Human Service Technology**

#### College of Rural Alaska

Tanana Valley Campus; Interior-Aleutian Campus; Northwest Campus (907) 474-6658

Not thivest Camp

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

The Human Service Technology pogram provides training and knowledge in basic helping skills needed for entry level employment in public, private and volunteer human service agencies. The Human Service Technician may provide case management, needs assessment, advocacy, crisis intervention and stbilization, and supportive task-centered short term counseling under the supervision of a specialist worker and usually within a multidisciplinary team. Human Service Technicians are employed in a wide variety of human service settings such as: mental health, Native corporations, developmental disabilities, public assistance, corrections and substance abuse treatment. Persons seeking a career in human service should recognize that in order to be successful they must be emotionally stable, creative and flexible. Human Service Technicians will have to be able to work with diverse groups of people and individuals with a wide variety of ages, social and cultural backgrounds and life situations. Upon completion of the Human Service Technology major, students are eligible to be certified Counselor Technician in the State of Alaska.

### Requirements

Human	Sarvica	Technology -		AC	Dogree
Human	Service	Lechnology -	- A.	4.5.	Degree

1.	Complete the following general university and A.A.S. requirements:  Credits
	Communications:
	ENGL 111X and ENGL 211X, 212*, or 213X
	COMM 131X or 141X
	Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	PSY 101 — Introduction to Psychology 3
2.	Complete the following major degree requirements:
	HST 120 — Cultural Diversity and Human Service
	HST 125 — Introduction to Addictive Processes
	HST 205 — Basic Principles of Group Counseling 3
	HST 210 — Crisis and Grief Counseling
	HST 215 — Individual Interviewing and Assessment
	HST 230 — Human Service Practicum I (8 hour/week)
	HST 231 — Human Service Practicum II (8 hour/week)
	HST 240 — Human Service Seminar I
	HST 241 — Human Service Seminar II 1
	HST 301 — Ethics in Human Service
	HST 305 — Substance Abuse Counseling
	PSY 240 — Developmental Psych. in Cross-Cult. Perspec
	SOC 242 — The Family: A Cross-Cultural Perspective 3
	SWK 103 — Social Work in the Human Services 3
	Subtotal
3.	Complete 9 credits from the following:
	HST 250 — Current Issues in Human Service
	and/or General Electives
	Degree Total 60
	CONTRACTOR AND A CONTRA

<sup>\*</sup>ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

#### MINOR in Human Service Technology:

A minor in Human Service Technology is available to students pursuing a Bachelor of Science or a Bachelor of Arts degree. This minor will give students the opportunity to gain knowledge and skills applicable to careers in the helping professions. Upon completion of the Human Service Technology minor students are eligible to be certified as a Counselor Technician in the State of Alaska.

Ciculia
HST 125 — Introduction to Addictive Processes
HST 210 — Crisis and Grief Counseling
HST 215 — Individual Interviewing and Assessment
HST 250 — Current Issues in Human Services
HST 301 — Ethics in Human Service
HST 305 — Substance Abuse Counseling
Minor total

### Substance Abuse Counselor Certification:

The Alcohol and Drug Abuse Certification Review Board has approved the following courses for 45 training hours each toward certification or recertification of Substance Abuse Counselors in the State of Alaska:

HST 125 — Introduction to Addictive Processes

HST 205 - Basic Principles of Group Counseling

HST 210 - Crisis and Grief Counseling

HST 215 — Individual Interviewing and Assessment

HST 301 — Ethics in Human Service

HST 305 - Substance Abuse Counseling

Currently certified Substance Abuse Counselors are eligible for transfer credit toward th Human Service Technology degree. Please contact the Human Service Technology Program Coordinator at 474-6658 for more information.

## **Interdisciplinary Studies**

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

Minimum Requirements for Degrees: A.A.S.: 60 credits; B.A., B.S. or B.T.: 130 credits; M.A. and M.S.: 30 or more credits; Ph.D.: open

#### Associate or Baccalaureate Degree -

Interdisciplinary Studies is a program available to UAF students within the associate of applied science, bachelor of arts, bachelor of science, and bachelor of technology degree options. The interdisciplinary program option provides flexibility to students with well-defined goals who do not fit into one of the

established majors offered by the university.

Students may submit their proposal for an interdisciplinary program upon completion of 15 credits at UAF and preferably 30 credits (for the associate's degree), or 60 credits (for the bachelor's degree), prior to graduation. The proposed curriculum must differ significantly from established degree programs at UAF and will require evidence that the necessary facilities and faculty are available to ensure an approximation of a normal undergraduate degree. All general requirements for the A.A.S., B.A., B.S., or B.T. degree must be met.

In developing an interdisciplinary proposal, the student should specify the degree (A.A.S., B.A., B.S., or B.T.), include an explanation of how the proposed program differs substantially from established UAF programs, and a discussion that current UAF resources are adequate to meet the requirement of the proposed program. The student then obtains an advisory committee of at least three faculty members from the appropriate disciplines. The committee will appoint a chair, review the proposed program, select a degree title in concert with the student and make its recommendation. Applicants then submit to the Provost (Vice Chancellor for Academic Affairs and Research) their proposal for the program they wish to pursue, specifying the degree, proposed curriculum and rationale.

Students interested in pursing an interdisciplinary A.A.S., B.A., B.S., or B.T. degree, or who want to explore this as a degree option, can contact the Academic Advising Center to receive assistance in finding faculty advisors and developing their curriculum proposal.

#### Graduate -

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

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

## Japanese Studies

### Interdisciplinary

Degree: B.A.

Minimum Requirements for Degree: 130 credits

An in-depth study of Japanese language and culture, aimed at the application of linguistic skills and cultural insights to specific career opportunities. Japanese is classified among the most difficult of foreign languages for American students. The highlight of the major is, therefore, one semester of intensive study in Japan during the junior or senior year. This interdisciplinary program will culminate in a senior seminar on contemporary Japan. Students will begin their research project for the seminar while studying at our exchange university, Nagoya Gakuin, or at another pre-approved program. Students are encouraged to use this major in conjunction with a discipline-based major.

### Requirements

### Japanese Studies - B.A. Degree

Complete the general university requirements and B.A. degree requirements.

2. Complete the following program (major) requirements:

Credits
Japanese Studies core courses (33 credits)
GEOG 311 - Geography of Asia
HIST 121 - East Asian Civilization
or HIST 122 - East Asian Civilization
HIST 331 - Modern Japan
JPN 332 - Japanese Cultural Traditions
JPN 301* - Advanced Japanese 3 A
JPN 302* - Advanced Japanese
JPN 497 - Advanced language study in Japan
JPN 475 - Seminar on Contemporary Japan
*These courses are offered in the Japanese language. Students may study in Japan during their junior year, as long as they complete a minimum of 18 credits of Japanese language at the upper division level to fulfill the Japanese Studies core requirements. 15 credits of
language may be taken in Japan, and at least three upper division language credits must be taken in residence at UAF.
Concentration courses (12 credits)**
International Business Concentration (with Business minor)
Select twelve credits from the following:
BA 461 - International Finance
BA 460 - International Business
BA 462 - Corporate Strategy
ECON 463 - International Economics
GEOG 405 - Political Geography
PS 312 - East Asian Governments and Politics

or PS 322 - International Law and Organizations	International Politics
Language and Literature Concentration (Recommended for teaching, graduate work in Japanese)	2 - International Law and Organizations 3
	nended for teaching, graduate work in Japanese)
LING 101 - Nature of Language	1 - Nature of Language
JPN 431 - Studies in Japanese Culture	- Studies in Japanese Culture
or JPN 432 - Studies of Literature in Japanese	32 - Studies of Literature in Japanese3
Take six credits from the following:	credits from the following:
ENGL 310 - Literary Criticism	0 - Literary Criticism3
JPN 331 - Women's Voices in Japanese Literature	- Women's Voices in Japanese Literature 3
LING 303 - Language Acquisition	
LING 410 - Theory and Methods of Second Language Teaching 3	0 - Theory and Methods of Second Language Teaching 3
JPN 497 - Individual Study and Practicum: Teaching Japanese as a	
Second Language	
Minimum credits required	a credits required130

\*\*Other career options my be designed with consent of the Program Committee.

Students planning a double major for a single B.A. may double count a maximum of nine credits from the major requirements towards a second major. Students earning two degrees (BA/BBA) are not subject to double counting restrictions.

## Journalism and Broadcasting

# College of Liberal Arts Department of Journalism and Broadcasting

(907) 474-7761

Degree: B.A.

Minimum Requirements for Degree: 124 credits

The curriculum in Journalism and Broadcasting offers a balance of professional and theory courses for majors and non-majors. Majors are able to take a variety of skills and theory courses while acquiring a strong liberal arts background. Non-majors, including those minoring in Journalism and Broadcasting, may choose from a wide selection of courses to meet their needs.

Besides gaining a solid academic background in the classroom, students get practical experience by working with media on and off campus. On campus, these include public television and public radio stations and a student-owned FM-stereo station. Print journalists work on the campus newspaper. Off campus, students may choose from a variety of radio and television stations. Print journalists work at the Fairbanks Daily News-Miner.

Students in the department also have access to the department's state-ofthe-art laboratory facilities. These include a computerized newswriting lab, typography lab, audio production lab, video editing lab and two photography labs.

The department is fully accredited by the Accrediting Council on Education in Journalism and Mass Communications.

#### Requirements

#### Journalism - B.A. Degree

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

	Credits	
A.	Complete the following courses in journalism (16 credits):	
	JB 101 — Introduction to Mass Communications	
	or JB 102 — Introduction to Broadcasting	
	JB 301 — News Reporting and Writing	
	JB 320 — Journalism in Perspective	
	JB 400 — Media Practicum	
	JB 413 — Mass Media Law and Regulations	
B.	Complete one of the following sequences:	
	News-Editorial (18 credits)	
	JB 323 — Publication Editing	
	JB 389 — Internet and Electronic Resources	
	JB 444 — Advanced Newsreporting	
	Choose three courses from the following: (9 credits)	
	JB 203 — Basic Photography	
	JB 240 — International Communications	
	JB 311 — Magazine Article Writing	
	JB 324 — Typography and Publication Design	
	JB/BA 326 — Principles of Advertising	
	JB 340 — Mass Media and Society 3	

	JB/WMS 380 - Women, Minorities and the Mass Media 3
	JB 424 — Magazine Productin
	JB 433 — Public Relations
	*Broadcast (18 Credits)
	JB 215 — Audio Production
	JB 316 — Television Production
	JB 317 — Broadcast Journalism
	Choose three courses from the following: (9 credits)
	JB 240 — International Communications
	JB/BA 326 — Principles of Advertising
	JB 340 — Mass Media and Society
	JB/WMS 380 — Women, Minorities and the Mass Media 3
	JB 389 — Internet and Electronic Resources
	JB 407 — Broadcast Programming
	ID 409 Producest Programming
	JB 408 — Broadcast Station Management
	JB 415 — Electronic Newsgathering
	JB 416 — Advanced TV News Production
	JB 433 — Public Relations
	Photography (18 credits)
	JB 203 — Basic Photography
	JB 402 — Advanced Photography
	JB 404 — Photojournalism
	Choose three courses from the following: (9 credits)
	JB 240 — International Communications
	JB/BA 326 — Principles of Advertising
	JB/WMS 380 — Women, Minorities and the Mass Media 3
	JB 389 — Internet and Electronic Resources
	JB 403 — Color Photography
	JB 433 — Public Relations
	JB 497 — Independent Study
	The following courses are also available for elective credit:
	JB 105 — History of the Cinema
	JB/ENGL 217 — Introduction to the Study of Film 3
	JB 308 — Film and TV Criticism
	JB 492 — Seminar
	JB 493 — Special Topics
	Although not required, it is strongly recommended that every journal-
	ism student study another language, both to help gain a better
	perspective of and to better comprehend the changing world.
).	To assure the journalist of a broad liberal arts education, 90 credits
	must be outside of Journalism-Broadcasting, 65 of which should be
	from traditional liberal arts courses, i.e., those courses which fall
	under the humanities, social sciences, math and natural sciences
	classifications within the general university requirements which meet

\*Note: The broadcast option is primarily a news and production curriculum and is not intended as a dramatic or performing arts option.

#### MINOR in Journalism and Broadcasting:

general distribution requirements,

Minimum credits required

Complete at least 16 credits of approved journalism and/or broadcasting courses, including the following:

Cı	redits
JB 101 — Introduction to Mass Communications	
or JB 102 — Introduction to Broadcasting	3
JB 301 — Basic Newsgathering and Processing	4

## Justice

3.

## College of Liberal Arts Department of Political Science

(907) 474-7609

124

Degree: B.A.

### Minimum Requirements for Degree: B.A.: 120 credits

It has been said that the quality of a nation's civilization can be largely measured by the methods it uses to enforce its criminal law.

We in the United States deal with our criminals through a complex maze of organizations commonly referred to as the criminal justice system. This system is composed of police, courts, corrections and a multitude of supportive professions which are more or less actively engaged in dealing with criminals within the guidelines of our federal and state constitutions.

Only through an active educational effort by criminal justice personnel and students planning to enter the profession can we hope to attain the high degree of professionalism so necessary to create and maintain a criminal justice system which will mirror our otherwise advanced civilization.

### Requirements

#### Justice - B.A. Degree

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

Complete the following program (major) requirements:

Justice Core Course Requirements (21 credits)
JUST 110 — Introduction to Justice
JUST 222 — Research Methods
JUST 251 — Criminology
JUST 258 — Juvenile Delinquency
JUST 330 — ustice and Society
JUST 340 — Rural Justice
JUST 460 — Political Philosophy of Crime Control
Justice Electives: 15 credits in justice courses which may include any
two of the following Human Service Technology courses:
HST 125 — Introduction to Addictive Processes
HST 210 — Crisis and Grief Counseling
HST 215 — Individual Interviewing and Assessment
HST 301 — Ethics in Human Service
Minimum credits required 120

### MINOR in Justice:

Complete 15 credits in justice, including JUST 110.

#### Justice - A.A.S.

This degree program is presently suspended.

## Law

3.

### **Pre-Professional Advising**

(907) 474-6396

Credite

Law education prepares students to become attorneys. Attorneys are concerned with the interpretation of law and its application to specific situations. This involves doing in-depth research, writing reports and briefs, advising clients and representing parties in reports and briefs, advising clients and representing parties in courts. Often law school graduates go onto hold government office, or to serve as judges, public servants, teachers or administrators.

Law school consists of three years of graduate level study. Instruction includes classroom lecture and discussion, considerable outside research, and practice of courtroom procedures. Upon graduation, students must pass a state bar exam in order to practice.

Completion of a bachelor's degree is required for admission into most law schools. While law schools do not prescribe a specific major for admission, students should have a strong academic record and high scores on the Law School Admission Test (LSAT).

A liberal education is the best preparation for law school. Students planning a legal career should select courses which are designed to enhanced communication skills, both oral and written, to expand understanding of human values and institutions, and to develop analytical reasoning and logical thinking. Areas of study which are valuable for pre-law majors are English, philosophy, history, literature and the social sciences. Additionally, courses in accounting and economics are recommended. Recent trends indicate that students with an undergraduate degree in the natural sciences are gaining in favor for law school admission.

Students interested in a legal career are assigned a special pre-law advisor, through the Academic Advising Center, to discuss program planning, professional schools and financial planning.

## Law and Society

## College of Liberal Arts Department of Political Science

(907) 474-7609

Minor Only

The Law and Society minor aims to understand law in relationship to the larger society of which it is part. It is based firmly on the view that the law is a rich humanistic tradition and study of legal ideas and institution will promote sustained reflection on such fundamental concepts and values as equality,

Credits

freedom, privacy, justice and rights. While the program is of special interest to students who plan graduate studies in law or careers in government service, many students will simply share a desire to understand the role of law in society. The program provides students with tools for reasoned appraisal of how the law works, the ideas and policies that underlie it, and the ability to think clearly and analyze arguments critically.

### Requirements

### MINOR in Law and Society

Complete the following courses (9 credits): PS 435 — Constitutional Law: Institutions and Governmental or PS 436 - Constitutional Law: Civil Rights and Civil Elective Courses: (9 credits) Complete at least 9 credits from the following (or other approved law related course): ANS 425 - Federal Indian Law and Alaska Natives ....... 3 BA 327 — Collective Bargaining and Labor Relations ...... 3 JB 413 — Mass Media Law and Regulation ...... 3 

 JUST 352 — Criminal Law
 3

 JUST 354 — Procedural Law
 3

PS 651 — Law, Justice and Society in the Circumpolar North .... 3

## **Library Science**

### Pre-Professional Advising

(907) 474-6692

The field of library and information science engages students in professional positions concerned with the management of information in liraries and other environments. One graduate program states that the "contemporary librarian has become an essential part of the complex communication/information network that now encircles the globe. Today's information professional must understand how information is created and disseminated in society; must be familiar with print, non-print and electronic media; and must be adept in the use of computers, automated techniques, and information networks."

For a professional career in library science, a one-to-two year program of graduate study is generally required. Course work in the graduate program may include a broad spectrum of areas. These are: planning and evaluation related to acquiring, organizing and accessing information in library settings; management tools and design as well as provision of information services. Special emphasis on topics such as law or medicine may also be available with some programs.

The caliber of one's undergraduate work, as well as test results on the Graduate Record Exam (GRE), are of very important when applying for admission to a program of professional library studies. Library Schools prepare professionals from a variety of academic backgrounds.

At UAF, pre-library science students pursue an extensive general background in their education. Students are advised to also include courses in computer applications and programming, statistics and foreign languages so as to satisfy the demands of the library science field and the admission requirements of the prospective graduate programs. As the number of special libraries increases, concentration in the social and physical sciences is equally important.

Advisement for students interested in a career in library science is available through the Academic Advising Center.

## Linguistics

## College of Liberal Arts Linguistics Program

(907) 474-7874

Degree: B.A.

Minimum Requirements for Degree: B.A.: 120 credits

Linguistics is the scientific study of language and covers a variety of subjects from theories of grammar and how we produce language to applications of linguistic knowledge in areas such as language teaching. The Linguistics Program offers undergraduate courses and seeks to give an overview of the

discipline to make students aware of the many aspects of that uniquely human phenomenon, language

### Requirements

### Linguistics - B.A. Degree

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

A Background-related Requirements (15-18 credits)
Four semesters (or equivalent) of one foreign or Native language and
two semesters of a second.

B. Major requirements (30 credits)

Complete the following Linguistics courses:

LING 318 — Intro. to Phonetics and Phonology ... 3

LING 320 — Intro. to Syntactic Theory ... 3

LING 430 — Historical Linguistics ... 3

**MINOR** in Linguistics:

Minimum credits required

A minor in linguistics requires 15 credits in linguistics. Three of these credits may be from related courses in other departments as listed under B. above.

## Marine Biology

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

(907) 474-7531

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

Minimum Requirements for Degree: M.S.: 30 credits (beyond a bachelor's degree); Ph.D.: open

The graduate curriculum in marine biology, offered by the Department of Marine Sciences and Limnology, focuses on marine organisms, while biological oceanography focuses on how biological processes influence and are influenced by the ocean environment.

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 the Kasitsna Bay Laboratory. Opportunities for field work are available on the RVV Alpha Helix, which operates along the Alaskan Coast and in the Bering Sea, and on the RVV Little Dipper, which operates in Resurrection Bay.

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. Several programs are offered by the Department of Mathematical Sciences for students majoring in mathematics, computer science, or statistics. (See the separate listing elsewhere in this catalog for information concerning the Department of Mathematical Sciences programs in Computer Science and Statistics.) Options exist for those who are planning careers in industry, government, or education. The Department of Mathematical Sciences also offers degree programs in statistics and computer science which are described elsewhere in this catalog.

In addition to the major programs, the department provides a number of service courses in support of other programs within the university. Current and detailed information on mathematics degrees and course offerings is available from the department.

The Department of Mathematical Sciences maintains a math lab which is available for assistance to all students studying mathematics at the baccalaureate level.

### Requirements

All students planning to major in one of the mathematical sciences must be ready to matriculate into MATH 200, Calculus I, before they will be allowed to declare mathematics as their major.

In addition to meeting all the general requirements for the specific degree, certain mathematics courses are required of all mathematics majors. (At least 12 approved mathematics credits at the 300 level or above must betaken while in residence on the Fairbanks campus.) All electives must be approved by the department. (All mathematics majors — including double majors — must have an adviser from the Department of Mathematical Sciences.) Students preparing to teach mathematics in secondary schools should contact the Department of Education for a list of mathematics and education courses necessary to obtain an Alaskan teaching certificate.

### Mathematics - B.A. or B.S. Degree

- Complete the general university requirements and requirements for a B.A. or B.S. degree. A portion of the science requirement for the B.S. should be met with a one year physics sequence, PHYS 103X-104X or PHYS 211X-212X.
- Complete the following program (major) requirements: Complete the following courses:

Cre	
MATH 200X, 201X, 202X — Calculus sequence	. 12
MATH 215 — Intro. to Mathematical Proofs	
MATH 314 — Linear Algebra	3
MATH 308 — AbstractAlgebra	3
MATH 401 — Advanced Calculus	3
MATH 490 — Senior Seminar	
TOTAL	. 24

Complete an elective package in the Mathematical Sciences consisting of at least 21 credits. This package must be approved by a Mathematical Sciences advisor and must include at least 12 credits at the 300-level or above. Students who are obtaining a single B.S. or B.A. with mathematics as a second major may substitute up to 9 credits of approved courses with strong mathematical content for Mathematical Sciences electives.

3. Minimum credits required 120
The following sample elective packages are suggested for

	students with interests in the indicated areas of emphasis.	
A.	Pure Math	
	MATH 305 — Geometry	3
	MATH 307 — Discrete Mathematical Structures	3
	MATH 402 — Advanced Calculus	
	MATH 404 — Topology	
	Approved electives	9
	TOTAL	. 21
B.	Applied Math	
	MATH 302 — Differential Equations	3
	MATH 421 — Applied Analysis I	4
	MATH 422 — Applied Analysis II	

	MATH 460 — Mathematical Modeling	3
	Two courses chosen from MATH 307, 402, 310 and STAT 3	
	Approved electives	3
	TOTAL	23
C.	Secondary Education	MIST THE
	STAT 300 — Statistics	3
	MATH 305 — Geometry	
	CS 201 — Computer Programming I	
	MATH 306 — History and Philosophy of Mathematics	3
	Approved electives	9
	TOTAL	21
D.	Statistics Emphasis	
72	MATH 371 — Probability	3
	MATH 408 — Mathematical Statistics	3
	MATH 460 — Mathematical Modeling	
	STAT 300 — Statistics	
	STAT 401 — Regression and Analysis of Variance	
	Approved electives	
	101AL	21

### **MINOR** in Mathematics:

A minor in Mathematics requires completion of Math 200-201-202, in addition to nine departmentally approved credits. These courses can be used to simultaneously satisfy other major or general distribution requirements.

### 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. The design project course draws on much of the student's previous learning through a simulated industrial design project. Throughout the four-year program, courses in communication, humanities and social sciences are required because mechanical engineers must be able to communicate effectively in written, oral, and graphical form.

Students in mechanical engineering may elect to complete an emphasis in petroleum or aerospace engineering each consisting of 12 credit hours. Six of these credit hours can be used to fulfill the elective credit requirement in the mechanical engineering curriculum.

Because of the unique location of the University of Alaska Fairbanks, special emphasis is placed on cold regions engineering poblems. 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.

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.

Tilst I cal	
Fall Semester	6 credits
ENGL 111X — Methods of Written Comm	3
MATH 200X — Calculus	4

ES 101 — Introduction to Engineering	2
CHEM 105X — General Chemistry	4
Perspectives on the Human Condition	3
Spring Semester	17 credits
COMM 131X or 141X	
MATH 201X — Calculus	
ES 201 — Computer Techniques	3
CHEM 106X — General Chemistry	4
Perspectives on the Human Condition	3
Second Year	
Fall Semester	17 credits
PHYS 211X — General Physics	4
MATH 202X — Calculus	4
ES 209 — Statics	
ME 321 — Industrial Processes	3
ENGL 211X — Intermediate Exposition, With Modes of	of Literature
or ENGL 213X — Intermediate Exposition	3
Spring Semester	16 credits
PHYS 212X — General Physics	4
PHYS 212X — General Physics	3
FS 210 — Dynamics	3
ES 210 — Dynamics ES 346 — Thermodynamics	3
Perspectives on the Human Condition	3
reispectives on the Human condition	
Third Year	
Fall Semester	16 credits
ES 301 — Engineering Analysis	2
FS 307 — Flements of Electrical Engr	3
ES 307 — Elements of Electrical Engr.	3
ES 307 — Elements of Electrical Engr	
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics EPerspectives on the Human Condition	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics EPerspectives on the Human Condition	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics EPerspectives on the Human Condition	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics EPerspectives on the Human Condition	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics EPerspectives on the Human Condition	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics Perspectives on the Human Condition Spring Semester ME 302 — Mechanical Design 1 ME 313 — Mech. Engr. Thermodyn. ME 441 — Heat and Mass Transfer	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics Perspectives on the Human Condition Spring Semester ME 302 — Mechanical Design I ME 313 — Mech. Engr. Thermodyn. ME 441 — Heat and Mass Transfer ES 308 — Instrumentation and Measurement	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics Perspectives on the Human Condition Spring Semester ME 302 — Mechanical Design 1 ME 313 — Mech. Engr. Thermodyn. ME 441 — Heat and Mass Transfer	3 
ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics Perspectives on the Human Condition Spring Semester ME 302 — Mechanical Design I ME 313 — Mech. Engr. Thermodyn. ME 441 — Heat and Mass Transfer ES 308 — Instrumentation and Measurement Perspectives on the Human Condition	3 3 4 3
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ES 307 — Elements of Electrical Engr.  ES 331 — Mechanics of Materials  ES 341 — Fluid Mechanics  Perspectives on the Human Condition  Spring Semester  ME 302 — Mechanical Design I  ME 313 — Mech. Engr. Thermodyn.  ME 441 — Heat and Mass Transfer  ES 308 — Instrumentation and Measurement  Perspectives on the Human Condition  Fourth Year  Fall Semester  ME 408 — Dynamics of Systems  ME 415 — Thermal Systems Lab  ME Elective**  ME 334 — Elements Material Science Engr  Technical Elective*  Perspectives on the Human Condition  Spring Semester	3 3 4 4 3
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ES 307 — Elements of Electrical Engr. ES 331 — Mechanics of Materials ES 341 — Fluid Mechanics Perspectives on the Human Condition Spring Semester ME 302 — Mechanical Design I ME 313 — Mech. Engr. Thermodyn. ME 441 — Heat and Mass Transfer ES 308 — Instrumentation and Measurement Perspectives on the Human Condition  Fourth Year Fall Semester ME 408 — Dynamics of Systems ME 415 — Thermal Systems Lab ME Elective** ME 334 — Elements Material Science Engr. Technical Elective* Perspectives on the Human Condition Spring Semester ME 403 — Mechanical Design II ME 487 — Design Project ME Elective**	3 3 4 4 3 3 16 credits 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
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\* Engineering Course at 400 level or above

\*\* Mechanical Engineering Course at 400 level or above

Selection of the elective courses must be made in consultation with ME advisor.

#### Mechanical Engineering - M.S. Degree

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

## Medical Technology

## University of Alaska Fairbanks/ University of Washington Cooperative Program

(907) 474-6396

For students interested in pursuing a Bachelor of Science degree in Medical Technology, UAF offers a program in cooperation with University of Washington. Students enrolled in this program complete the first four semesters of their program at UAF, then apply for acceptance into the professional phase of the medical technology program at the University of Washington for an additional seven semesters. Up to four bona fide Alaska resident students will be accepted into the professional phase each year, if they qualify for admittance to the

program. A Bachelor of Science degree is granted from University of Washington at the completion of the program.

While at UAF, students are required to complete 60 semester credits with a GPA of 3.0, to include the following courses: biology (BIOL 105, 106), chemistry (CHEM 105, 106), and math (MATH 271, 272).

For further information on the baccalaureate medical technology program, please contact the Academic Advising Center at the University of Alaska Fairbanks at (907) 474-6396.

## Medicine

## Pre-Professional Advising

(907) 474-7608 or 474-6396

Physicians serve a broad range of functions within the field of medicine; diagnosing disease, prescribing treatment, supervising patient care and participating in the improved delivery of health. As an alternative to direct patient care, physicians often branch off into other arenas of medicine, such as basic and applied research, teaching or administration.

Professional medical education consists of four years of graduate level study. Typically, the first two years of medical school are comprised of classroom instruction and laboratory work; the second two years consist of clinical rotations. Following graduation from medical school, students may elect to continue their training by doing a one year internship and/or a one-to-three year residency. The residency option is required in order to specialize in medicine.

Upon application to medical school, a student's overall academic achievement will be evaluated together with results of the Medical College Admission Test (MCAT). While medical schools do not require that students pursue a specific major at the undergraduate level, applicants are generally expected to have a foundation in biology, chemistry, and physics. AT UAF the courses which satisfy this are: chemistry (CHEM 103X and 104X or 105X and 106X), organic chemistry (CHEM 321 and 322), anatomy and physiology (BIOL 211X and 212X), biology (BIOL 105X and 106X), and physics (PHYS 103X and 104X). In addition, medical schools recommend students have a background in the social sciences and humanities. While medical schools will consider applicants who have completed three years of undergraduate work, most entering medical students have completed a bachelor's degree.

Students who are considering medicine as a career choice should contact the Dean of the College of Natural Sciences or the Academic Advising Center to be assigned an academic advisor. Program advisement, exploration of professional schools and licensing requirements, and financial planning are available to meet the needs of students in fulfilling their career aspirations.

## Military Science

## College of Liberal Arts Department of Military Science

(907) 474-7501

Minor only

The Army Reserve Officers' Training Program is a cooperative effort agreed to by the Army and UAF as a means of providing junior officer leadership in the interest of national security. The goal of the program is to ssist 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 \$150-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 \$150 monthly stipend. Scholarships are awarded for two or three years on a competitive basis. Interested students should contact the military science department for further details.

## Mineral Preparation Engineering

## School of Mineral Engineering Department of Mining and Geological Engineering

(907) 474-7388

Degree: M.S.

Minimum Requirements for Degree: 30-36 credits beyond bachelor's degree. For complete information on the graduate program in mineral preparation Engineering, see the UAF Graduate Catalog.

## Mining Engineering

## School of Mineral Engineering Department of Mining and Geological Engineering

(907) 474-7388

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

Minimum Requirements for Degrees: B.S.: 136 credits; M.S.: 30-36

additional credits; E.M.: thesis and 5 years of experience

In the mining engineering curriculum, particular emphasis is placed upon engineering as it applies to the exploration and deelopment 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

Complete the general university requirements.

Complete the following degree and program (major) requirements:

First Year
Fall Semester
ENGL 111X — Methods of Written Communications
MATH 200X — Calculus
CHEM 105X — General Chemistry
MIN 103 — Introduction to Mining Engineering
MIN 104 — Mining Safety and Operations Lab 1
Perspectives on the Human Condition
Spring Semester
CHEM 106X — General Chemistry
COMM 131X or 141X
MATH 201X — Calculus 4
ES 101 — Introduction to Engineering 2 GE 261 — General Geology for Engineers 3
GE 261 — General Geology for Engineers
LS 101 — Library Information and Research 1
Second Year
Fall Semester
MATH 202X — Calculus
GEOS 262 — Rocks and Minerals* 3
PHYS 211 — General Physics 4
MIN 202 — Mine Surveying
MIN 313 — Introduction to Mineral Preparation 3
Spring Semester
PHYS 212 — General Physics 4
ES 209 — Statics
ES 201 — Computer Techniques
ENGL 211X or 213X — Intermediate Exposition
ELITOR BILLE OF BIDIE INTERNATION CONTROL OF THE PROPERTY OF T
MATH 302 — Differential Equations
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         Fall Semester       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         Fall Semester       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         Fall Semester       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management 3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management 3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management 3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         Fall Semester       18 Credits         MIN 407 — Mine Reclamation and Environmental Management 3         MIN 443 — Rock Fragmentation       3         MIN 445 — Design of Surface Mines for Conv. & Arctic Cond.       3         MIN 446 — Underground Mining Meth. & Their Design       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management       3         MIN 443 — Rock Fragmentation       3         MIN 445 — Design of Surface Mines for Conv. & Arctic Cond.       3         MIN 446 — Underground Mining Meth. & Their Design       3         Perspectives on the Human Condition       6
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management       3         MIN 443 — Rock Fragmentation       3         MIN 445 — Design of Surface Mines for Conv. & Arctic Cond.       3         MIN 446 — Underground Mining Meth. & Their Design       3         Perspectives on the Human Condition       6
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management 3       MIN 443 — Rock Fragmentation       3         MIN 445 — Design of Surface Mines for Conv. & Arctic Cond. 3       MIN 446 — Underground Mining Meth. & Their Design       3         Perspectives on the Human Condition       6       Spring Semester       18 Credits         MIN 408 — Mineral Valuation and Economics       3
MATH 302 — Differential Equations       3         Third Year       16 Credits         ES 331 — Mechanics of Materials       3         ES 341 — Fluid Mechanics       4         ES 210 — Dynamics       3         ES 307 — Elements of Electrical Engineering       3         Perspectives on the Human Condition**       3         Spring Semester       18 Credits         ES 346 — Basic Thermodynamics       3         MIN 370 — Rock Mechanics       3         MIN 301 — Mine Plant Design       3         MIN 302 — Underground Mine Environmental Engineering       3         GEOS 332 — Ore Deposits and Structure       3         Perspectives on the Human Condition       3         Fourth Year       18 Credits         MIN 407 — Mine Reclamation and Environmental Management       3         MIN 443 — Rock Fragmentation       3         MIN 445 — Design of Surface Mines for Conv. & Arctic Cond.       3         MIN 446 — Underground Mining Meth. & Their Design       3         Perspectives on the Human Condition       6

Technical Electives1

Students must plan their elective courses in consultation with their mining engineering faculty advisor. Technical electives are selected from the list of the approved technical electives for mining engineering program and other programs course listing. All elective courses must be approved by the department head.

\* On alternate years, Perspectives on the Human Condition requirement should be taken.

\*\* On alternate years, GEOS 262 should be substituted.

Perspectives on the Human Condition .....

Recommended Technical Electives for B.S. in Mining Engineering

- MIN 472 Ground Control
- MIN 447 Placer Mining
- MIN 448 Open Pit Mining
- GE 440 Slope Stability

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 f Music

(907) 474-7555

Credits

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

Minimum Requirements for Degrees: B.A.: 130 credits; B.Mus: 120 -144 credits, M.A.: 30 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.

Attendace 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.

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

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

Citui	847
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	
MUS 233-234 — Advanced Ear Training	2
MUS 331 — Form and Analysis	
**MUS 190 — Recital Attendance	
Six credits to be selected from:	
MUS 421 — Music before 1620	3
MUS 422 - Music in the 17th and 18th Century	3
MUS 423 — Music in the 19th Century	
MUS 424 — Music in the 20th Century	
*MUS 161-462 — Applied Music (major area)	

Ensembles (may include up to 2 credits of	
MUS 307 — Chamber Music)	5
MUS 253 — Piano Proficiency	)
Minimum credits required	)

\*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 (Performance)

- Complete the general university requirements.
- Complete 3 credits of mathematics at the 100-level or above (in addition to the core).
- Complete the following degree and program (major) requirements:

  Credite

Credits
Required Music Courses:
*MUS 161-462 — Applied Music (major)
MUS 131-132 — Basic Theory
MUS 133-134 — Basic Ear Training 4
MUS 221-222 — History of Music
MUS 231-232 — Advanced Theory 4
MUS 233-234 — Advanced Ear Training
MUS 351 — Conducting
Ensembles (one large ensemble per semester)
Ensembles (one large ensemble per semester) 8
Secondary Area:
Twenty-seven credits to be selected from the following:
MUS 124 — Music in World Cultures
MUS 153 — Functional Piano
<sup>2</sup> MUS 161-162, 261-262, 361-362, 461-462 — Applied Music
(Secondary Performance Area)
MUS 223 — Alaskan Native Musics
<sup>1</sup> MUS 307 — Chamber Music
<sup>1</sup> MUS 313 — Opera Workshop1-3
MUS 317 — Arctic Chamber Orchestra
<sup>5</sup> MUS 331 — Form and Analysis 3
<sup>4</sup> MUS 421-424 — Period History
<sup>5</sup> MUS 431 — Counterpoint
<sup>5</sup> MUS 432 — Orchestration
<sup>5</sup> MUS 433 — Composition
MUS 493 — Special Topics

Repeatable for credit — MUS 153, 307, 313, 317

<sup>2</sup> Any level repeatable for credit — MUS 161-162, 261-262, 361-362, 461-462. Maximum total of 6 credits.

MUS 253 — Piano Proficiency ...... 0

Minimum credits required for degree .......120-121

<sup>3</sup> Repeatable for credit — MUS 493... Maximum total of 6 credits.
<sup>4</sup> Minimum of 6 credits to be selected from MUS 421, 422, 423, 424.

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/her 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)

Complete the general university requirements.

Complete 3 credits of mathematics at the 100-level or above (in addition to the core).

Complete the following degree and program (major) requirements:
 Credits

Required Music Courses:	
*MUS 161-461 — Applied Music (major)	14
	4
	4

	MUS 221-222 — History of Music	
	MUS 231-232 — Advanced Theory 4	One course from the following:
	MUS 233-234 — Advanced Far Training 2	ED 345 — Sociology of Education
	MUS 233-234 — Advanced Ear Training	ED 345 — Sociology of Education
	MUS 315 — Music Methods and Techniques	ED 346 — Structure of American/Alaskan Education
	MUS 331 — Form and Analysis	ED 350 — Communication in Cross-Cultural Classrooms 3
	MUS 351 — Conducting	ED 380 — Cultural Influences in Education 3
	MUS 432 — Orchestration	ED 450 — Education and Cultural Transmission
	Ensembles (one large ensemble per semester)	
	**MUS 190 — Recital Attendance	Minimum credits required
	MUS 253 — Piano Proficiency	Tallina visale require illining illinin
	Trees 255 Traine Trefferency	* The applied music credit minimums defined for the major area of
	C	
	Courses required for Secondary Certification (Contact the School of	performance may be distributed over more than one instrumental
	Education before beginning education courses):	area provided that the required level of competency is achieved for
	MUS 405 — Secondary School Music Methods 3	one instrument.
	PSY 101 - Introduction to Psychology 3	
	PSY 240 — Developmental Psychology	Mode BM Domes
	ED 201 — Introduction to Education	Music — B.M. Degree
	ED 330 — Diagnosis and Evaluation of Learning	(Music Education — K-12)
	ED 407 — Reading Strategies for Secondary Students	Complete the general university requirements.
	ED 424 — Small School Programs	Complete 3 credits of mathematics at the 100-level or above (in
	or ED 425 — Community as Education Resource	addition to the core).
	ED 430 — Multicultural Teaching Techniques	<ol><li>Complete the following degree and program (major) requirements:</li></ol>
	ED 453 — Secondary Student Teaching	Credits
		Required Music Courses:
	One course from the following:	MUS 131-132 — Basic Theory 4
	ED 345 — Sociology of Education	MUS 133-134 — Basic Ear Training 4
	ED 346 — Structure of American/Alaskan Education	**MUS 190 — Recital Attendance
	ED 350 — Communication in Cross-Cultural Classrooms 3	MUS 221-222 — History of Music
	ED 300 — Colling Laftenna in Education 2	
	ED 380 — Cultural Influence in Education	MUS 231-232 — Advanced Theory 4
	ED 450 — Education and Cultural Transmission	MUS 233-234 — Advanced Ear Training
		MUS 253 — Piano Proficiency 0
	Minimum credits required	MUS 331 — Form and Analysis
		MUS 351 — Conducting
	* The applied music credit minimums defined for the major area of	MUS 432 — Orchestration and Arranging
	performance may be distributed over more than one instrumental	*MUS 161-362 — Private Lessons
	area provided that the required level of competency is achieved for	MUS 315 — Music Methods and Techniques
	one instrument.	MUS 405 — Secondary School Music Methods
	** A half recital will be required in the junior year and a full recital	MUS 309 — Elementary School Music Methods
	in the senior year. The student, in his graduation recital, must	MUS 101, 203, 205, 211 — Large Ensembles
	demonstrate ability to perform satisfactorily in public a program of	
	artistic merit. See music department's handbook for details.	Required Education Courses (Contact School of Education before
		beginning education courses):
		PSY 101 - Introduction to Psychology
Mn	si — B.M. Degree	PSY 240 — Developmental Psychology
		ED 201 — Introduction to Education
(Mt	isic Education — Elementary)	
1.	Complete the general university requirements.	ED 330 — Diagnosis and Evaluation of Learning
2.	Complete 3 credits of mathematics at the 100-level or above (in	ED 407 — Reading Strategies for Secondary Teachers
177	addition to the core).	ED 454 — Student Teaching
3.	Complete the following degree and program (major) requirements:	
3.		One course from the following:
	Credits	∧ ED 345 — Sociology of Education
	Required Music Courses:	© ED 346 — Structure of American/Alaskan Education
	*MUS 161-461 — Applied Music (major)	67 ED 350 — Communication in Cross-Cultural Classrooms 3
	MUS 131-132 — Basic Theory 4	/ ED 380 — Cultural Influences in Education
	MUS 133-134 — Basic Ear Training	
	MUS 221 222 History of Musical	ED 450 — Education and Cultural Transmission
	MUS 231-232 — Advanced Theory	. 0
	MUS 233-234 — Advanced Ear Training	Minimum credits required
	MUS/ED 309 — Elementary School Music Methods	11/1.
	MUC 215 Music Methods and Techniques 10	* The applied music credit minimums defined for the major area of
	MUS 315 — Music Methods and Techniques	performance may be distributed over more than one instrumental
	MUS 331 — Form and Analysis	area provided that the required level of competency is achieved for
	MUS 351 — Conducting	one instrument.
	MUS 432 — Orchestration and Arranging	** All undergraduate students majoring in Music must enroll in
	Ensembles (one large ensemble per semester)	* The applied music credit minimums defined for the major area of performance may be distributed over more than one instrumental area provided that the required level of competency is achieved for one instrument.  ** All undergraduate students majoring in Music must enroll in Music 190 — Recital Attendance during each semester of their residence.
	**MUS 190 — Recital Attendance	Nusic 190 — Rectial Attendance during each semester of their
	MUS 253 — Piano Proficiency 0	/ Y residence.
	Required education courses (Contact School of Education before	MINOR in Music:
	beginning education courses):	Complete one of two options:
	PSY 101 - Introduction to Psychology	MINOR Option A
	PSY 240 — Developmental Psychology	Complete 18 credits in music to be selected from the following:
	ED 201 — Introduction to Education	Credits
	ED 304 — Literature for Children	Music Theory, History and Appreciation (courses to be selected with
	ED 330 — Diagnosis and Evaluation of Learning	approval of department head)12
	ED 410 — Foundations of Literacy Development	MUS 151, 153, 161-462 4
	ED 411— Strat for Reading/Writing Instr Multicult Classrooms 3	MUS 101, 203, 205, 211
	ED 412 — Language Arts/Social Studies: Meth/Curric Dev 3	MINOR Option B
	ED 413 — Math and Science: Methods and Curric Dev	Complete 18 credits in music to be selected from the following:
	ED 452 — Elementary Student Teaching	MUS 161, 162, 261, 262, 361
	the tea Literatury brudent reaching manning manning 12	1166 101 104 401 401 404 001

 CHEM 105X — General Chemistry I
 4

 CHEM 106X — General Chemistry II
 4

 CHEM 106X — General Chemistry II
 4

MUS 101, 203, 205, 211, 307 (all sections), MUS 319 4	Native Language Education — Certificate
Two courses from:	Athabaskan Option:
MUS 103, 123, 124, 131, 132, 221, 222, 223	Students will be admitted to the program after consultation with a faculty member who will determine that they have suitable backgrounds in an Athabas-
Music — M.A.  Each graduate student's program is individually tailored and designed to	kan language.
meet the student's professional interests and aspirations, consistent with univer-	Complete the following major requirements:
sity principles and procedures.	Credits
Students may select from the following areas of specialization: perfor-	ANL 108 — Beginning Athabaskan Literacy
mance, music education, music theory/composition and music history.  For complete information on the graduate program in music, see the UAF	ANL 287 - Teaching Methods for Alaska Native Languages 3
Graduate Catalog.	ANL 288 - Curriculum and Materials Development for Alaska
	Native Languages
Nativa Language Education	ANL 216 - Alaska Native Languages: Indian Languages
Native Language Education	ED 199 - Practicum in Education
	ED 299 - Practicum in Education
College of Liberal Arts	Certificate Total
Department of Alaska Native Languages (907) 474-7874	Students will be admitted to the program after consultation with a faculty
Certificate; Degree: A.A.S.	member who will determine that they have suitable backgrounds in the Inupiaq
Minimum Requirements for Degree: A.A.S.: 60 credits; for Certificate: 30	Eskimo language.
cedits	Complete the following major requirements:
	ESK 118 — Inupiaq Orthography
Requirements	ESK 218 - Inupiaq Composition
Native Language Education — A.A.S. Degree	ANL 287 - Teaching Methods for Alaska Native Languages 3 ANL 288 - Curriculum and Materials Development for Alaska
Athabaskan Option: Students will be admitted to the program after consultation with a faculty	Native Languages
member who will determine that they have suitable backgrounds in an Athabas-	One three credit course in Eskimo linguistics
kan language.	ANL 215 - Alaska Native Languages: Eskimo-Aleut
Complete the following general university and A.A.S. requirements:	ED 199 - Practicum in Education
Communications:	Certificate Total
ENGL 111X and ENGL 211X, 212*, or 213X	
COMM 131X or 141X	Natural Desaurees Management
Mathematics or Natural Science: A math or natural science courseat the 100 level or above 3	Natural Resources Management
Humanities, social sciences, mathematics, natural science or Per-	
spectives on the Human Condition	School of Agriculture
2. Complete the following major degree requirements:	and Land Resources Management (907) 474-5550
ANL 108 — Beginning Athabaskan Literacy	Degrees: B.S., M.S.
ANL 287 - Teaching Methods for Alaska Native Languages 3	
ANL 288 - Curriculum and Materials Development for Alaska	Minimum Requirements for Degree: B.S.: 130 credits; M.S.: 30-35 credits  Natural Resources Management consists of making and implementing
Native Languages	decisions to develop, maintain or protect ecosystems to meet human needs and
ANL 216 - Alaska Native Languages: Indian Languages	values. The core natural resources management curriculum is designed to
ED 199 - Practicum in Education	provide students with a broad education in the various natural resources and their
ED 299 - Practicum in Education	related applied fields. Programs can be tailored to enhance a student's depth or breadth in a given field of interest. The program is designed for students desiring
3. Complete 15 credits of general electives. Degree Total	careers in resources management or in other fields requiring knowledge of
Inupiaq Eskimo Option:	resources management, students planning advanced study, as well as those
Students will be admitted to the program after consultation with a faculty	wishing to be better informed citizens.  The forestry option offers students the opportunity to focus on the multi-
member who will determine that they have suitable background in the Inupiaq Eskimo language.	resource management of forests and associated ecosystems for the sustained
Complete the following general university and A.A.S. requirements:	production of goods and services and to prepare for forestry related employment.
Credits	The Plant, Animal, and Soil Science option offers opportunities for scientific study and education in areas such as: field and greenhouse plant production,
Communications:	domestication and propagation of native plants, revegetation, domestic and
ENGL 111X and ENGL 211X, 212*, or 213X	native animal production, and agricultural and ecological aspects of soil science.
Mathematics or Natural Science:	The Resources option emphasizes responsible stewardship in the management of
A math or natural science courseat the 100 level or above 3	multiple resources that occur in natural systems.  Field and laboratory activities and applications of knowledge gained are
Humanities, social sciences, mathematics, natural science or Per-	stressed throughout the program. Internships and work-study arrangements are
spectives on the Human Condition	often available for qualified students.
ESK 118 — Inupiaq Orthography	Requirements
ESK 218 - Inupiaq Composition	Courses required for the majors may also be used to satisfy the general
ANL 287 - Teaching Methods for Alaska Native Languages 3  ANL 288 - Curriculum and Materials Development for Alaska	university requirements as appropriate.
Native Languages	Natural Resources Management — B.S. Degree
One three credit course in Eskimo linguistics	Complete general university requirements and B.S. degree require-
ANL 215 - Alaska Native Languages: Eskimo-Aleut 3	ments.
ED 199 - Practicum in Education	Complete the following (major) requirements (39 credits):  Credits
<ol> <li>Complete 15 credits of general electives.</li> </ol>	BIOL 105X — Fundamentals of Biology I4
Degree Total	BIOL 106X — Fundamentals of Biology II4
*ENGL 212 does not fulfill the second half of the written communication	BIOL 271 — Principles of Ecology

requirement for the baccalaureate degree.

	ECON 235 Letter to Net Bernard E		APPARAGE AS I PUID I II CO.
	ECON 235 — Intro. to Nat. Resource Econ		NRM 445 — Managing Food Production Systems 4
	NRM 101 — Natural Resources Conservation and Policy 3		NRM 485 — Soil Biology
	NRM 304 — Perspectives in Natural Resources Management 3	4.	Complete a minimum of 12 credits beyond those taken to fulfill
	NRM 380 — Soils and the Environment		categories above in a support field which is a group of courses
	NRM 405 — Senior Thesis in Natural Resources Management 4		selected for its clear pertinence to a cohesive program. Support fields
	STAT 200 — Elementary Probability and Statistics		may include but are not limited to: animal science, chemistry, com-
3.			munications, education, engineering, forestry, geography, market-
A.			ing, natural resources management, nutrition, plant science, rural
	Department of Forest Sciences		development and soils. The courses must be approved by the student's
1.			academic advisor prior to attaining senior standing.
•	AIS 101 — Effective Personal Computer Use (or approved alterna-		Minimum credits required
	tive) 3	C	
		C.	Resources Option
	BIOL 239 — Introduction to Plant Biology	20	Department of Resources Management
	CE 112 — Elementary Surveying 3	1.	Complete the following (32 credits): Credits
	ECON 335 — Intermediate Natural Resource Economics 3		ECON 335 — Intermediate Natural Resource Economics 3
	GEOS 101X — The Dynamic Earth 4		GEOS 101X — The Dynamic Earth
	NRM 204 — Natural Resources Legislation and Policy 3		NRM 204 — Natural Resources Legislation and Policy 3
	NRM 251 — Silvics and Dendrology4		NRM 251 — Silvics and Dendrology4
	NRM 338 — Introduction to Geographic Information Systems 3		NRM 312 — Introduction to Range Management
	NRM 340 — Natural Resources Measurement and Inventory 3		or NRM 480 — Soil Conservation
	NRM 365 — Principles of Outdoor Recreation Management 3		NRM 340 — Natural Resources Measurements and Inventory 3
			NRM 365 — Principles of Outdoor Recreation Management 3
	NRM 370 — Introduction to Watershed Management		
	NRM 430 — Land-Use Planning		NRM 370 — Introduction to Watershed Science
	NRM 450 — Forest Management		NRM 430 — Land Use Planning
	NRM 451 — Silviculture		WLF 201 — Wildlife Management Principles
	NRM 452 — Forest Protection		or FISH 401 — Fisheries Management
	NRM 453 — Harvesting and Utilization of Forest Products 3	2.	Complete a minimum of 9 credits from the Humans and the Environ-
	WLF 201 — Wildlife Management Principles		mental electives category. Courses involve human effects on the
	or FISH 401 — Fisheries Management		environment and its products through management. Substitutions
2.	Complete three courses that total at least 8 credits from the following		may be made only with the permission of the student's academic
_	list of restricted electives (courses other than those listed must be		advisor and the department head.
	approved by student's advisor):		ANTH 428 — Ecological Anthropology
	AVTY 302 — Aerial Data Collection		ECON 437 — Regional Economic Development
			EQS 201 — Environmental Management
	BA 350 — Introduction to Real Estate and Land Economics 3		EIGH 261 Introduction to Conford Science and Nutrition 2
	BIOL 331 — Systematic Botany		FISH 261 — Introduction to Seafood Science and Nutrition 3
	FIRE — Any course on wildland fire control/management 3		FISH 401 — Fisheries Management
	GEOS 408 — Photogeology		FIRE 256 - Wildland Fire Planning and Multiple Use
	GEOS 422 — Geoscience Applications of Remote Sensing 3		Management
	NRM 277 — Introduction to Conservation Biology 3		GEOG 327 — Cold Lands 3
	NRM 300 — Internship in Natural Resources Management (must be		GEOS 102X — Environmental Geology4
	forestry related)		MIN 101 — Minerals, Man and the Environment
	NRM 303 — Environmental Ethics and Actions		MIN 400 — Practical Engineering Report 1
	NRM 312 — Introduction to Range Management		MIN 407 — Mineral Industry and the Environment
	NRM 341 — GIS Analysis		NRM 277 — Introduction to Conservation Biology 3
	STAT 401 — Regression and Analysis of Variance 3		NRM 300 — Internship in Natural Resources Management 3
	STAT 402 — Scientific Sampling		NRM 310 — Agricultural Concepts
	WLF 201 — Wildlife Management Principles		NRM 312 — Introduction to Range Management
	or EISU 401 Eisheries Management 2		NRM 404 — Processes of Natural Resources Management 3
	or FISH 401 — Fisheries Management		
	WLF 417 — Forest and Tundra		NRM/WLF 431 - Wildlife Policy and Administration
-	Minimum credits required		NRM 450 — Forest Management
В.			NRM 465 — Outdoor Recreation Planning
4	Department of Plant, Animal and Soil Sciences		NRM 480 — Soil Management for Quality and Conservation 3
1.	Complete the following (12 credits):		PS 420 — Environmental Policies
	Credits		RD 255 — Rural Alaska Land Issues
	NRM 211 — Introduction to Applied Plant Science		RD 265 — Perspectives on Subsistence in Alaska
	NRM 310 — Agricultural Concepts		RD 350 — Community Research and Planning Techniques 3
	NRM 320 — Introduction to Animal Science		WLF 201 — Wildlife Management Principles 3
	NRM 480 — Soil Management for Quality and Conservation 3		WLF 417 — Wildlife Management: Forest and Tundra
2.	Complete a minimum of 12 credits in biology, botany, physics,		WLF 419 — Waterfowl and Wetlands Ecology and Management 3
1	chemistry, geosciences and/or mathematics, in addition to the above	3.	Select a minimum of 12 credit in an approved support field. Selec-
		-	tions may include courses listed within the Humans and the Environ-
3.	basic courses. Courses must be approved for science majors.  Complete a minimum of 12 credits in the following Natural Re-		ment elective category, and need not be limited to those with NRM
2.			
	sources Management electives:		designators. Courses are selected for their clear pertinence to a
	NRM 102 — Practicum in Natural Resources Management		cohesive program and must be approved by the student's academic
	and/or NRM 300 — Internship in Natural Resources Mgt 1-3		advisor prior to attaining senior standing. Examples include but are
	NRM 204 — Natural Resources Legislation and Policy		not limited to: communications, data management, economics, mar-
	NRM 215 — Plant Propagation		keting, recreation, or resources policy. Support fields may also
	NRM 251 — Silvics and Dendrology 4		include subject areas in forest and plant, animal, and soil sciences.
	NRM 312 — Introduction to Range Management	4.	Minimum credits required 130
	NRM 313 — Introduction to Plant Pathology 4	MI	NOR in Natural Resources Management
	NRM 321 — Applied Animal Nutrition	IVII	NOR in Natural Resources Management
	NRM 338 — Introduction to Geographic Information Systems 3	101	A minor in Natural Resources Management requires completion of NRM
	NRM 340 — Natural Resources Measurement and Inventory 3		and 15 credits of any other NRM courses, 6 credits of which must be upper
	NRM 341 — GIS Analysis 4	div	ision. The minor program must be approved by an NRM advisor.
	NRM 370 — Introduction to Watershed Management	Na	tural Resources Management - M.S. Degree
	NRM 404 — Processes of Natural Resources Management 3	. 14	For complete information on the graduate program in natural resources
		mo	nagement, see the UAF Graduate Catalog.
	NRM 412 — Field Crop Production	ma	nagement, see the OTA Graduate Catalog.
	NRM 420 — Animal Nutrition and Metabolism		
	NRM 425 — Ungulate Management and Production Systems 3		

## **Northern Studies**

### Interdisciplinary

Degrees: B.A., M.A.

Minimum Requirements for Degree: B.A.: 130 credits; M.A.: 30 or more credits

The purpose of the northern studies program is to give interested students a broader study of the northern region—its environment, peoples, and problems. The major in northern studies is interdisciplinary.

The northern studies curriculum is centered around an interdisciplinary seminar, the Northern Studies Seminar, NORS 484, which is taken in the senior year. Students also must complete 10 courses, constituting a core program and select an additional two courses of their choice from the disciplines represented in the core curriculum.

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the former U.S.S.R., see Study Abroad.

### Requirements

### Northern Studies - B.A. Degree

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

	euns
Northern Studies Core:	
BIOL 104X — Natural History of Alaska	3
PS 210 — Alaska Government and Politics or	
PS 263 — Alaska Native Politics	3
ANL 215 — Alaska Native Languages	3
ANTH 242 — Native Cultures of Alaska	
GEOG 327 — Cold Lands	3
HIST 483 — 20th Century Circumpolar History	3
NORS 484 — Northern Studies Seminar	3
Select 15 credits from two of the following groups:*	
Anthropology:	
ANTH 309 — Arctic Prehistory	3
ANS/ANTH 320 — Lang and Culture: Appl to Alaska	3
ANTH 321 - Physical Anthropology of the Americans	3
ANTH 380 — The People of Alaska Southwest	3
ANTH 381 — The Inupiaq and Yup'ik Peoples	3
ANTH 382 — The People of Alaska Southeast	3
ANTH 383 - Athabas. Peoples of Alaska & Adjacent Canad	a 3
Geography	
GEOG 302 — Geography of Alaska	3
GEOG 303 — Geography of United States and Canada	3
GEOG 306 — Geography of Russia	3
History:	
HIST 320 — Modern Scandinavia	3
HIST 354 — Canadian History to 1867	3
HIST 354 — Canadian History to 1867	3
HIST 375 — History of the Northern Pacific	3
HIST 460 — Russian America	3
HIST 461 — History of Alaska	3
HIST 464 — Modern Russian	
HIST 465 — Russian Eastward Expansion	3
HIST 481 — Polar Exploration and Its Literature	3
HIST 482 — History of Circumpolar Research	3
Political Science:	
PS 310 — The Politics of Post-Industrial States	- 2
PS 311 — Government and Politics of Russia & the Periphery	, 3
PS 321 — International Politics	
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:	2
ANS 301 — Native Cultural Heritage Documentation	3
ART 364 — Native Art of Alaska	
ENGL 349 — Narrative Art of Alaska Native Peoples	3
ENGL 349 — Narrative Art of Alaska Native Peoples	3
MUS 441 — Alaska Native Music and Social Change	3
Two semesters of a northern language, such as Eskimo, Russia	n 05
Danish	
Minimum credits required	130
Minimum creates required	. 150

\*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 towrd the second major. Other majors may double count a maximum of 9 credits toward their university distribution requirements.

#### Minor in Northern Studies

A minor in Northern Studies requires the completion of the core courses, excluding NORS 484, for a total of 18 credits.

#### Northern Studies - M.A. Degree

The M.A. in Northern Studies provides graduate academic study of northern policy issues and the cultural, historical, economic, and political context of the circumpolar north.

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

## Oceanography

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

(907) 474-7289

Degree: M.S., Ph.D.

Minimum Requirements for Degree: M.S.: 30 credits; Ph.D.: Open

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

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, Kasitsna Bay, 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 RV Alpha Helix, which has open-ocean capabilities and operates in Alaskan coastal waters, the Gulf of Alaska, and the Bering Sea, and the RV Little Dipper, which operates on day trips in Resurrection Bay. Laboratory facilities include a seawater system at Seward and a variety of modern and analytical instrumentation, including mass spectrometers, alpha, gamma and beta counting equipment, a flow cytometer facility, and gas and liquid chromatography equipment. Mainframe and personal computing facilities are readily accessible to graduate students.

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

## Office Management and Technology

## College of Rural Alaska Tanana Valley Campus

(907) 451-7223

Certificate; Degree: A.A.S.

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

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

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

#### Requirements

Office Management and Technology - A.A.S. Degree

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

 Credits

 Communications:

 ENGL 111X and ENGL 211X, 212\*, or 213X
 6

 COMM 131X or 141X
 3

	Mathematics or Natural Science:
	A math or natural science course at the 100 level or above 3
	Humanities, social sciences, mathematics, natural science or Per-
	spectives on the Human Condition
2.	Complete the following major degree requirements: ACCT 101 — Elementary Accounting
	ACCT 101 — Elementary Accounting
	or ABUS 142 — Office Accounting I
	CAPS 135 — Microcomputer Spreadsheets
	OMT 105 — Keyboarding II/Intermediate Typewriting
	OMT 106 — Keyboarding III/Advanced Typewriting
	OMT 110 — Office Procedures
	OMT 131 — Business English 3 OMT 151 — WordPerfect
	or OMT 151 — WordPerfect  or OMT 153 — Microsoft Word
	OMT 203 — Calculating Machines
	OMT 221 Eiling/Paperds Management 3
	OMT 221 — Filing/Records Management
	OMT 244 — Office Management
	Subtotal
	Subtotal(minimum 01) 31-32
3.	Complete 7 (minimum) credits from the following major specialty
***	electives:
	ABUS 154 — Human Relations 3
	ACCT 102 — Elementary Accounting       3         ABUS 154 — Human Relations       3         ABUS 155 — Business Math       2
	ABUS 179 — Principles of Supervision
	CAPS 100 — Introduction to Personal Computers
	OMT 100 — Alphabetic Shorthand
	OMT 102 Vauboarding I/Paginning Typewriting 2
	OMT 207 — Machine Transcription
	OMT 210 — Legal Typewriting
	OMT 211 — Medical Typewriting
	OMT 214 — Medical Machine Transcription
	OMT 207 — Machine Transcription         2           OMT 210 — Legal Typewriting         3           OMT 211 — Medical Typewriting         2           OMT 214 — Medical Machine Transcription         1           OMT 219 — Legal Machine Transcription         1
	Any other CAPS. ABUS of UM1 course1-0
4.	Complete 6-7 general electives credits. Degree Total
	Degree Total
	*ENGL 212 does not fulfill the second half of the written communi-
	cation requirement for the baccalaureate degree.
Off	ice Management and Technology — Certificate
1.	Complete the following major specialty requirements:
	Credits
	ACCT 101 — Elementary Accounting
	or ABUS 142 — Office Accounting I
	OMT 105 — Keyboarding II/Intermediate Typewriting
	OMT 106 — Keyboarding III/Advanced Typewriting
	OMT 110 — Office Procedures
	OMT 131 — Business English
	OMT 151 — WordPerfect
	or OMT 153 — Microsoft Word
	OMT 203 — Calculating Machines
	OMT 221 — Filing/Records Management 3
2.	Complete 7 (minimum) credits from the following major specialty
	electives:
	ACCT 102 — Elementary Accounting II
	ABUS 154 — Human Relations       3         ABUS 155 — Business Math       2
	ABUS 155 — Business Math
	CAPS 100 — Introduction to Personal Computers
	OMT 103 — Keyboarding I/Beginning Typewriting
	OMT 207 — Machine Transcription
	OMT 210 — Legal Typewriting
	OM1 211 — Medical Typewriting
	OMT 214 Madical Madical Tourist
	OMT 103 — Keyboarding I/Beginning Typewriting
	OM 1 219 — Legal Machine Transcription
	OM 1 219 — Legal Machine Transcription
	OMT 219 — Legal Machine Transcription 1 OMT 231 — Business Communications 3 OMT 244 — Office Management 3
	OM 1 219 — Legal Machine Transcription
3	OMT 219 — Legal Machine Transcription         1           OMT 231 — Business Communications         3           OMT 244 — Office Management         3           Any other CAPS, ABUS, or OMT course         1-6
3.	OMT 219 — Legal Machine Transcription 1 OMT 231 — Business Communications 3 OMT 244 — Office Management 3

## **Paralegal Studies**

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

(907) 451-7223

Degree: A.A.S.

Minimum Requirements for Degree: 60 credits

The paralegal studies curriculum leads to an associate of applied science degree for individuals aspiring to enter the legal community, state and federal agencies, insurance companies, banks and title companies as paralegal personnel. The core curriculum of 33 credits is based on model curricula published by the American Bar Association and designed to assure that students receive fundamental education in the vocabulary and process of the paralegal profession.

### Requirements

Paralegal Studies — A.A.S. Degree
Students must complete ENGL 111X with a grade of "C" or above prior to admission to the program.

Complete the following general university and A.A.S. requirements: Mathematics or Natural Science: A math or natural science course at the 100 level or above ........ 3 PS 101 - Introduction to American Government and Politics .... Complete the following major degree requirements: CAPS 150 - Computer Applications 3 PLS 101 - Introduction to Paralegal Studies 3 PS 303 - Introduction to Legal Processes ...... 3 PS 404 - Introduction to Legal Research and Writing ....... 3 PS 435 - The Supreme Court and Judicial Process or PS 436 - The Courts and Civil Liberties ..... Complete 12 credits of general electives Recommended electives: CAPS 160, CAPS 260, BA 317, BA 330, ANS 425, ABUS 241, or coursework fulfilling UAF core requirements. Degree Total ..... \*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.

## **Petroleum Engineering**

## School of Mineral Engineering Department of Petroleum Engineering

(907) 474-7734

Degrees: B.S., M.S.

Minimum Requirements for Degrees: B.S.: 134 credits; M.S.: 30-33 additional credits.

Petroleum engineering at UAF offers a unique look at the challenging problems confronting the petroleum industry. Both the bachelor of science and the master of science degrees are available. Requirements for the degrees focus on many disciplines, including mathematics, physics, chemistry, geology and engineering science. In addition, courses in petroleum engineering deal with drilling, formation evaluation, production, reservoir engineering, computer simulation and enhanced oil recovery.

The curriculum at UAF was designed to prepare graduates to meet the demands of modern technology while emphasizing, whenever possible, the special problems encountered in Alaska. Located in one of the largest oil producing states in the nation, the Department of Petroleum Engineering offers one of the most modern and challenging degree programs available.

#### Requirements

Petroleum Engineering — B.S. Degree

Complete the general university requirements.

Complete the following degree and program (major) requires	nents:
irst Year	
all Semester	redits
ETE 103 — Survey of the Energy Industry	1
AATH 200X — Calculus I	4
HEM 105X — General Chemistry	4
HEM 105X — General Chemistry NGL 111X — Methods of Written Communication	3
erspectives on the Human Condition	3
pring Semester	redits
S 201 — Computer Techniques	3
AATH 201X — Calculus II	4
E 261 — Geology for Engineers	3
HEM 106X — General Chemistry II	4
OMM 131X of 141X — Fundamentals of Oral Communica	uons
econd Year	
all Semester	redits
ETE 205 — Introduction to Petroleum Drilling and Product	ion 3
MATH 202X — Calculus III	4
HYS 211X — General Physics I	4
NGL 211X/213X — Intermediate Exposition	3
erspectives on the Human Condition	
pring Semester	redits
S 208 — Mechanics	4
AATH 302 — Differential Equations	3
PHYS 212X — General Physics II	4
S 346 — Basic Thermodynamics	3
erspectives on the Human Condition	3
Third Year	
fall Semester	redits
PETE 301 — Reservoir Rock and Fluid Properties	4
AATH 310 — Numerical Analysis	3
S 331 — Mechanics of Materias	3
S 341 — Fluid Mechanics	
Perspectives on the Human Condition	3
pring Semester	redits
PETE 302 — Well Logging	3
ETE 202 Deservoir Dook and Eluid Proporties I ab	
ETE 426 — Drilling Engineering	3
ETE 411 — Drilling Fluids Laboratory	1
ETE 476 — Reservoir Engineering	3
ETE 305 — Reservoir Rock and Find Froperties Lab EETE 426 — Drilling Fluids Laboratory EETE 476 — Reservoir Engineering EEOS 370 — Struct. Geol. for Petr. Engr	4
erspectives on the Human Condition	3
Fourth Year	
all Semester	redits
PETE 407 — Production Engineering	3
ETE 431 — Natural Gas Engineering	2
PETE 431 — Natural Gas Engineering	3
ETE 481 — Well Completions/Stimulation Design	3
Engineering Elective	3
erspectives on the Human Condition	3
pring Semester	redits
ETE 456 — Pet. Eval. and Econ. Dec	3
ETE 421 — Reservoir Characterization	3
PETE 478 — Well Test Analysis	2
PPP 400 P	2
ETE 489 — Reservoir Simulation	3
*Technical Elective	
PETE 489 — Reservoir Simulation  *Technical Elective  PETE 487 — Petroleum Project Design	2
*Technical Elective PETE 487 — Petroleum Project Design	
*Technical Elective  ETE 487 — Petroleum Project Design  GEOS 101 may be taken in a fall semester in place of GE 20  As approved by advisor (e.g. ME 416 or ES 307).	
*Technical Elective	61.

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

- Complete the general university requirements and B.A. degree requirements.
- Complete the following foundation requirements: (May be used to meet general degree requirements.)
   Two years at the college level in a non-English language.
- Complete the following program (major) requirements: 36 credits in philosophy, including:

30 creates in philosophy, including.
Credits
PHIL 201 — Introduction to Philosophy
PHIL 202 — Introduction to Eastern Philosophy
PHIL 204 — Introduction to Logic
PHIL 351-352 — History of Philosophy and Science
PHIL 471 — Contemp. Philosophical Problems
PHIL 486 — B.A. Thesis in Philosophy
PHIL 493 — Special Topics
Choose two of the following:
PHIL 321 — Aesthetics
PHIL 322 — Ethics
PHIL 341 — Epistemology
PHIL 342 — Metaphysics
PHIL 381 — Topics in Logics
Choose two of the following:
PHIL 481 — Philosophy of Science
PHIL 482 — Comparative Religion3
PHIL 483 — Philosophy of Social Science
PHIL 485 — Topics in Comparative Philosophies
Successfully complete a comprehensive oral examination conducted

PHIL 201 - Introduction to Philosophy ...

MINOR in Philosophy:

A minor in philosophy requires 18 credits of approved philosophy courses including:

Credits

PUII 251 252 Victory of Philosophy and Science	2
PHIL 351-352 — History of Philosophy and Science	
PHIL 471 — Contemp. Philosophical Problems	3
Choose six credits from the following:	
PHIL 202 — Intro. to Eastern Philosophy	3
PHIL 204 — Introduction to Logic	
PHI 321 — Aesthetics	
	0.0
PHIL 322 — Ethics	
PHIL 341 — Epistemology	3
PHIL 342 — Metaphysics	3
PHIL 481 — Philosophy of Science	3
PHIL 482 — Comparative Religion	
PHIL 483 — Philosophy of Social Science	
PHIL 485 — Topics in Comparative Philosophies	0

## Physical Education and Exercise Science

# College of Liberal Arts Department of Physical Education and Exercise Science

(907) 474-7382

Degrees: B.A., B.S.

Minimum Requirements for Degrees: B.A.: 130 credits; B.S.: 120 credits

The curriculum in physical education and exercise science takes a common core of study of how humans move and exercise (Exercise Science) and adds to it studies of professional application such as the pedagogy of teaching (Physical Education) or further study to prepare the student for graduate study or professional fitness delivery in the private setting. Additionally, the department offers courses directed to individual fitness and skill enhancement for those not pursuing a degree within the department.

### Requirements

#### Physical Education — B.A. Degree

- Complete the general university requirements and B.A. degree requirements.
- Complete the following background requirements as part of the baccalaureate core:

#### Credits

	BIOL 211X-212X — Human Anatomy and Physiology I and II. 8	5
	COMM 141X — Fund. of Oral Communication: Public Context 3	3
3.	Complete the following:	
	Any 100 level Chemistry course	1
4.	Complete the following program (major) requirements:	

t Li ala I diredifferentis et Dasketeur
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

PE 221 — Fundamentals of Gymnastics
PE 222 — Fundamentals of Track and Field
Elective Credits (select a minimum of 4 courses)4
PE 300 — Advanced Techniques of Gymnastics
PE 302 — Advanced Techniques of Basketball
PE 303 — Advanced Techniques in Ice Sports
PE 304 — Advanced Techniques in Snow Sports

1 L 504 — Advanced Techniques in 5110w Sports
PE 305 — Techniques in Volleyball
PE 306 — Techniques in Teaching Creative Dance
PE 307 — Techniques in Camping and Outdoor Recreation 1
PE 308 — Techniques in Track and Field
PE 309 — Aquatics Instructor
PE 310 — Techniques in Teaching Folk and Square Dance 1

Elective Credits (select a minimum of 7 credits)	•
PE 317* — Motor Learning	3
PE 321 — Practicum in Physical Education	1
PE 327 — Physical Education for Children	2
PE 401 — Theory of Basketball	2
PE 406 — Instructional Methodologies for Physical Activity	3

	Prevention and Care of Athletic Injuries 3
PE 442 —	Evaluation in Physical Activity
Minimum	credits required 130
	a required PE course.
12 Teaching	Certification:

### Requirements

#### Exercise Science - B.S. Degree

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

PE 442 — Measurement and Evaluation in Physical Activity ..... 3

 Complete the following background requirements as part of the baccalaureate core and B.S. degree requirements:

Required Courses (47 Credits) PE 205 — Introduction to the Human Movement Sciences ....... 2 PE 224 — Fundamentals of Resistive Training ....... 1 PE 225 — Fundamentals of Cardiovascular Training ....... 1 PE 226 -Fundamentals of Movement Mechanics ...... 1 PE 316 — Motor Development or PE 317 - Motor Learning ...... PE 321 — Practicum in Physical Education ....... 1 PE 405 — Concepts and Design of Physical Fitness Programs .... 2 PE 406 — Instructional Methodologies for Physical Activity ..... 3 
 PE 421 — Physiology of Exercise
 4

 PE 432 — Biomechanics of Physical Performance
 4
 PE 437 — Adapted Programs of Physical Activity ....... 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.

## Physical Therapy

## **Pre-Professional Advising**

(907) 474-6396

Physical therapy is a health profession dedicated to the promotion of health, the prevention of disease, and to providing the assessment, evaluation and rehabilitation of the muscular, skeletal, and nervous systems after injury or disease. Typically, physical therapists work in rehabilitation units in hospitals, in conjunction with orthopedic practices, in private rehabilitation practices, and in sports medicine clinics. Along with delivering physical rehabilitation, many also serve as administrators, researchers and educators.

Physical therapy education typically consists of a program two years in length. Some programs lead to a bachelor's degree, others offer a certificate, while still others lead to a master's degree. The trend across the nation is towards the latter ad requires completion of a bachelor's degree prior to admission. As with most health care professions, the first half of the training consists of classroom instruction, with the second emphasizing clinical practice. After completion of programs accredited by the American Physical Therapy Program,

students are eligible to test for licensure in all 50 states.

Acceptance to physical therapy programs is very competitive and is based upon several factors. Included are overall academic achievement (most requiring a 3.0 gpa minimum), achievement in foundational sciences, and work experience in health-care situations. Graduate programs usually require the Graduate Record Examination and/or the Miller Analogies Test. UAF does not prescribe a specific major for pre-physical therapy students. Rather, students complete a series of courses which are required for admission to most programs: physics (PHYS 103X, 104X), anatomy and physiology (BIOL 211X, 212X), and statistics (STAT 300). Careful planning is necessary as course requirements over and above these differ between schools.

Students considering a career in physical therapy should contact the Academic Advising Center. There, students will be assigned an advisor to assist with program planning, exploration of professional schools and licensing requirements.

## **Physics**

## College of Natural Sciences Department of Physics

(907) 474-7339

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

Minimum Requirements for Degrees: B.A.: 130 credits; B.S.: 130 credits; M.S.: 30 additional credits; M.A.T.: 36 additional credits; Ph.D.: no fixed credits

The physics department is responsible for the physics, space physics, atmospheric sciences, and the general science programs. See space physics and atmospheric sciences listings for more information on degree requirements in these disciplines.

The science of physics is concerned with the nature of matter and energy and encompasses all phenomena in the physical world from elementary particles to the structure and origin of the universe. Physics provides, together with mathematics and chemistry, the foundation of work in all fields of physical science and engineering, and contributes to other fields such as biology and medicine.

The undergraduate curriculum provides a solid foundation in general physics with emphasis on its experimental aspects. Furthermore, opportunity is given to the physics student to study areas in applied physics such as atmospheric physics, space physics and engineering physics. A student completing this curriculum should be prepared for careers in education and industry, and for advanced work in the fields of physics, applied physics and related sciences.

### Requirements

Physics - B.A. Degree

- Complete the general university requirements and B.A. degree requirements.
- Complete the following program (major) requirements: Complete the foundation courses:

Cred	iits
PHYS 113 — Concepts of Physics	1
PHYS 211X-212X — General Physics	
PHYS 213 — Elementary Modern Physics	
Complete a minor in mathematics, which includes MATH 200-2	
202, and six credits at the 300-level or above.	
Complete 20 additional credits of approved courses in physics.	
	130

Physics — B.S. Degree

- Complete general university requirements and B.S. degree requirements.
- 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,

#### Suggested Curriculum for B.S. Degree

First Year	
Fall Semester	16 credits
ENGL 111X - Methods of Written Communication	3
MATH 200X — Calculus	4
CHEM 105 — General Chemistry	4
BIOL 105X or GEOL 101X	4
PHYS 113 — Concepts of Physics	1

Spring Semester
PHYS 211 — General Physics
MATH 201X — Calculus
CHEM 106 — General Chemistry
ES 201 — Computer Techniques
econd Year Fall Semester
Fall Semester
MATH 202X — Calculus
PHYS 212 — General Physics
ENGL 211X — Intermediate Exposition with Modes of Literature
or ENGL 213X — Intermediate Exposition
GEOL 101X or BIOL 105X
Perspectives on the Human Condition
Spring Semester
MATH 302 — Differential Equations
PHYS 213 — Elementary Modern Physics
Perspectives on the Human Condition
MATH 314 — Linear Algebra
Free electives
Third Year
Fall Semester
MATH 421 — Applied Analysis I 4
PHYS 311 — Mechanics
PHYS 331 — Electricity and Magnetism
PHYS 381 — Physics Laboratory
Perspectives on the Human Condition
Spring Semester
MATH 422 — Applied Analysis II
PHYS 312 — Mechanics
PHYS 332 — Electricity and Magnetism
PHYS 382 — Physics Laboratory
Perspectives on the Human Condition
Fourth Year
Fourth Year Fall Semester
PHYS 411 — Modern Physics
PHYS 313 — Thermodynamics
PHYS 462 — Optics 4
ES 307 — Elements of Electrical Engineering
Free elective1
Spring Semester
PHYS 412 — Modern Physics
PHYS 445 — Solid State Physics
ES 308 — Instrumentation and Measurement

MINOR in Physics:

A minor in Physics requires 20 credits: PHYS 103X-104X or PHYS 211-212 and 12 credits selected from PHYS 213 and any 300-400 level course.

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

Graduate work is offered in various areas of physics and applied physics including many of the research areas found at the UAF Geophysical Institute. The research program of the Geophysical Institute currently emphasizes investigation of auroral, ionospheric, magnetospheric and space plasma physics, the physics and chemistry of the upper and middle atmosphere, radiowave propagation and scattering, solar-terrestrial relations, and polarmeteorology.

A graduate student may designate his/her major field as physics, space physics or atmospheric sciences. He/she will pursue his/her studies under the supervision of an advisory committee which will advise on the course of study to be followed.

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

## **Political Science**

# College of Liberal Arts Department of Political Science

(907) 474-7609

Degree: B.A.

Minimum Requirements for Degree: 130 credits

The study of political science is the study of human efforts to create social

organizations and processes compatible with our environment. Political sciene is related to all of the social science disciplines. It is the study of the dynamics of human behavior in various cultural, national and international spheres.

Students of political science may prepare for teaching or for advanced study in law and the social sciences, or prepare themselves for careers in public service.

#### Requirements

#### Political Science — B.A. Degree

- Complete general university requirements and B.A. degree requirements including PS 100X, PS 300X, HIST 100X.
- Complete the following foundation requirements (7 credits):

ECON AND DIVINION OF	Credits
ECON 200 - Principles of Economics (or equivalent	nt economics
course)	4
HIST 131 or 132 — History of the U.S	3

3.	Complete the following major degree requirements (33 credits):
	PS 101 — Introduction to American Government and Politics 3
	PS 222 — Research Methods
	PS 492 — Senior Seminar in Political Science
	Complete 24 additional credits in political science including at least
	three credits from 4 of the 5 following sub-disciplinary groups:
	American Government and Politics
	DS 210 AL -L C

PS 210 — Alaska Government and Politics	
PS 212 — Introduction to Public Administration	3
PS 301 — American Presidency	
PS 302 — Congress and Public Policy	
PS 401 — Political Behavior	
PS 403 — Public Policy	3
Public Law	700
PS 303 — Politics and the Judicial Process	3

L'OUTE LIET
PS 303 — Politics and the Judicial Process
PS 330 — Law, Justice and Society
PS 404 — Introduction to Legal Research and Writing
PS 435 — Constitutional Law I: Institutions and Governmental
Power 3
DC 436 Constitutional I will be a light to a light to a

rs 450 — Constitutional L	aw I	II: CIVII I	cigi	its ai	id Civii L	ibert	icso
Comparative Politics							
PS 201 — Comparative Po	litics	S					3
PS 202 — Cases in Compa							
PS 311 — Government							

Periphery .		3
PS 312 -	East Asian Government and Politics	3
PS 460 -	Government and Politics of Canada	3
PS 461 -	Government and Politics of Latin America	3
Internation	al Politics	
PS 321	International Politics	2

PS 322 — International Law and Organizations	7.7
PS 323 — International Political Economy	3
PS 437 — American Foreign Policy	1
PS 438 — Peace and National Security	0.00
Political Theory	
PS 314 — Political Ideologies	1
PS 315 — American Political Thought	

## MINOR in Political Science

PS 412 - Modern Political Theory ...

A minor in Political Science requires 15 credits distributed as follows:

PS 101 — Introduction to American Government and Politics .... 3 Complete 12 credits in political science including three (3) credits each from four of the five following sub-disciplinary groups: American Government and Politics

Public Law

Comparative Politics International Politics

Political Theory

## Professional Communication

## College of Liberal Arts Department of Communication

(907) 474-6591

Degrees: M.A.

Minimum Requirements for Degrees: 30-33 credits beyond bachelor's degree For complete information on the graduate program in professional communication, see the UAF Graduate Catalog or contact one of the sponsoring

## Psychology

## College of Liberal Arts Department of Behavioral Sciences and Human Services

(907) 474-7240

Degrees: B.A., B.S.

Minimum Requirements for Degrees: 120 credits

Psychology seeks to guide the student in an understanding of human behavior. The field of psychology is necessary for students who are preparing for graduate study in psychology and also is helpful in preparing for other career

### Requirements

## Psychology - B.A. or B.S. Degree

Complete the general university requirements and B.A. or B.S. degree requirements.

Complete the following Psychology Department requirements:

	Credits
SY 101 — Introduction to Psychology	3
SY/SOC 250 - Introductory Statistics for Behav. Sci	
or STAT 200 - Elementary Probability and Statistics .	3
SY/SOC 473 — Social Science Research Methods	3

Complete three credits of a diversity requirement, selected from courses listed below, but not limited to:

ANS (any course)

ANTH 242, 301, 302, 303, 308, 380, 381, 382, 383 COMM 330, 351

HIST 110, 123, 141, 142, 200

HST 120 JB 380

RD 315, 375

PSY 210, 360 SOC 160, 242, 408

WMS (any course)

Concentration Areas: Complete a minimum of 15 credits selected from an area of concentration listed below and a minimum of 6 credits from the remaining area.

Experimental, Learning, Physiological Area: PSY 370 Drugs and Drug Dependence ...... 3 PSY 380 Human Behavior in the Arctic ...... 3 **PSY 440** Learning ....

Physiological Psychology ...... 4 PSY 460 PSY 470 Sensation and Perception ...... 3 PSY 475 Experimental Psychology ...... 3 Community, Clinical, Social-Personality Area: PSY 230 -Psychology of Adjustment ..... PSY 240 Develop. Psychology in Cross-cultural Persp. .......... 3 PSY 304 

PSY 310 Cross-Cultural Psychology ......3 PSY 330 PSY 345 PSY 360 -Psychology of Women Across Cultures ...... 3 PSY 445 Community Psychology ...... 3

PSY 455 -Minimum credits required for degree .......120

#### MINOR in Psychology

Complete 18 credits of psychology courses beyond PSY 101.

## Renewable Resources

College of Rural Alaska	
Department of Rural Development	(907) 474-643
Domesia A. A. C.	

Degree: A.A.S.

Minimum Requirements for Degree: 60 Credits

### Requirements

-			
Renewable	Resources -	AAS	Degree

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

1.	Complete the following general university and A.A.S. requirements:  Credits
	Communications:
	ENGL 111X — Methods of Written Communication
	or ENGL 213X — Intermediate Exposition
	Cntxt
	or MATH 131— Concepts and Contemporary Applications of
	Mathematics
	or CHEM 105X — Basic General Chemistry  or CHEM 105X — General Chemistry
2.	Complete the following major degree requirements (30 credits mini-
	mum): ECON 235 — Introduction to Natural Resources Economics 3
	NRM 101 — Conservation of Natural Resources
	NRM 204 — Natural Resources Legislation and Policy
	RD 255 — Rural Alaska Land Issues
	RD 280*** — Resource Management Research Techniques 3
	One course from each of the following groups:
	BIOL 104 — Natural History of Alaska (3)
	or BIOL 104X — Natural History of Alaska (4) or BIOL 105X — Fundamentals of Biology I (4)3-4
	GEOS 100X — Introduction to Earth Science (4)
	or GEOG 205 — Eleents of Physical Geography (3 or 4)
	or NRM 380*** — Soils and the Environment (3)3-4
	NRM 102 — Practicum in Natural Resources Management (1-2)
	or WLF 304 — Wildlife Internships (1-3)1-3
	Complete the following:
	CAPS 100 — Introduction to Personal Computers (1)
	and CAPS 111 — Computer Software for Beginners (2)
	or CAPS 150 — Computer Business Applications (3)
	FISH 101 — Introduction to Fisheries (3)
	and WLF 101 — Survey of Wildlife Science (1)
	or ABUS 223 — Real Estate Law (3)
	and RD 256*** — Topics in Rural Land Management (3)
	or BIOL 271*** — Principles of Ecology (4) and WLF 201*** — Wildlife Management Principles (3) 4-7
	and WLF 201*** — Wildlife Management Principles (3)4-7 3. Electives:
	Complete 9-14 credits from the following courses:
	ANS 310*** — Alaska Native Corporations (3)
	ANTH 242 — Native Cultures of Alaska (3)
	BIOL 106X*** — Fundamentals of Biology II (4)
	BIOL 239*** — Introduction to Plant Biology (4) BIOL 271*** — Principles of Ecology (3)
	BIOL 150 — Introduction to Marine Biology (3)
	CE 112*** — Elementary Survey (3)
	EMS 103 — First Responder (3)
	or PE 246 — First Aid (3)
	ENGL 314*** — Technical Writing (3)
	FISH 101 — Introduction to Fisheries (3)
	ENGL 314*** — Technical Writing (3) FISH 101 — Introduction to Fisheries (3) MIN 101 — Minerals, Man and the Environment (3)
	NRM 251*** — Silvics and Dendrology (3)
	NRM 304*** — Perspectives on Natural Resources Management (3)
	NRM 340 — Natural Resources Measurement and Inventory (3)
	RD 265 — Perspectives on Subsistence in Alaska (3)
	RD 492 — Rural Development Seminar (3)  STAT 200*** — Flamentary Probability and Statistics (3)

STAT 200\*\*\* - Elementary Probability and Statistics (3)

	WLF 101 — Survey of Wildlife Science (1) WLF 201*** — Wildlife Management Principles (3) WLF 303*** — Wildlife Management Techniques (3)9-14 Degree Total
4.	A maximum of 5 credits earned from the following list of one credit skills courses may be counted as electives for this program: SCIA 113 — Map Reading and Orienteering (1)
	SCIA 130 — Moose Ecology (1)
	SCIA 157 — Alaskan Plants (1)
	SCIA 161 — Birds of Alaska (1)
	SCIA 162 — Mammals of Alaska (1)
	Note: Other electives may be accepted upon approval of student's adviser.
	*ENGL 212 does not fulfill the second half of the written communication requirement for the baccalaureate degree.  **MATH 107 does not fulfill UAF core requirement.  ***Prerequisites required.

## Resource Economics

## School of Management Department of Economics

(907) 474-7119

Degree: M.S.

Minimum Requirements for Degree: 30 additional credits.

The M.S. degree in resource economics program offers a specialization in the economics of natural resources with emphases in a variety of specific fields possible through interdisciplinary elective courses and thesis research, e.g., fisheries, wildlife management, land resources management, agriculture, oil and minerals, water resources and forest management.

For complete information on the graduate program in resource economics, seethe UAF Graduate Catalog.

## **Rural Development**

## College of Rural Alaska Department of Rural Development

(907) 474-6432

Credits

Degree: B.A.

Minimum Requirements for Degree: 120credits

The Rural Development (RD) degree is designed for those committed to the empowerment of Alaska Native and other rural communities. A Bachelor of Arts Degree in Rural Development provides a broad understanding of development processes in Alaska and the global community. It also provides specific tools essential for rural leadership, including grant writing, business planning, resources co-management, and project management and evaluation.

RD students work with a faculty advisor to develop program emphasis in one of five areas: Land/Renewable Resources, Local Government Administration, Small Business Management, Community Research and Cultural Documentation, Community Organization and Service.

The RD program is available to students away from the Fairbanks campus through the RD Applied Field-Based Program. Special admission requirements apply to this program. Contact the Department or an RD faculty member for further information.

### Requirements

Rural Development - B.A. Degree

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

Rural Development Core (30 credits):
RD 300 — Rural Development in a Global Perspective
RD 325 — Community Development Strategies
RD 350 — Community Research Techniques
RD 351 - Community Planning and Grant Writing Techniques 3
RD 400 — Rural Development Internship
RD 450 - Managing Community Development Projects 3
RD 475 — Senior Project
RD Elective
RD or ED Elective 3

Complete a minimum of 24 elective credits (in addition to any	
required prerequisites) in one of the following groupings. (These	
elective credits can also be used to fulfill the humanities, social	
science, mathematics general requirements for the B.A. degree.)	
Land/Renewable Resources Emphasis	
Designed for individuals interested in becoming involved in the	
management of village corporation lands.	
ABUS 223 — Real Estate Law	
ANS 310 — Alaska Native Land Settlement*	
ANS 425 — Federal Indian Law and Alaska Natives*	
BIOL 104 — Natural History of Alaska	
BIOL 150 — Introduction to Marine Biology	
BIOL 271 — Principles of Ecology*	
BIOL 271 — Principles of Ecology* 4 BIOL 277 — Introduction to Conservation Biology* 3	
CAPS 111 — Computer Software for Beginners	
CF 112 — Flementary Surveying*	
CE 112 — Elementary Surveying*       3         CS 101 — Computers and Society       3	
ECON 235 — Intro. to Natural Resource Economics	
ENGL 314 — Technical Writing*	
EQS 201 — Environmental Management	
FISH 101 — Introduction to Fisheries	
FISH 401 — Fisheries Management*	
GEOG 338 — Intro to Geographic Information Systems 3	
GEOS 101X — The Dynamic Earth 4	
GEOS 101X — The Dynamic Earth	
MIN 101 — Minerals, Man and the Environment	
MSL 111X — The Oceans	
NRM 101 — Conservation of Natural Resources*	
NRM 204 — Natural Resources Legislation and Policy*	
NRM 340 — Natural Resources Measurements and Inventory* 3	
NRM 404 — Processes of Natural Resources Decision Making* 3	
NRM 430 — Land Use Planning*	
PS 420 — Environmental Politics	
RD 255 — Rural Alaska Land Issues	
RD 256 — Co-management of Renewable Resources*	
PD 265 Perspectives on Subsistance in Aleska	
RD 205 — Perspectives on Subsistence in Alaska	
PD 280 Pasource Management Passarch Techniques* 2	
RD 265 — Perspectives on Subsistence in Alaska	
WLF 201 — Wildlife Management Principles* 3	
WLF 201 — Wildlife Management Principles*	
WLF 201 — Wildlife Management Principles*	
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ABUS 151 — Village-Based Entrepreneurship
ABUS 179 — Fundamentals of Supervision 3 ABUS 211 — Tax for Business Entities 2
ABUS 232 — Contemporary Management Issues
ABUS 232 — Contemporary Management Issues
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ABUS 272 — Applied Business Law I
ABUS 272 Managing a Small Pusiness 3
ACCT 101 Florenters Assembling I
ACCT 101 — Elementary Accounting I
ANS 310 — The Alaska Native Land Settlement*
ANS 425 — Federal Indian Law and Alaska Natives*
ANS 425 — Federal Indian Law and Alaska Natives
BA 151 — Introduction to Business
CAPS 111 — Computer Software for Beginners
CS 101 — Computers and Society
ECON 111 — Economics of Rural Alaska (offered only through off-
campus program)
ECON 137 — The Alaskan Economy         3           ECON 200 — Principles of Economics         4
ECON 200 — Principles of Economics
ECGN 200 — Frinciples of Economics ENGL 212 — Business, Grant and Report Writing
ENGL 314 — Technical Writing*
OMT 221 — Records Management
SOC 407 — Formal Organizations*
Approved electives
Community Research and Cultural Documentation
Designed for individuals interested in becoming involved in access-
ing, organizing and disseminating information at the community
level, particularly through community information centers.
ANL 215 — Alaska Native Languages: Eskimo-Aleut
ANI. 216 — Alaska Native Languages: Indian Languages 3
ANS 120 — Cultural Differences in Institutional Settings 3
ANS 320 - Language & Culture: Application of Alaska* 3
ANS 320 — Language & Culture: Application of Alaska* 3 ANS 351 — Practicum in Native Cultural Expression
ANS 401 — Knowledge of Native Elders*
ANTH 230 — The Oral Tradition: Folklore and Oral History* 3
ANTH 320 — Language and Culture: Applications of Alaska* 3
ANTH 421 — Analytical Techniques*
ANTH 320 — Language and Culture: Applications of Alaska* 3 ANTH 421 — Analytical Techniques*
APAR 100 — Basic Video Workshop
APAR 103 — Editing Videotape
CS 101 — Computer Software for Beginners
CS 101 — Computers and Society
ED 311 — Intro to Instructional Techniques*
ENGL 313 — Writing Non-Fiction Prose*
ENGL 313 — Writing Non-Fiction Prose*
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3
ENGL 313 — Writing Non-Fiction Prose* 3 ENGL 314 — Technical Writing* 3 ENGL 349 — Narrative Art of Alaska Native Peoples* 3 HIST 250 — Alaska History for Local Historians 3 HIST 470 — Researching and Writing Alaska History* 3 JB 215 — Audio Production 3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 404 — Photoiournalism*       3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 404 — Photojournalism*       3         LS 309 — Information Resources*       1
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 404 — Photojournalism*       3         LS 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 404 — Photojournalism*       3         LS 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3
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ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 250 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 309 — Information Resources*       1         LS 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3         MSM 212 — Fundamentals of Museum Studies II*       3         MSM 311 — Museum Administration*       3         MSM 312 — Museum Collection Management*       3         RD 425 — Cultural Impact Analysis*       3         SOC 250 — Intro. Statistics for Behavioral Sciences       3
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ENGL 313 — Writing Non-Fiction Prose* 3 ENGL 314 — Technical Writing* 3 ENGL 349 — Narrative Art of Alaska Native Peoples* 3 HIST 250 — Alaska History for Local Historians 3 HIST 250 — Researching and Writing Alaska History* 3 JB 215 — Audio Production 3 JB 311 — Magazine Article Writing* 3 JB 317 — Broadcast Journalism* 3 JB 309 — Information Resources* 3 LS 309 — Information Resources* 1 LS 482 — History of Circumpolar Research* 3 MSM 211 — Fundamentals of Museum Studies I* 3 MSM 212 — Fundamentals of Museum Studies II* 3 MSM 311 — Museum Administration* 3 MSM 312 — Museum Collection Management* 3 RSD 425 — Cultural Impact Analysis* 3 SOC 250 — Intro. Statistics for Behavioral Sciences 3 SOC 473 — Social Science Research Methods* 3 COMM 225 — Listening and Interviewing* 3 COMM 330 — Intercultural Communication* 3 Approved Electives 3 Community Organization and Service Emphasis Designed for individuals who are interested in becoming involved with community level service organizations and programs.
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ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 250 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 309 — Information Resources*       1         LS 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3         MSM 212 — Fundamentals of Museum Studies II*       3         MSM 311 — Museum Administration*       3         MSM 312 — Museum Collection Management*       3         SCO 250 — Intro. Statistics for Behavioral Sciences       3         SOC 473 — Social Science Research Methods*       3         COMM 225 — Listening and Interviewing*       3         COMM 330 — Intercultural Communication*       3         Approved Electives       3 or More         Community Organization and Service Emphasis         Designed for individuals who are interested in becoming involved with community level service organizations and programs.
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 250 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 309 — Information Resources*       1         LS 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3         MSM 312 — Huseum Collection Management*       3         MSM 312 — Museum Collection Management*       3         SOC 250 — Intro. Statistics for Behavioral Sciences       3         SOC 473 — Social Science Research Methods*       3         SOMM 225 — Listening and Interviewing*       3         COMM 330 — Intercultural Communication*       3         Approved Electives       3 or More         Community Organization and Service Emphasis       3         Designed for individuals who are interested in becoming involved with community level service organizations and programs.         ABUS 154 — Human Relations       3 </td
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 404 — Photojournalism*       3         JB 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3         MSM 311 — Museum Administration*       3         MSM 312 — Museum Collection Management*       3         MSM 312 — Museum Collection Management*       3         SOC 250 — Intro. Statistics for Behavioral Sciences       3         SOC 473 — Social Science Research Methods*       3         COMM 225 — Listening and Interviewing*       3         COMM 330 — Intercultural Communication*       3         Approved Electives       3 or More         Community Organization and Service Emphasis         Designed for individuals who are interested in becoming involved with community level service organizations and programs.
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 470 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 404 — Photojournalism*       3         JB 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3         MSM 311 — Museum Administration*       3         MSM 312 — Museum Collection Management*       3         MSM 312 — Museum Collection Management*       3         SOC 250 — Intro. Statistics for Behavioral Sciences       3         SOC 473 — Social Science Research Methods*       3         COMM 225 — Listening and Interviewing*       3         COMM 330 — Intercultural Communication*       3         Approved Electives       3 or More         Community Organization and Service Emphasis         Designed for individuals who are interested in becoming involved with community level service organizations and programs.
ENGL 313 — Writing Non-Fiction Prose*       3         ENGL 314 — Technical Writing*       3         ENGL 349 — Narrative Art of Alaska Native Peoples*       3         HIST 250 — Alaska History for Local Historians       3         HIST 250 — Researching and Writing Alaska History*       3         JB 215 — Audio Production       3         JB 311 — Magazine Article Writing*       3         JB 317 — Broadcast Journalism*       3         JB 309 — Information Resources*       1         LS 309 — Information Resources*       1         LS 482 — History of Circumpolar Research*       3         MSM 211 — Fundamentals of Museum Studies I*       3         MSM 312 — Huseum Collection Management*       3         MSM 312 — Museum Collection Management*       3         SOC 250 — Intro. Statistics for Behavioral Sciences       3         SOC 473 — Social Science Research Methods*       3         SOMM 225 — Listening and Interviewing*       3         COMM 330 — Intercultural Communication*       3         Approved Electives       3 or More         Community Organization and Service Emphasis       3         Designed for individuals who are interested in becoming involved with community level service organizations and programs.         ABUS 154 — Human Relations       3 </td

PSY 101 — Introduction to Psychology
PSY 240 — Developmental Psychology in Cultural Perspective*. 3
PSY 255 — Foundations of Counseling*
PSY 310 — Cross-Cultural Psychology*
PSY 445 — Community Psychology*
SOC 101 — Introduction to Sociology
SOC 201 — Social Problems
SOC 242 — The Family: A Cross-Cultural Perspective
SOC 310 — Sociology of Later Life*
SOC 370 — Drugs and Drug Dependence*
COMM 330 — Intercultural Communication*
SWK 103 — Social Work in the Human Services
SWK 225 — Case Management*
SWK 306 — Social Welfare: Policies & Issues*
SWK 320 — Rural Social Work*
Approved electives
Minimum credits required
Transmitted and the state of th

\*prerequisites required

MINOR in Rural Development:

A minor in Rural Development requires the completion of 15 Rural Development credits at the 200 or above level, including RD 300.

## **Rural Human Services**

## College of Rural Alaska Interior-Aleutians Campus

(907) 474-5439

(907) 474-5440

#### Certificate

Minimum Requirements for Certificate: 30 Credits

The Rural Human Services Certificate is a one year program designed to facilitate development of strong and healthy rural Alaska Native individuals, families, and communities. Developed for village-based human service providers preparing to be natural helpers/healers in their communities, the program provides entry level training for village-based public, private, and volunteer human service organizations. Drawing extensively on resource people from the Native community, curriculum content and delivery reflects a strong multicultural orientation that validates, incorporates, and builds on Native values and principles. Courses are offered through a series of four training sessions. Each of the four sessions last three weeks and consist of six credits. Students spend the time in intensive study at selected delivery sites. A four credit practicum and two electives round out the program.

Admission is open to all individuals employed by a regional Native health corporation or local entity providing delivery of village-based human services, or individuals recognized by their communities as natural helpers/healers. A high school diploma or GED and/or previous training or work experience in the delivery of village-based human services is recommended but not required.

## Requirements

 Complete the certificate requirements in the following recommended sequence:

Credits
Training Session I
RHS 110 — Cross-Cultural Bridging Skills
RHS 115 — Issues of Personal Development in the Delivery of Rural
Human Services
RHS 120 — Family Systems I
Training Session II
RHS 130 — Processes of Community Change
RHS 140 — Alaska Native Values and Principles
RHS 150 — Introduction to Rural Counseling
Training Session III
RHS 220 — Family Systems II
RHS 250 — Rural Counseling II
RHS 260 — Addictions: Intervention and Treatment
Training Session IV
RHS 265 — Interpersonal Violence
RHS 285 — Case Management 2
RHS 285 — Case Management
Subtotal

2. Other requirements:

English\*

## Russian Studies

## Interdisciplinary

Degree: B.A.

Minimum Requirements for Degree: 130 credits

#### Requirements

Russian Studies - B.A. Degree

- Complete general university requirements and B.A. degree requirements.
- Complete the following program (major) requirements: Russian Studies core courses (24 credits):

Credits
Approved Anthropology Elective
GEOG 306 — Geography of Russia
HIST 464 — Modern Russia
RUSS 301 — Advanced Russian*
RUSS 302 — Advanced Russian*
RUSS 431 — Studies in Russian Culture
RUSS 432 — Studies of Literature in Russian
RUSS 487 — Translation
Complete at least 12 credits from the following courses or alterna-
tives as approved by the program advisor:
BA 460 — International Business
BA 461 — International Finance
ECON 463 — International Economics
GEOG 405 — Political Geography
HIST 315 — Europe 1900-1945
PHIL 471 — Contemporary Philosophical Prob
PS 202 - Comparative Politics: Contemporary Doctrins and
Structures3
PS 311 - Government and Politics of Russia and the Periphery
Europe3
PS 321 — International Politics
PS 322 — International Law and Organization
Minimum credits required 130
* Students must complete two years of Russian language study
(RUSS 101-102-201-202) or equivalent as a prerequisite for RUSS
301-302.

### MINOR in Russian:

3.

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

## Science Management

## School of Engineering Department of Engineering and Science Management

(907) 474-6121

Credite

Degrees: M.S.

Minimum Requirements for Degrees: 33 credits (beyond a bachelor's degree in a scientific field)

The science management curriculum is designed for graduate scientists who will hold executive or managerial positions in engineering, construction,

industrial, or governmental organizations. It includes human relations, financial, economic, quantitative, technical and legal subjects useful in solving problems of management.

For complete information on the graduate program in Science Management, seethe UAF Graduate Catalog.

## Social Work

# College of Liberal Arts Department of Behavioral Sciences and Human Services

907) 474-7240

Degrees: B.A.

#### Minimum Requirements for Degrees: B.A.: 120 credits

Graduates in social work qualify for beginning practice positions in child welfare, mental health, services to the aged, family agencies, youth programs, health services, Native corporations, and various other social agencies. Students learn to work with people on a personal level and are placed in asocial agency as part of their course work during the senior year. Social work applies knowledge in the behavioral sciences to deal with the emotional and social problems of individuals, families, and communities. The program is offered at the Fairbanks, Chukchi and Northwest campuses.

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

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

Castal	TIIII-	TP A	Degree
Socia	WORK	- D.A.	Degree

Complete the general university requirements and B.A. degree requirements. (Note: BIOL 103X must be taken to meet natural science requirement and SOC 100X must be taken as part of the baccalaureate core.)

	Creuits
Compete the following departmental core requirements:	
*PSY 101 — Introduction to Psychology	3
SOC 250 — Introductory Statistics for Behav. Sci	3
*PSY 240 — Develop. Psychology in Cross-Cultural Pers	р
	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 342 — Human Behavior and the Social Environment	nt 3
SWK 460 — Social Work Practice I	3
SWK 461 — Practicum in Social Work I6	
SWK 463 — Social Work Practice II	3
SWK 464 — Practicum in Social Work II	6
SOC 310 — Sociology of Later Life	3
SOC 335 — Deviant Behavior	3
SOC/PSY 370 — Drugs and Drug Dependence	3
PSY 360 — Psychology of Women	3
PSY 445 — Community Psychology	3
RD 325 — Community Development Strategies	3
RD 375 — Women and Development	3
JUST 258 — Juvenile Delinquency	3
JUST 310 — Principles of Corrections	3
JUST 340 — Rural Justice in Alaska	3
HST 120 — Cultural Diversity in Human Services	3
HST 205 — Basic Principles Group Counseling	3
HST 210 — Crisis and Grief Counseling	3
HST 215 — Individual Interviewing	3
HST 250 — Current Issues in Human Service	3
	Compete the following departmental core requirements:  *PSY 101 — Introduction to Psychology

HST 305 — Substance Abuse Counseling	3
All HMSV courses.	
Minimum credits required for degree	120
	2000

\*May be used toward B.A. general degree requirements where applicable.

## Sociology

# College of Liberal Arts Department of Behavioral Sciences and Human Services

(907) 474-7240

Degrees: B.A., B.S.

Minimum Requirements for Degrees: 120 credits

Sociology is the study of groups and their influence on personal behavior and culture. It is concerned with social processes that give rise to and shape human language, experience, perception, meaning, and behavior.

### Requirements

### Sociology - B.A. or B.S. Degree

 Complete the general university requirements and B.A. or B.S. degree requirements.

Complete the following departmental core requirements: Complete the following Sociology Core requirements: SOC 301 — Rural Sociology ....... 3 Complete 12 credits from the following:\*\* SOC 242 -The Family: A cross-cultural Perspective...... 3 SOC 309 -Urban Sociology ...... 3 SOC 310 -\* May be used toward B.A. general degree requirements where \*\* Courses from this group not used toward the major may be applied

MINOR in Sociology:

A minor in Sociology requires 18 credits in sociology including SOC. 101 and 102.

toward B.A. general degree requirements where applicable.

## **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.

## Statistics

### College of Liberal Arts

### Department of Mathematical Sciences

(907) 474-7332

Credite

Degree: B.S.

Minimum Requirements for Degree: 120 credits

Statistics is a collection of methods for making decisions or estimating unknown quantities from incomplete information. Statistical techniques are useful, for example, in estimating plant, animal and mineral abundances; forecasting social, political and economic trends; planning field plot experiments in agriculture; performing clinical trials in medical research; and maintaining quality control in industry. Employment opportunities are excellent for statisticians in many of these areas of application.

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

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

### Requirements

#### Statistics — B.S. Degree

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

- Complete the general university requirements and B.S. degree requirements. The mathematics requirements should be met with MATH 200-201. ENGL 314 is recommended to fulfill one of the writing intensive course requirements.
- Complete the following major requirements:

A. Statistics Core (26 Credits)       4         MATH 202X — Calculus       4         MATH 371 — Probability       3         MATH 408 — Mathematical Statistics       3         CS 103 — Intro. to Computer Programming       3         or any higher level CS course       3         STAT 200 — Elementary Probability and Statistics       3         or STAT 300 — Statistics       3         STAT 401 — Regression and Analysis of Variance       4         STAT 498 — Senior Project       3         B. Electives in the Major         Choose two of the following:         STAT 461 — Applied Multivariate Statistics       3         MATH 307 — Discrete Mathematics       3         MATH 310 — Numerical Analysis       3
MATH 371 — Probability
MATH 371 — Probability
MATH 408 — Mathematical Statistics
CS 103 — Intro. to Computer Programming or any higher level CS course 3 STAT 200 — Elementary Probability and Statistics or STAT 300 — Statistics 3 STAT 401 — Regression and Analysis of Variance 4 STAT 402 — Scientific Sampling 3 STAT 498 — Senior Project 3 B. Electives in the Major Choose two of the following: STAT 461 — Applied Multivariate Statistics 3 MATH 307 — Discrete Mathematics 3
or any higher level CS course 3 STAT 200 — Elementary Probability and Statistics or STAT 300 — Statistics 3 STAT 401 — Regression and Analysis of Variance 4 STAT 402 — Scientific Sampling 3 STAT 498 — Senior Project 3 B. Electives in the Major Choose two of the following: STAT 461 — Applied Multivariate Statistics 3 MATH 307 — Discrete Mathematics 3
STAT 200 — Elementary Probability and Statistics or STAT 300 — Statistics
or STAT 300 — Statistics
STAT 401 — Regression and Analysis of Variance
STAT 402 — Scientific Sampling         3           STAT 498 — Senior Project         3           B. Electives in the Major           Choose two of the following:           STAT 461 — Applied Multivariate Statistics         3           MATH 307 — Discrete Mathematics         3
STAT 498 — Senior Project
B. Electives in the Major Choose two of the following: STAT 461 — Applied Multivariate Statistics
Choose two of the following: STAT 461 — Applied Multivariate Statistics
STAT 461 — Applied Multivariate Statistics 3 MATH 307 — Discrete Mathematics 3
MATH 307 — Discrete Mathematics
MATH 307 — Discrete Mathematics
MATH 310 — Numerical Analysis
MATH 314 — Linear Algebra
MATH 401 — Advanced Calculus I
MATH 402 — Advanced Calculus II
MATH 460 — Mathematical Modeling 3
STAT, MATH or statistical discipline oriented course approved by
the statistics program chairperson
C. Area of Application* (24 Credits)
Complete a minimum of 24 credits, including at least 6 upper
division, in a single discipline in which a UAF Bachelor's Degree is

\* Credits received in the area of application may reduce the number of required credits in the general distribution requirements of humanities/social

offered. Joint approval in writingis required from the department

\*\* Examples of programs for areas of application for computer science, biology, wildlife, geology, natural resource management, and economics are available. Other areas of application are available.

A mathematics minor is completed by all statistics majors.

head in the area of application and the statistics adviser.\*

A Statistics/Math double major may be obtained by taking the following in addition to Items 1 and 2A above: MATH 215, 308, 314, 401, 492 and complete 12 additional credits in upper division math or statistics. A math elective package is MATH 371 and 408, STAT 401 and 402 plus 8 credits upper division MATH or STAT. The statistics elective package is MATH 314 and 401. Total credit hours 60 including MATH 200-201. Other double majors are available.

#### Minor in Statistics:

Co	omplete the following:
ST	AT 200 — Elementary Probability and Statistics
or	STAT 300 — Statistics
	AT 401 — Regression and Analysis of Variance
	ATH 371 — Probability 3
	ATH 408 — Mathematical Statistics
In	addition, complete three (3) credits of approved MATH, STAT or
	'AT related course work (e.g., BA 360, GEOS 430, ANTH 424,
	ATH 460, etc.)
	Fight arises regions releasing the assemble action and arrive are

Fisheries majors selecting the research option need only complete MATH 371 and 40 in addition to their fisheries requirements to obtain a minor in statistics.

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

These courses can be used to simultaneously satisfy other major or general distribution requirements.

## Technology

### Interdisciplinary Program

Degree: B.T.

Minimum Requirements for Degree: 120 credits

The Bachelor of Technology degree offers qualified applicants the opportunity to expand upon their technical education. The Bachelor of Technology degree allows students to choose one of three areas of study: Business, Interdisciplinary Studies, or Education (currently not available).

Education provides preparation for the certifiable fields. Business enhances managerial/entrepreneurial skills. Interdisciplinary studies allows the exceptional student to tailor a baccalaureate program to his/her own unique needs

Information and advising for this degree is through the Academic Advising Center.

### Requirements

### Technology - B.T. Degree

Complete the baccalaureate core (38-39 credits).

Complete the following B.T. requirements in addition to the core: ENGL 314 — (to count as one of the upper division writing intensive Area of specialization

Complete one of the following options:

Option 1: (32 credits)

Note: For this option, no more than 25% of total course work may be taken in the School of Management. ECON 200 — Principles of Economics ....... 4 STAT 200 - Elementary Probability and Statistics ...... 3 BA 330 — Legal Environment of Business ......4 Specialty Electives ..

(Advisor approved upper division internship or advanced technical

Option 2: (38 credits) (currently not available)

Note: For this option students must apply and be accepted to the Teachers for Alaska Program. The area of specialization must be one that can be certified for teaching.

Option 3: Interdisciplinary (Minimum of 30 credits)

For this option see "Interdisciplinary Studies" in the Degrees and Programs section.

Electives (1-7 credits) Of the above, at least 39 credits must be taken in upper division (300level or higher) courses.

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

- Having earned an Associate of Applied Science degree from an accredited institution of higher education.
- Substitute one of the following as a demonstration of competency in an applied or technical field with the approval of the Curricular Affairs Committee of the Faculty Senate:
  - an A.A.S. or similar degree earned at a nonaccredited institution
  - state or federal certification deemed appropriate by the faculty
  - journeyman status in trades and industry

### Theater

## College of Liberal Arts Department of Theater

(907) 474-7751

Degree: B.A.

Minimum Requirements for Degree: 130 credits

The program in Theater is structured to familiarize students with the theory and practice applicable to all aspects of theatrical production. With a variety of career options open to theater majors, the program's coupling of classroom study with a substantial schedule of productions is designed to prepare the student pursuing the major or minor for employment or further education. In addition, theater classes and productions are open to the participation of all students and provide unique opportunities for creative expression and development when coupled with other programs. Students pursuing a major or minor in theater are encouraged to work closely with a theater faculty member in arranging their individual program of study, including appropriate courses in related disciplines.

### Requirements

### Theater - B.A. Degree

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

	Credits
A.	Required courses (21 credits):
	THR 121 — Fundamentals of Acting
	THR 241 — Basic Stagecraft
	THR 247 — Introduction to Theatrical Design 3
	THR 254 — Beg Costume Construction and Design 3
	THR 331 — Fundamentals of Stage Direction
	THR 411 — Theater History I
	THR 412 — TheaterHistory II

B. (

THR 343 - Scene Design (3) THR 347 — Lighting Design (3)

	olete one of the following emphasis tracts: formance Emphasis (24)
1)	
10.00	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)
2)	A minimum of one course from:
	THR 341 — Intermediate Stagecraft (3)
	THR 343 — Scene Design (3)
	THR 347 — Lighting Design (3)
	THR 355 — History of Stage Costume (3) 3
3)	Complete two courses from:
100	THR 161 — Introduction to Tuma Theatre (3)
	THR 220 — Voice and Diction for Theatre (3)
	THR 361 — Advanced Alaska Native Performance (3)
	THR 413 — Playscript Analysis (3)
	THR 435 — Advanced State Direction (3)
No	rthern Theatre Performance Emphasis (24)
1)	Complete the following:
	THR 161 — Introduction to Tuma Theatre 3
	THR 361 — Advanced Alaska Native Performance 3
	THR 461 — Tuma Theatre Seminar 3
	THR 480 — Thesis in Northern Theatre 3
2)	Complete one course from:
	THR 341 — Intermediate Stagecraft (3)

-	A STATE OF THE STA
3)	Complete three courses from:
	THR 220 — Voice and Diction for Theatre (3)
	THR 221 — Intermediate Acting (3) THR 225 — Movement for the Actor (3) THR 325 — Theatre Speech (3)
	THR 225 — Movement for the Actor (3)
	THR 325 — Theatre Speech (3)
	THR 351 — Makeup for Theatre (3)
	THR 413 — Playscript Analysis (3) THR 435 — Advanced Stage Direction (3)9
	ecting Emphasis (24)
1)	Complete two courses from:
	THR 221 — Intermediate Acting (3)
	THR 225 — Movement for the Actor (3)
	THR 321 — Advanced Acting I (3)
	THR 325 — Theatre Speech (3)
	THR 351 — Makeup for Theatre (3)
	THR 421 — Advanced Acting II (3) 6
2)	Complete two courses fro:
	THR 341 — Intermediate Stagecraft (3)
	THR 343 — Scene Design (3)
	THR 347 — Lighting Design (3)
	THR 347 — Lighting Design (3) THR 355 — History of Stage Costume (3)
3)	Complete one course from:
	ENGL 422 — Shakesp: Hist of Plays & Tragedies (3)
	ENGL 425 — Shakesp: Comed & Non-dram Poetry (3)
	ENGL 425 — Shakesp: Comed & Non-dram Poetry (3) ENGL 445 — 20th Cent Drama: Checov-Ionesco (3) 3
4)	Complete three courses from:
	THR 245 — Stage Management (3)
	THR 380 — Film and Video Directing (3)
	THR 413 — Script Analysis (3)
	THR 435 — Advanced Directing (3)
	THR 380 — Film and Video Directing (3) THR 413 — Script Analysis (3) THR 435 — Advanced Directing (3) THR 499 — Thesis Project (3)
Des	ign/Technical Theatre Emphasis (24)
1)	Complete one course from:
	THR 221 — Intermediate Acting (3)
	THR 225 — Movement for the Actor (3)
	THR 325 — Theatre Speech (3)
	THR 351 — Makeup for Theatre (3)
2)	Complete three courses from:
	THR 341 — Intermediate Stagecraft (3) THR 343 — Scene Design (3)
	THR 343 — Scene Design (3)
	THR 347 — Lighting Design (3)
	THR 347 — Lighting Design (3) THR 355 — History of Stage Costume (3)9
3)	Complete four courses from:
	THR 245 — Stage Management (3) THR 348 — Sound Design in the Theatre (3) THR 447 — Lighting Design II (3)
	THR 348 — Sound Design in the Theatre (3)
	THR 447 — Lighting Design II (3)
	THR 456 — Adv Costume Design and Constr (3)
	THR 499 — Thesis Project (3)
	Minimum credits required

### MINOR in Theater:

A minor in Theater requires 18 credits in theater courses including the following: THR 121 — Fundamentals of Acting ..... 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.

## **Veterinary Medicine**

### **Pre-Professional Advising**

(907) 474-6396

Veterinary medicine is concerned with two primary health areas. The first is animal health which involves diagnosis, prognosis, therapy and prevention of animal health problems. The second is public health which involves protection of the public from animal borne disease, with methods such as food safety inspection. Veterinarians can also be found in the fields of research and education.

Generally, four-years of graduate level study are required for completion of a professional program in veterinary medicine. Classroom instruction and laboratory work provide the student with a solid foundation during the first three years of study. The final year of professional study is comprised of clinical rotations. Speialization within veterinary medicine is possible after further study at the post-doctoral level.

While a bachelor's degree is not required for admission into veterinary school, most entering students have completed a four-year undergraduate degree. Veterinary schools will consider applications from students from all disciplines provided specific course requirements have been met. Since these course requirements may vary somewhat with each school, it is recommended that students check the requirements of the school they are interested in. In general, pre-veterinary students should include the following courses in their studies at UAF: introductory chemistry (CHEM 105X, 106X), organic chemistry (CHEM 321, 322, 324), biochemistry (CHEM 451, 452), biology (BIOL 105X, 106X, 342,362, 418), mathematics (STAT 200), and physics (PHYS 103X, 104X).

Admission to veterinary school is based on the strength of one's undergraduate academic record, plus test scores on either the Veterinary College Admissions Test (VCAT) or the Graduate Record Exam (GRE). In addition, veterinary medicine exposure and experience is highly recommended.

Advisement for students considering veterinary medicine as a career choice is available through the Academic Advising Center.

## Welding

## College of Rural Alaska Tanana Valley Campus

(907) 474-5264

Special training programs

Welding is an important industrial skill with applications in agriculture, mining, transportation, aviation, oil and gas, and construction. Training ranges from welding basics to advanced pipe and metal plate fabrication. Classes are kept small in order to offer hands-on training and maximum student-instructor interaction. Advanced students may work toward A.W.S. certification or pursue advanced projects. A student may request credit by examination for any WMT class. See the department for details.

## Wildlife Biology

## College of Natural Sciences Department of Biology and Wildlife

(907) 474-7671

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

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

The undergraduate curricula in the program in wildlife are intended to provide basic education and training. This degree is designed for those students whose objective is to undertake research needed to provide additional information on the workings of wild animal populations, the condition of their habitat, and habitat-animal relationships. It is also designed for those students whose primary interests involve the interpretation, application, or dissemination of research findings, rather than their acquisition. A wildlife degree is appropriate for those students contemplating careers in wildlife agency administration, in developing and implementing wildlife management plans and in public information and education. The curriculum provides a solid foundation for graduate study and meets requirement for certification by The Wildlife Society.

The geographic location of the university is particularly advantageous for the study of wildlife biology. Spruce forest, aspen-birch forest, alpine tundra, bogs and several types of aquatic habitats are within easy reach. Studies can be made in many other habitats ranging from the dense forests of southeastern Alaska to Arctic tundra.

Adequate study collections of plants and animals are available, and a 2,000 acre study area is near the campus. Undergraduates have ample opportunity for close association with the personnel of the Alaska Cooperative Fish and Wildlife Research Unit and several local offices of the federal and state conservation agencies. These agencies and program faculty usually hire a number of students for summer field work. Thus, an unusually good opportunity is available for students to gain experience and to make job connections.

### Requirements

Wildlife Biology - B.S. Degree

- Complete the general university requirements and B.S. degree requirements, completing COMM 141X as part of the core.
- 2. Complete the following program (major) requirements:

Credits	
NRM 101 — Natural Resources Cons. and Policy	
NRM/WLF 431 — Wildlife Policy and Administration	
or NRM 407 — Environmental Law	
STAT 200 — Elementary Probability and Statistics	
or STAT 300 - Statistics 3	
or STAT 300 - Statistics	
or STAT 402 — Scientific Sampling	
BIOL 105X-106X — Fundamentals of Biology	
BIOL 317 — Comp. Anatomy	
BIOL 239 — Introduction to Plant Biology	
BIOL 262 Principles of Countries	
BIOL 262 — Principles of Genetics	
BIOL 271 — Principles of Ecology	
BIOL 310 — Animal Physilogy	
BIOL 331 — Systematic Botany 4	
BIOL 425 — Mammalogy	
BIOL 426 — Ornithology         3           BIOL 471 — Population Ecology         3	
BIOL 471 — Population Ecology	
CHEM 105X-106X — General Chemistry	
ENGL 314 — Technical Writing	
or ENGL 414 — Research Writing	
MATH 272 — Introduction to Calculus for the Life Sciences	
or MATH 200X — Calculus3-4	
PHYS 103X — College Physics	
WLF 101 — Survey of Wildlife Sciences	
WLF 201 — Wildlife Management Principles	
W.F. 201 — Wildlife Management Techniques 3	
WLF 303 — Wildlife Management Techniques	
WLF 460 — Nutrition and Physiol Ecology of Wildlife	
Take at least 3 of the following:	
BIOL 303 — Principles of Metabolism and Biochemistry	
BIOL 406 — Entomology4	
BIOL 407 — Aquatic Entomology	
BIOL 414 — Environmental Physiology	
BIOL 427 — Ichthyology	
BIOL 441 — Animal Behavior	
BIOL 444 — Reproductive Biology	
BIOL 472 — Communities and Ecosystems	
BIOL 472 — Communities and Ecosystems	
BIOL 474 — Plant Ecology	
BIOL 474 — Plant Ecology	
BIOL 480 — Water Pollution Biology	
BIOL 482 — Evolution	
NRM 338 — Introduction to Geographic Information Systems 3	
NRM 312 — Introduction to Geographic Information Systems 3	
NRM 341 — GIS Analysis	
NRM 341 — UIS Analysis	
NRM 370 — Introduction to Watershed Management	
NRM 380 — Soils and the Environment	
NRM 450 — Forest Management	
WLF 305 — Wildlife Diseases	
WLF 419 — Waterfowl and Wetlands Ecology and Management 4	
Complete sufficient electives to bring total to	
Deab doe of existence and ideas are strongly used to obtain	

Bachelor of science candidates are strongly urged to obtain work experience in wildlife-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers.

The biology and wildlife program and the Alaska Cooperative Fish and Wildlife Research Unit cooperate in offering graduate work leading to the master of science degree. A doctor of philosophy degree is also offered. Persons desiring detailed information on the graduate program in wildlife biology may obtain this from the head, biology and wildlife program. The procedure to be followed in applying for admission to graduate study is outlined in the section on Graduate Admissions in this catalog.

The Alaska Cooperative Fish and Wildlife Research Unit offers a limited number of research assistantships; information on these and the unit's program can be obtained from the leader, Alaska Cooperative Fish and Wildlife Research Unit, University of Alaska Fairbanks, Fairbanks, Alaska. Applications for these assistantships should be sent to the unit leader; such applications are supplementary to the application for admission for graduate study.

MINOR in Wildlife Biology:

A minor in Wildlife Biology requires at least 15 credits in Biology and Wildlife, including WLF 303, WLF 410, WLF 460, and six additional credits approved by the department, in Biology or Wildlife and that are not required for a student's major. Prerequisites for required courses include BIOL 105X-106X, BIOL 271, BIOL 310, STAT 200 or STAT 300, and WLF 201. Depending upon a student's major, some of these prerequisites may satisfy the six additional credits in Biology and Wildlife required for this minor.

Wildlife Biology — M.S. or Ph.D. Degree

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

## Women's Studies

## Interdisciplinary

(907) 474-6509

Minor Only

The minor in Women's Studies is an interdisciplinary concentration that focuses on the significance of gender in human lives today, in the past, and in all cultures.

### Requirements

MINOR in Women's Studies

Complete WMS 201 — Introduction to Women's Studies

Credits

WMS/ED 440 - Gender and Education	3 adviser 9 18 ultural or
WMS/ED 440 - Gender and Education	3
<ol> <li>WMS/ED 440 - Gender and Education</li> <li>Complete at least one of the following courses in Humani *WMS/JPN 331 — Women's Voices in Japanese Literatu WMS/ENGL 333 — Women's Literature</li> </ol>	
WMS/ED 440 - Gender and Education	3
WMS/FD 440 - Gender and Education	ities:
WMS/HIST 424 — Topics in Women's History	3
*WMS/RD 375 - Women and Development	
WMS/COMM 351 — Gender Communication	3
*WMS/ANTH 308 — Language and Gender *WMS/JUST 335 — Women, Crime and Justice	3
<ol> <li>Complete at least one of the following courses in Social S WMS/HIST 202 — History of Women in America</li></ol>	tive 3

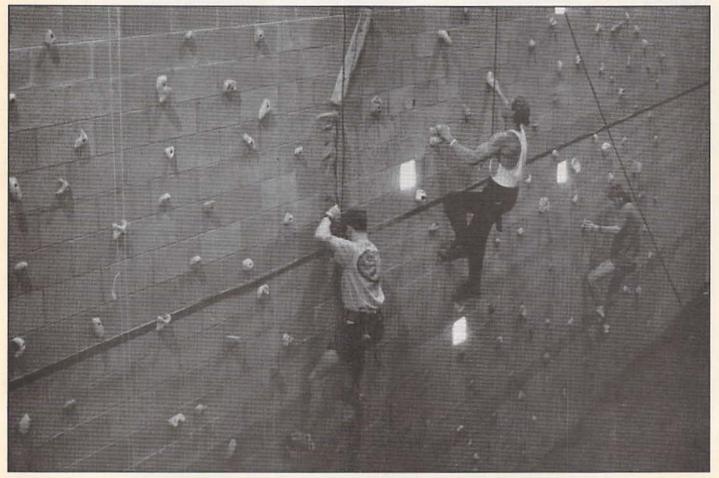
College of Natural Sciences Department of Biology and Wildlife

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.



Students practice rock climbing on the climbing wall in UAF's new Student Recreation Center, which opened in 1994.

# **Course Descriptions**

In this section of the University of Alaska Fairbanks catalog, full course information for all undergraduate level courses is included. Titles, credits and frequency of offering only are indicated for graduate level courses. (See the UAF Graduate Catalog for complete graduate course information and material and/or laboratory fees information.)

Unless otherwise indicated, course frequency refers to the offering of courses at the Fairbanks campus of the University of Alaska Fairbanks. The courses listed in this catalog are not offered at all UAF sites but could be offered if demand warrants and qualified faculty are available.

Courses are regularly offered at Bristol Bay Campus at Dillingham, Chukchi Campus at Kotzebue, Kuskokwim Campus at Bethel and Northwest Campus at Nome. In the Interior Campus, courses are available at Fort Yukon, McGrath, Nenana, Tok and Unalaska. Information about the frequency of offerings of courses at these sites can be obtained from the local UAF representative.

#### Course Numbers

The first numeral of a course numbered in the hundreds indicates the year in which the course is normally offered in its own department. For example, ENGL 111 is given for first-year students and ENGL 318 is given for third-year students. Freshman and sophomore students are cautioned to register for upper division (300 and 400) level courses only if they have had adequate preparation and background to undertake advanced study in the field in which those courses are offered.

000-049 - Non-credit courses 050-099 - Developmental courses Developmental courses are preparatory courses which do not apply to associate, baccalaureate or graduate degrees.

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 professional courses

500-level courses are intended as post-baccalaureate experiences for professionals who desire to continue their education at a level distinct from graduate level education. 500-level special topics and independent study courses (593, 595, 597) shall not apply toward any degree, certification or credential program. 500-level 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. Admission to graduate courses cross-listed with undergraduate courses requires graduate standing or permission of the instructor.

Special or Reserved Numbers - Courses identified with numbers ending in -92 are seminars; ending in -93 are special topics courses; -94, approved trial courses; -95, special topics summer session courses, offered only during the summer; -97 indicates individual study; -98 individual research; and -99, thesis. Courses identified with these special or reserved numbers may be available at all levels (i.e., 193, 293, 393, etc.) at the discretion of any department, although offerings above the level of approved programs must be approved in advance by the Provost (Vice Chancellor for Academic Affairs and Research) (e.g., 600-level offerings in areas without approved graduate programs). These courses may be repeated for credit.

Courses with a suffix of "X" (ENGL 111X, MATH 103X, meet specific baccalaureate core requirements. Courses with suffixes of "W"

or "O" meet upper-division writing intensive or oral communication intensive course requirements for the baccalaureate core.

#### Course Credits

One credit represents satisfactory completion of 800 minutes of lecture or 1600 or 2400 minutes of laboratory, whichever is appropriate. Credit hours may not be divided, except one-half credit hours may be granted at the appropriate rate. For short courses and classes of less than one semester in duration, course hours may not be compressed into fewer than three days per credit.

Following the title of each course, the figures in parentheses indicate the number of lecture and laboratory hours the class meets each week for one semester. The first, lecture hours; the second, laboratory. For example (2+3) indicates that a class has two hours of lecture and three of laboratory work each week. The number of credits listed is for each semester. Thus "3 credits" means three credits may be earned.

Credit may not be given more than once for the completion of a course unless the course has been designated as repeatable for credit.

#### Course Classification Identification

#### The Baccalaureate Core

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

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

O - Oral Communication Intensive Course

W - Writing Intensive Course

Two courses designated "O/2" are required to complete the oral communication intensive requirement.

#### Specific Degree Requirements

Courses that may be used to satisfy specific degree requirements (e.g., humanities elective for the B.A. degree, or natural science elective for the B.S. degree) are identified in the course description section of this catalog by the following designators:

h - humanities s - social science m - mathematics n - natural science

For example, you may use ANTH 309, Arctic Prehistory (3+0) s, to satisfy the "social science elective" requirement for the Bachelor of Arts degree. Some courses, including all special topics and individual study courses, are not given course classifications.

#### Notes

Course designated as meeting "W" or "O" requirements for the baccalaureate core may not meet written or oral communication requirements for degree requirements in effect prior to the fall of 1991.

Courses which are offered only every other year are indicated by the specific year in which they are next scheduled. Courses with no year scheduled are offered every year, except as noted.

Not all courses are offered at every location of the University of Alaska Fairbanks. Check the local class schedule for course offerings at other sites.

## Accounting

Admittance to 300 and 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course.

A \$25 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON except ECON 100X). This fee is in addition to any lab/material fees. Note: This fee does not apply to Tanana Valley Campus courses.

3 Credits

Wall, Spring Elementary Accounting (3+0) Accounting concepts and procedures for service businesses and for merchandising businesses owned by a single profrietor. Also available via Independent Learning. (Prerequisite: Placement concurrent enrollment, or completion of Math at the 100 level or above.)

ACCT 182 3 Credits

Elementary Accounting (3+0) Accounting concepts and procedures for businesses organized as partnerships or corporations and performing manufacturing operations. Also available via Independent Learning. (Prerequisite: ACCT 101.)

ACCT 303 3 Credits

Governmental and Nonprofit Accounting (3+0) Accounting for governmental units, public schools, colleges and universities, health care providers, voluntary health and welfare organizations, and other nonprofit organizations. (Prerequisite: ACCT 101, upper division standing.)

Income Tax (3+0)

Fall, Spring

Federal and state income taxes primarily for Alaska residents. Introduction to corporate income taxation. Tax reporting, planning, and research. (Prerequisite: ACCT 102 or permission of instructor, upper division standing.)

3 Credits

Managerial Cost Accounting (3+0)

Cost accounting with managerial emphasis on cost-volume-profit analysis, job order and process costing, joint costs, by-products, inventory costing alternatives, systems design, responsibility accounting, profit planning, standard costs, and flexible budgeting. For accounting majors. (Prerequisite: ACCT 102, upper division standing.)

ACCT 352 3 Credits

Management Accounting (3+0) Business policy profit planning, resource planning, control concepts, reporting for management control, and impact of public reporting on management decisions. (Prerequisites: ACCT 101, ACCT 102, upper division standing.)

ACCT 361 ACCT 362 3 Credits

Fall Spring

3 Credits Intermediate Accounting (3+0)

Financial accounting topics are discussed from the perspective of both accounting practice and theory. Working capital and fixed asset accounts are emphasized in the Fall semester. Long-term liabilities and stockholders equity are emphasized in the Spring semester. Ethical and international accounting issues are emphasized throughout the sequence. (Prerequisite: ACCT 102, upper division standing.)

ACCT 401 3 Credits

Advanced Accounting (3+0) A study of accounting for business combinations: parent-subsidiary relationships, home office/branch relationships, partnerships, and multinational enterprises. (Prerequisite: ACCT 362, upper division standing.)

3 Credits Advanced Taxes (3+0)

Federal income tax for all entities. Gift, estate, and payroll taxes. Tax research, planning, and reporting for domestic and foreign taxpayers. (Prerequisite: ACCT 310, upper division standing.)

3 Credits

Spring

Advanced Cost Accounting and Controllership (3+0) Study of the controllership function with emphasis on advanced cost and managerial accounting topics related to contemporary organizations. Global practices in managerial accounting considered. (Prerequisites: AIS 316, ACCT 342, 362; BA 325, 360, upper division standing.)

ACCT 452W 3 Credits

Auditing (3+0)

Introduction to the professional standards and procedures applicable to an auditor's examination of financial statements. Compliance and Operational auditing, ethical and legal responsibilities, and international auditing issues emphasized. (Prerequisite: ACCT 362, AIS 316, upper division standing.)

3 Credits

As Demand Warrants

Tax Planning and Research (3+0) Tax planning and research for business organizations. Tax planning for estates, trusts, and individuals. For tax practitioners and students without work experience in taxation. (Prerequisites: ACCT 310 and 403 or permission of instructor, upper division standing.)

ACCT 472 3 Credits Spring

Fall

Fall

Computer Control and Advanced Auditing (3+0) Advanced auditing theory and practice. Audit techniques and internal control of computer systems. For auditor practitioners and students without field experience in auditing. (Prerequisites: AIS 316, ACCT 452. Course assumes prior exposure to auditing and information systems, upper division standing.)

ACCT 602 3 Credits

Accounting for Managers (3+0)

ACCT 620

3 Credits Accounting Theory and Practice (3+0)

ACCT 650 3 Credits Management Accounting Seminar (3+0)

ACCT 670 3 Credits Public Accounting Seminar (3+0) Spring

Spring

## Accounting and Information Systems

Admittance to 300 and 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course.

A \$25 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (ACCT, AIS, BA and ECON except ECON 100X). This fee is in addition to any lab/material fees. Note: This fee does not apply to Tanana Valley Campus courses.

Fall, Spring

Effective Personal Computer Use (3+0) Introduction to popular PC computer software used in small businesses. Develops proficiency with popular software including word processing, spreadsheets, graphics/presentation, Internet, communications, database and checkbook/personal finance management. (Prerequisite: Placement, concurrent enrollment, or completion of Math at the 100 level or above.)

Fall, Spring

Introduction to Management Information Systems (3+0) The role of information technology in organizations and its impact on management and strategic issues. (Prerequisite: AIS 101, upper division standing.)

**AIS 312W** 3 Credits

uisites: ACCT 102, upper division standing.)

Information Systems Technology (3+0)

Introduction to the hardware and systems software underlying information systems; provides background to understand computer marketing literature and to select among technology alternatives. (Prerequisite: Upper division standing)

3 Credits

Accounting Information Systems (3+0) Accounting systems for business entities in various industries. Internal control for the business, data processing and its relationship to accounting systems. (Prereq-

Fall

Systems Analysis and Program Design (3+0) The system development life cycle for database-oriented information systems in both mainframe and microcomputer environments. Includes programming in one or more fourth generation languages and a term project. (Prerequisites: AIS 310, 312, 316, upper division standing.)

**AIS 412W** 3 Credits

Planning, Administration and Control Information Systems (0+6) Overview of what a manager needs to know to administer an information systems department, including extensive discussions of current trends in management of IS and the IS industry. Materials fee: \$10.00 (Prerequisite: AIS 410, upper division standing.)

Fall

AIS 414 3 Credits

Spring

Database Design for Management Information (3+0)

Combines advanced systems analysis using modern techniques of data modelling with study of management and administrative problems in coordination and management of organization data resources; focusing on needs of medium-sized and large organizations. (Prerequisite: AIS 410 or CS 401, upper division standing.)

**AIS 473** 3 Credits

Applied System Design (3+0)

Application of systems analysis and computer skills to build accounting oriented transaction-processing systems. (Prerequisite: ACCT 316 and ACCT 342 or 352, upper division standing.)

3 Credits

Management Information Systems (3+0)

## Airframe and Powerplant

As Demand Warrants

General Airframe and Powerplant (4+0)

Shop practices, basic math, applied physics, F.A.A. regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the

**AFPM 145** 1 Credit As Demand Warrants

Basic Mathematics (1+0) Review of applied and technical mathematics related to the construction of aircraft and their engines. Common and decimal, fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; fundamental algebraic operations. Materials fee: \$10.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 146** 2 Credits Basic Electricity (2+0) As Demand Warrants

Electrical theory and concepts for the aviation mechanic. Ohm's law, electrical circuits, diagrams, batteries, and a variety of electrical components. Materials fee: \$25.00. (Prerequisite: Admission to A & P Program or permission of the instructor.)

**AFPM 147** 0.5 Credits As Demand Warrants

Physics for Mechanics (.5+0) Applications of mechanics; levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill Natural Science requirements for any degree.) Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

1 Credit

As Demand Warrants

Aircraft Drawing (1+0)

Basic drafting. Drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts. Materials fee: \$10.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

0.5 Credits

As Demand Warrants

Fluid Lines and Fittings (.5+0) Rigid and flexible fluid lines and fittings, fabrication and installation. (Prerequisite: Admission to A & P Program or permission of instructor.) Materials fee:

**AFPM 150** 2 Credits As Demand Warrants

Materials and Processes (2+0) Basic shop practices, including selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic heat treating processes, forms of nondestructive inspections. Materials fee: \$75.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

As Demand Warrants

Cleaning and Corrosion Control (1+0)

Basic aircraft cleaning materials, methods, and corrosion control. Materials fee: \$15.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

1 Credit Federal Aviation Regulations (1+0)

Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics. Materials fee: \$10.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 153 1 Credit

As Demand Warrants

Weight and Balance (1+0)

Weighing procedures, weight, arms, moments, center of gravity computations, and placarding. Aircraft loading, required forms, weighing. Materials fee: \$10.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

0.5 Credits

Ground Operations and Servicing (.5+0)

Starting, moving, servicing, securing, and fueling aircraft. Materials fee: \$55.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

Airframe Structures (FAA Test Preparation) (3+0)

Aircraft wood, dope, fabric finishes, welding, sheet metal, assembly and rigging

and inspection. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00, (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

AFPM 206

As Demand Warrants

M 206 2 Credits As Demand War Airframe System & Components (FAA Test Preparation) (2+0) Aircraft electrical, hydraulic and pneumatic systems. Landing gear, instruments, fuel, communication and navigation, cabin atmosphere control, and fire protection systems. Inspection, checking, troubleshooting, repair and servicing. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

2 Credits

As Demand Warrants

MOS Powerplant Theory/Maintenance (FAA Test Preparation) (2+0) Jet engine fundamentals, analysis, testing. Inspecting turbo jets, turbo shaft, and turbo fan engines. Overhaul, inspection, and fundamentals of reciprocating engines. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

3 Credits

**As Demand Warrants** 

MOS Powerplant System/Components (3+0)

Fuel metering, induction systems, propellers, control systems, and powerplant electricity. Repair, inspection, service and troubleshooting. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam. Materials fee: \$20.00. (Prerequisite: Experience requirements of FAR 65.77 or permission of the instructor.)

2.5 Credits

As Demand Warrants

Aircraft Electrical Systems (2.5+0)

Wiring, control, indication, and protection devices for AC and DC systems. Inspection, troubleshooting service and repair of these systems. Materials fee: \$45.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

1.5 Credits

As Demand Warrants

Powerplant Electrical Systems (1.5+0) Installation, inspection, testing, servicing engine electrical system wiring, con-

trols, indicator and protective devices. Repair and service of electrical generating systems. Materials fee: \$30.00.

AFPM 235 4.5 Credits As Demand Warrants

Aircraft Reciprocating Engines (4.5+0)

History and development of the aircraft reciprocating engine. Repair, overhaul, and inspection of various types of engines. Operation and troubleshooting of engines. Materials fee: \$190.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 240** 2 Credits As Demand Warrants

Turbine Engines (2+0)

Development, theory and operation. Engine design, performance, accessories and subsystems. Engine maintenance and overhaul. Materials fee: \$20.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 244 1.5 Credits As Demand Warrants

Lubricating Systems (1.5+0)

Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and components. Materials fee: \$20.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

2 Credits AFPM 245

As Demand Warrants

Ignition Systems (2+0)

Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems. Repair and bench testing of components. Materials fee: \$45.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 246 2 Credits **As Demand Warrants** 

Fuel Metering Systems (2+0) Fundamental operation of fuel metering systems in aircraft powerplants. Technical data to repair and overhaul carburetors and components. Inspecting, troubleshooting and adjusting turbine engine fuel metering systems and electronic fuel controls. Materials fee: \$30.00. (Prerequisite: Admission to the A & P Program or permission of the instructor.)

AFPM 248 0.5 Credits Induction Systems (.5+0) As Demand Warrants

Operation and service of aircraft induction, preheat, anti-ice and super charger systems. Materials fee: \$5.00.

**AFPM 249** 0.5 Credits As Demand Warrants

Powerplant Cooling Systems (.5+0) Inspection, service and repair of engine cooling systems - both air and liquid cooled installations. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

0.5 Credits

As Demand Warrants

Powerplant Exhaust Systems (.5+0) Inspection, service and repair of engine exhaust systems. Includes operations of turbo compounded engines, thrust reversers, and noise suppressors. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

1.5 Credits Fuel Systems (1.5+0)

As Demand Warrants

Inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components. Materials fee: \$15.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 252** 2 Credits Propellers (2+0)

As Demand Warrants

Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations. Materials fee: \$30.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 253** 1 Credits As Demand Warrants

Transport Category Aircraft (1+0) Introduction to transport category aircraft systems and components. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 254 0.5 Credits As Demand Warrants

Ice and Rain Control Systems (.5+0) Inspection, operation and troubleshooting of de-ice and anti-ice systems. Materials fee: \$5.00.

0.5 Credits

As Demand Warrants

Fire Protection Systems (.5+0) Inspection, servicing, troubleshooting and repair of aircraft and engine fire detection and extinguishing systems. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 256** 

**As Demand Warrants** 

Communications & Navigation Systems (.5+0) Operation of aircraft avionics, autopilots and antennas, including inspection and

installation. Materials fee: \$10.00.

0.5 Credits

As Demand Warrants

Instrument Systems (.5+0) Inspection, troubleshooting, removal and replacement of aircraft and engine instruments and indicating systems. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

1 Credit

**AFPM 257** 

As Demand Warrants

Cabin Atmosphere Control Systems (1+0) Aircraft pressurization, air conditioning, heating and oxygen systems. Operation, inspection, troubleshooting, service and repair. Materials fee: \$10.00.

**AFPM 259** 1.5 Credits As Demand Warrants

Hydraulic and Pneumatic Systems (1.5+0)

Operation of systems and uses in aircraft. Identification of hydraulic fluids, seals, hydraulic and pneumatic control devices, inspection and servicing, and troubleshooting. Materials fee: \$20.00.

**AFPM 260** 1.5 Credits As Demand Warrants

Aircraft Landing Gear Systems (1.5+0)

Simple and complex systems. Operation, service and repair of mechanical and hydraulic retraction mechanisms. Wheel, tire and brake service. Aircraft speed and configuration warning systems, electric brake controls, anti-skid systems, landing gear position and warning systems. Materials fee: \$25.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

AFPM 261 1 Credits As Demand Warrants

Non Metallic Structures (1+0)

Inspection, service and repair of wood structures. Preliminary and secondary repair of interior and service of plastic, honeycomb, bonded, and composite and laminated structures. Materials fee: \$10.00. (Prerequisites: Admission to A & P Program or permission of instructor.)

**AFPM 262** 1 Credit Aircraft Coverings (1+0) As Demand Warrants

Selection, application, inspection and testing of fabric and fiberglass coverings and methods of repair. Materials fee: \$40.00. (Prerequisite: Admissions to A & P Program or permission of instructor.)

0.5 Credits AFPM 263

As Demand Warrants

Aircraft Finishes (.5+0) Identification and selection of aircraft finishing materials. Application of paints, dopes, primers, and trim. Materials fee: \$40.00. (Prerequisite: Admission to A & P Program and permission of instructor.)

**AFPM 264** 3 Credits As Demand Warrants

Sheet Metal Structures (3+0)

Aircraft sheet metal fabrication, inspection and repair including rivets and fasteners. Materials fee: \$130.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

1.5 Credits

As Demand Warrants

Aircraft Welding

Contemporary welding methods on aircraft structures. Oxyacetylene, arc, inert gas and brazing techniques. Inspection of welded structure and safety procedures. Materials fee: \$115.00.

1.5 Credits **AFPM 266** 

As Demand Warrants

Assembly and Rigging Aerodynamic theory and function of aircraft control surfaces. Fabrication and installation of control devices for fixed and rotary wing aircraft; jacking and control surface balance. Materials fee: \$35.00. (Prerequisite: Admission to A & P Program or instructor permission.)

**AFPM 267** 0.5 Credits Airframe Inspections

As Demand Warrants

Inspection and return of aircraft to service. Procedural and legal aspects of 100 hour, annual and periodic inspections. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

0.5 Credits

As Demand Warrants

Airframe Testing Preparation for the Federal Aviation Administration written, oral and practical exams for the Powerplant Mechanics license. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 271** 0.5 Credits As Demand Warrants

**Powerplant Inspections** Methodology and recordkeeping for inspection of aircraft reciprocating and gas turbine engines. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or permission of instructor.)

**AFPM 272** 0.5 Credits **Powerplant Testing** 

As Demand Warrants

Preparation for the Federal Aviation Administration written, oral and practical exams for the Powerplant Mechanics license. Materials fee: \$5.00. (Prerequisite: Admission to A & P Program or instructor permission.)

2 Credits

As Demand Warrants

Inspection Authorization Preparation (1+2) Technical background training for the working airframe and powerplant mechanic in selecting, reviewing, and utilizing the appropriate Federal Regulatory and Advisory information as well as the Manufacturer's Maintenance information to inspect and return to service aircraft, engines, propellers, appliances and related parts in accordance with FAR Part 65.95. Final exam is the FAA Inspection Authorization exam administered by an FAA Airworthiness Inspector. (Prerequisite: FAA A & P Certificate, meet additional requirements of FAR 65.91.)

## Alaska Native Languages

**ANL 108** 1-3 Credits As Demand Warrants

Beginning Athabaskan Literacy (3+0) h

Introduction to reading and writing in one of the Athabaskan languages for native speakers. Materials fee: \$7.00.

ANL 141 3 Credits Fall
ANL 142 3 Credits Spring
Beginning Athabaskan-Koyukon or Kutchin (3+0) h

Introduction to Koyukon, the Athabaskan language of the Koyukuk and Central Yukon rivers, or Kutchin, the Athabaskan language of the Upper Yukon. Class will deal with one of these two languages. Literacy and grammatical analysis for speakers. For non-speakers, a framework for learning to speak, read, and write the language. Materials fee for each course: \$10.00. (Prerequisite: ANL 141 for ANL 142 in the same language or permission of the instructor.)

ANL 150 1 Credit As Demand Warrants Interpretive Communication (1+0) s

Communication processes in Yup'ik and English speaking cultures. Solutions to identify problem areas in cross-cultural communication. Situations such as conversations, meetings, translating and interpreting. Interpreting meaning in what is communicated between people of different socio/cultural backgrounds. Kuskokwim Campus only.

ANL 151 3 Credits
Interethnic Communications (3+0) s

As Demand Warrants

Understanding differences in cross-cultural interaction. Application of cross-cultural interactions to various communication settings. Concentrates on Yup'ik ways of communication. Kuskokwim Campus only.

ANL 208 1-3 Credits Advanced Athabaskan Literacy (3+0) h

Expository and creative writing for native speakers; reading Athabaskan literature; elicitation, transcription, and editing of cultural materials from elders. Materials fee: \$7.00.

ANL 215 3 Credits

Alaska Native Languages: Eskimo-Aleut (3+0) h

A survey of the Native languages of Alaska, particularly Eskimo-Aleut: history, present and future, with examples of language structure, present situation and prospects as a cultural force. Open to all students. Materials fee: \$9.00.

ANL 216 3 Credits Spring
Alaska Native Languages: Indian Languages (3+0) h

A survey of all Native languages of Alaska; particularly of the Indian languages: Athabaskan-Eyak-Tlingit, Haida and Tsimshian. History, present, and future; examples of language structure, present situation and prospects as a cultural force. Open to all students.

ANL 241 3 Credits Fall
ANL 242 3 Credits Spring

Intermediate Athabaskan | Koyukon or Kutchin (3+0) h
Continuation of beginning Athabaskan | Koyukon or Kutchin. One of these two
languages will be taught. Development of conversational ability, additional
grammar and vocabulary. Materials fee for each course: \$10.00. (Prerequisites:
ANL 141 and 142 in the same language, or permission of instructor.)

ANL 251 3 Credits As Demand Warrants

Introduction to Athabaskan Linguistics (3+0) h

The study of Athabaskan languages through the presentation and discussion of several Athabaskan languages, focusing on writing systems, distinction between languages and dialects, problems in phonological and morphological analysis, the use of dictionaries, and reading and discussion of texts. Introduction to current research, basic terminology, practical methods for recording and analyzing the languages, and bibliographic sources. Languages emphasized dependent on composition of the class. Materials fee: \$10.00.

ANL 287 3 Credits As Demand Warrants Teaching Methods for Alaska Native Languages (3+0) h

Methodological approaches and practice in teaching Native language and literacy to both speakers and non-speakers. Materials fee: \$7.00. (Prerequisite: Knowledge of a Native language.)

ANL 288 3 Credits As Demand Warrants Curriculum and Materials Development for Alaska Native Languages (3+0) h

Preparation and evaluation of curriculum and classroom materials for teaching Native languages. Materials fee: \$10.00. (Prerequisite: Knowledge of a Native language.)

### **Alaska Native Politics**

AKNP 131 1 Credit As Demand Warrants Introduction to the Alaska Native Claims Settlement Act (1+0)

Basis of concern over the relation of Alaska Natives to their land, the Land Claims movement, key issues; organizations involved. Current corporation structure regional and village; current and future problems facing these groups, and strategies to resolve them.

AKNP 151 3 Credits
Alaska Native Claims Settlement Act (3+0)

As Demand Warrants

A general survey of the Alaska Claims Settlement Act of 1971. Historical overview of land claims of various tribes in the Lower 48 and in Alaska. Current status of regional, village and nonprofit Native corporations. Future issues related to implementation of ANCSA. Also available via Independent Learning.

AKNP 212 1 Credit As Demand Warrants
Duties and Powers of Local Government (1+0)

Development, operation and improvement of local government in Alaska. Future of local government in bush Alaska. For citizen, practitioner and advocate.

AKNP 230 3 Credits As Demand Warrants Federal Indian Law (3+0)

Principles of Federal Indian Law and the extent to which these principles apply to Alaska Natives. Foundation of principles that formed the bases of the relationship of the United States to the tribes and development of this relationship. Legal perspective and land issues. (Prerequisite: English placement test.)

AKNP 232 3 Credits As Demand Warrants 1991 and Beyond - Implications of ANCSA (3+0)

Specific provisions of the Alaska Native Claims Settlement Act as related to 1991. Acquisitions, takeovers of corporations, provisions in Sections 7(i), 7(j), 7(h), and 14(c), changes allowed under ANILCA and other amendments to the Act, the effect of ANCSA on the Indian Reorganization Act and the Indian Self-Determination Act, and land and stock status in the future. (Prerequisite: English Placement test.)

AKNP 233 1 Credit As Demand Warrants
Tribal Government Issues (1+0)

Tribal governments and related issues. Political status and lawmaking, judicial, and regulatory powers. Sovereignty, tribal enrollment and membership. Selected federal statutes and Indian Law affecting Alaska Native tribes. Potential role of tribal governments in planning for Alaska Natives' future defined and discussed.

#### **Alaska Native Studies**

ANS 101 3 Credits As Demand Warrants
Introduction to Alaska Native Studies (3+0)

Introductory information on the Alaska Native Community. Overview of significant Native issues. Review of pertinent literature and resources.

ANS 103 1 Credit As Demand Warrants
Beginning Eskimo Dance (1+2)

Teaching of traditional and contemporary Yup'ik Eskimo dance through the means of singing, drumming, and motions of the stage. In-depth analysis of each song and its relation to contemporary and traditional cultural lifestyles. (Not offered on the Fairbanks campus.)

ANS 110 1 Credit As Demand Warrants
Parliamentary Procedures (1+0)

Parliamentary Procedures (1+ (Same as PS 110)

Rules and principles of parliamentary procedure and application to group decisionmaking processes.

making processes.

Alaska Native Dance (2+0) h

Traditional Native Alaskan dancing, singing, and drumming of songs from Alaska's major indigenous groups taught by guest Native elders and dancers. If sufficient interest, a dance group will be assembled using class members for spring

presentation primarily in the Fairbanks area, including the Festival of Native Arts.

ANS 161 3 Credits Fall

Introduction to Tuma Theatre (2+3) h (Same as THR 161)

For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from the Alaska Native heritage.

ANS 220 3 Credits WAS 20 Fall Cultural Differences in Institutional Settings (3+0) s

The phenomena of culturally-organized thought processes. Communication patterns resulting from the interaction of peoples from different linguistic/culture traditions in modern institutional settings. Special attention to Alaskan Native and non-Native communication patterns.

ANS 250 3 Credits Fall, Spring Current Alaska Native Leadership Perspectives (3+0) s

Prominent leaders in the Native community are brought into direct classroom contact with students to discuss important issues in rural Alaska and the larger Native community.

1-3 Credits

Fall, Spring

Practicum in Native Cultural Expression (0+variable) Provides individual supervised activities in the formal organization, promotion, and expression of Alaskan Native cultural heritage. May be repeated to a maximum of 3 credits. (Prerequisite: Permission of the department head.)

3 Credits

Beginning Native Art Studio (1+4) h (Same as ART 268)

Understanding and applying the traditional designs and technologies of Native art. Materials fee: \$25.00. (Prerequisite: ART 105 or permission of instructor.)

As Demand Warrants

Yup'ik Practices in Spirituality and Philosophy (3+0) h
Exploration of the processes in Yup'ik natural religion and the underlying philosophy that is the basis for Yup'ik existence in the spiritual realm. Wholeness of Yup'ik existence as it integrates into the western religion and philosophy. Only offered at Kuskokwim campus.

3 Credits Rhetorical Expression of the Alaska Native Experience (3+0) h

Rhetorical methods of creative expression of the Alaska Native experience. Emphasis on the student's development of expressive abilities in a variety of Native and Western forms. Publication of student work a possibility. (Prerequisite: ENGL 111 and permission of instructor. Next offered: 1995-96.)

3 Credits

Fall

The Alaska Native Lands Settlement (3+0) s Native corporation goals and methods as they implement the Alaska Native Claims Settlement Act and establish themselves within the larger political economy. (Prerequisites: ANTH 242 or PS 263 or HIST 110; ECON 101, 137; or permission of instructor.)

3 Credits Alternate Spring

Tribal People and Development (3+0) s (Same as RD 315)

Impact of socio-economic development processes on tribal peoples in third and fourth world societies. Implications of these processes for Alaska Native people. (Prerequisite: Junior standing or permission of the instructor. Next offered 1995-96.)

ANS 320W 3 Credits Spring Language and Culture: Applications of Alaska (3+0) s (Same as ANTH 320)

Language, ethnicity, and their interrelationships. Communicating ethnic identity. Patterns of language use which affect communication between ethnic groups. Applicability of these concepts to Native/non-Native communication patterns. Materials fee: \$5.00.

3 Credits Alternate Spring

Native Self Government (3+0) s

Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance under federal Indian Law and Alaska statechartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people. (Prerequisites: HIST 110, PS 263. Next offered: 1995-96.)

1-3 Credits As Demand Warrants Yup'ik Parenting and Child Development (1-3+0) h

Processes, methods, and evaluation of Yup'ik child rearing including how it is affected by other cultures and how these can be integrated into the process. Only offered at Kuskokwim Campus. (Prerequisite: PSY 240 or permission of instructor.)

ANS 340 3 Credits Fall

Contemporary Native American Literature (3+0) h (Same as ENGL 340)

Contemporary Native American writing in English, including novels, short stories, poetry, and plays. Examples of Native American film when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111 or permission of instructor.)

ANS 349 Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h (Same as ENGL 349)

Traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111 or permission of instructor.)

Fall, Spring

Practicum in Native Cultural Expression (0+variable) Individual supervised activities in advanced organization, promotion, and expression of Alaskan Native cultural heritage projects (Festival of Native Arts leadership, Tuma Theatre, Theata magazine, etc.) Continuation of ANS 251. (Prerequisite: Permission of instructor.)

ANS 360 1 Credit Spring

Advanced Native Dance (0+2) h

Advanced techniques with emphasis on the cultural meanings of the dance performance. (Prerequisite: ANS 160 or permission of instructor.)

3 Credits

Spring

Advanced Alaska Native Performance (2+3) h

(Same as THR 361)

In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester. (Prerequisite: ANS/THR 161.)

3 Credits

Fall

Native Art of Alaska (3+0) h

(Same as ART 365)

Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries. (Prerequisite: Advanced standing or permission of the instructor.)

**ANS 366** 3 Credits

Alternate Spring

Northwest Coast Indian Art (3+0) h

(Same as ANTH 366 and ART 366)

Arts of the Northwest Coast Indians and the place of the art in their culture. (Next offered: 1995-96.)

Alternate Spring

Eskimo Art (3+0) h

(Same as ART 367)

Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces to the beginning of the 20th century. (Next offered: 1995-96.)

3 Credits

Fall, Spring

Intermediate Native Art Studio (1+4) h

(Same as ART 368)

Understanding and applying advanced traditional designs and technologies of Native art. Materials fee: \$25.00. (Prerequisite: ART 268 or permission of instructor.)

Alternate Spring ANS 375 3 Credits Native American Religion and Philosophy (3+0) h

Philosophical aspects of Native American world views. Systems of belief and knowledge, explanations of natural phenomena, relations of humans to natural environment through ritual and ceremonial observances. (Recommended: PHIL 201. Next offered: 1995-96.)

3 Credits Cultural Knowledge of Native Elders (3+0) h Fall, Spring

Study with prominent Native tradition-bearers in Native philosophies, values, and oral traditions. Traditional knowledge elicited through the cultural heritage documentation process. (Prerequisites: HIST 110, ANTH 242 and upper division standing.)

ANS 420 3 Credits Fall

Spring

Alaska Native Education (3+0) s

(Same as ED 420)

School systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisite: ANTH 242 or HIST 110; or permission of instructor.)

3 Credits Native Ways of Knowing (3+0) h

(Same as ED 421)

Focus on how culture and world view shape who we are and influence the way we come to know the world around us. Emphasis on Alaska Native knowledge systems and ways of knowing. (Prerequisite: Upper division standing.)

ANS 425 3 Credits Federal Indian Law and Alaska Natives (3+0) s (Same as PS 425)

Fall

The "special relationship" between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives. (Prerequisites: PS 101 and HIST 110; or permission of instructor; PS 263 is recommended.)

**Alternate Spring** ANS 450 3 Credits Comparative Aboriginal Rights and Policies (3+0) s

(Same as PS 450)

A case-study approach in assessing Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations examined for factors promoting or limiting self-determination. (Prerequisite: Upper division standing or instructor's permission. Next offered: 1995-96.)

ANS 468 3 Credits

Advanced Native Art Studio (1+4) h

(Same as ART 468)

Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. Materials fee: \$25.00. (Prerequisite: ART 368 or permission of instructor.)

3 Credits

Alaska Native Social Change (3+0) s

Spring

Fall, Spring

Tradition and change in Native social institutions in contemporary society. Methods of identifying and analyzing significant Native social change processes for public understanding. (Prerequisite: ANTH 242 or permission of the instruc-

#### Alaska Studies

ALST 103A

As Demand Warrants

Creative Response (1+0)

Samples of stories of indigenous people of Alaska. Reviews work of Native Alaskan artists. Examines music of Inupiat, Yup'ik and Koyukon cultures (songs and dances).

ALST 103B 1 Credit As Demand Warrants

The People (1+0)

Survey of social sciences in Alaska and relationships to Alaskan culture.

As Demand Warrants

The Land (1+0)

Current issues.

Geography and branches of earth science related to the land mass of Alaska.

ALST 107

As Demand Warrants

Land Resource Management (1+0)

Tools for overseeing land use and the political aspects of natural resource

#### American Sign Language

3 Credits

As Demand Warrants

American Sign Language I (3+0) h

Visual-gestural language used by most deaf Americans. Acquisition of receptive and expressive conversational skills. Cultural aspects of everyday life experiences of deaf people. Materials fee: \$10.00.

1 Credit

As Demand Warrants

American Sign Language Practice (1+0) h

Skill development in use of American Sign Language. Conducted entirely in sign language with aspects of deaf culture included. All skill levels.

3 Credits

As Demand Warrants

American Sign Language II (3+0) h

Expressive and receptive conversational skills. Understanding the culture that is an integral part of the language. Continuation of American Sign Language I. Materials fee: \$10.00. (Prerequisite: ASLG 101 or permission of instructor.)

**ASLG 203** 3 Credits As Demand Warrants

American Sign Language III (3+0) h

Grammar, conceptual structure, and lexical items of American Sign Language. Cultural awareness and expressive and receptive signing skills for communicating and understanding American Sign Language in diverse contexts. Continuation of ASLG 101 and 202. Materials fee: \$10.00. (Prerequisite: ASLG 202 or permission of instructor.)

ASLG 204

3 Credits As Demand Warrants

American Sign Language IV (3+0) h

Spontaneous and interactive use of American Sign Language. Grammar, structure, and lexical components. Cultural aspects supporting communication in American Sign Language at an advanced level. A continuation of ASLG 203. (Prerequisite: ASLG 203 or permission of the instructor.)

Anthropology

ANTH 100X 3 Credits

Individual, Society and Culture (3+0) s An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts. Materials fee: \$5.00.

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ANTH 101

3 Credits

Fall, Spring

Introduction to Anthropology (3+0) s

Human societies and cultures based on the findings of the four subfields of the discipline; archaeological, biological, cultural and linguistic. Also available via Independent Learning, Materials fee: \$10.00.

H 103 3 Credits Was Anth 222 Human Evolution and World Prehistory (3+0) n

Human evolution and cultural development on a global basis. Methods, concepts and theories which serve as the scientific foundation for archaeology and physical anthropology. Materials fee: \$5.00.

H 104 3 Credits Was An 4h 200 Alternate Fall Social/Cultural Anthropology (3+0) s Basic concepts and principles underlying anthropological study of society and culture. Emphasis on non-western ethnographic context. Open to majors and nonmajors. Materials fee: \$5.00. (Next offered: 1995-96.)

**ANTH 105** 1 Credit

As Demand Warrants Introduction to the History and Culture of the Seward Peninsula (1+0)

(Same as HIST 105.)

Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, ecology and climatology. Eskimo and Euroamerican cultures which have existed in western Alaska. Materials fee: \$5.00.

ANTH 111 3 Credits Alternate Spring

Ancient Civilizations (3+0) s Major civilizations of the Old and New World from a comparative, anthropological perspective. Antecedents and influences of these civilizations on their neighbors. Economics, science, religion, and social organization of these civilizations. (Next offered: 1995-96.)

3 Credits

Origins of Alaska's Native Peoples (3+0) s

Origins and affinities of native Alaskan peoples from an archaeological perspec-tive. Prehistory examination of Yup'ik, Inupiaq, Aleut, Tlingit, and Athabaskan groups. (Next offered: 1995-96.)

3 Credits

**Every Third Spring** 

New World Prehistory (3+0) s Culture history of native Americans from earliest times (excluding Alaska and Canada) including those in Mexican and Peruvian states. Materials fee: \$5.00. (Prerequisite: ANTH 103 or 211 or permission of instructor. Next offered: 1996-97.)

3 Credits

Alternate Fall

Fundamentals of Archaeology (2+3) s Methods and techniques of archaeological field and laboratory research. Materials fee: \$10.00. (Prerequisite: ANTH 103. Next offered: 1995-96.)

3 Credits

Alternate Spring

Old World Prehistory (3+0) s The archaeological record for the development of human culture from the very beginnings of humankind to the rise of civilization. Materials fee: \$5.00. (Prerequisites: ANTH 103 or 211 or permission of instructor. Next offered: 1995-96.)

The Oral Tradition: Folklore and Oral History (3+0) h Study and collection of folklore and oral history. Importance of oral tradition in human communication and the advantages and disadvantages of recording and studying it. Sociocultural anthropology and anthropological linguistics in relation to oral traditions. Methods of folklorists, historians and academicians. Field project required. Materials fee: \$5.00. (Prerequisite: ANTH 104.)

3 Credits Native Cultures of Alaska (3+0) s

The traditional Aleut, Eskimo, and Indian (Athabaskan and Tlingit) cultures of Alaska. Eskimo and Indian cultures in Canada. Linguistic and cultural groupings, population changes, subsistence patterns, social organization and religion in terms of local ecology. Precontact interaction between groups. Also available via Independent Learning, Materials fee: \$15.00

2 Credits

Fall, Spring

Archaeological Laboratory Techniques (1+3)

Archaeological laboratory procedures including lithic analysis and lithic tool typology. Examination of collections from several early man sites in Alaska. Research problems pertaining to those collections. Materials fee: \$5.00. (Prerequisite: Permission of instructor.)

3 Credits

As Demand Warrants

World Ethnography (3+0) s

Cultural heritage, social systems, modes of economic adaptation and culture change for human populations in major geographic regions of the world. Culture areas covered different semesters are contingent on available faculty expertise. Course may be repeated for credit when content varies. Materials fee: \$5.00. (Prerequisites: ANTH 104 and junior standing or permission of instructor.)

3 Credits **ANTH 302** 

Fall

Alternate Spring

Alternate Spring

Anthropology of Siberia (3+0) s Native cultures of Siberia including the Russian Far East. Information from all subfields of anthropology covered with emphasis on contemporary perspectives. (Prerequisite: ANTH 103 or 104 or permission of instructor.)

3 Credits Gender in a Cross-Cultural Perspective (3+0) s (Same as WMS 303)

Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding women's experiences in their cultural variety are presented. Materials fee: \$5.00. (Next offered: 1995-96.)

**ANTH 306** As Demand Warrants

Economic Anthropology (3+0) s

Relationships between economic and other social relations. Preindustrial societies. Relevance of formal economics to small-scale societies and developing nations. Exchange, formal and substantive economics, market economics, rationality, political economyand the economics of development. Materials fee: \$5.00. (Prerequisite: ANTH 104 or permission of instructor.)

3 Credits **Alternate Spring** Language and Gender (3+0) s (Same as WMS 308)

Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism. Materials fee: \$5.00.

**ANTH 309** 3 Credits **Alternate Spring** Arctic Prehistory (3+0) s

Archaeological cultures of the northern regions from the first occupation to the present. Adaptations to changing environments in time and space as seen through past technological and economic systems, as well as settlement patterns. Materials fee: \$25.00. (Prerequisite: ANTH 103 or permission of instructor. Next offered: 1995-96.)

**ANTH 315** Alternate Fall 3 Credits Human Biology (2+3) n

Biology of recent and modern human populations, including systematics, behavior, ecology and inter- and intrapopulation genetic and morphological variations. Human adaptations to heat, cold, high altitudes, and changing nutritional and disease patterns. Human skeletal biology, including metrical and nonmetrical variation, aging and sexing skeletal remains, and paleopathology. Materials fee: \$10.00. (Prerequisite: ANTH 103 or BIOL 103X. Next offered: 1995-96.)

ANTH 320W 3 Credits Spring Language and Culture: Applications to Alaska (3+0) s (Same as ANS 320)

Language, ethnicity, and their interrelationships. Communicating ethnic identity. Patterns of language use which affect communication between ethnic groups. Applicability of these concepts to Native/non-Native communication patterns. Materials fee: \$5.00. (Prerequisites: ANS 120 and ANL 215 or 216 or permission of instructor.)

**ANTH 321** 3 Credits As Demand Warrants

Physical Anthropology of the Americas (3+0) n

Anthropology of the peoples of North and South America, including Eskimo, Aleut and Indian populations. Analysis of patterns of biological variation within and between prehistoric and modern human populations. Origins and relationships, microevolutionary processes and trends, and adaptations to climatic, nutritional, disease and demographic stress. Materials fee: \$5.00. (Prerequisite: ANTH 315 or permission of instructor.)

**ANTH 366** 3 Credits Alternate Spring

Northwest Coast Indian Art (3+0) h (Same as ANS 366 and ART 366)

Arts of the Northwest Coast Indians and the place of the art in their culture. (Next offered: 1995-96.)

**ANTH 380** 3 Credits Alternate Fall The People of Alaskan Southwest: Aleuts, Kodiak Islanders and the Chugach (3+0) s

Cultural heritage and present conditions of Aleuts, including people of the Aleutian archipelago, Kodiak Islanders, people of the Alaska Peninsula and the Chugach of Prince William Sound. Materials fee: \$25.00. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1995-96.)

**ANTH 381** 3 Credits Alternate Spring

The Inupiaq and Yup'ik Peoples (3+0) s

Contemporary conditions and traditional heritage of the Inupiaq and Yup'ik peoples including the impact of Euroamericans on these populations and cultures. Materials fee: \$10.00. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1995-96.)

ANTH 382 3 Credits The People of Alaskan Southeast (3+0) s

Tlingit, Haida and Tsimshian societies in the framework of Northwest Coast culture-area. Impact of Russian penetration and of the historical factors. Materials fee: \$15.00. (Prerequisite: ANTH 242 or permission of instructor, Next offered:

Alternate Fall **ANTH 383** 3 Credits Athabaskan Peoples of Alaska and Adjacent Canada (3+0) s

Contemporary conditions and traditional heritage of the Athabaskan populations of Alaska and Canada. Impact of Euroamericans on these populations and cultures. Materials fee: \$20.00. (Prerequisite: ANTH 242 or permission of instructor. Next offered: 1995-96.)

As Demand Warrants ANTH 402 3 Credits Anthropology of Art (3+0) s (Same as ART 402 and ANTH 602)

Anthropological study of art in cross-cultural perspective. Social context of art production and use, cross-cultural variations in definition of an artist's role. (Prerequisites: Senior standing or permission of instructor.)

As Demand Warrants **ANTH 403** 3 Credits Political Anthropology (3+0) s (Same as ANTH 603)

Political systems and the law. Case studies from non-industrial societies, developing nations, and parapolitical systems or encapsulated societies, such as native peoples in the U.S. Political structures and institutions; social conflict, dispute settlement, social control and the law, political competition over critical resources; and ethnicity. Materials fee: \$5.00. (Prerequisite: ANTH 104 or permission of instructor.)

**ANTH 405** 3 Credits **Alternate Spring** Archaeological Method and Theory (2+3) s (Same as ANTH 605)

Archaeological methods and analysis as the framework for different perspectives in archaeology. Application to specific research problems. Materials fee: \$5.00. (Prerequisite: A course in archaeology or permission of the instructor. Next offered: 1996-97.)

Was 307 3 Credits **ANTH 407** Alternate Spring Kinship and Social Organization (3+0) s (Same as ANTH 607)

Forms and function of family and household organization, kinship and marriage in diverse human socio-cultural systems. Case studies from tribal and complex societies including contemporary United States. Materials fee: \$10.00. (Prerequisite: ANTH 104 or permission of instructor. Next offered: 1995-96.)

H 409 3 Credits Anthropology of Religion (3+0) s WM Alternate Fall (Same as ANTH 609)

Religion or supernatural belief from the perspective of anthropology. Religion in the context of "primitive" society as well as its role in complex society. Religious practitioners, ritual, belief systems, and the relationship of religious behavior to other aspects of social behavior. Materials fee: \$5.00. (Prerequisite: Junior standing or permission of instructor.)

ANTH 410 3 Credits Alternate Fall History of Social/Cultural Anthropology (3+0) s

Major theoretical approaches in cultural/social anthropology chronologically from formulation of the discipline of anthropology to current theory. Nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology. (Prerequisite: Junior standing or permission of instructor. Next offered: 1995-96.)

**ANTH 414 Alternate Spring** 3 Credits Environmental Archaeology (3+0) n

Quaternary environmental reconstruction through the integration of geological, archaeological, botanical, and zoological data. Materials fee: \$5.00. (Prerequisite: A course in archaeology or permission of the instructor.)

**ANTH 415** 3 Credits Alternate Fall Zooarchaeology and Taphonomy (2+3)

Identification of bones, how vertebrate bone remains may be used to study archaeological site formation processes, site organization, subsistence practices and animal procurement strategies. Preservation in modern depositional environments, paleoecology, vertebrate mortality profiles and demographic structure, site seasonality, bone breakage, taphonomy and faunal remains and human land use practices. Materials fee: \$10.00. (Next offered: 1995-96.)

As Demand Warrants Human skeletal analysis: bone biology, skeletal anatomy, aging and sexing, metric and nonmetric traits of skeleton and dentition, paleopathology, and paleodemography. Inferences on genetic relationships between and patterned behavior within prehistoric groups derived from skeletal material. Materials fee: \$10.00. (Prerequisite: ANTH 315 or permission of instructor).

**ANTH 423** 3 Credits

Alternate Spring

Paleoanthropology (2+3) Analysis of the Plio-Pleistocene hominid fossil record, including comparative primate and hominid skeletal and dental anatomy, systematics, taphonomy and long-term biobehavioral adaptations. Materials fee: \$5.00. (Prerequisites: ANTH 103 and 212 or permission of instructor. Next offered: 1995-96.)

3 Credits

Alternate Fall

Analytical Techniques (3+0) (Same as ANTH 624)

Classification, sampling, collection and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations and analysis. Materials fee: \$5.00. (Prerequisite: Any 200 level Anthropology course. Next offered: 1995-96.)

**ANTH 428** 3 Credits **Every Third Fall** 

Ecological Anthropology (3+0) n

Biological, environmental and cultural factors and their interplay in defining the human condition, with examples from Arctic and other populations. Materials fee: \$5.00. (Prerequisite: Junior standing or permission of instructor. Next offered: 1996-97.)

**ANTH 465** 3 Credits Alternate Spring

Geoarchaeology (3+0) (Same as GEOS 465)

Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day weekend field trip in late April or early May. Materials fee: \$5.00. (Prerequisite: GEOS 101, an introductory course in archaeology, or permission of instructor. Next offered: 1995-96.)

**ANTH 601** 3 Credits Proseminar in Social/Cultural Anthropology (3+0) Alternate Fall

**ANTH 602** 

As Demand Warrants

Anthropology of Art (3+0) (Same as ANTH 402)

3 Credits **ANTH 603** 

As Demand Warrants

Political Anthropology (3+0)

(Same as ANTH 403)

**ANTH 605** 3 Credits Archaeological Method and Theory (3+0) Alternate Spring

(Same as ANTH 405) **ANTH 606** 3 Credits

Alternate Spring

Folklore and Mythology: Anthropological Perspective (3+0)

3 Credits

Kinship and Social Organization (3+0)

**Alternate Spring** 

(Same as ANTH 407)

**ANTH 608** 3 Credits **Every Third Spring** 

Classics in Anthropology (3+0)

3 Credits **ANTH 609** 

Alternate Fall

Anthropology of Religion (3+0) (Same as ANTH 409) 3 Credits

Alternate Fall

Northern Indigenous Peoples and Contemporary Issues (3+0) (Same as NORS 610)

**ANTH 611** 3 Credits Alternate Fall

Proseminar in Archaeology (3+0)

**ANTH 612** 3 Credits As Demand Warrants

Paleoecology (3+0)

**ANTH 613** 

As Demand Warrants

3 Credits Seminar: Problems in Arctic Archaeology (3+0)

**ANTH 614** 3 Credits

Archaeology of Siberia (3+0)

Alternate Spring

**ANTH 616** 3 Credits

Classics in Archaeology (3+0)

Alternate Spring

**ANTH 621** 3 Credits

Proseminar in Physical Anthropology (3+0)

Alternate Spring

**ANTH 624** 3 Credits

Analytical Techniques (3+0) (Same as ANTH 424)

Alternate Fall

**ANTH 630** 3 Credits

Alternate Spring

Anthropological Field Methods (3+0)

**ANTH 631** 3 Credits Alternate Spring

Proseminar in Language and Culture (3+0)

**ANTH 637** 3 Credits As Demand Warrants

Methods in Ethnohistorical Research (3+0)

3 Credits

As Demand Warrants

Problems in Anthropology (3+0)

**ANTH 650** 3 Credits

**ANTH 640** 

**Every Third Spring** As Demand Warrants

Anthropological Perspectives on Russian America (3+0)

ANTH 651 3 Credits

Quaternary Seminar (3+0) (Same as GEOS 651)

#### Applied Art

APAR 100 1 Credit As Demand Warrants

Basic Video Workshop (1+1)

Basic video equipment operation and elementary equipment maintenance. Camera techniques, portable video recorders, lighting, audio, and simple video production.

As Demand Warrants

Editing Videotape (1+1) Principles and operations in electronic editing of videotape. Persons completing this course may use Media Center videotape editing facilities.

As Demand Warrants

Community TV Production (1+1) Video production for the Nome Public Access Cable Television (NPACT) channel in a ten-week "hands-on" training lab using a variety of video equipment. Each student will produce at least one 30-minute production. Offered at Northwest Campus.

**APAR 107** 1 Credit

As Demand Warrants

Beading (1+1)

Application of beads to various materials, three kinds of stitches, and use of a bead loom.

**APAR 140** 1 Credit As Demand Warrants

Clothing Construction (1+0) Techniques of clothing construction for the home sewer. Development of sewing skills necessary to create garments for the beginner as well as the more experienced seamstress.

**APAR 150** 1-3 Credits

**Introduction to Traditional Crafts** Introduction to traditional crafts such as basket weaving, birch bark basket making, beading, carving, canoe or kayak making, etc. Topics vary based on community need and interest and will be identified each semester. Course may be repeated for credit with each new topic. (Next offered: Fall 1994.)

APAR 250 1-3 Credits **Intermediate Traditional Crafts**  As Demand Warrants

As Demand Warrants

Continued development of traditional crafts such as basket weaving, birch bark basket making, beading, carving, canoe or kayak making, etc. Topics vary based on community need and interest and will be identified each semester. Course may be repeated for credit with each new topic. (Prerequisite: Completion of APAR 150 or permission of instructor. Next offered: Fall 1994.)

**APAR 157** Skin Sewing (1+2) As Demand Warrants

Fundamentals of skin sewing. Projects (e.g. slippers, mukluks, mittens, fur hats, vests and ruffs) dependent upon student ability and experience. Materials fee: \$35.00

# **Applied Business**

A \$25 per semester student computing facility user fee will be assessed for any ABUS, CAPS or OMT course of 2 credits or more at the 100-level of higher. This fee is in addition to any lab/material fees.

**ABUS 051** 

3 Credits As Demand Warrants

Bookkeeping For Business (3+0)

Basic concepts and procedures of practical bookkeeping. Recording and reporting financial data for service and merchandising business. Covers businesses owned by one individual only (sole proprietorships.)

**ABUS 070** 1 Credit Job Readiness Skills (1+0) Fall, Spring

Pre-employment and human relation skills necessary for job success, including how to identify career choices and employment opportunities; how to prepare a resume, job applications, cover and follow-up letters; and how to develop human relation skills. The student will select, prepare and be interviewed for jobs which match his/her skills identified through a self- assessment inventory. Offered at Northwest Campus.

**ABUS 120** 1-3 Credits As Demand Warrants

Basics of Investing (1-3+0) Personal financial planning, goal setting, and investing. Stocks, bonds, trusts, securities, options, real estate and other investment vehicles. Inflation, taxes, interest rates, retirement, and selecting financial planners. Also available via Independent Learning.

**ABUS 130** Real Estate (3+0) As Demand Warrants

Broad social and economic impact of real estate. Buying, selling, leasing, and investing in residential and investment real estate. Contracts, deeds, mortgages, leases, title insurance, sales, brokerage and other related subjects. Fundamental preparation for the Real Estate licensing examination.

**ABUS 135** 3 Credits As Demand Warrants

Recordkeeping for Business (3+0)

Skills in keeping business records and banking procedures as a cashier, sales clerk, purchasing agent or payroll clerk.

**ABUS 141** 2 Credits

As Demand Warrants

Payroll Accounting (2+0) Payroll records and laws. Methods to compile and calculate payroll information, earnings, deductions, net wages. City, state and federal tax report forms. For payroll personnel.

**ABUS 142** 2 Credits Office Accounting I (2+0) As Demand Warrants

Basic accounting procedures in retail, service, and trade businesses. The complete accounting cycle including recordkeeping, posting and preparation of financial statements, bank reconciliation, payroll computations and closing books. Accounts receivable, accounts payable, purchasing, credit and other accounting requirements.

**ABUS 143** 2 Credits As Demand Warrants

Office Accounting II (2+0) Financial activities of partnerships and corporations with emphasis on accrual basis of accounting. Notes payable, notes receivable, interest transactions, bad debts, partnership equity accounting, corporate stock transactions, corporate earnings, capital transactions, bonds, long term liabilities and investments.

**ABUS 150** 1 Credit

Fall, Spring

Time Management (1+0)

Proven techniques and tools for gaining control over events that shape our lives. Topics include desk control, handling interruptions, meetings and other time robbers including procrastination. Franklin Day Planner System must be purchased from UAF bookstore prior to first class meeting.

1-3 Credits

**As Demand Warrants** 

Village Based Entrepreneurship (1-3+0) Technical and personal requirements for establishing and maintaining a small business in a rural village; advantages and disadvantages of operating a small business in a rural village. May be offered in three, one credit modules (a, b and c).

3 Credit

As Demand Warrants

Human Relations (3+0)

Attitudes, self-concepts, personal communication styles, motivation, interactions, positive reinforcements, team building and leadership development.

Business Math (2+0)

As Demand Warrants

Review of basic math computation skills applied to various business areas. Emphasis on applications.

**ABUS 158** 1-3 Credits

Introduction to Tourism (1-3+0) Forces which influence international and domestic hospitality, leisure, travel and recreation industries. Socio-economic models and measure of regional impact, demand and supply.

3 Credits **ABUS 160** 

As Demand Warrants

Principles of Banking (3+0)

Banking in today's economy. Language and documents of banking, check processing, teller functions, deposits, credit and payment functions, loans, investments, trust, the Federal Reserve System and other regulatory agencies.

**ABUS 179** 3 Credits As Demand Warrants

Fundamentals of Supervision (3+0)

Effective supervisory concepts including planning, organizing, and staffing functions. Communicating and delegating effectively, morale, productivity, decision making, position discipline and performance goals development.

1 Credit

As Demand Warrants

Personal Income Tax (1+0) Taxable income, deductions, credit, exemptions, and computation. Computer use, recordkeeping methods, tax forms and new tax laws.

**ABUS 211** 2 Credits As Demand Warrants

Tax for Business Entities (2+0) Business tax reports. Tax planning and strategies to reduce the tax bill, payroll tax reports and depository requirements, methods of compensation, acquiring and disposing of business assets, and planning for corporate reorganization or liquidation. New tax laws.

**ABUS 223** 3 Credits As Demand Warrants

Real Estate Law (3+0) Deeds and conveyances, mortgages, liens, rentals, appraisals, and other transactions in real estate and law. Also available via Independent Learning.

As Demand Warrants

Applied Intermediate Accounting (3+0) Review of accounting principles with emphasis on working capital, plant assets, intangible assets and financial statement presentation. Current accounting pronouncements.

**ABUS 231** 1-3 Credits

As Demand Warrants

Introduction to Personnel (1-3+0)

Company organizational structure, job analysis, staffing and organization, employee growth and development, employee supervision and developing leadership skills. May be offered in three one credit modules. ABUS 232 3 Credits CAN USC BA 30 As I

Contemporary Management Issues (3+0) Management functions including planning, organizing, staffing, directing and controlling, human aspects of management, and decision making. (Prerequisite: BA 151 or instructor permission.)

3 Credits

As Demand Warrants

As Demand Warrants

Financial Management (3+0) Corporate financial planning and control, asset management, capital budgeting, financial markets and instruments. (Prerequisite: BA 151, ACCT 101.)

3 Credits

As Demand Warrants

Applied Business Law I (3+0) Legal aspects of business problems. Principles, institutions and administration of law in contracts, agency, employment, personal sales and property ownership. Also available via Independent Learning. (Prerequisite: BA 151.)

**ABUS 243** 3 Credits As Demand Warrants

Applied Cost Accounting (3+0) Principles and applications for manufacturing and non-manufacturing firms. Job order and process costing with analysis of material and labor costs, overhead, inventory controls, production flow, and work in progress. Budgeting and decision making using cost accounting methods. (Prerequisite: ACCT 101 and ACCT 102 or ABUS 142 and ABUS 143.)

3 Credits

**As Demand Warrants** 

Introduction to Managerial Accounting (3+0)

Use of accounting information for managerial decisions, planning and control. Accounting process, responsibility in accounting, performance measurement, capital budgeting and analysis of financial reports. (Prerequisites: ACCT 101, 102.)

**ABUS 253** 3 Credits As Demand Warrants

Principles of Retailing (3+0)

Current retail practices and technologies. Merchandising, store operation, computerized inventory control and electronic cash registers, finance and credit, personnel, sales promotions and selling. Preparation for a career in a retailing or service business.

**ABUS 254** 3 Credits Salesmanship (3+0) As Demand Warrants

Explores salesmanship as a skill individuals use in selling themselves and their ideas as well as products and services. Personal selling, buyer behavior and communication, creative selling process, sales management, and time-use management. For persons with and without sales experience.

**ABUS 255** 3 Credits As Demand Warrants

Marketing in Tourism (3+0) Basic principles of marketing for the tourism industry. Emphasis on Alaska as the tourist destination. (Prerequisite: BA 160.)

**ABUS 256** 1-3 Credits As Demand Warrants Small Hotel, Bed and Breakfast, and Lodge Operations (1-3+0)

Introduction to hospitality industry focusing on the development and operation of small hotels, bed and breakfast accommodations, and lodge operations. May be offered in three one credit modules.

3 Credits

As Demand Warrants

Analyzing Financial Statements (3+0)

Statement analysis, accounting data, cash flow management ratios, comparative statements, forecasting, liquidity, solvency and capital structure related to financial conditions and performance of modern business enterprise.

**ABUS 267** 1-3 Credits

Transportation and Logistics Management (1-3+0)

Understanding of issues and challenges concerning structure and management of air, sea, rail and highway transportation systems. Emphasis on effective management of the transporting of people and goods intra-Alaska and to destinations that are served from Alaska. (Prerequisite: ABUS 158 or permission of instructor.)

1-3 Credits

Attraction/Destination Development and Management (3+0)

Tourism resource characteristics, location and market demand considerations. Analysis of development potential, planning processes and procedures, capital and personnel requirements, and tourism destination development. (Prerequisite: ABUS 158 or permission of instructor.)

**ABUS 269** 1-3 Credits Spring

Food and Beverage Management (3+0)

Development of a successful food and beverage system from its inception to operation. Menu planning, purchasing, preparation, service and food/beverage cost control. (Prerequisite: ABUS 158 or permission or instructor.)

**ABUS 272** 3 Credits Spring

Small Business Planning (3+0)

Small business planning process elements including the components of a written business plan.

**ABUS 273** 3 Credits As Demand Warrants

Managing A Small Business (3+0) Entrepreneurship and management, starting a new business, buying an existing business or franchise. Managing, marketing, staffing, financing, budgeting, pricing, operational analysis and controls.

ABUS 199, 299 1-3 Credits

As Demand Warrants

Practicum in Applied Business

Supervised training and work experience. Analysis of work experience and relationship of the job to career and academic goals. Managerial concepts, problems of working with groups and individuals, organizational structures, communications and planning. (Prerequisite: Permission of the instructor.)

### **Applied Mining Technology**

3 Credits

As Demand Warrants

Introduction To Mining (3+0) Fundamentals of surface and underground mining, economic planning, proper exploration designs, environmental concerns, safety factors.

1 Credits

As Demand Warrants

Underground Mine Safety (1+0) Rights of miners, self rescue devices, introduction to the work environment, escapeways, roof and ground control, ventilation, health, cleanup, hard recognition, first aid, mine gasses, electrical hazards. Course fulfills the Mine Safety Health Administration requirements for new underground miner training. Students are awarded MSHA certificate upon course completion. Materials fee: \$5.00.

3 Credits

As Demand Warrants

New Underground Miner Training (3+0)

Orientation to the mine environment, general mine inspection, scaling, staging, drilling, rock bolting, blasting, mucking, and mine rescue. Provides the inexperienced underground miner with the mandatory MSHA federal training to become employable. Materials fee: \$50.00.

AMIT 120 2 Credits As Demand Warrants

Explosives I (2+0)

Theory and safe use of explosives with a focus on blasting agents used for rock excavation.

**AMIT 125** 3 Credits As Demand Warrants

Mineral Exploration Techniques (3+0)

Modern, scientific exploration and prospecting techniques utilized in Alaska since the 1970's. Exploration design, ore deposit models, exploration geochemistry and geophysics, drilling sampling and goestatistics. Also available via Independent Learning. **AMIT 129** 1 Credit As Demand Warrants

Surface Mine Safety (1+0) Rights of miners, introduction to the work environment, ground control, hazard recognition, first aid, and explosive safety. Course fulfills the Mine Safety Health Administration requirements for surface miner training. Students are awarded MSHA certificate upon completion of the class. Materials fee: \$3.00.

3 Credits

As Demand Warrants

Surface Mining Operations (3+0)

Safe operations of a surface mine. Placer gold, sand and gravel, coal, and open pit metal mines.

**AMIT 140** 3 Credits As Demand Warrants

Environmental Permitting (3+0)

Mineral development permits required in Alaska. Students are encouraged to provide their own case histories.

1 Credit

As Demand Warrants

Settling Pond and Recycle Techniques (1+0)

Design of settling ponds and recycle systems. Students will work with individual case histories.

AMIT 152

As Demand Warrants

Fire Assay Techniques (1+0)

Sampling, theory and practice of fire assaying. Fluxes, oxidation and reduction reactions, fusion of assay charges, cupellation, annealing, micro-weighing and assay charge calculation.

1 Credit

As Demand Warrants

Laboratory Analysis (1+0)

Production laboratory procedures for sample analysis, heap leaching and titrations. Individual projects required.

AMIT 154 1 Credit As Demand Warrants

Water Quality and Flocculents (1+0)

Water quality processes using flocculents; removal of total suspended solids from placer mining waste water.

As Demand Warrants

As Demand Warrants

Drilling Technology (1+0)

Terminology and techniques used in exploration and production drilling.

**AMIT 156** 1 Credit

Applied Cartography (1+0) Map and chart preparation. Drafting skills for prospecting maps, mine maps, permits and data presentation.

1 Credit

As Demand Warrants

Alaska Ore Deposits (1+0)

Geology, ore reserves and preliminary mining plans of significant Alaskan mineral deposits.

Geochemical Sampling (1+0)

As Demand Warrants

Hands-on scientific sampling methods for rock, soil, pan concentrates, stream sediments, air and water.

**AMIT 170** 3 Credits

As Demand Warrants

Fundamentals of Coal Mining (3+0)

Origin and types of Alaskan and other coal deposits, exploration and planning methods, extraction processes for underground and surface mines, mining safety. coal preparation, and reclamation. Job requirements, safety, and environmental consideration. Optional field trip to an active coal mine. Materials fee: \$5.00.

**AMIT 180** 3 Credits Colored Stone Grading and Evaluation (3+0)

As Demand Warrants

Grading, appraisals, and identification of colored stones. Formation and structure,

properties, deposits and production, and descriptions of major gemstones.

Diamond Evaluation and Grading (1+0)

As Demand Warrants

Colors and clarity grading of diamonds, mining of raw material, and detection of stimulants.

AMIT 205 1 Credit

As Demand Warrants

Geomagnetic Surveying (1+0)

Placer gold deposit prospecting using magnetic surveying. Student survey work and data interpretation.

**AMIT 206** 1 Credit As Demand Warrants

Electromagnetic Surveying (1+0)

Electromagnetic geophysical exploration methods and operations using the VLF-EM-16, an exploration tool for gold and/or massive sulfide deposits.

As Demand Warrants

Advanced Underground Mining (3+0)

Skill training conducted in safety, drilling, blasting, ground support, mucking, maintenance and utilities at the Silver Fox Mine.

AMIT 220 1 Credit Explosives II (1+0) As Demand Warrants

Advanced techniques in safe use of explosives. Students get "hands-on" experience in blasting. Materials fee: \$20.00.

**AMIT 230** 1 Credit Field Methods (1+0) As Demand Warrants

Topographic map reading using a compass and basic field procedures."

Heap Leaching (1+0)

As Demand Warrants

Heap leaching covering cyanide safety, leach pad construction and placement, cyanide processing, thiourea, case histories, applications to Alaska and economics.

3 Credits

As Demand Warrants

Colored Stone Evaluation II (3+0)

Gemstones covered are garnet, pyroxene, organic, inorganic, and specialty stones. A continuation of Colored Stone Evaluation I. (Prerequisite: AMIT 180.)

1-2 Credits

As Demand Warrants

Mining Coop Work Experience Practical work experience in a professional mining environment. For the student who has mastered basic mining techniques and terminology. Placement and work assignments depend upon student experience.

### Applied Photography

APHO 072 1 Credit As Demand Warrants

Photography Fundamentals (1+0)

Use of modern cameras to make colorful, well-exposed photographs. Elements of composition, exposure and flash techniques. Students furnish their own camera and film.

**APHO 073** 1 Credit As Demand Warrants

Process and Print Color Slides (1+0)

Development of color film, preparation of projection slides, color prints and enlargements, mixing color filters for special effects; and setting up a small home darkroom. Students must have a camera and obtain their own film and film processing,

**APHO 074** 1 Credit AS Demand Warrants

Process/Print Color Negatives (1+0)
Developing print film using the Kodak Flexicolor C-41 and Hobby-pac processes. Making proof sheets and enlargements using Extaprint 2, Hobby-pac and Ektaflex processes. Students must have a camera and two rolls of film.

#### Art

3 Credits

As Demand Warrants

Art Exploration (3+0) Exposure to design, printmaking, weaving, and sculpture. Individual studio projects, lectures, and field trips introduce areas for further study.

3 Credits

As Demand Warrants

Introduction to Ceramics (3+0) Making and firing clay objects. Study of clay methods, forming decorations, glazing and firing. For beginning students only.

1-3 Credits

As Demand Warrants

Introduction to Drawing Still life, portrait, interior and landscape compositions using basic drawing materials. Emphasizes self-expression by developing spontaneous artistic ideas into a more focused style. For the student with little or no training in drawing to explore his or her drawing abilities.

3 Credits

Fall, Spring

Beginning Drawing (1+4) h

Basic elements in drawing. Emphasis on a variety of techniques and media. Materials fee: \$25.00.

**ART 113** 1-3 Credits As Demand Warrants

Introduction to Painting (1+2) Investigation of basic materials, various media and techniques available for painting.

1-3 Credits

As Demand Warrants

Introduction to Stained Glass (2+4) h

Fundamental skills to construct stained glass pieces. Basics of glass cutting, leading and soldering. Each student completes a square foot window, a large group ART 125 1 Credit As Demand Warrants

Aleut Basketry Practicum (0+3) h Introduction to techniques of Aleut basketry, including design elements and Attu, Atka, and Unalaska style lids and knobs. Historical and artistic overview of the art form. Offered at Aleutian/Regional Center only.

3 Credits

Two-Dimensional Design (1+4) h

Fundamentals of pictorial form; principles of composition, organization, and structure. Materials fee: \$25.00.

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: \$50.00

**ART 200X** 

Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h
(Same as MUS 200X and THR 200X)

Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends. Materials fee: \$25.00. (Prerequisite: Sophomore standing or permission instructor.)

Fall, Spring

Beginning Ceramics (1+4) h

Foundation experiences with clays, glazes, plaster, enamels, glass, kiln stacking and firing. Materials fee: \$75.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

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.)

3 Credits

As Demand Warrants

Beginning Printmaking (1+4) h Concepts and techniques of printmaking. Subject areas taken from relief, intaglio, serigraphy, lithography. Materials fee: \$75.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

2 Credits

Art for the Classroom Teacher (1+2)

(Same as ED 208) Concepts in art education for persons with limited art background working with young children. Combines a philosophy of art education, art history, and "hands-on" experiences to enable the teacher to effectively integrate visual arts into the curriculum as enjoyment and enrichment.

3 Credits

Fall, Spring

Beginning Metalsmithing and Jewelry (1+4) h Basic techniques of fine metalsmithing and jewelry. Materials fee: \$75.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

ART 211

3 Credits Fall, Spring

Beginning Sculpture (1+4) h

Basic sculpture techniques and principles. Materials fee: \$75.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

**ART 213** 3 Credits

Fall, Spring

Beginning Painting (Acrylic or Oil) (1+4) h

Basic materials and techniques in either medium. Pictorial principles and organization of paintings. Materials fee: \$25.00. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor.)

3 Credits Watercolor Painting (1+4) h **Every Third Spring** 

Painting in various transparent and opaque media (watercolor, tempra, polymer, casein). Emphasis on techniques and subjects. (Prerequisites: ART 105 and ART 161 or 162 or 163, or permission of the instructor. Next offered: 1996-97.)

**ART 261** 3 Credits

ART 262 3 Credits History of World Art (3+0) h Spring

Origins of art and its development from the beginning through contemporary painting, sculpture and architecture. ART 261-262 may be taken in reverse order; however, course content is presented in a chronological sequence beginning with

fall semester. (Prerequisite: Sophomore standing.)

ART 268 3 Credits Fall, Spring

Beginning Native Art Studio (1+4) h (Same as ANS 268)

Understanding and applying the traditional designs and technologies of Native art. Materials fee: \$25.00. (Prerequisite: AR 105 or permission of instructor.)

Intermediate Ceramics (1+4) h Continuation of beginning ceramics. Emphasis on glaze calculations and advanced plaster techniques. Materials fee: \$75.00. (Prerequisite: ART 201 or permission of instructor.)

ART 305 3 Credits

Advanced Drawing (1+4) h

Development and refinement of individual problems in drawing. Can be repeated for credit with permission of instructor. Materials fee: \$25.00. (Prerequisite: ART 205 or permission of instructor.)

**ART 307** 3 Credits Fall, Spring

Intermediate Printmaking (1+4) h

Continuation of ART 207 with emphasis on refinement of technique and color printing. Materials fee: \$75.00. (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 andtechniques; some emphasis on design. Materials fee: \$75.00. (Prerequisite: ART 209 or permission of instructor.)

3 Credits

Intermediate Sculpture (1+4) h Exploration in materials and concepts of sculpture. Emphasis on personal creativity and skill development. Materials fee: \$75.00. (Prerequisite: ART 211 or permission of instructor.)

3 Credits

Fall, Spring

Intermediate Painting (1+4) h

Continued development of expressive skills in painting in any media. Emphasis on pictorial and conceptual problems. Materials fee: \$25.00. (Prerequisite: ART 213.)

3 Credits Watercolor Painting and Composition (1+4) h **Every Third Spring** 

Development of individual approach to watercolor media. Can be repeated for credit with permission of the instructor. (Prerequisite: ART 223. Next offered: 1997-98.)

**ART 363** 3 Credits Alternate Spring

History of Modern Art (3+0) h Development of modern art forms and theories in the visual arts from the late 19th century to the present. Concentration on the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Non-objective Art, Abstract Expressionism, Pop Art, Realism and many other "isms." (Prerequisite: ART 262 or permission of instructor. Next offered: 1996-97.)

3 Credits ART 364

William Alternate Spring

Development of the Renaissance from early Florentine to the High Renaissance of Venice, Study of art by Massacio, Michelangelo, DaVinci, Titian, etc. (Prerequisite: ART 261 or permission of instructor. Next offered: 1995-96.)

ART 365 3 Credits Fall

Native Art of Alaska (3+0) h

Italian Renaissance Art (3+0) h

(Same as ANS 365)

Art forms of the Eskimo, Indian and Aleut from prehistory to the present. Changes in forms through the centuries.

**ART 366** 3 Credits Alternate Spring

Northwest Coast Indian Art (3+0) h (Same as ANS 366 and ANTH 366)

approved 42421

Arts of the Northwest Coast Indians and the place of art in their culture. (Next offered: 1995-96.)

3 Credits

Alternate Spring

Eskimo Art (3+0) h (Same as ANS 367)

Eskimo art from Alaska, Canada and Siberia beginning with the earliest known pieces to the beginning of the 20th century. (Next offered: 1995-96.)

3 Credits

Fall, Spring

Intermediate Native Art Studio (1+4) h

(Same as ANS 368)

Understanding and applying advanced traditional designs and technologies of Native art. Materials fee: \$25.00. (Prerequisite: ART 268 or permission of instructor.)

ART 3710 3 Credits

Introduction to Computer Art (1+4) Digital editing with an overview of the field of computer art. Materials fee: \$75.00. (Prerequisites: Introductory computer course and ART 105, 161, 162, or 163.)

Fall

Advanced Ceramics (1+4) h Emphasis on individual projects, plus a class project on architectural mural(s). May be repeated for credit with permission of instructor. Materials fee: \$75.00. (Prerequisite: ART 301 or permission of instructor.)

3 Credits

As Demand Warrants

Anthropology of Art (3+0) s

(Same as ANTH 402 and ANTH 602)

Anthropological study of art in cross-cultural perspective. Social context of art production and use, cross-cultural variations in definition of an artist's role. (Prerequisites: Senior standing or permission of instructor.)

ART 4070 3 Credits Fall, Spring

Advanced Printmaking (1+4) h

Individual development of technical and creative processes. May be repeated for credit with permission of instructor. Materials fee: \$75.00. (Prerequisite: ART 307 or permission of instructor.)

ART 409 3 Credits Fall, Spring

Advanced Metalsmithing and Jewelry (1+4) h

Materials and processes; introduction to holloware skills and forging. May be repeated for credit with permission of instructor. Materials fee: \$75.00. (Prerequisite: ART 309 or permission of instructor.)

3 Credits

Fall, Spring

Advanced Sculpture (1+4) h

Principles, practices and concepts of sculpture, May be repeated for credit with permission of instructor. Materials fee: \$75.00. (Prerequisite: ART 311 or permission of instructor.)

ART 4130 3 Credits Fall, Spring

Advanced Painting (1+4) h

Individual experimentation and technical/conceptual development in painting. Can be repeated for credit with permission of instructor. Materials fee: \$25.00. (Prerequisite: ART 313.)

ART 4170 3 Credits Every Third Spring

Lithography (1+4) h An exploration of stone and metal plate lithography. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 105, 207, or permission of instructor. Next offered: 1996-97.)

Life Drawing (1+4) h

Drawing from life; study of artistic anatomy. Materials fee: \$30.00. May be repeated for credit with permission instructor. (Prerequisite: ART 305 or permission of instructor.)

3 Credits

**Every Third Fall** 

Relief (1+4) h Woodcut and monotype with emphasis on color. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisites: ART 105, 207, and 213, or permission of instructor. Next offered: 1997-98.)

3 Credits

**Every Third Fall** 

Intaglio (1+4) h

Intaglio printmaking with emphasis on experimentation and color photo intaglio printing. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisites: ART 105, 162, 207, or permission of the instructor. Next offered: 1996-97.)

**ART 441** 3 Credits **Every Third Spring** 

Lost Wax Casting (1+4) h Design and execution of jewelry and other small metal objects by lost wax casting.

Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 409 or permission of instructor. Next offered: 1996-97.)

3 Credits

Nonferrous Forging (1+4) h

**Every Third Spring** 

Design and execution of hammer forged nonferrous metal objects. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 409 or permission of instructor. Next offered: 1996-97.)

3 Credits Holloware (1+4) h

**Every Third Spring** 

Design and construction of holloware by raising, sinking, and fabrication. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 409 or permission of instructor. Next offered: 1996-97.)

ART 4470 3 Credits Silkscreen (1+4) h

**Every Third Spring** 

Silkscreen printing with photo process. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisites: ART 105, 162, 207, or permission of the instructor. Next offered: 1997-98.)

3 Credits Raku Pottery (1+4) h **Every Third Fall** 

Raku bodies, glazes and decorations. Kiln building. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 201 or permission of instructor. Next offered: 1996-97.)

Earthenware (1+4) h

**Every Third Spring** 

Earthenware pottery bodies, glazes, decorations and firing techniques. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 201 or permission of instructor. Next offered: 1996-97.)

ART 452 3 Credits Porcelain (1+4) h

**Every Third Fall** 

Porcelain bodies, glazes, decorations and firing techniques. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 201 or permission of instructor. Next offered: 1996-97.)

3 Credits

**Every Third Spring** 

Kiln Design and Construction (1+4) h Kiln design and construction including building a full- sized kiln. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 201 or permission of instructor. Next offered: 1996-97.)

3 Credits Vapor Glazing (1+4) h Every Third Fall

Clays, glazes, decorative techniques and kilns used in "salt glazing" (i.e. vapor glazing). Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: ART 201 and permission of instructor. Next offered: 1996-97.)

**ART 455** 3 Credits Studio Glass (1+4) h Spring

Studio participation in cold glass and limited hot glass techniques. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisite: Advanced standing or permission of instructor.)

Papermaking (1+4) h

**Every Third Fall** 

Production of paper from rags and linters for use as an end in itself as well as a support for art. Two- and three-dimensional projects are required. Experimentation is encouraged. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisites: ART 105, 207, 163 or 211, or permission of instructor. Next offered: Fall 1995.)

3 Credits Photoprocess Printmaking (1+4) h **Every Third Spring** 

Production of etchings, lithographs and silkscreen prints using photo mechanical processes. Elements of electro-photography and desktop publishing explored. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisites: ART 105, 262, 207 or permission of instructor. Next offered: 1995-96.)

**ART 468** 3 Credits Fall, Spring

Advanced Native Art Studio (1+4) h

(Same as ANS 468)

Advanced traditional designs and technologies of Native art. Use of contemporary materials to interpret traditional forms. May be repeated for credit with permission of instructor. Materials fee: \$25.00. (Prerequisite: ART 368 or permission of instructor.)

3 Credits Computer Art (1+4)

Production and reproduction techniques for digital painting, images manipulation and typography. Materials fee: \$75.00. May be repeated for credit with permission of instructor. (Prerequisites: ART 105 and ART 161, 162 or 163; ART 371 or CS 201 or equivalent.)

ART 499 1-3 Credits Fall, Spring

Thesis Project

Directed work toward individual exhibition; completed outside regularly scheduled classes. Required for B.F.A. candidates. (Prerequisites: Senior standing.)

### **Atmospheric Science**

ATM 636 3 Credits Alternate Fall

Physics of Atmospheres (3+0) **ATM 644** 

3 Credits

Alternate Spring

ATM 646 3 Credits

Alternate Spring

Dynamics of the Atmosphere and Ocean (3+0)

3 Credits

Alternate Fall

ATM 656 Climate and Climate Change ((3+0)

Weather and Circulation (3+0)

#### Automotive

**AUTO 080** 2 Credits As Demand Warrants

Driver and Safety Education (2+0)

Drivers Education for the beginning driver. Alaska Driver's Manual, material necessary to gain an Alaska Driver's Permit. Defensive driving methods for accident-free driving and basic mechanical information.

**AUTO 081** 1 Credit As Demand Warrants

Behind-the-Wheel Training (0+3)

Practical driver training in actual situations. Expected student outcome is obtaining a State of Alaska driver's license. (Prerequisite: Must have a valid Alaska Driver's Permit.)

**AUTO 100** 1 Credit As Demand Warrants

Introduction to Small Engine Repair (1+0)

Parts and functions of a small engine and its electrical system. Dismantling procedures, cleaning and reassembly techniques, gasket-making, lubrication, troubleshooting, and minor repairs.

**AUTO 103** 1 Credit Auto Tune-Up (1+0) As Demand Warrants

A dual purpose course serving as an introduction to an advanced course and as a consumer interest course. Uses a "hands-on" approach to basic troubleshooting and maintenance, with tools commonly available.

1 Credit

As Demand Warrants

Snowmachine Maintenance and Repair (1+0)

Fundamental skills for operation and repair. Engine tune-up, lubrication, belt and track repair, alignment, and basic problems encountered during operation.

#### Aviation

**AVTY 102** 

**AVTY 100** 4 Credits As Demand Warrants

Private Pilot Ground School (4+0)

Study of aircraft and engine operation and limitations, aircraft flight instruments, navigation, navigation computers, national weather information and dissemination service. Federal aviation regulations, flight information publications, radio communications and navigation. Preparation for FAA private pilot-airplane written exam. Also available via Independent Learning.

**AVTY 101** 2 Credits

As Demand Warrants

Private Pilot Flight Training (2+0) Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course

completion requires awarding of private pilot certificate. (Prerequisite: Department approval required.)

As Demand Warrants

Commercial Ground Instruction (3+0)

Advanced study of aircraft performance, airplane systems (including complex single engine, multi-engine and turboprop aircraft), navigation, regulations and meteorology. Employment considerations for commercial pilots surveyed. Preparation for the FAA commercial pilot-airplane written exam.

As Demand Warrants

Commercial Flight Training (2+0)

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of commercial pilot certificate. (Prerequisite: Private Pilot certificate, AVTY 102 or concurrent enrollment, or passing score on FAA Commercial Pilot written exam, department approval required.

**AVTY 105** 1 Credit As Demand Warrants

Seaplane Flight Training (1+0)

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of single-engine sea rating. (Prerequisites: Private pilot certificate or higher, department approval required.)

1 Credit

As Demand Warrants

Multi-Engine Flight Training (1+0)

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of multi-engine rating. (Prerequisites: Private pilot certificate or higher, department approval required.)

**AVTY 108** 1 Credit As Demand Warrants

Introduction to Skis (1+0)

Pilot instruction with a certified flight instructor or flight school in techniques of ski-plane operation and cold weather maintenance. The student is responsible for making arrangements for an appropriate aircraft, instructor, and financing. (Prerequisite: Private pilot certificate.)

1 Credit

As Demand Warrants

Glider Flight Training (1+0)

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training will meet federal aviation regulations. Course completion requires awarding of glider and private or commercial pilot certificate with a glider category rating. (Prerequisite: Department approval.)

**AVTY 110** 

As Demand Warrants

Y 110 1 Credit Biennial Flight Review (1+0)

Review of federal aviation regulations, air traffic control procedures, communications, normal and emergency aircraft procedures, and aircraft performance. (Prerequisite: Student must have private pilot certificate.)

**AVTY 111** 3 Credits

Fundamentals of Aviation (3+0)

Basic concepts associated with the aircraft and its environment. Aircraft and its components, including basic systems, Federal Aviation Administration regulations, airports and airspace utilization, aeronautical charts, navigation, weather theory, medical and emergency factors.

**AVTY 116** 3 Credits Aviation History (3+0) As Demand Warrants

Aviation from its early days to the present. People, places, and machines contributing to the development of Alaskan aviation.

**AVTY 117** 3 Credits As Demand Warrants

Aviation Weather (3+0)

Weather and its effects on air transportation and air traffic control. Aviation weather reports and forecasts. Methods of weather distribution including teletype, voice lines, broadcasts, and other systems used by the U.S. Government and airway users. Materials fee: \$35.00.

**AVTY 119** 1 Credit As Demand Warrants

Flight Simulator Instruction Basic Procedures (0+3)

Individualized operation and use of the LINK GAT-I or other FAA-approved flight simulator and selected practice in basic flight maneuvers, procedures and techniques. A supplement to both private pilt ground school and actual flight training. A minimum of four hours of simulator instruction is required. Simulator time is \$25.00 per hour. A total of \$100.00 must be paid at fee payment. (Prerequisite: AVTY 100 or concurrent enrollment in AVTY 100 or 111.)

1-3 Credits

As Demand Warrants

Preventive Maintenance (1-3+0)

Mechanics of the airplane, its power plant and systems to enable the student to evaluate malfunctions an make maintenance decisions. Designed for the pilotowner. Materials fee: \$35.00. (Prerequisite: AVTY 100 or permission of instructor.)

**AVTY 200** 4 Credits As Demand Warrants

Instrument Ground School (3+3)

Instrument flight operations in detail, altitude instrument flying, air traffic control Instrument Hight operations in detail, altitude instrument Hying, air traffic control and navigation facilities, pilot responsibilities. IFR enroute charts, instrument approach procedures, airspace and airway route system, ATC operations and procedures. Federal Aviation Regulations, flight planning, human factors, meteorology. Includes optional visits to FAA RAPCO and ARTCC facilities. Laboratory consists of at least four hours of instrument instruction by an authorized instructor in an FAA-approved instrument ground trainer (individually scheduled by the student through the Aviation Department). Simulator time is \$25.00 per hour. A total of \$100.00 must be paid at fee payment. (Prerequisites: AVTY 102 or permission of the instructor.)

AVTY 201 2 Credits As Demand Warrants

Instrument Pilot Training

Flight instruction is arranged by student through approved pilot school or independent flight instructor. Cost of flight instruction varies with location of instruction. Training will be in accordance with current Federal Aviation Regulations. Course completion requires awarding of Instrument Rating. (Prerequisite: Pivate or Commercial Pilot Certificate, or AVTY 200 or concurrent enrollment, or passing score on FAA Private or Commercial Pilot written exam, or permission of instructor. Department approval required.)

AVTY 202 3 Credits As Demand Warrants

Flight Instructor Ground School (3+0)

Preparation for the FAA certified flight instructor or advanced ground instructor written exam. (Prerequisite: Commercial pilot certificate or permission of instructor.)

**AVTY 203** 2 Credits As Demand Warrants

Flight Instructor Flight Training (2+0) Flight instruction is arranged by student through approved pilot school or independent flight instructor. Training meets federal aviation regulations. Course comple-tion requires awarding of certified flight instructor certificate. (Prerequisites: Commercial pilot certificate with instrument rating, AVTY 202 or concurrent enrollment, or passing score on FAA flight instructor written exams; department

approval.)

**AVTY 205** 3 Credits

As Demand Warrants

Instrument Instructor Flying (3+0)

Preparation for certification as an instrument flight instructor. (Prerequisites: Commercial flight instructor certificate and department approval.)

**AVTY 206** 4 Credits As Demand Warrants

ATP Ground Instruction (4+0)

Preparation for the FAA airline transport pilot written exam. (Prerequisite: Compliance with FAR 61.151 and 61.155 or department permission.)

2 Credits ATP Flying (2+0)

As Demand Warrants

Qualification for single engine or multi-engine FAA airline transport pilot certificate. (Prerequisites: Commercial pilot certificate, 1500 hours of flight time as pilot or equivalent as described in FAR 61.155; AVTY 206 or passing score on FAA airline transport pilot written exam; current FAA first class medical certificate.)

**AVTY 208** 3 Credits As Demand Warrants

Flight Simulator Operation (2+3) Advanced training in a flight simulator (individually scheduled through the Aviation Department). A minimum of four hours of simulator instruction is required. Simulator time is \$25.00 per hour. A total of \$100.00 must be paid at fee payment. (Prerequisites: Private pilot certificate or higher, instrument rating, certified flight instructor-instrument or instrument ground instructor certificate, or

department permission.)

1 Credit

As Demand Warrants

Simulated Flight Instruction: Advanced Procedures (0+3)

Training utilizing the LINK GAT-I or other FAA-approved flight simulator (individually scheduled through the Aviation Department). A UAF approved instructor must direct and accompany the student while the simulator is in operation. Time accumulated may be applied to requirements of advance ratings or flight as specified in Part 61 of the Federal aviation regulations. A minimum of four hours of simulator instruction is required. Simulator time is \$25.00 per hour. A total of \$100.00 must be paid at fee payment.

As Demand Warrants

Flight Engineer Ground School (4+0)

A comprehensive examination of the major systems of one of the following aircraft: turbojet (B-727, DC-8, B-707); turboprop (L-382, L-188); or reciprocating (DC-6). Preparation for the FAA flight engineer written exam. (Prerequisites: FAA commercial pilot license and instrument rating, or equivalent, and department approval.)

As Demand Warrants

Arctic Survival (3+Arranged)

Use of principles, procedures, techniques and equipment to survive extreme arctic conditions and to assist in safe recovery. Lab required. Materials fee: \$50.00.

**AVTY 232** 3 Credits As Demand Warrants

Aviation Astronomy and Navigation (3+0)

Air navigation and astronomy, including charts, equipment, star and constellation identification, and calculations.

AVTY 233 1 Credit As Demand Warrants

Loran C and GPS Navigation (1+0)
The theory of Loran "C" and GPS and considerations regarding their use. System features are compared and the advantages and disadvantages of each are explored.

**AVTY 235** 3 Credits As Demand Warrants

Elements of Weather (3+0)

Weather as it affects aircraft operators with an emphasis on Interior Alaska.

**AVTY 239** 4 Credits As Demand Warrants

Aircraft Dispatcher (4+0) Coordinating functions involving the aircraft and other departments of an airline business. Those wanting to be eligible for aircraft dispatcher certificate must be 23

AVTY 301W,O3 Credits Air Worker Strategies (3+0) As Demand Warrants

Knowledge and skills to use general aviation aircraft as a tool for field transportation, field logistics or as a platform for instrumentation and data collection. For pilots or air workers who use aviation in natural resources management. (Prerequisite: AVTY 100 or 111.)

2 Credits Aerial Data Collection (2+0) As Demand Warrants

Uses of aircraft to collect resource data ocular observations through operation of remote sensing data equipment. Mission design and sampling strategies. (Prerequisite: AVTY 301.)

AVTY 302L 1 Credit As Demand Warrants

Aerial Data Collection Laboratory (0+2) Optional Lab portion of AVTY 302. (Prerequisites: AVTY 301, 302.)

3 Credits Aviation Law (3+0) As Demand Warrants

Impact of law and insurance on the aviation industry for pilots, air workers, and other aviation professionals; emphasis on commercial operations and the air transport service; history of the FAA; aircraft ownership; aviation insurance; FAA enforcement procedures; negligence; product liability. (Prerequisites: AVTY 102 and 200 or permission of instructor.)

**AVTY 402** 3 Credits As Demand Warrants

Aircraft Management (3+0) Securing, dispatching, and monitoring aircraft operations. Safety, security, community relations, cost-effective scheduling and personnel management for mission scheduling.

**AVTY 405** 3 Credits As Demand Warrants

Advanced Aircraft Operations (3+0) Techniques and requirements associated with the operation of turbine powered aircraft, remotely piloted aircraft, helicopters, and STOL aircraft for pilots and air workers; safety; systems; aerodynamics; operating characteristics. (Prerequisites: AVTY 100, 111, 301, or 302 or permission of instructor.)

2 Credits

As Demand Warrants

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 takeoffs and landings. (Prerequisites: AVTY 231, 235, 301, commercial rating and 20 hours taildragger time.)

### Biology

3 Credits

Summer, As Demand Warrants

High Latitude Biology (3+0) n Major themes in modern biological sciences, using experiences and examples in Alaska and circumpolar regions. Exploration of one of six themes in sufficient detail to become aware of the knowledge frontier dividing the known from the undiscovered. Research term paper required.

BIOL 103X 4 Credits Fall, Spring

Biology and Society (3+3) n Fundamental principles of biology; emphasis on their application to humans in the modern world. Lectures, laboratory demonstrations, experiments, and discussions of contemporary biological topics. For non-science majors; cannot be used as a biology elective by biological science majors. Laboratory fee: \$30.00. (Offered every Fall at the Northwest Campus.)

BIOL 104 3 Credits BIOL 104X 4 Credits Fall, Spring Fall, Spring

Natural History of Alaska (3+0 or 3+3) n

The physical environment peculiar to the North and important in determining the biological setting; major ecosystem concepts to develop an appreciation for land use and wildlife management problems in both terrestrial and aquatic situations. May not be used as biology elective credit for a major in biological science. BIOL 104X (4 credits) fulfills the Natural Science Core requirement. BIOL 104 (3 credits) is also available via Independent Learning. BIOL 104X laboratory fee: \$30.00.

BIOL 105X 4 Credits BIOL 106X 4 Credits

Fall Spring

Fundamentals of Biology I and II (3+3) n

Principles of biology for the science major. First semester: ecology, genetics, evolution, plant structure and function. Second semester: chemistry of life, introduction to cell structure and function, molecular biology, animal structure and function. Laboratory fee: \$30.00. Students for whom this course is required for their major will be given preference when space is limited. (Prerequisites: High school algebra or equivalent and placement in ENGL 111X. Recommended: high school biology and chemistry, or permission of instructor; BIOL 105X for BIOL 106X.)

**BIOL 126** 2 Credits As Demand Warrants

Biology of Northern Birds (1+3) n

Introduction to modern biology (taxonomy, ecology, evolutionary theory, behavior, etc.) for non-majors, using familiar vertebrates in the context of their adaptations to northern environments. Laboratories stress comparative studies, measurements, and how observations are recorded and shared among scientists. (Prerequisites: High school algebra and one year of high school science or permission of instructor.) Offered at Arctic Sivunmun Ilisagvik College only.

3 Credits

Independent Learning Only

Introduction to Marine Biology
Survey of marine organisms, evolution of marine life, habitats and communities of ocean zones, productivity, and marine resources. For non-science majors; may not be used as biology elective credit for a major in biological science.

2 Credits

As Demand Warrants

Ornithology Field Research (0+6) n

Field practicum (apprenticeship) in research techniques on the biology of birds, and natural history interpretations, for non-majors. (Prerequisites: BIOL 126 [may be taken concurrently] or permission instructor; see also BIOL 479, the parallel course primarily for declared biology majors.) Offered at Arctic Sivunmun Ilisagvik College only.

2 Credits

Fall

Principles and Principals of Evolutionary Theory (2+0)

An introduction, by tracing its historical development, to the theory of organic evolution. Readings on Cuvier, Lamarck, Darwin, Crick and others. Research paper required. (Prerequisite: Permission of instructor.) Offered at Arctic Sivumun Ilisagvik College only. 4 Credits WQS 111 112

BIOL 211X BIOL 212X

Spring

Human Anatomy and Physiology I and II (3+3) n
Integrated view of human structure and function for students in pre-professional allied health programs, biology, physical education, psychology and art. BIOL 211X covers cells, tissues and organs, skeletal and muscle systems, the nervous system, and integument. BIOL 212X examines circulatory, respiratory, digestive, excretory, endocrine, and reproductive systems. Laboratory fee: \$30.00. (Prerequisites: BIOL 211X for BIOL 212X. Recommended: High school biology, high school algebra, CHEM 105X-106X or CHEM 103X-104X, ENGL 111X.

4 Credits

Fall

Introduction to Plant Biology (3+3) n Structure, function, ecology, and evolutionary patterns of the major groups of plants. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X.)

Spring

Principles of Genetics (4+0) n Principles of inheritance; physico-chemical properties of genetic systems. Special fee: \$20.00. (Prerequisites: BIOL 105X, 106X.)

**BIOL 271** 4 Credits

Principles of Ecology (4+0) n

Basic principles of ecology and evolutionary biology. Environmental factors, their causation and influence upon plants and animals. Basic population biology: population structure, growth, and regulation. Mechanisms of evolutionary change in populations. Organization of biotic communities. Structure and function of ecosystems. (Prerequisites: BIOL 105X, 106X.)

BIOL 273X 4 Credits As Demand Warrants

Humans in the Earth System (3+3) n

Understanding the issues involved in global change, how humans cause the changes and how we will be affected. Discussion on the fundamental components of the earth system (atmosphere, oceans, land and biota) and how these components interact. Specific issues include climate change, ozone depletion, deforestation and land degradation. (Prerequisite: Sophomore standing.)

**BIOL 277** 3 Credits Alternate Spring

(Same as NRM 277)

Introduction to Conservation Biology (3+0)

Introduction to the basic ecological, genetic, management, legal, and historical developments in conservation biology and focused efforts to manage biological diversity resources, with a status review of important habitats and endangered species. (Prerequisites: BIOL 105X, 106X. Next offered: 1995-96.) BIOL 303 4 Credits Fall

Principles of Metabolism and Biochemistry (3+3)

Introduction to metabolism at the molecular level. Topics include structure and function of proteins, allostery and feedback, biological regulation and the major pathways of carbon and nitrogen metabolism. Presented in an evolutionary and ecological context. (Prerequisites: BIOL 105X-106X, BIOL 262, 271; CHEM 105X-106X.)

BIOL 305 5 Credits Fall

Invertebrate Zoology (3+6) n Classification, structure, function, evolution, and life histories of invertebrate animals. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X, and 271.)

4 Credits

Was Biol 210 Spring

Animal Physiology (3+3) n

Animal function, including respiration, digestion, circulation, nerve and muscle function, hormones, and reproduction. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X, 262, 271, CHEM 103X and 104X or 105X may be taken concurrently.)

4 Credits BIOL 317

Spring

Comparative Anatomy of Vertebrates (2+6) n Anatomy, phylogeny and evolution of the vertebrates. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X.)

Spring

Biology of Marine Organisms (3+0) n

Marine organisms: ocean as a habitat, distribution, classification, functional morphology, and general biology of the major biological groups; man ad the oceans. (Prerequisite: Upper division standing in a biologically- oriented major.)

4 Credits Systematic Botany (2+6) n Spring

Classification of flowering plants with emphasis on Alaskan flora; taxonomic principles, classical and experimental methods of research. Preregistration is required to insure that each student will prepare a plant collection. Laboratory fee: \$30.00. (Prerequisite: BIOL 239 or permission of the instructor. BIOL 262 recommended.)

**BIOL 333** 

Alternate Fall

Biology of the Non-Vascular Plants (2+3) n Structure, function, comparative development, taxonomy, phylogeny and life histories of non-vascular cryptogams (algae, excluding blue greens, fungi, lichens, mosses and hepatics). Laboratory fee: \$30.00. (Prerequisite: BIOL 239. Next offered: 1996-97.)

BIOL 334

Bolom Alternate Fall

Structure and Function in Vascular Plants (3+3) n Morphology, anatomy and physiology of vascular plants, stressing the interrelationships between development, anatomy, growth, water relations, photosynthesis, transport and metabolism. Laboratory fee: \$30.00. (Prerequisite: BIOL 239. Next offered: 1995-96.)

BIOL 342 4 Credits Microbiology (3+3) n Spring

Morphology and physiology of microorganisms. The role of these organisms in the environment and their relationship to humans. Concepts of immunology. Laboratory stresses aseptic techniques for handling microorganisms. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X, BIOL 262, CHEM 105X.)

W Alternate Spring 3 Credits Marine Fishes of Alaska (2+3) Renew

(Same as FISH 380)

Taxonomy, recognition, distribution, life history and ecological relationships of marine fishes of Alaska will be studied. Life history traits that make species susceptible to commercial exploitation, changes in climate, ocean circulation or pollution will be emphasized. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X and 106X. Next offered: 1996-97.)

**BIOL 384** 3 Credits

Was Alternate Spring Freshwater Fishes of Alaska (2+3)

(Same as FISH 384)

Life histories of Alaskan freshwater fish emphasizing species sought by fishermen. Reproduction, age, growth, migration, food, inter-relationships and habitat requirements. (Prerequisites: BIOL 105X and 106X or permission of instructor. Next offered: 1995-96.)

**BIOL 406** 4 Credits **Alternate Spring** 

Entomology (3+3) n

Biology of insects and related arthropods, with emphasis on anatomy, physiology, behavior, ecology, and evolution. Lab emphasizes identification. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X, 271. Next offered: 1995-96.) BIOL 407 3 Credits Alternate Fall

Aquatic Entomology (2+3) Ecology, taxonomy, anatomy, physiology and evolution of aquatic insects. Laboratories emphasize identification and field/laboratory techniques. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X and 271, or permission of instructor;

BIOL 4140/2 4 Credits

Fall

Environmental Physiology (3+3) n

BIOL 473 recommended. Next offered: 1996-97.)

Functional variations and relationships among animals in various environments; respiration, cardiovascular systems, metabolism, temperature regulation, osmoregulation excretion, nerve and muscle function. Three hour oral presentation/ discussion each week. Service fee: \$30.00. (Prerequisites: BIOL 310, CHEM 106X and 321 or permission of instructor.)

BIOL 418W 4 Credits Alternate Spring

Developmental Biology (3+3) n Morphological and molecular aspects of development of multicellular organisms, with emphasis on the regulation of morphogenesis. Laboratory stresses experimental study of vertebrate embryos. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X, 310 or permission of instructor. Next offered: 1995-96.)

BIOL 425 3 Credits

Mammalogy (2+3) n Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution, and zoogeography. Laboratory fee: \$30.00. (Prerequisites: BIOL 317 or permission of instructor and junior standing or above.)

BIOL 426W,O/2 3 Credits Spring

Ornithology (2+3) n

Evolution, anatomy, physiology, distribution, migration, breeding biology of birds, their classification and identification. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X-106X or permission of instructor.)

BIOL 427 4 Credits Alternate Spring

Ichthyology (3+3) n (Same as FISH 427)

Major groups of fishes, emphasizing fishes of northwestern North America. Classification structure, evolution, general biology, and importance to man. Laboratory fee: \$30.00. (Prerequisites: BIOL 317 or permission of instructor. Next offered: 1995-96.)

BIOL 441W,O/2 3 Credits Animal Behavior (2+3) n

Fall

Genetic and physiological bases of behavior, evolutionary and ecological principles of individual and social behavior, sociobiology, and techniques of behavioral observation and analysis. Laboratory fee: \$30.00. (Prerequisites: BIOL 310, 271; or permission of instructor.)

BIOL 442W,O/2 4 Credits

Alternate Fall

Advanced Microbiology (2+6) n (Same as BIOL 642)

Diversity of microorganisms. Morphology, physiology and systematics of microorganisms, particularly bacteria. Emphasis on organisms of environmental or medical interest. Laboratory fee: \$30.00. (Prerequisites: BIOL 342, CHEM 321 or permission of instructor. Next offered: 1996-97.)

3 Credits

Alternate Fall

Microbial Ecology (3+0) n Interactions of microorganisms with their environment, emphasizing microbial responses to the environment, microbial processes such as nutrient cycling and pollutant biodegradation, and microbial interactions with each other, with plants, and with animals. (Prerequisite: BIOL 342 or BIOL 271 or permission of instructor. Next offered: 1995-96.)

3 Credits

Alternate Fall

Reproductive Biology (3+0)

Comparative physiology, endocrinology, behavior and ecology of reproduction in mammals and birds. Hormonal control of reproductive function and behavior; seasonal rhythms, energetics, and life histories of reproduction. Although primarily comparative, aspects of human reproductive function and health covered. (Prerequisite: BIOL 211X, 212X, or 210. Next offered: 1995-96.)

4 Credits

Spring

Molecular Evolution (3+3)

(Same as BIOL 645 and CHEM 445 and 645)

Structure, function and evolution of hereditary molecules (nucleic acids). Laboratory fee: \$30.00. (Prerequisite: BIOL 262.)

BIOL 450W,O 3 Credits

Alternate Spring

Women and Science (3+0)

The historical contributions and participation of women in science with an emphasis on the biological sciences. Discussion of the factors affecting female participation in the sciences and how participation of women in science affects the manner in which science is done. (Prerequisite: Junior standing in the natural sciences or permission of the instructor. Next offered: 1995-96.) BIOL 453 3 Credits

Molecular Biology in the Real World (3+0)
(Same as BIOL 653 and CHEM 453 and 653)

Provides in-depth coverage of eukaryotic and prokaryotic gene function, including the applications of recombinant DNA technology to the biological sciences. (Prerequisite: BIOL 262, CHEM 321 or BIOL 303. Next offered: 1995-96.)

BIOL 461 4 Credits Cell Biology (3+3) n (Same as BIOL 661)

Alternate Spring

The structure and function of cells. Analysis of cellular events at the cytoplasmic level including: cell replication, functioning of the cytoskeleton, mitochondria, chloroplasts, Golgi-RER-lysosome system, hormone action, and the regulation of the internal environment of the cell. Laboratory focuses on techniques and problem solving. Laboratory fee: \$30.00. (Prerequisites: BIOL 262 or concurrent enrollment, CHEM 321 or concurrent enrollment, or permission of instructor. Next offered: 1996-97.)

BIOL 471W 3 Credits Population Ecology (3+0) n

Biology of populations of plants and animals, including population structure, natality, mortality, population growth, regulation of population size, population interactions in herbivory, predation, and parasitism. (Prerequisite: BIOL 271 for biology majors; WLF 201 for wildlife majors; either course for others.)

BIOL 472 3 Credits Fall Communities and Ecosystems (3+0) n

Structure of plant and animal communities and their organization. Structuring forces of competition, predation, herbivory, mutualisms, and the flow of energy and nutrients. Latitudinal gradients in species richness and biogeography. (Prerequisite: BIOL 271.)

BIOL 473 3 Credits Was WF 423 Fall Limnology (2+3)

Physical, chemical and biological characteristics of fresh water, emphasizing

ecological aspects important to fish and other organisms. Laboratory fee: \$30.00. (Prerequisites: BIOL 271, CHEM 106X or permission of instructor.)

BIOL 474 4 Credits Alternate Fall
Plant Ecology (3+3) n

Principles and contemporary topics in plant ecology. Autecology, community ecology, ecosystem ecology and evolutionary ecology. Laboratory fee: \$30.00. (Prerequisites: BIOL 239, BIOL 271, STAT 301. Next offered: 1995-96.)

BIOL 475 2 Credits Alternate Fall
Plant Communities of Alaska-Field Course (1+3)

Identification of vascular and non-vascular plants and the processes affecting the structure and evolution of Alaskan plant communities. Field trips to the plant communities of interior Alaska. Laboratory fee: \$30.00. (Prerequisites: BIOL 239, permission of instructor. Next offered: 1995-96.)

BIOL 477W 3 Credits Alternate Spring Ecology of Streams and Rivers (3+0)

Physical, chemical and (especially) biological aspects of stream and river ecosystems. Considerations of methods used in running water research and management of streams and rivers. (Prerequisites: BIOL 271 and 473 recommended or permission of instructor. (Next offered: 1995-96.)

BIOL 479 2 Credits Spring Ornithology Field Trip (0+6) n

Techniques of field ornithology, emphasizing identification of birds and birdhabitat relationships. Preparation during the spring semester followed by a field trip of 10-12 days in early May. Students must share in expenses. Field trip fee to be announced. Laboratory fee: \$30.00. (Prerequisites: BIOL 426 [may be taken concurrently] and permission of instructor.)

BIOL 480 3 Credits Alternate Fall
Water Pollution Biology (3+0)
(Same as BIOL 685)

Water quality standards: criteria and use classifications. Effects of man-caused environmental stresses on the composition and dynamics of aquatic communities. Changes in transfers of matter and energy. Biological indices including diversity. (Prerequisites: BIOL 271 and BIOL 473 or 477 or permission of instructor. Next offered: 1995-96.)

BIOL 481 4 Credits Fall
Processes of Evolution (3+3)

(Same as BIOL 681)

Processes of evolutionary change are used to explore the unifying principles of the biological sciences. Develops fundamental models of population genetics relevant to basic and applied studies in ecology, plant and animal breeding, systematics, conservation biology and wildlife biology. (Prerequisites: BIOL 271, 262, STAT 200, junior standing or above or permission of instructor. STAT 200 may be taken concurrently.)

BIOL 482 4 Credits Patterns of Evolution (3+3)

Patterns of evolution as revealed by the fossil record, molecular and developmental biology, and the methods of comparative biology are used to build a conceptual framework for study of living systems. (Prerequisites: BIOL 271, 262, 303, junior standing or above or permission of instructor.)

Spring

Fall

BIOL 601 3 Credits Alternate Spring Compartmental Analysis and Radioisotopic Techniques (2+3)

BIOL 602 3 Credits Research Design (3+0) (Same as WLF 602)

BIOL 611J 3 Credits
Fish Physiology (3+0)

As Demand Warrants

BIOL 614 2 Credits Alternate Spring
Grazing Ecology (2+0)
(Same as WLF 614)

BIOL 615 3 Credits Alternate Spring Systematic and Comparative Biology (3+0)

BIOL 618 3 Credits
Biogeography (3+0)

Alternate Spring

BIOL 619 2 Credits Alternate Fall Marine Mammals (1+3)

BIOL 623 3 Credits Alternate Fall
Physiological Ecology of Overwintering (2+3)

BIOL 627 3 Credits Alternate Spring Chemical Ecology (3+0)

BIOL 629 3 Credits Advanced Animal Behavior (3+0)

BIOL 637 2 Credits Alternate Fall Modern Evolutionary Theory (2+0)

BIOL 638 1 Credit Alternate Fall Seminar in Ecology and Evolutionary Biology (2+0)

BIOL 642W 4 Credits Advanced Microbiology (2+6)
(Same as BIOL 442)

BIOL 645 4 Credits Spring
Molecular Evolution (3+3)
(Same as BIOL 445 and CHEM 445 and 645)

BIOL 649J 3 Credits
Molecular Genetics (3+0)

As Demand Warrants

BIOL 650 3 Credits Fairbanks, Alternate Fall Fish Ecology (2+3) Juneau, As Demand Warrants (Same as FISH 650)

BIOL 653 3 Credits Alternate Fall Molecular Biology in the Real World (3+0) (Same as BIOL 453 and CHEM 453 and 653)

BIOL 661 4 Credits Alternate Spring
Cell Biology (3+3)
(Same as BIOL 461)

BIOL 663 3 Credits Alternate Spring
Biochemistry and Molecular Biology of Photosynthesis (3+0)
(Same as CHEM 663 and MSL 663)

BIOL 664 3 Credits Alternate Spring Algal Biology: Physiological Ecology (3+0) (Same as MSL 664)

BIOL 672 3 Credits Alternate Fall Ecosystem Processes (2+0+2)

BIOL 673 3 Credits Alternate Spring
Soil Microbiology and Biochemistry (3+0)
(Same as NRM 673)

BIOL 675 3 Credits Alternate Fall Plant Physiological Ecology (2+3)

BIOL 677 3 Credits
Advanced Topics in Plant Ecology and Systematics (3+0)

BIOL 678 3 Credits Alternate Spring
Tropical Ecology Field Course (0+3+Arr)

**BIOL 680** 3 Credits Alternate Fall

Data Analysis in Biology (2+3) (Same as STAT 680 and WLF 680)

4 Credits

Processes of Evolution (3+3) (Same as BIOL 481)

**BIOL 685** 3 Credits Water Pollution Biology (3+0) (Same as BIOL 480)

Alternate Fall

Fall

#### **Business Administration**

Admittance to 300 and 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course.

A \$25 per semester student computing facility user fee will be assessed for any student taking one or more School of Management courses (AIS, ACCT, BA and ECON except ECON 100X). This fee is in addition to any lab/material fees. Note: This fee does not apply to Tanana Valley Campus courses.

3 Credits

Fall, Spring

Introduction to Business (3+0) Business organization, nature of major business functions such as management, finance, accounting, marketing, personnel administration. Opportunities and requirements for professional business careers.

**BA 160** Tourism Principles and Practices (3+0) Fall or Spring

Forces which influence international and domestic hospitality, leisure, travel, and recreation industries. Socio-economic models and measure of regional impact, demand, and supply. Also available via Independent Learning.

1-3 Credits

Fall, Spring, Summer

Internship in Business (0+1-3) Supervised work experience in an approved position related to the student's career interests or objectives. Number of credits depends on type of position time worked. No student can count more than eight internship credits towards a degree. (Prerequisite: Approval of program or department head.)

3 Credits BA 303

Fall

Advanced Leadership (3+1) (Same as MILS 303)

Comprehensive analysis of leadership styles and functions applicable to formal organizations. Lab includes: Advanced leadership development and enrichment seminars. (Prerequisite: Upper division standing.)

3 Credits

Fall or Spring

Personnel Management (3+0) Introduction to management principles and personnel practice in industry, analysis of labor-management problems, methods and administration of recruiting, selecting, training, and compensating employees, and labor laws and their applications. Materials fee: \$10.00. (Prerequisite: Upper division standing.)

**BA 317W** 3 Credits Employment Law (3+0) Fall or Spring

Basic personnel and human resource management law, including the major federal laws affecting personnel management and state employment laws including Alaska. (Prerequisites: BA 307 or concurrent enrollment in BA 307, upper division standing.)

3 Credits

Fall, Spring

Financial Management (3+0) Methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisites: ACCT 101, ECON 200, STAT 200. ACCT 102, MATH 262, or equivalent, and ECON 227 are also useful, upper division standing.)

3 Credits

Spring

Principles of Advertising (3+0) (Same as JB 326)

Advertising including strategy, media use, creation and production of advertisements, and measurement of advertising effectiveness. (Prerequisite: Upper division standing.)

BA 327 3 Credits Fall or Spring Collective Bargaining and Labor Relations (3+0)

Labor law and current management practices in administering collective bargaining agreements, emphasizing recent problems, developments and trends in union management relations, negotiating, arbitration and unfair labor practices. (Prerequisites: BA 307, upper division standing.)

4 Credits

Fall, Spring

The Legal Environment of Business (4+0)

The judicial system, legal processes, administrative procedures, law of torts, contract and agency government regulation of business, business ethics, corporate social responsibility and the uniform commercial code. Materials fee: \$10.00. (Prerequisite: Upper division standing or permission of the Business Administration Department Head.)

3 Credits

Fall, Spring

Principles of Marketing (3+0) Management of a firm's marketing effort focusing on products, distribution, pricing, and promotion to targeted consumers. Practices appropriate to domestic or international, small or large, goods or services, and for-profit or nonprofit organizations included. (Prerequisite: Upper division standing.)

As Demand Warrants 3 Credits

Introduction to Real Estate and Land Economics (3+0)

Processes and considerations that influence decisions of individuals and groups concerning real estate investment and utilization. Functions of various types of real estate operators. (Prerequisite: Upper division standing or permission of instruc-

BA 355 3 Credits

As Demand Warrants

Personal Finance (3+0) Examination of personal financial topics such as stock, debt, and real estate investments, insurance, pensions, and credit. Emphasis on optimal combinations of financial products over an individual's life cycle. (Prerequisite: Upper division standing.)

3 Credits BA 360 Production/Operations Management (3+0) Fall, Spring

Production management field with an emphasis on the design and management of efficient manufacturing and operating systems including the process of converting, or manufacturing resources into goods, and activities associated with the production of goods and services. Topics include productivity and quality, product design and development, resource-requirements planning, facility and distribution issues, process technology, automation and job design, materials and inventory management, scheduling and production-actiity control, project planning. (Prerequisites: AIS 101, ACCT 102, ECON 200, 227, MATH 262 or equivalents, upper division standing.)

Management of Hospitality and Tourism Industry (3+0)

Practices and concepts for successful hotel operation in Alaska including but not limited to management systems, financing of hotels, budgeting and food costing, housekeeping, and front office management. (Prerequisite: BA 160, upper division standing.)

**BA 373** 3 Credits

Fall or Spring

Community Tourism Development (3+0)

A community-based perspective of the organizational, planning, development, funding, and operational need for a successful tourism economy at the local level. (Prerequisite: BA 160, upper division standing. Next offered: Spring 1996.)

3 Credits Organizational Theory and Behavior (3+0)

Behavior of individuals and small groups within organizations, including motivation, leadership, communications, group dynamics, organizational development, and conflict management. (Prerequisite: Upper division standing.)

Simulation Modeling for Decision Making (3+0) Concepts of computer simulation, probability distributions, modeling principles and the language STELLA from basics to modeling a reasonably complex operating system and making conclusions about the system. (Prerequisites: AIS 101 or equivalent, ECON 227, MATH 262, ACCT 102; BA 360 is recommended, upper division standing.)

3 Credits

Fall or Spring

Investment Management (3+0) Investing in marketable securities for the individual. Determination of value, analysis of growth, technical analysis, and portfolio management. Materials fee: \$10.00. (Prerequisite: BA 325 or equivalent, upper division standing.)

Fall or Spring

Advanced Corporate Financial Problems (3+0)

Corporate financial problems, planning and controls, and major functions performed by corporate financial managers. (Prerequisite: BA 325, upper division BA 430 3 Credits Fall or Spring

Current Topics in Finance (3+0) An in-depth consideration of sophisticated and specialized applications of financial management principles. Topics are those most timely to the Alaskan economy. Materials fee: \$20.00. (Prerequisites: BA 325, upper division standing.)

3 Credits Consumer Behavior (3+0) Fall or Spring

Effects of nationality, culture, social class, family, personality, symbolism, and persuasion on consumptive behavior from the marketing point of view. Organizational influences on corporate buyer behavior included. Qualitative methodologies such as focus groups covered. (Prerequisites: BA 343, upper division standing.)

3 Credits

Fall or Spring

Promotion Management (3+0)

Advertising, publicity, sales management, sales promotion, direct marketing, and the interrelationships necessary for effective promotions in domestic or international, small or large, goods or services, and for-profit or nonprofit organizations included. (Prerequisite: BA 343, upper division standing.)

3 Credits

Fall or Spring

Marketing Research (3+0) Basic processes and tools of marketing research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Techniques of quantitative data-gathering and analysis to solve a marketing problem. Practices appropriate to domestic or international, small or large, goods or services, and for-profit or nonprofit organizations included. (Prerequisites: BA 343, STAT 200 or equivalent, upper division standing.)

3 Credits

Fall or Spring

Compensation Management (3+0)

Theory and practice of wage and salary, benefits and risk management. Planning, administration, auditing, adjusting and budgeting for compensation and risk. (Prerequisite: BA 307, upper division standing.)

3 Credits

Fall, Spring, Summer

Internship in Business Administration (0+var.)

A supervised practical work experience to enable students to apply their coursework in a business environment. Admission dependent upon approved sponsorship arrangements. (Prerequisites: Upper division standing and permission of instruc-

**BA 454** 3 Credits Fall, Spring

Student Investment Fund (3+0)

"Hands-on" experience in portfolio management. Students will be making investment and diversification decisions affecting the \$100,000 Student Investment Fund. Materials fee: \$20.00. (Prerequisite: BA 325, upper division standing.)

3 Credits

Portfolio Management (3+0)

The second course involved with the "hands-on" management of the \$100,00 Student Investment Fund. Students will carry out the duties of the officers of the fund and will be responsible for the portfolio diversification and management decisions affecting the fund. Materials fee: \$20.00. (Prerequisite: BA 454, upper division standing.)

**BA 456W** 3 Credits Fall or Spring

Small Business Management (3+0)

Operations and special problems of the small business with emphasis on both existing firms and new ventures. Starting new businesses, buying going concerns, acquiring and operating franchises, establishing lines of credit, management, legal matters, profit planning, pricing, inventory levels, record systems, tax regulations, and employee supervision. Materials fee: \$20.00. (Prerequisites: Completion of all 300 level business administration, accounting and economics common body of knowledge requirements and upper division standing in the School of Management.)

3 Credits

Fall or Spring

Training and Management Development (3+0)

Theory and practice of employee training programs, needs assessments, learning theories, instructional design, training techniques and evaluation, management development and career development techniques and practices. (Prerequisites: BA 307, 317, upper division standing.)

3 Credits

Fall or Spring

International Business (3+0) Relationships among nations with particular emphasis on the business, economic, and sociocultural institutions that influence the performance of managers. Formulation of objectives, strategies, and organizational structures within the context of international diversity. (Prerequisites: Upper division standing and all 300 level requirements completed.)

Fall or Spring

International Finance (3+0)

Foreign investment projects including foreign capital markets, financing exports, hedging foreign exchange risks, and capital budgeting in an international setting. (Prerequisite: BA 325, upper division standing.)

BA 4620 3 Credits

Corporate Strategy (3+0) An integrative approach to strategy formation and implementation to achieve organization goals. Students will be introduced to theoretical perspectives and associated methodologies directed toward resolving the unstructured problems and opportunities which confront general managers at the highest levels of an organization. (Prerequisites: Completion of all 300 level business administration, accounting and economics common body of knowledge requirements and upper M Brould 3 - 46
Fall or Spring

BA 471 3 Credits Tourism Seminar (3+0)

A senior seminar examining all areas of the travel-tourism industry. Lecturer, guest industry speakers, and the case study method are utilized. (Prerequisites: BA 160, upper division standing.)

3 Credits

division standing.)

As Demand Warrants

Transportation and Logistics (3+0) Transportation systems components, systems planning, multimode systems, interactions among components and between the transportation system and its environment. Special consideration is given to Alaskan transportation problems by experienced specialists. (Prerequisites: STAT 200, BA 343, upper division standing.)

Fall or Spring

90 3 Credits Services Marketing (3+0) Y l placed \$\frac{1}{2}\$ Marketing principles in the services sector with special emphasis on such service industries as financial, retailing and tourism. Practices appropriate to domestic or international, small or large, and for-profit or nonprofit organizations included. (Prerequisite: BA 343, upper division standing.)

3 Credits BA 604

The Legal Environment of Business (3+0)

Fall or Spring

3 Credits

Fall or Spring

Human Resources Management (3+0) BA 610 3 Credits

Production/Operations Management (3+0)

Fall or Spring **Fall or Spring** 

**BA 617** 3 Credits Organizational Theory and Behavior (3+0)

Fall or Spring

BA 625 3 Credits Financial Management (3+0)

3 Credits

BA 643 Marketing Management (3+0)

**Fall or Spring** 

Fall or Spring

BA 660 3 Credits Seminar in Production Management (3+0)

BA 670 3 Credits As Demand Warrants Seminar in Multinational Business Management (3+0)

Fall or Spring BA 675 Practical Quantitative Methods for Business Decision Making (3+0) (Same as ECON 675)

3 Credits

Seminar in Finance (3+0)

Fall or Spring

BA 683

3 Credits

Fall or Spring

Seminar in Marketing (3+0)

BA 685 3 Credits International Finance (3+0) As Demand Warrants

**BA 690** 3 Credits

Corporate Strategy (3+0)

Fall or Spring

BA 691 3 Credits Advanced Topics in Business (3+0)

Fall or Spring

### Chemistry

**CHEM 075** 

3 Credits

As Demand Warrants

Introduction to Chemical Sciences (3+0)

Units of measurement, atomic and molecular structure, chemical bonding, metabolism, radioactivity, oxidation-reduction reactions, solutions, acids and buffers. For the non-science major.

CHEM 100X 4 Credits

Fall, Spring

Chemistry and the Modern World (3+3) n

Fundamentals of chemistry with an emphasis on the impact of chemistry and the chemical industry on society and the environment. May be used to fulfill part of the natural science requirement. For non-science majors. Laboratory fee: \$30.00.

CHEM 103X 4 Credits

Basic General Chemistry (3+3) n
Fundamentals of chemistry including historical and descriptive aspects as well as basic mathematical concepts. Fulfills the laboratory part of the natural science requirement and prepares the student for CHEM 105X. Laboratory fee: \$30.00. (Prerequisite: High school algebra.)

CHEM 104X 4 Credits

Spring

Beginnings in Biochemistry:

A Survey of Organic Chemistry and Biochemistry (3+3) n
Fundamentals of chemistry as applied to biological systems. Bridges the gap between a general chemistry course and biochemical concepts of other healthrelated sciences. Recommended for health-science degree candidates and nonscience majors interested in the central role of chemistry in life. May be used to meet the general laboratory science requirement or for preparation for CHEM 105X. Laboratory fee: \$30.00. (Prerequisite: CHEM 103X or consent of instruc-

CHEM 105X 4 Credits CHEM 106X 4 Credits

Fall, Spring Fall, Spring

General Chemistry (3+3) n

CHEM 105X-106X, together, constitute the standard one-year engineering and science-major general chemistry course with laboratory. CHEM 105X Measure-ments, calculations, atomic and molecular structure, chemical reactions and related energy changes. CHEM 106X; Reaction kinetics, equilibrium (including acids and bases), nuclear chemistry, electro-chemistry, chemistry of the elements and an introduction to organic and biochemistry. Laboratory fee: \$30.00. (Prerequisites: For CHEM 105X: high school algebra, high school chemistry or CHEM 103X, or consent of instructor. For CHEM 106X: A grade of "C" or better in CHEM 105X.)

**CHEM 202** 3 Credits Spring

Basic Inorganic Chemistry (2+3) n

Inorganic chemical properties and reactions with special emphasis on the environment. Laboratory includes synthesis, characterization and analysis. Laboratory fee: \$30.00. (Prerequisite: CHEM 106X or permission of instructor.)

3 Credits

Chemical Equilibrium and Analysis (3+0) n
Aqueous chemical equilibrium as applied to chemical analysis, separations, spectrophotometry, potentionmetry, and factors considered in the analytical approach. (Prerequisites: CHEM 106X; MATH 107 or equivalent.)

**CHEM 213** 1 Credit

Quantitative Analysis Laboratory (0+3) n

Laboratory training in quantitative chemical manipulation, including calibration, standardization, analysis using titrimetric and instrumental methods. Laboratory fee: \$30.00 (Prerequisites: CHEM 106X and MATH 107.)

**CHEM 321** 3 Credits Fall, Spring

**CHEM 322** 3 Credits Fall, Spring

Organic Chemistry (3+0) n A systematic study of the more important functional groups of carbon compounds, including their mechanisms of reaction, methods of synthesis, and physical and spectroscopic properties. (Prerequisite: CHEM 106X for CHEM 321; CHEM 321 with "C" of better for CHEM 322; or permission of instructor.)

**CHEM 324** 3 Credits Fall, Spring

Organic Laboratory (1+8) n A laboratory designed to illustrate modern techniques of isolation, purification, analysis, and structure determination of covalent, principally organic, compounds. Laboratory fee: \$30.00. (Corequisite: CHEM 322.)

**CHEM 331** 3 Credits **CHEM 332** 3 Credits

Fall Spring

Physical Chemistry (3+0) n

CHEM 331: Principles of thermodynamics with applications to phase equilibria, solutions, chemical equilibrium and electrochemistry. CHEM 332: Kinetic theory of gases, chemical kinetics, atomic and molecular structure, and spectroscopy. (Prerequisites: CHEM 106X, MATH 202, PHYS 104 or 212 or permission of the instructor; CHEM 331 for CHEM 332.)

3 Credits

Spring

Inorganic Chemistry (3+0) n

Application of physical chemistry to the study of the elements and their compounds. Bonding, periodic properties and coordination chemistry. (Prerequisite or corequisite: CHEM 332.)

CHEM 412 3 Credits

Instrumental Analytical Methods (3+0) n

Fall

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 331.)

Spring

CHEM 413W 3 Credits Was 433
Analytical Instrumental Laboratory (1+6) n Quantitative instrumental measurements with atomic and molecular absorption spectrometry, gas and liquid chromatography and potentiometry. Laboratory fee: \$30.00. (Prerequisites: CHEM 212, 331, 412.)

CHEM 434W 3 Credits

Fall, Spring

Instrumental Methods in Physical Chemistry (1+6) n

A modern laboratory course with three major components: 1) experiments related to concepts learned in CHEM 331 and 332 including, but not limited to, spectroscopy, conductance, and diffusion; 2) computer use in problem solving, data analysis, and word process; and 3) technical writing with emphasis on preparation of papers for publication. Laboratory fee: \$30.00. (Corequisite: CHEM 332.)

**CHEM 445** 4 Credits

Molecular Evolution (3+3)

(Same as CHEM 645 and BIOL 445 and 645)

The study of structure, function and evolution of hereditary molecules (nucleic acids). Laboratory fee: \$30.00. (Prerequisite: BIOL 262.)

3 Credits

General Biochemistry (3+0) Chemistry of biomolecules with emphasis on the bioenergetics and control of metabolic pathways via regulation of specific enzymes. (Prerequisite: CHEM 322; CHEM 331 recommended or permission of the instructor.)

3 Credits

Spring

Biochemistry Laboratory (1+6) Experimental manipulation and observation of enzymes, proteins, and nucleic acids, using chromatographic, spectroscopic, electrophoretic, and other techniques. Laboratory fee: \$30.00 (Prerequisite: CHEM 324 and 451.)

**CHEM 453** 3 Credits Alternate Fall

Molecular Biology in the Real World (3+0) (Same as CHEM 653 and BIOL 453 and 653)

Provides in-depth coverage of eukaryotic and prokaryotic gene function, including the applications of recombinant DNA technology to the biological sciences. (Prerequisite: BIOL 262, CHEM 321 or BIOL 303. Next offered: 1995-96.)

Was 492

CHEM 4820 1 Credit Seminar (2+0)

Introduction to the techniques and style of technical oral presentation generally accepted by professional chemists. Class will meet two hours per week, the first hour in closed session, the second, open to the public. Instruction in presentation techniques; observe and critique presentations by graduate students, chemistry faculty, and their peers; preparation of a 40 minute presentation to be delivered twice, first, to others in the course in the closed session for critiquing and suggestions for improvement and later, in the open seminar for evaluation by all.

CHEM 488 0-6 Credits Undergraduate Chemistry and Biochemistry Research (0-6+0)
Advanced research topics from outside the usual undergraduate laboratory offerings. The student will be required to make presentations and turn in a final report. Research areas range from atmospheric chemistry to molecular biology. A substantial level of chemistry or biochemistry background is assumed.

**CHEM 602** Advanced Inorganic Chemistry (3+0) Alternate Fall

**CHEM 606** 3 Credits

Alternate Fall

Atmospheric Chemistry (3+0) **CHEM 608** 3 Credits

Alternate Spring

Global Chemical Cycles (3+0) 3 Credits

Alternate Fall

Environmental Analytical Chemistry (3+0)

Alternate Fall

3 Credits Enzymology and Bio-Organic Chemistry (3+0)

**CHEM 622** 3 Credits Environmental Organic Chemistry (3+0)

Alternate Fall

**CHEM 631** 3 Credits Environmental Physical Chemistry (3+0) Alternate Spring

3 Credits Molecular Spectroscopy (3+0) Alternate Spring

**CHEM 645** 4 Credits Spring

Molecular Evolution (3+3) (Same as CHEM 445 and BIOL 445 and 645)

**CHEM 652** 3 Credits Alternate Spring

Advanced Biochemistry (3+0)

Alternate Fall

**CHEM 653** 3 Credits Molecular Biology in the Real World (3+0)

(Same as CHEM 453 and BIOL 453 and 653)

**CHEM 654** 3 Credits Protein Structure and Function (3+0) Alternate Spring

**CHEM 655** 3 Credits **Alternate Spring** 

Environmental Biochemistry and Biotechnology (3+0)

**CHEM 660** 3 Credits Chemical Oceanography (3+0)

(Same as MSL 660)

**CHEM 662** 3 Credits

Fall, Spring

Spring

Biochemical and Molecular Biology Research Techniques (0+3)

Alternate Spring

Biochemistry and Molecular Biology of Photosynthesis (3+0) (Same as BIOL 663 and MSL 663)

3 Credits

Alternate Spring

Microbial Biochemistry and Bioenergetics (3+0) (Same as MSL 673)

**CHEM 688** 0-1 Credits Biochemical and Molecular Biology Seminar (1+0)

Introduction to Geotechnical Engineering (3+3)

Fall, Spring

#### Civil Engineering

A \$25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

3 Credits

Spring

Elementary Surveying (2+3) Basic plane surveying; use of transit, level, theodolite, and total station. Traverses, public land system, circular curves, cross-sectioning and earthwork. (Prerequisite:

**CE 326W** 4 Credits

MATH 108.)

Fall, Spring

Fundamentals of geotechnical engineering including soil mechanics and foundation engineering. Identification and classification of soil, physical and mechanical properties of soil, subsurface exploration and laboratory testing techniques, seepage, compaction, bearing capacity, slope stability, deep and shallow founda-tion design, retaining structure design, frozen ground consideration. (Prerequi-sites: ES 331, 341, CE 334 or permission of the instructor.)

3 Credits Properties of Materials (2+3)

Properties of engineering materials. Bonding, crystal, and amorphous structures. Relationships between microstructure and engineering properties. Modification of properties and environmental serviceability. Concrete and asphalt mixes. Laboratory fee: \$10.00. (Corequisite: ES 331.)

3 Credits **CE 344** 

Fall

Water Resources Engineering (3+0)

Fundamentals of engineering hydrology and hydraulic engineering. Precipitation, runoff, statistical methods, flood control, open channels, and groundwater. Materials fee: \$10.00. (Prerequisite: ES 341.)

**CE 400** 0 Credits Fall, Spring

Complete the EIT application and take the State of Alaska Engineering-in-Training Exam in the same semester of course registration. (Prerequisite: Senior standing in civil engineering.)

3 Credits

Introduction to Transportation Engineering (3+0) Transportation systems, planning, design parameters, demand and mode specific consideration. Laboratory fee: \$10.00. (Prerequisite: CE junior standing or permission of instructor.)

3 Credits

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.)

3 Credits

Alternate Spring

Elements of Photogrammetry (2+3) Aerial and terrestrial photography as applied to surveying and mapping. Flight planning and ground control. Analytical analysis of photography by computer. Kelsh Plotter and other related equipment used. (Prerequisite: Permission of the instructor. Next offered: 1995-96.)

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)

1 Credit

Spring

Boundary Surveying (1+0)

and new (NAD83). (Prerequisite: CE 112.)

Surveying problems related to land subdivision with emphasis on the legal aspects. Metes and bounds descriptions and platted subdivisions. (Prerequisite: CE 112 or permission of instructor.)

**CE 422** 3 Credits Spring

Foundation Engineering (3+0) Bearing capacity of soils and effects of settlements on structure. Design of footings and rafts, pile and pier foundations, retaining walls and anchored bulkheads. Foundations on frozen soils, and construction problems in foundation engineering. (Prerequisites: CE 326, ES 301.)

3 Credits

Alternate Spring

Introduction to Earthquake Engineering (3+0) Introduction to sources of earthquakes; source mechanism and source parameters; attenuation relationships; earthquake response of single and multi-degree of freedom systems; earthquake response spectra and earthquake-induced liquefaction and densification of soil. (Prerequisite: CE 326. Next offered: 1995-96.)

3 Credits

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:

3 Credits

\$10.00. (Prerequisites: CE 326, ES 301.)

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.)

3 Credits **CE 432** 

Structural Engineering II (2+3) Concepts of analysis/design using advanced methods of structural analysis and computer techniques. Effects of material behavior, and modes of failure (building, bending, shear, connections) on design decisions examined. (Prerequisite: CE 431.)

**CE 433** 3 Credits Fall

Reinforced Concrete Design (2+3) Design philosophies and current practice. Short and long columns, beam-columns, flexural members, to include: rectangular and T-beams, one and two- way slabs. Footings. Crack control, anchorage, development lengths and deflections. Introduction to complete structural systems. Current ACI specifications used. (Prerequisite: CE 431.)

3 Credits Timber Design (2+3) Spring

Essentials of structural design. Design of basic components of solid and laminated timber, connections, arches, pole framing, diaphragms, stressed-skin construction, and timber shells. (Prerequisites: ES 331 and CE 431.)

3 Credits

Spring

Structural Steel Design (2+3) Design philosophies and current practice. Columns, tension members, laterally supported and unsupported beams and beam-columns. Local and global instabilities. Welded and bolted connections. Introduction to complete structural systems. Current AISC specifications used. Prerequisite: CE 431.)

CE 438W,O 3 Credits

Spring

Design of Engineered Systems (3+0)

System dsign principles for large-scale constructed facilities. Application of ethics, liability and legal principles to professional practice. Emphasis on teamwork and leadership. (Prerequisite: Last year of civil engineering B.S. program.)

CE 441 4 Credits

Spring

Environmental Engineering (3+3)
Fundamentals of environmental engineering including theory and application of water and wastewater engineering practice. Conservation, quality, treatment, and distribution of water supply. Wastewater characteristics, collection, treatment, and disposal. Solid waste management and air pollution control. Laboratory fee: \$10.00. (Prerequisite: ES 341 or permission of instructor.)

CE 442 3 Credits

Fall

Environmental Engineering II (3+0)

Advanced topics involving environmental law and health, air pollution, solidwaste management, toxic and hazardous wastes, animal waste management, noise pollution, water quality modeling, wastewater collection systems, chemical/physical processes, theory of sedimentation, disinfection, biological processes, on site treatment, sludge management, advanced waste treatment and other. (Prerequisites: CE 441 and junior standing in civil engineering.)

CE 445 3 Credits

Alternate Spring

Engineering Hydrology (2+3)
Design and analysis; extended coverage of hydrologic concepts from CE 344.
Precipitation, evaporation analysis; groundwater hydraulics; runoff analysis and prediction; statistical hydrology; application of simulation models. (Prerequisite: CE 344. Next offered: 1995-96.)

CE 446 3 Credits

Alternate Spring

Hydraulic Engineering (2+3)

Hydraulic design and analysis. Review of principles of fluid mechanics, pipe network modeling, hydraulic systems (pumps and turbines), steady and unsteady flow in open channels, hydraulic structures, similitude. (Prerequisite: CE 344, Next offered: 1995-96.)

CE 470 1 Credit

Fall, Spring

Civil Engineering Internship (0+3)
Supervised work experience in engineering organizations. Assignments individually arranged with cooperating organizations and agencies. (Prerequisites: Senior standing, permission of department coordinator.)

CE 603 3 Credits Arctic Engineering (3+0) Fall, Spring

CE 605 3 Credits

Alternate Spring

Pavement Design (3+0)
CE 617 3 Credits

Control Surveys (3+0)

Alternate Fall

CE 620 3 Credits Civil Engineering Construction (3+0) Alternate Spring

CE 622 3 Credits

45.00

Foundations and Retaining Structures (3+0)

Alternate Fall

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

311

Earthquake Engineering I (3+0)

Spring

CE 628 3 Credits Soil Behavior Under Load (3+0) Alternate Fall

CF 631 3 Credite

CE 631 3 Credits Advanced Structural Analysis (3+0) Fall

CE 632 3 Credits Advanced Structural Design (3+0) Alternate Fall

CE 637 3 Credits

Earthquake Engineering II (3+0)

Fall

CE 661 3 Credits Advanced Water Resources Engineering (3+0) Alternate Fall

CE 662 3 Credits

Alternate Spring

Open Channel and River Engineering (3+0)
CE 663 3 Credits

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Groundwater Dynamics (3+0)

Alternate Spring

CE 676 3 Credits Coastal Engineering (3+0) Alternate Fall

CE 681 3 Credits Frozen Ground Engineering (3+0)

682 3 Credits

Alternate Spring

Ice Engineering (3+0)

Alternate Fall

CE 683 3 Credits
Arctic Hydrology and Hydraulic Engineering (3+0)

CE 684 3 Credits Arctic Utility Distribution (3+0) Alternate Years

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.)

#### Communication

Due to enrollment pressures, it is Department of Communication policy to drop from the class roll students who fail to attend the first two meetings of a basic course (COMM 131X and 141X) even if they have preregistered.

COMM 131X 3 Credits Fall, Spring Fundamentals of Oral Communication: Group Context (3+0)

The communication process, focusing on listening, perception, verbal and nonverbal communication, and organizing material. Emphasizes increased understanding of and effective performance in small group communication situations.

COMM 141X 3 Credits Fall, Sprin Fundamentals of Oral Communication: Public Context (3+0)

The communication process, focusing on listening, perception, verbal and nonverbal communication, and organizing material. Emphasizes increased understanding of and effective performance in public speaking situations.

COMM 180 3 Credits Introduction to Human Communication (3+0) s Fall

Critical thinking about fundamental concepts in human communication in interpersonal, group, public, organizational, and intercultural settings. Introduction to inquiry into human communication as a social science.

COMM 222 3 Credits Alternate Years
Fundamentals of Interpersonal Communication (3+0) s

The cultural and social processes that are necessary for successful understanding and participation in face-to-face interaction. Introduction to the basic concepts and terminology used in discussion of dyadic interaction. Presented at an appropriate level for any student interested in improving interpersonal communication. Prepares students for further courses in communication that address other contexts. (Next offered: 1995-96.)

COMM 231 3 Credits
Business and Professional Communication (3+0) s

Alternate Years

Designed to provide the student with practical applications of communication in organizations. Includes superior-subordinate communication, conference and meeting management, oral presentation of written proposals, and the examination of information flow through organizational networks. (Prerequisite: Any 100 level oral communication course or permission of instructor. Next offered: 1995-96.)

COMM 251 3 Credits
Argumentation and Conflict Communication (3+0) s

Alternate Years

The study of argumentativeness as an alternative to aggressive communication. Conflict and cooperation as expressed through human communication behavior will be examined through the current approaches to argumentation and debate. (Prerequisite: Any 100 level communication course or permission of instructor. Next offered: 1996-97.)

COMM 280 3 Credits Communication and Diversity (3+0) s

Sprin

Provides students with a cognitive and experiential foundation for understanding how the communication process works in the context of diversity. Includes an indepth examination of those processes and products of processes that lead communicators to devalue differences in one another. COMM 320 3 Credits

Alternate Years

Communication and Language (3+0) s

Examination of the nature of language and its place in human communication, with special attention to the creation of meaning in conversation. (Prerequisite: Any lower division communication course or permission of instructor. Next offered: 1995-96.)

COMM 321 3 Credits

Alternate Years

Nonverbal Communication (3+0) s

Non-lexical behavior in human communication, including consideration of space, physical environment, physical appearance and dress, kinesics, facial expression, and non-lexical vocal behavior. (Prerequisite: Any lower division communication course or permission of instructor. Next offered: 1996-97.)

COMM 330 3 Credits

Alternate Years

Intercultural Communication (3+0) s

The nature and the sources of problems in communication that may arise when persons with different cultural backgrounds interact. Emphasis on problems in intercultural communication in Alaska. (Prerequisite: Any lower division communication course or permission of instructor. Next offered: 1996-97.)

COMM 3310 3 Credits

Alternate Years

Advanced Group Communication (3+0) s

Current research and theory in intergroup and intragroup relations. Topics include the study of leadership, power, group structure, participation, and conflict. (Prerequisite: Any 100 level communication course or permission of instructor. Next offered: 1995-96.)

COMM 3350 3 Credits

Alternate Years

Organizational Communication (3+0) s

Examines current theoretical and methodological approaches undergirding the construction of organizations via the communication process. Includes functional (message flow, load and network analysis) as well as interpretive (metaphors, narratives and organizational culture) approaches to the study of organizational communication. (Prerequisite; Completion of one lower division communication course or permission of the instructor. Next offered: 1996-97.)

COMM 351 3 Credits

Alternate Years

Gender and Communication (3+0) s

(Same as WMS 351)

Basic socialization differences exist in the communication practices of women and men in every culture, resulting in differing cultural constructions of male and female gender. Those differences are addressed in the interpersonal, organizational, and cultural contexts. Exploration of cultural female/male dichotomy as well as individual similarities. (Prerequisite: Any lower division communication course or permission of the instructor. Next offered: 1995-96.)

COMM 352 3 Credits

Alternate Years

Family Communication (3+0) s

Exploration of the functions of communication in marriage and the family, sequences and patterns of family communication, family communication as a continual process of coping with dialectical tensions, and the complexity of changing family life in Western societies. (Prerequisite: Any lower division communication course or permission of the instructor. COMM 222 recommended. Next offered: 1995-96.)

COMM 401 3 Credits

Alternate Years

Communication Research Methods (3+0) s

Quantitative and qualitative research methodologies employed in the conduct of research on communication phenomena. (Prerequisite: Any 300 level communication courses or permission of instructor. Next offered: 1995-96.)

COMM 422W 3 Credits

Alternate Years

Advanced Interpersonal Communication (3+0) s
Approaches to interpersonal communication. Emphasis on dialogic/transactive
communication within two-person situations. In-depth exploration of theoretical
materials related to relational interchanges. (Prerequisite: COMM 222 or permission of instructor. Next offered: 1996-97.)

COMM 425W 3 Credits

Alternate Years

Communication Theory (3+0) s
Theories of human communication, as well as of the nature of inquiry into human communication phenomena. Issues include the nature of communication as a discipline, critical and scientific inquiry, and major paradigms or perspectives within which communication theories are created. (Prerequisite: Any 300 level communication course or permission of the instructor. Next offered: 1996-97.)

COMM 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 communication course or permission of the instructor. Next offered: 1996-97.)

COMM 462W 3 Credits

Alternate Years

Communication in Health Contexts (3+0) s

Health communication as an established context for communication study will be explored. Problems in health communication will be examined as well as how those problems are exacerbated by the various matters of diversity, language, and setting. Communication between health care professionals., between health care providers and health care consumers, between health care facilities and communities, and the legal perspectives of health communication will be topical. (Prerequisite: Any 300 level communication course or permission of the instructor. Next offered: 1995-96.)

COMM 475 3 Credits

Alternate Year

Applied Communication in Training and Development (3+0) s
Applies communication theory and research to organizational settings. Includes
the identification and assessment of problems and opportunities that would benefit
from the application of communication interventions including training, development and transformation technologies. (Prerequisite: Any 300 level communication course or permission of instructor. Next offered: 1997-98.)

COMM 482 3 Credits

Alternate Years

Seminar in Communication (3+0) s

Current trends and theory in key areas of communication are examined. Students concentrate research in their speciality area while examining selected topics in all the areas. (Prerequisite: Any 300 level communication course or permission of instructor. Next offered: 1995-96.)

Prerequisite for all 600-level communication courses is admission to the M.A. in Professional Communication program or permission of the instructor.

COMM 601 3 Credits

Alternate Years

Communication Methodologies (3+0) (Same as JB 601)

COMM 622 3 Credits

Alternate Years

Interpersonal Interaction (3+0)

COMM 625 3 Credits

Alternate Years

COMM 631 3 Credits

Alternate Years

MM 631 3 Credits Teambuilding (3+0)

COMM 635 3 Credits

Alternate Years

Organizational Culture and Communication (3+0)

COMM 675 3 Credits

Alternate Years

Training and Development Communication (3+0)

COMM 680 3 Credits

Alternate Years

Communication and Diversity in the Professional World (3+0)

COMM 682 3 Credits Seminar in Communication (3+0) **Alternate Years** 

Centillar in Communicati

COMM 685 3 Credits Teaching College Communication (3+0) Alternate Years

# **Community Health**

CHP 082 2 Credits

As Demand Warrants

Community Health Aide Pre-session I

Assists the newly employed Community Health Aide to function in the village

clinic until he/she enters Session I. Patient evaluation, use of the manual, reporting patients, medicines and lab tests. Emergency care is included if students have not had emergency trauma training. (Prerequisite: Employment by the health corporation as a community health aide or permission of instructor.)

CHP 131 8 Credits Community Health Aide, Session I

instruction.)

As Demand Warrants

Introduction to providing village primary health care services with remote supervision of a physician. Topics include CHP standard of care, use of the CHA/P Manual, history-taking and physical exam, lab tests, reporting to the physician, medical charting and medication administration. Supervised clinical experiences prepare the student to conduct patient evaluation of common village health problems of children and adults. Introduction to human anatomy and function, wellness and disease concepts, crisis intervention and emergency care. A 200 hour field component at the students' village clinic follows the didactic program. (Prerequisite: Employed as CHA by a health corporation or permission of the

CHP 132 8 Credits As Demand Warrants Community Health Aide, Session II

Reinforces the problem-oriented patient encounter process. Includes patient education, introduction to prenatal and well child care, sexually transmitted diseases, HIV, substance abuse, mental illness and death and dying issues. Session I material and emergency care are reinforced and expanded upon. A 200 hour field component at the students's village clinic follows the didactic program. (Prerequisite: CHP 131.)

**CHP 133** 8 Credits As Demand Warrants Community Health Aide, Session III

Session II content reinforced and expanded upon. Additional topics include prenatal care, family planning, fetal alcohol syndrome, emergency delivery techniques, newborn and well child care including immunizations, nutrition, dental health, adult health surveillance, family violence and sexual abuse/rape and clinic management. A 200 hour field component at the students' village clinic follows the didactic program. (Prerequisite: CHP 132.)

8 Credits As Demand Warrants

Community Health Aide, Session IV Common patient problems within the body systems are reviewed with a focus on assessment skills and management plans. Previous session content is reviewed. Follow-up care for patients with chronic illness, injury prevention, tuberculosis, cancer, environmental health, post partum care, adolescent care and older adult/ elder care. A 200 hour field component at the students' village clinic follows the didactic program. (Prerequisite: CHP 133.)

As Demand Warrants 2 Credits

Community Health Aide Preceptorship Supervised primary care clinical experience. Minimum of 30 contact hours of direct patient care required. Students provide patient care in a variety of clinical settings including outpatient (acute and emergency care), prenatal, well child and chronic care clinics. Additional experiences are scheduled with the referral center (hospital) departments. (Prerequisite; CHP 134.)

1-3 Credits As Demand Warrants Clinical Update for Community Health Practitioners

Review, update and reinforcement of knowledge and skills taught in CHP 131, 132, 133 and 134. Emphasis is on patient evaluation skills, use of the manual, patient treatment plan, medicines, prenatal care, well-child care, chronic patient care and emergency care. Clinical training is provided. (Prerequisite: CHP 134.)

1-3 Credits As Demand Warrants

Mental Health and Substance Abuse Instruction in listening skills, drug therapy and family dynamics for crisis interven-tion, long term care in the area of mental health, and substance abuse. Other topics include the mentally ill patient, the substance abuser, the co-dependent, and prevention activities for the village. (Prerequisite: CHP 134 or permission of the instructor.)

1-3 Credits As Demand Warrants CHP 207

Maternal and Infant Health Review of the anatomy of the reproductive system, family planning, pregnancy,

fetal development, prenatal care, prenatal education, emergency delivery, postpartum care for mother and baby, and well-child evaluations and immunizations. (Prerequisite: CHP 134 or permission of the instructor.)

**CHP 208** 1-3 Credits As Demand Warrants

Communicable Diseases Expands concepts in relation to diagnosis, management and prevention of sexually

transmitted diseases. Skills taught include male and female genitalia exam, pelvic exam, pap smear, gonorrhea culture and chlamydia culture. Prevention and patient education are emphasized. (Prerequisite: CHP 134 or permission of the instructor.)

As Demand Warrants Health Education

Methods and philosophy of health education, use and sources of audiovisual materials, presentation planning and participation in school and community health programs are included. A variety of teaching methods icluding role playing for individual and group presentations permit CHPs to practice their health education knowledge and skills. (Prerequisite: CHP 134 or permission of the instructor.)

1-3 Credits As Demand Warrants Diabetes: Primary Prevention and Village Medical Care

Pathophysiology, primary prevention and follow-up treatment of the disease diabetes. Topics include the problem of Type II diabetes in rural Alaska, CHP role in the still the ball. in the village health care system, Type I and Type II diabetes, primary prevention of Type II diabetes, village medical care and referral, patient education, emergency care and diabetes medications. The clinical training portion of the course is available for Community Health Aides/Practitioners only. (Prerequisites: CHP 134 or permission of the instructor.)

CHP 215 2 Credits Death and Dying (2+0) As Demand Warrants

Focusing on contemporary primary care issues relating to death and dying. Improving individual coping skills in loss and grief situations. Topics include theories of grief and loss, care of the terminally ill patient, suicide, euthanasia, traumatic death and neonatal death. Cultural perspectives on dying, body preparation, burial rites, advanced directives, death certificates and legal issues reviewed. (Prerequisite: CHP 135 or permission of instructor. Next offered: Fall 1994.)

### Computer Applications

A \$25 per semester student computing facility user fee will be assessed for any ABUS, CAPS or OMT course of 2 credits or more at the 100-level of higher. This fee is in addition to any lab/material fees.

**CAPS 100** 1 Credit As Demand Warrants Introduction to Personal Computers (1+0)

Overview of the three most popular uses of the personal computer: word processin, data base management and electronic spreadsheets. Provides a basic understanding of how the computer works and how it can aid the student at school and work. Materials fee: \$10.00.

**CAPS 103** As Demand Warrants 1-3 Credits Computer Survey (1+0 to 3+0)

An introduction to the world of computers emphasizing microcomputers. Provides computer terminology and how to use computers as a tool to make work easier and to extend the reach of the mind. Materials fee: \$10.00.

As Demand Warrants 2 Credits

Computer Software for Beginners (2+0) Overview of computer hardware and software. Demonstrations and hands-on experience with telecommunications, word-processing, spreadsheets, data base management and tutorial software. Materials fee: \$10.00

1-2 Credits As Demand Warrants Computer Software Application (1+0 to 2+0)

Extensive coverage of a specific microcomputer application. Materials fee: \$10.00.

1-3 Credits As Demand Warrants **CAPS 126** Microcomputer Operating Systems (2+0)

Use, setup, and configuration of a microcomputer operating system including basic and technical topics. Materials fee: \$10.00.

1-3 Credits As Demand Warrants Microcomputer Spreadsheets (1-3+0)

Create, format and revise spreadsheets as well as use a spreadsheet to create graphs and as a database. Includes brief introduction to the Microcomputer Operating System for students who have no previous computer experience. Materials fee: \$10.00.

As Demand Warrants **CAPS 150** 3 Credits

Computer Business Applications (3+0) Using microcomputers in a business. Includes word processing, spreadsheets, data bases, graphics, project management and telecommunications. Use of each application in a business environment will be shown. No previous experience necessary.

Materials fee: \$10.00. **CAPS 160** 1-3 Credit Microcomputer Word Processing (1-3+0)

For students new to word processing. Learn to create, format, and revise documents as well as to create new letters, forms, and to do desktop publishing; brief introduction to the Microcomputer Operating System for students who have not used a computer before. Materials fee: \$10.00.

**CAPS 182** As Demand Warrants Introduction to Microcomputers in Small Businesses (2+0)

Microcomputers used in small business or professional practice by owners or employees. Overview of computers, uses and means of evaluation when purchasing equipment. Does not satisfy certificate or degree requirements. Materials fee: \$10.00.

**CAPS 190** As Demand Warrants 3 Credits Integrated Software (3+0)

Study of microcomputer applications that integrate multiple tasks into one computer application (Microsoft Works, Apple Works, Framework, Symphony, etc.), including individual modules of an integrated application, combining data in an integrated program, and application of integrated software for specific projects. Materials fee: \$10.00.

1-3 Credits As Demand Warrants Microcomputer Applications: Special Topics (1-3+0)

Use and application of specific software applications. Materials fee: \$10.00. (Prerequisite: Basic computer operating system skills.)

**CAPS 202** 1-3 Credits As Demand Warrants

Independent Project (1-3+0) Project will include learning a new microcomputer application, applying the application to significant problems, and demonstrating the result to other computer users. Materials fee: \$10.00. (Prerequisites: Competence in the use of microcomputer applications and operating systems.)

**CAPS 203** 3 Credits

As Demand Warrants

Microcomputer Programming (3+0)

Study of microcomputer programming environments such as HyperCard, Visual Basic, QuickBasic, Batch Files, etc. and programming of macro languages. Creation of useful programs in a microcomputer programming environment. Materials fee: \$10.00. (Prerequisite: Competence in microcomputer operating systems and applications.)

**CAPS 220** 1-3 Credits As Demand Warrants

Microcomputer Graphics (1-3+0)

Use and application of microcomputer graphics programs. Materials fee: \$10.00. (Prerequisite: Competence in microcomputer operating systems.)

**CAPS 221** 1-3 Credits As Demand Warrants

Microcomputer Accounting (1-3+0) Computer processing of accounting transactions. Software packages, microcomputer systems and hardware, computer terminology, system analysis, and actual computer operations in accounting. Materials fee: \$10.00. (Prerequisite: ABUS 142 or ACCT 101.)

1 Credit

Fall, Spring, Summer

Introduction to Desktop Publishing (1+0) Entry-level desktop publishing course introducing the chief features of a page layout program. Step-by-step instructions to create at least three simple publications. Materials fee: \$10.00. (Prerequisite: Previous computer experience.)

3 Credits

Fall, Spring

Intermediate Desktop Publishing (3+0)

Utilization of the advanced features of a page layout program to create camera-ready mechanicals for fliers, brochures and newsletters. Exploration of the elements of good design and the requirements for professional publishing. Materials fee: \$10.00. (Prerequisite: CAPS 224 or permission of the instructor.)

**CAPS 226** 3 Credits Fall, Spring

Desktop Publishing (3+0)

Basic understanding of what is a computer system and how it operates; graphic design for layout and design with in-depth hands-on experience using a personal computer with word processing, graphics page layout, scanning software and desk accessories. Materials fee: \$10.00.

**CAPS 261** 3 Credit As Demand Warrants

Networking and Communications (3+0)

Integration of microcomputers into networks, using microcomputer applications on networks, and using microcomputers to communicate with other computers. Materials fee: \$10.00. (Prerequisite: Competency in microcomputer operating systems and applications.)

**CAPS 265** 3 Credits

As Demand Warrants Hardware and Software Configuration and Troubleshooting (3+0)

Basic skills in software and hardware troubleshooting and configuration, including configuring the operating system, setting a computer for different printers, diagnosing hardware and software problems, and developing troubleshooting and configuration procedures. Materials fee: \$10.00. (Prerequisite: Competence in microcomputer operating systems and applications.)

1-3 Credits

As Demand Warrants

Microcomputer Databases (1-3+0)

Design, use, query, and create reports using a microcomputer database. Materials fee: \$10.00. (Prerequisite: Competence in microcomputer operating systems and applications.)

### Computer Science

CS 101 3 Credits Fall, Spring

Computers and Society (3+0) Computer literacy for everyone. Overview of computing machines and automatic data processing. Interaction between social institutions and automated decision making. Introduction to business applications software and electronic mail. Some programming for understanding, not for skill development. Materials fee: \$10.00. (Prerequisite: Two years of high school mathematics, including at least one year of algebra.)

CS 103 3 Credits Fall, Spring

Introduction to Computer Programming (2+3)

Programming for non-majors and for those computer science students without the background for CS 201. Concepts of structured programming and algorithm design within the syntax of the PASCAL programming language. Materials fee: \$10.00. (Prerequisite: One year of high school algebra.)

CS 201 3 Credits CS 202 3 Credits Fall, Spring Spring

Computer Science I and II (3+0)

The discipline of computer science including problem solving, algorithm development, structured programming, top-down design, good programming style, object oriented programming, and elementary data structures. Concepts implemented with extensive programming experience in a structured language and with a group programming project. Materials fee: \$10.00. (Prerequisites: For CS 201: one year high school level programming, ES 201 or CS 103 and mathematics placement at the 200 level. For CS 202: CS 201.)

CS 205 3 Credits Alternate Spring

Programming in C (3+0)

The C programming language for students with some experience in other programming languages such as PASCAL or FORTRAN. (Prerequisite: One year high school programming, CS 103, 201, or ES 201. Next offered: 1996-97.)

Alternate Fall

Programming in FORTRAN (3+0) Syntax and principles of FORTRAN. Applications to problems in science and engineering including the solution of linear and non-linear equations, interpolation, numerical integration, monte-carlo techniques and the use of mathematical subroutine libraries. (Prerequisites: MATH 200 or concurrent enrollment in MATH 200, previous programming experience or consent of instructor.)

Alternate Spring

Data Visualization (3+0) Study of computer software and techniques for visualizing multidimensional time dependent data using graphs, contours, pseudocolor, shading, transparency, isosurfaces, volume visualization, transformations, and animation. Materials fee: \$10.00. (Prerequisites: CS 103 and MATH 200. Next offered: 1995-96.)

CS 301 3 Credits Fall

Assembly Language Programming (3+0)

Organization of computer registers, I/O, and control. Digital representation of data. Symbolic coding, instructions, addressing modes, program segmentation, linkage, macros, and subroutines. (Prerequisite: CS 201.)

CS 302 3 Credits **As Demand Warrants** 

Systems Programming (3+0) Advanced assembly language programming including privileged instructions and system services. Applications to asynchronous I/O, process control and communication, device drivers and file management. (Prerequisite: CS 301. Next offered: 1995-96.)

CS 311 3 Credits

Data Structures and Algorithms (3+0)

Data structures and the algorithms for their manipulation. Object oriented programming, arrays, tables, stacks, queues, trees, linked lists, sorting, searching, and hashing. (Prerequisite: CS 202.)

3 Credits

Spring

Operating Systems (3+0)

Functions of files and operating systems. Review of required architectural features. The PROCESS concept. Storage management, access methods and control, interrupt processing, scheduling algorithms, file organization and management, and resource accounting. (Prerequisite: CS 301.)

3 Credits

Spring

Programming Languages (3+0)

Syntax and semantics of widely differing programming languages. Syntax specification, block structure, binding, data structures, operators, and control structures. Comparison of several languages such as ALGOL, LISP, SNOBOL, and APL. (Prerequisite: CS 311.)

3 Credits

Advanced Computer Graphics (3+0)

Design and implementation of visual interfaces using object oriented programming. Graphics input and output hardware, display programming, 2D transformations, hidden line and surface elimination, approximation techniques for curve and surface representation. Materials fee: \$10.00. (Prerequisites: CS 281, CS 311, Math 200 and MATH 314.)

CS 402W,O 3 Credits Spring

Senior Project and Professional Practice (3+0)

Students work on group projects in a simulated computer industry environment and produce appropriate documentation and reports. Nature, ethics, and legal considerations of the computer science profession discussed. Additional topics include project management, design methodologies, technical presentation, human-machine interface and programming team interactions. Materials fee: \$15.00. (Pre-requisites: CS 311, 321 and senior standing.)

3 Credits

Alternate Spring

Introduction to Artificial Intelligence (3+0)

Examine diverse branches of Al placing Al in larger context of computer science and software engineering. Knowledge representation formalism and search technology. Programming methodologies; procedural systems such as expert systems and blackboard systems and non-procedural systems such as neural networks. Software engineering aspects of problem selection, knowledge acquisition, verification and validation. Individual projects. Materials fee: \$10.00. (Prerequisite: CS 311 or permission of the instructor. Next offered 1995-96.)

Analysis of Algorithms (3+0)

Analysis of classic algorithms, their implementation, and efficiency. Topics from combinatorics (sets, graphs), algebra (integer arithmetic, primes, polynomial arithmetic, GCD, Diophantine equations, encryption), systems (parsing searching, sorting), and theory (recursion, Turing machines). The complexity classes P, NP, and NP complete. (Prerequisites: MATH 307, CS 311. Next offered: 1996-97.)

21 3 Credits
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, documentation, and evaluation of operating system segments as projects. (Prerequisite: CS 321. Next offered: 1995-96.)

3 Credits Data Base Systems (3+0) Alternate Spring

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. Review of current database software packages. (Prerequisites: CS 311, 321. Next offered: 1995.96.)

3 Credits

Alternate Fall

Programming Language Implementation (3+0) Design and implementation of major phases of high level language translators including scanning, parsing, translation, code generation and optimization. Studets develop a compiler for a language in a group project which emphasizes good software engineering practices in structured design, testing and documentation. (Prerequisite: CS 331. Next offered: 1996-97.)

3 Credits System Architecture (3+0)

Computer design fundamentals, performance and cost. Instruction set design. Implementation techniques. Pipelining, vector processors, and memory hierarchy design. Input/output. (Prerequisites: EE 342, CS 321.)

3 Credits

Alternate Fall

Computer Communication and Networks (3+0) Study of computer networks using the ISO/OSI layered model as a framework. Design issues and trade-offs, protocols and selected standards. Emphasis on ISO/OSI Layers 1-4 (Physical, Data Link, Network and Transport Layers), plus medium access sublayers (LAN's, etc.). (Prerequisite: CS 321. Next offered: 1995-96.)

CS 451 3 Credits Alternate Fall

Automata and Formal Languages (3+0)

Finite automata, regular languages, phrase structured grammars, context free language, push down automata, deterministic context free languages, recursive and recursively enumerable languages, Turing machines, decision problems, and undecidability. (Prerequisites: MATH 307, CS 201. Next offered: 1995-96.)

3 Credits

Software Engineering (3+0) approved

(Same as CS 671) Software development as an engineering discipline. Project planning, proposal writing, and management. Software requirements, design, implementation, test and documentation. Additional topics from object- oriented design, real time design, and validation. (Prerequisites: CS 311 and CS 321 or permission of instructor.)

3 Credits

Spring

Advanced Computer Graphics (3+0)

Creation of 3D computer-generated images. Graphics data structures, geometric transformations, hidden surface techniques, color theory, lighting and shading algorithms, curve and surface representations, visual modeling of physical phenomena. Materials fee: \$10.00. (Prerequisites: CS 381 and MATH 314.)

CS 490 1-3 Credits Student Internship

CS 621

As Demand Warrants

Students work on computer science project under the joint direction of a faculty member and participating industry or governmental agency. (Prerequisite: Acceptance in internship program.)

CS 605 3 Credits Artificial Intelligence (3+0) Alternate Spring

CS 611 3 Credits

Complexity of Algorithms (3+0)

3 Credits

Alternate Fall

Alternate Fall

Advanced Systems Programming (3+0)

3 Credits CS 622 Performance Evaluation (3+0) As Demand Warrants

CS 625 3 Credits Alternate Spring

Data Base Management (3+0)

3 Credits CS 631 Programming Language Implementation (3+0)

Spring

Fall

3 Credits CS 641 Advanced Systems Architecture (3+0)

Alternate Fall

CS 642 3 Credits Advanced Computer Networks (3+0)

Spring

CS 644 1 Credit VLSI Fabrication and Testing Practicum (0+3) (Same as EE 644)

3 Credits The Theory of Computation (3+0) Alternate Fall

3 Credits Optimization (3+0)

(Same as MATH 661) 3 Credits

As Demand Warrants

Mathematical Software (3+0)

As Demand Warrants

**Alternate Spring** 

Fall

CS 670 3 Credits Computer Science for Software Engineers (3+0)

3 Credits

Software Engineering (3+0) (Same as CS 471)

3 Credits Software Process Improvement (3+0) **Alternate Spring** 

CS 681 3 Credits Topics in Computer Graphics (3+0) Spring

CS 690 3 Credits CS 691 3 Credits Graduate Seminar and Project (3+0)

Fall Spring

## Counseling

**COUN 628** 

**COUN 610** 1 Credit Culture and the Counselor (1+0) Alternate Summer

**COUN 611** 1 Credit

Alternate Summer

Theory Building for Counselors (1+0)

**COUN 615** 3 Credits Foundations of Guidance and Counseling (3+0)

Summer

Summer

**COUN 623** 3 Credits

Counseling Theories and Applications (3+0) (Same as PSY 660)

3 Credits

Alternate Summer, Fall

Child and Adolescent Psychology (3+0)

Summer

**COUN 629** 3 Credits Developmental Interventions (3+0)

Spring, Summer

3 Credits Practicum in Individual Counseling (2+7)

**COUN 636** 3 Credits Practicum in School Counseling (2+7) Fall, Spring

**COUN 646** 3 Credits

School Counseling (3+0) (Same as PSY 646)

**COUN 647** 3 Credits Professional Ethics (3+0) Alternate Summer

Summer

**COUN 660** 3 Credits Alternate Summer

Cross-Cultural Counseling (3+0) (Same as PSY 661)

**COUN 665** 3 Credits Fall, Spring Practicum in Counseling: Higher Education/Agency (0+9) (Same as CSP 665)

3 Credits Group Counseling (3+0) Alternate Summer, Spring

(Same as PSY 674) **COUN 690** 3-6 Credits Internship (0+3-6)

Fall, Spring

#### Cross Cultural Communication

CCC 052 2 Credits Spring

Alternative Approaches to Math: Basic College Math (2+0)

(Same as DEVM 052)

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.)

CCC 062 3 Credits Fall, Spring

Alternative Approaches to Math: Elementary Algebra (3+0) (Same as DEVM 062)

Elementary algebra. Algebraic equations, first-degree equations, polynomials, factoring, integral exponents and rational expressions using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEVM 050 or appropriate placement test scores. Students must meet federal eligibility requirements.)

CCC 072 3 Credits Fall, Spring Alternative Approaches to Math: Intermediate Algebra (3+0) (Same as DEVM 072)

Intermediate algebra. Exponents, radicals, graphing, systems of equations, quadratic equations, inequalities and complex numbers using alternative teaching styles tailored to specific cultural backgrounds of the students. (Prerequisites: DEVM 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

CCC 085 3 Credits Science Survey (3+0)

Background and improvement of vocabulary in the sciences in topic areas of physics, chemistry and biology. Video series, reading materials, guest speakers and special demonstrations will be used. (Prerequisites: Freshman standing and permission of the instructor.)

CCC 104 3 Credits University Communications (3+0) Fall, Spring

(Same as DEVS 104)

Introduces communication skills characteristic of university context. Develops reading and writing strategies within the context of a specific course. Emphasis on comprehension, note-taking, and other study skills. Links with selected lecture course. (Prerequisite: Referral from Rural Student Services.)

3 Credits

Fall, Spring

Intensive Reading Development (3+0) (Same as DEVS 105)

Develops vocabulary, strategies, speed, and comprehension to enhance success with textbook reading. Composition of essays in relation to readings. (Prerequisite: Students must meet federal eligibility regulations.)

### **Culinary Arts**

Note: Students enrolled in the CAH 140 or 240 series pay a one time per semester material fee of \$105.00.

**CAH 060** 3 Credits Fall, Spring

Basic Techniques of Cooking I (1.5+6)

Basics in the Culinary Arts field designed for students with special needs. Materials fee \$50.00. (Prerequisite: Instructor permission required.)

**CAH 070** 6 Credits

required.)

Fall, Spring

Basic Techniques of Cooking II (3+12) An open ended course providing an appropriate learning sequence for students with special needs. Materials fee: \$105.00. (Prerequisite: Instructor permission

3 Credits

Principles of Food Service I (3+0) Food service and the principle variations which students may encounter in the industry; professional standards, kitchen safety, first aid, storeroom operation, kitchen equipment and basic culinary terminology.

1 Credit

As Demand Warrants

Beginning Cake Decorating I (1+0) The proper preparation of cakes for icing and decorating. Topics include basic borders, buttercreme flowers, leaves, and clowns. Students decorate a minimum of three cakes. Materials fee: \$20.00.

**CAH 117** 1 Credit As Demand Warrants

Intermediate Cake Decorating (1+0) Advanced methods such as pattern transfer, flowers and borders, wafer paper, chocolate and sugar molding. Use of an airbrush, flow in techniques and tiered cake assembly covered. For the more advanced cake decorator. Materials fee: \$20.00.

**CAH 140** 5 Credits

Food Production I (5+0) Teaches basic food service skills in a commercial kitchen environment. Standardized recipes and procedures stressed. End product critiqued daily. Student assignments rotate between a stock and soup station, vegetable station, pantry, and service line and grill. Emphasis on sanitary food handling practices and professional work habits. Materials fee: See note at beginning of section.

**CAH 141** 5 Credits

Fall, Spring

Food Production II (5+0) Continuation of CAH 140 with emphasis on preparation and use of small sauces, sauteing, roasting, braising, stewing and broiling. Salad bar preparation and grill service covered. Materials fee: See note at beginning of section.

5 Credits

Fall, Spring

Bakery Production I (5+0) Basic commercial baking skills and procedures. Standardized recipes and procedures stressed. End product critiqued daily. Emphasis on sanitary food handling practices and professional work habits. Materials fee: See note at beginning of section.

**CAH 146** 5 Credits Fall, Spring

Bakery Production II (5+0) Continuation of CAH 145 with emphasis on Danish and French pastries, combination breads, tortes and fancy dessert items. Materials fee: See note at beginning of section.

1 Credit

Sanitation (1+0) Sanitation principles essential to commercial kitchen personnel. Successful course completion allows the student to receive certification by the National Institute for the Food Service Industry.

2 Credits

Fall, Spring

Supervisory Development (2+0) Problems and challenges that food service supervisors deal with every day. Development of personnel management methods.

Fall, Spring

2 Credits Dining Room Service (2+0) American style table service. Dining room service, management, controls and

methods.

2 Credits

Principles of Nutrition (2+0)

Basic principles of nutrition with emphasis on nutrients and their function in relation to human health.

CAH 161 1 Credit Fall

Pastry Tube Art (.5+1)

Basic cake and food product techniques including borders, flowers, cake designing, and proper use of pastry tube bags.

**CAH 170** 2 Credits Fall, Spring

Gourmet Cooking (2+0) Preparation and service of gourmet beef, poultry and seafood entrees for the home cook. Recipes represent new ideas in home entertainment, and menus change every semester. Materials fee: \$75.00.

**CAH 171** 2 Credits Fall, Spring

Gourmet Baking (2+0)

Preparation of a wide range of breads, pastries, fancy desserts, French pastry, and simple tortes. Recipes represent traditional methods of baking along with current trends in home entertainment. Materials fee: \$45.00.

CAH 172 2 Credits

As Demand Warrants

Gourmet Asian/Oriental Cooking (2+0) Preparation and service of Asian/Oriental dishes. Study and use of proper cooking methods emphasized. Students prepare and enjoy a full meal at each class session. Materials fee: \$75.00.

2 Credits

As Demand Warrants

Introduction to Meat Cutting I (1.5+2.5)

Professional meat cutting for lamb, beef, pork, poultry, and seafood; health regulations using current industry standards; sausage making and meat curing. Materials fee: \$35.00.

1-12 Credits

Summer

Culinary Arts Workstudy Externship

Practice in a variety of food service operations, learning current cooking methods and techniques. Student evaluations by the externship coordinator and the employer. Enrollment by special permission only.

5 Credits Food Production III (5+0) Fall, Spring

Continuation of CAH 141 with emphasis on ala carte and production cooking. Students prepare foods for the advanced table service class. Foods will represent current trends in the industry with kitchen organization and professional methods stressed. Materials fee: See note at beginning of section. (Prerequisite: CAH 141.)

Food Production IV (5+0)

Continuation of CAH 242 with emphasis on international and new trend American Cooking. The role of the Garde Manger in the modern kitchen explored. Materials fee: See note at beginning of section. (Prerequisite: CAH 242 or permission of instructor.)

**CAH 247** 5 Credits Fall, Spring

Bakery Producton III (5+0)

Continuation of CAH 146 with emphasis on specialty breads, desserts, cakes, tortes and French pastries. Ability to plan and organize production, schedule and supervise other students emphasized. Materials fee: See note at beginning of section. (Prerequisite: CAH 146 or permission of instructor.)

CAH 248 5 Credits Fall, Spring

Bakery Production IV (5+0)

Continuation of CAH 247 with emphasis on pastry buffet. Students will produce artistic centerpieces, decorated tortes and cakes, assorted French pastries, assorted petits fours, and assorted candies. Materials fee: See note at beginning of section. (Prerequisites: CAH 146 and 247 or permission of instructor.)

Garde Manger (2+0)

As Demand Warrants

A hands- on experience in buffet. Presentation of hot and cold foods. Students produce pates, mousses, forcements, aspics, and other items essential to culinary expertise. Materials fee: \$10.00.

2 Credits

As Demand Warrants

Storeroom Purchasing and Receiving (2+0) Fomal and informal methods of purchasing, receiving and storing of food and nonfood items in food service operations. Specifications, par inventory systems and controls.

**CAH 255** 2 Credits As Demand Warrants

Food Service Management (2+0)

The management team's responsibility in food service operation. Students assume the role of kitchen manager, dining room manager and general manager.

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.

1 Credit

As Demand Warrants

Oenology-Hospitality Industry I (1+0)

Study and evaluaion of the wines of France, Germany, Italy and the California wine producing areas. Focus on "point of sale" approach for first level serving staff. Special attention to selecting for individual meals. Materials fee: \$45.00.

As Demand Warrants

Oenology-Hospitality Industry II (1+0)

A continuation of CAH 257 with in-depth evaluation and study of the major wine producing areas of the Pacific Northwest, California, France, Germany and Italy. Focus on preparing the new sommelier. Special attention to selections for building cellar and developing breadth in the restaurant. Materials fee: \$45.00. (Prerequisite: CAH 257 or permission of instructor.)

#### Dance

**DANC 108** 1 Credit

As Demand Warrants

Beginning Freestyle Jazz (1+0) Jazz dance for the beginning student.

### **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.

1-3 Credits

As Demand Warrants

Reading Comprehension Lab (0+3-9)

Emphasis on improving reading comprehension using texts from other classes or lab materials. Focus on paragraph structure to recognize main idea, supporting details and author's purpose. Study techniques for recognizing new vocabulary. Small groups allow individually designed course of instruction to meet the needs of the students. Open entry/open exit. May be repeated.

1 Credit

As Demand Warrants

Spelling Improvement (1+0)

A diagnostic/prescriptive approach for improving spelling skills.

**DEVS 066** 1 Credit As Demand Warrants

Vocabulary Development (1+0)

Designed to increase vocabulary substantially and to provide tools for further vocabulary growth.

3 Credits

Fall, Spring

Skills for College and Career Success (3+0)

A diverse menu of study skills for the student entering the college environment. Skills include active listening, effective reading, taking usable notes, test taking, communication, time and money management. Students learn personal development skills that assist in addressing intrusive issues that impact the learning process, increasing self-esteem, and relating these skills to the classroom and later to a career. Class sessions offer diverse learning experiences.

1-3 Credits

Fall, Spring

University Communications (1-3+0)

(Same as CCC 104)

Introduces the unique methods of communication required at the college level. Links with selected lecture courses. May be repeated.

3 Credits

Fall, Spring

Intensive Reading Development (3+0)

(Same as CCC 105)

Develops vocabulary, strategies, speed, and comprehension to enhance success with textbook reading. Composition of essays in relation to readings. (Prerequisite: Students must meet federal eligibility regulations.)

**DEVS 106** 1 Credit Fall, Spring

Speed Reading (1+0)

Introduction to newest speed reading techniques. Development of flexible reading rates and increased comprehension and vocabulary skills. Application of techniques to study, professional and leisure reading.

**DEVS 108** 1 Credit Study Skills Lab (1+0) As Demand Warrants

Improvement of study skills in areas of greatest need on an individual or small group basis in the lab or other workshop or individualized format. Topics include time and stress management, listening/notetaking, library research, and memory. Course may be repeated for credit when content varies.

1 Credit

Fall, Spring

College Success Skills (1+0)

An introduction and overview of the diverse skills, strategies and resources available to ensure success in the college experience. Topics include study skills, time management, career planning, stress management, communication skills, test taking and personal development skills.

Fall, Spring

Career Exploration and Planning (1+0)

Planning for a satisfying career choice based on realistic assessment of self, accurate knowledge of the world of work and experience with ways to activate career plans. Enables students to evaluate potential careers and to make educational and job search plans. Graded pass/fail.

**DEVS 160** Fall, Spring Job Search Skills: Finding, Getting, and Keeping Your Job (1+0)

Job seeking skills: locating the hidden market; researching job potential; learning to fill out effective applications; designing and printing a custom resume; assembling a portfolio; and developing effective interview skills. DEVS 150 recommended but not required.

3 Credits Straight Thinking (3+0) As Demand Warrants

A study of inductive, deductive and seductive thinking, and skill building to recognize and use all three. Critical thinking skills to analyze newspaper, magazine and spoken arguments. Political speeches and other media presentation examined. Effective and convincing presentation of one's own ideas include formal and informal logic. Materials fee: \$10.00.

#### DEVELOPMENTAL ENGLISH

**DEVE 060** 3 Credits As Demand Warrants

Elementary Exposition (3+0)

Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination.

**DEVE 068** 1-3 Credits Fall, Spring

English Skills Laboratory (0+3-9)

Individualized instruction in language skills. Open entry/open exit, one credit lab modules in spelling/vocabulary, writing, and grammar usage. Enrollment in one or more based on diagnosed need or desire; may be repeated. Counts as elective credit only; does not fulfill degree requirements in written communications or humani-

**DEVE 070** 3 Credits **As Demand Warrants** 

Preparatory College English (3+0)

Instruction in writing to improve students' fluency and accuracy and communication skills. Preparation for ENGL 111. Placement by examination or student decision. Materials fee: \$0.00-5.00.

#### DEVELOPMENTAL MATHEMATICS

**DEVM 050** 3 Credits Fall, Spring

Basic College Mathematics (3+0) Operations with whole numbers, fractions, decimals, percents and ratios, signed numbers, evaluation of algebraic expressions and evaluation of simple formula. Metric measurement system and geometric figures. Also available via Independent

**DEVM 052** 2 Credits

Learning.

Fall

Alternative Approaches to Math: Basic College Math (2+0)

(Same as CCC 052)

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 Elementary Algebra (3+0)

Fall, Spring

First year high school algebra. Evaluating and simplifying algebraic expressions, solving first degree equations and inequalities, integer exponents, polynomials, factoring, rational expressions, equations and graphs of lines. Also available via Independent Learning. (Prerequisite: DEVM 050 or placement.)

**DEVM 061** 1 Credit Independent Learning Only

Review of Elementary Algebra

Designed to assist students in reviewing material covered by DEVM 060. Individuals who have not previously taken an elementary algebra course are recommended to enroll in DEVM 060.

**DEVM 062** 3 Credits Fall, Spring

Alternative Approaches to Math: Elementary Algebra (3+0) (Same as CCC 062)

Elementary algebra. Algebraic equations, first-degree equations, polynomials, factoring, integral exponents and rational expressions using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEVM 050 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**DEVM 065** 1-3 Credits

courses. (rerequisite: Placement.)

Fall, Spring

Mathematics Lab (0+3-9) Designed to assist students in reviewing and reinforcing course concepts covered by DEVM 050, 060 and 070. Consists of instruction which may include lab instruction, individual student work or group work. Recommended for students who need more time and help to master the material in Developmental Math **DEVM 070** 3 Credits Fall, Spring

Intermediate Algebra (3+0)

Second year high school algebra. Operations with rational expressions, radicals, rational exponents, logarithms, inequalities, quadratic equations, linear systems, functions, Cartesian coordinate system and graphing. Also available via Independent Learning. (Prerequisite: DEVM 060 or placement.)

1 Credit Review of Intermediate Algebra Independent Learning Only

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, Spring

Alternative Approaches to Math: Intermediate Algebra (3+0) (Same as CCC 072)

Intermediate algebra. Exponents, radicals, graphing, systems of equations, quadratic equations, inequalities and complex numbers using alternative teaching styles tailored to specific cultural backgrounds of the students. (Prerequisites: DEVM 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**DEVM 081** 

Independent Learning Only

Review of Basic Geometry High school geometry without formal proofs. Topics include basic definitions,

measuremen, parallel lines, triangles, polygons, circles, area, solid figures and volume. (Prerequisite: DEVM 060.)

**DEVM 082** 1 Credit Fall, Spring

Hands-On Geometry (1+0)

Basic concepts and uses of geometry. Emphasis on "hands-on" and applied problems. (Prerequisite: A solid knowledge of arithmetic -- no algebra required.)

#### Diesel Technology

**DSLT 150** 7 Credits

Diesel Mechanics I (7+0)

Theory and function of the diesel engine. Topics include introduction to various diesel engines, shop tools and instruments for engine disassembly, inspection, assembly, parts failure analysis and shop safety. Materials fee: \$125.00.

7 Credits

Diesel Mechanics II (7+0) A continuation of DSLT 150. Topics include air intake systems, exhaust systems, lube systems, cooling systems, fuel systems, live engine overhaul, tune-up, and troubleshooting of running engines. Materials fee: \$125.00. (Prerequisite: DSLT

### **Drafting Technology**

**DRT 101** 4 Credits As Demand Warrants

Beginning Drafting I (4+0)

Technical lettering, line techniques, equipment, orthographics, dimensioning, pictorials, auxiliaries and sections. Materials fee: \$50.00.

2 Credits

As Demand Warrants

Beginning Drafting II (2+0)

Practice and skill development in geometric construction, sketching, orthographics and dimensioning, sections, auxiliaries and individual projects. Materials fee: \$20.00

**DRT 115** 3 Credits As Demand Warrants

Graphics I (3+0)

Study and application of methods, problems and solutions in graphic design.

3 Credits

**As Demand Warrants** 

Reading Construction Blueprints (2+0) Reading and interpretation of two and three dimensional blueprints of residential, light commercial and heavy commercial structures using conventional symbols and representation.

3 Credits

As Demand Warrants

Uniform Building Code (3+0)

Covers the minimum required construction standards of the Uniform Building Code. Use of local zoning ordinances and the UBC as comprehensive building guides and their principle aspects applied to various building types and trades. Concentrates on zoning, the UBC and some fire codes. Mechanical and electrical codes are introduced only for student familiarity, (Prerequisite: Working knowledge of building systems is strongly recommended.)

DRT 125 2 Credits As Demand Warrants

Lettering I (2+0)

Lettering methods including varigraphic, Leroy, Kohi-Noor, Kad II, freehand and script. Commercial lettering skills.

**DRT 130** 4 Credits As Demand Warrants

Perspective Drafting I (4+0) Basics of perspective (1 pt., 2 pt., 3 pt.) and introduction to the KLOK Perspective

**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.)

4 Credits

As Demand Warrants

Architectural Drafting I (4+0)

Architectural drafting principles including site plans, foundations, floor plans, elevations, architectural sections, framing plans, area plan, and graphic standards. Materials fee: \$30.00.

**DRT 141** 2 Credits Architectural Concepts (2+0) As Demand Warrants

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 Civil Drafting I (4+0) As Demand Warrants

Civil drafting principles including plotting traverse and surveys by bearing and distance, latitudes and departures, topographic drawings and maps, contours and elevations, profiles and highway curves, cross-section drawings and grading plans. Materials fee: \$30.00.

**DRT 151** 2 Credits As Demand Warrants

Civil Concepts (2+0)

Overview of civil drafting concepts and survey drafting including the plotting of traverse and surveys by bearing and distance. Materials fee: \$15.00.

**DRT 160** 2-3 Credits As Demand Warrants

Drafting Co-Op Work Experience (2-3+0)

A non-paid practical work experience in a professional drafting environment. For the student who has mastered basic drafting techniques and terminology, Placement and work assignments will vary depending upon student experience.

Beginning AutoCad (3+0)

Instruction in basic working knowledge of AutoCad software and its applications in drafting from how to turn on the computer through plotting out finished drawings. Practical applications. Materials fee: \$25.00.

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.

3 Credits

As Demand Warrants

Advanced AutoCad (2+5)

Advanced areas of AutoCad (3D, menu modifications, and Auto lisp). Materials fee: \$25.00. (Prerequisites: ES 101, DRT 170 [previously DRT 193 - Beginning AutoCad] or permission of instructor.)

### Early Childhood Development

(Tanana Valley Campus)

The Early Childhood Development (ECHD) courses listed below are taught only in Fairbanks under auspices of the Tanana Valley Campus. See the next section of this catalog for Early Childhood Education (ECDD) courses taught outside of Fairbanks.

3 Credits

Fall, Spring

Introduction to Early Childhood (2.75+.5) The care and education of young children. Assessing needs and skills of young children. Defining skills needed by child care workers. Labs arranged.

1 Credit

Alternate Fall

Family Day Care Home Provider Training (1+0)

Operation of safe, successful day care home or family day care program. Overview of laws and regulations, business practices, parental concerns, health and safety, activities, space planning, snack and meal service, community support, and provider concerns. (Next offered: 1995-96.)

As Demand Warrants ECHD 105 3 Credits Survey of Programs for Young Children (3+0)

Students observe and contrast past and present programs in the community and formulate their own personal philosophy of early childhood education and child

ECHD 110 1 Credit Spring

Practical Paths to Discipline and Guidance (1+0)

Practical techniques for guidance and discipline of young children.

3 Credits Nutrition, Health and Safety (3+0) Spring

For parents, caregivers, and teachers of young children. Emphasis on common illnesses, preventive health care, nutritional needs, and safety aspects of caring for young children.

**ECHD 121** 1 Credit As Demands Warrants

Physical Activities for Young Children (1+0)

Exploration of a variety of equipment, activities, and opportunities to promote the physical development of children, birth to age 8, with emphasis on fulfilling the needs of the 3-8 year old.

As Demand Warrants

Cognitive Activity for the Young Child (1+0)

How to provide activities and opportunities that encourage curiosity, exploration, and problem-solving appropriate to the developmental levels and learning styles of children.

1 Credit

As Demand Warrants

Language Activity/Young Child (1+0)

Activities that help children acquire and use language as a means of communicating their thoughts and feelings. Includes nonverbal communication and understanding others.

**ECHD 124** 1 Credit As Demand Warrants

Creative Activities for th Young Child (1+0)

Learning opportunities that stimulate children to play with sound, rhythm, language, materials, space and ideas in individual ways and to express their creative

ECHD 131 1 Credit As Demand Warrants

Group Management (.75+.5) Managing a group of children, 3 years and older, with emphasis on planning, implementing and evaluating developmentally appropriate practices. Includes teacher-directed times, transitions, and supporting child-initiated experiences.

Infant/Toddler Care (1+2)

Introduces activities to stimulate development and learning f infants and toddlers individually and in a group setting. Covers discipline and guidance techniques, communication, health concerns and facility requirements. Weekly 2 hour lab

1 Credit

As Demand Warrants

Developing Positive Self-Concept (1+0)

How to provide physical and emotional security for each child to know, accept, and take pride in himself or herself. Includes development of sense of independence.

ECHD 242 1 Credit As Demand Warrants

Observe/Record Behavior of Child (1+0)

Techniques for accurately observing children's behavior, including several methods of observation and techniques for graphing the results.

3 Credits

Fall, Spring

Child Development (3+0) s Study of development from prenatal through middle childhood including cognitive, emotional, social and physical aspects of the young child. Includes child observations. Roles of heredity and environment in the growth process. (Prerequisite: PSY 101 or permission of the instructor.)

3 Credits

As Demand Warrants

Practicum ECHD I (3+0)

guided student teaching experience in working with a group of 3-6 year old children. Student assumes increasing responsibility for planning and lead teaching. Prerequisites: PSY 245, ECHD 100, 110, 120, 131, 255 and permission of the

**ECHD 251** 3 Credits Practicum ECHD II (3+0) As Demand Warrants

A guided field experience in working with a group of young children in a school or center. Students who have demonstrated competency in ECHD 250 may participate in an infant toddler center, child care center, early childhood education program or public school classroom. Schedule times and dates to be arranged. (Prerequisites: ECHD 250 and instructor's permission.)

**ECHD 255** 3 Credits Fall, Spring

Curriculum and Activities for Young Children (2.75+.5) Important considerations in establishing appropriate curriculum and activities for

young children. Includes gross motor, creative, science, perceptual-motor, language, literature, dramatic play, and music learning activities and opportunities for children 3 and older.

ECHD 256 1 Credit Alternate Spring

Activities for School-Age Child Care (1+0) For child care staff who work in after-school and/or summer programs with focus on daily activity schedules and appropriate, fun, challenging activities and projects for young school-age children. (Next offered: 1995-96.)

1 Credit

Spring

Learning Mathematics (1+0)

Overview of how children construct mathematical meanings. Introduction to mathematical learning principles and experiences for children, 3-8 years. (Prerequisite: ECHD/PSY 245 or concurrent enrollment.)

Alternate Fall

Introduction to the Exceptional Child (3+0) An overview of categories of exceptionality includes hearing and visual impairments; learning, speech and language disabilities; emotional disturbances; physical handicaps; mental retardation; and the gifted and talented. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1995-96.)

**ECHD 261** 3 Credits

Mainstreaming Exceptional Children (3+0) Developmental, social, educational and legal (PL94-457) issues related to the education of young handicapped children including the role of the teacher in identifying, assessing, and individualizing educational programs for the young handicapped child in the mainstreamed setting. (Prerequisites: ECHD/PSY 245 and ECHD 260 or instructor permission. Next offered: 1995-96.)

**ECHD 265** 2 Credits

Culture, Learning and the Young Child (2+0)

Cultural effects on development and learning patterns of young children. Exploring multicultural and multi-ethnic resources to create an anti-bias curriculum. Special attention on Alaska Native Cultures. (Prerequisite: ECHD 255 or concurrent enrollment or permission of instructor.)

Alternate Fall

Parents as Partners in Education (2.75+.5)

Study of strategies that will assist those who work with children and/or families to facilitate supportive partnerships with parents. Includes partnerships, contemporary issues, school and home-based programs, rights and responsibilities, professinal ethics, and parents with special or unique needs. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1995-96.)

Financial Management of Early Childhood Programs (2.75+.5) The financial aspects of managing a day care center or preschool program. Includes budgeting, program resource management, marketing, purchasing, pay and compensation, and fee collection issues important to maintaining quality programs for young children. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1995-96.)

3 Credits

Personnel Management of Early Childhood Programs (2.75+.5) Management of personnel of child care programs, including recruitment, hiring, in-service training, staff meetings and communication, supervision, evaluation, motivation, burnout prevention and termination of employees. Focus on maintaining quality programs for young children. (Prerequisite: ECHD/PSY 245 or permission of instructor. Next offered: 1995-96.)

3 Credits

Alternate Fall

Family Relationships (3+0) Examination of relationships in contemporary family life. Focus on the changing family, gender roles, living together, and relationships with children and grandchildren. Includes current family research and issues within and effect of public policy on families in our multicultural society. (Prerequisites: SOC 242 and ECHD/PSY 245 or permission of instructor. Next offered: 1996-97.)

3 Credits

Alternate Fall

Adolescence Through the Life Span (2.75+.75)

Growth and development during adolescence, young adulthood, middle age, and later life, with sensitivity to multicultural variations. Includes special adolescent problems, appropriately guiding youth for independent learning and decision-making, and specific concerns of the adult years. (Prerequisites: ECHD 245; PSY 240, or permission of instructor. Next offered: 1995-96.) ECHD 442 3 Credits Alternate Spring

Family Resource Management

Management of resources which help families meet and alter the increasing complexities of life. Involves purposeful actions which affect the use of time, money, energy, skills, talents and knowledge. Roles, goals, and decision-making within our multicultural society throughout the life cycle. (Prerequisite: SOC 242 ECHD 245 and upper division status, or permission of instructor. Next offered: 1995-96.)

ECHD 445 3 Credits Alternate Spring

Young Child Social and Cognitive Development and

Teaching Strategies ((2.75+.75)

Understanding specific social and cognitive research and developmental theories about young children. Observation, recording and assessing children's behavior as basis for developing human insight, planning appropriate instructional programs and learning environments, setting and achieving program goals, and providing for individual needs. Advanced work in refining teaching strategies. (Prerequisite: PSY 101, ECHD 245, or permission of instructor. Next offered: 1996-97.)

### **Early Childhood Education**

(Rural College)

The Early Childhood Education (ECDD) courses listed below are taught only outside of Fairbanks under auspices of the Rural College. See the preceding section of this catalog for Early Childhood Development (ECHD) courses taught in Fairbanks. Important Note: All Early Childhood Education courses must be accompanied by a lab experience in a facility for children ages 0-5.

As Demand Warrants
Introduction to Early Childhood Education (2+2) Introduction to the history of early childhood education, developmental and learning theory, types of programs, behavior modification, creating the learning environment, the role of the parent and teacher, and current issues in the field of early childhood education.

As Demand Warrants

A Safe Environment (1+0)

Teaches competencies which enable students to provide a safe environment for young children. Emphasis on measures necessary to reduce and prevent accidents. (CDA curriculum)

1 Credit

As Demand Warrants

A Healthy Learning Environment (1+0)

Prepares the student to provide a learning environment for young children free of factors which may contribute to or cause illness. (CDA curriculum)

1 Credit

As Demand Warrants

Learning Environment (1+0) Arranging the environment to be conducive to learning and appropriate to the developmental level and learning style of children. Selection of materials and equipment, room arrangement, and scheduling. (CDA curriculum)

1 Credit

As Demand Warrants

Physical Activities for Young Children (1+0)

Essentials of planning a center which promotes the physical development of children. Includes scheduling, planning, activities, and selection of site, equipment and materials. (CDA curriculum)

As Demand Warrants

Cognitive Activities for Young Children (1+0)

Activities and experiences which encourage questioning, probing, and problemsolving skills appropriate for different developmental levels and various learning styles of young children. (CDA curriculum)

**ECDD 123** 1 Credit As Demand Warrants

Communication Activities (1+0)

Activities that help children acquire and use language as a means of communicating their thoughts and feelings. Includes nonverbal communication and under-standing 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)

1 Credit

As Demand Warrant

Guidance and Discipline (1+0)

Indirect and direct guidance techniques. Theories of guidance, including body language effects, reinforcement, and logical consequences discussed for cultural relevance and practical application. (CDA curriculum)

Fall, Spring

As Demand Warrants **ECDD 132** 1 Credit

Social Development for the Young Child (1+0) The development of social skills which enable children to function as productive members of a group. Emphasis on the development of mutual respect and cooperative work/play between child/child and child/adult. (CDA curriculum.)

1 Credit **ECDD 145** As Demand Warrants

Nutrition for Young Children (1+0)

For parents, caregivers and teachers of young children, focus on the nutritional needs of children up to five years of age. (CDA Curriculum)

1 Credit As Demand Warrants Developing Positive Self-Concepts for Young Children (1+0)

Methods for helping children develop a sense of awareness and self-esteem. Emphasis on providing success-oriented activities, encouraging acceptance and expression of children's feelings and developing pride as an individual and as a member of a cultural/ethnic group. (CDA curriculum)

Fall, Spring 1 Credit Developing Individual Strengths in Children (1+0)

Use of activities, techniques and planning that help each child to function to his/ her maximum potential. Must be taken concurrently with supervised experience in a child development center, home-based or infant-learning setting. (CDA Curricu-

**ECDD 221** 1 Credit As Demand Warrants Positive Home-Center Relationship (1+0)

The importance of a positive and productive relationship between families and the child development centers. Emphasis on using this relationship to coordinate childrearing efforts of both the family and the educator. (CDA Curriculum)

ECDD 222 1 Credit As Demand Warrants Program Management (1+0)

The importance of coordination and communication among staff in the classroom. Emphasis on effective group planning, using resources, improving communication, sharing information about children, maintaining records, and establishing and following policies, rules and regulations. (CDA curriculum)

As Demand Warrants 1 Credit

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)

Mainstreaming Young Children with Special Needs (1+0)

Activities that help the teacher to understand the concept and purpose of mainstreaming special needs preschool children into the regular classroom. Emphasis on rights of special needs child to service and procedures for providing service under Public Law 94-142. (CDA curriculum)

1 Credit As Demand Warrants Final Assessment for Child Development Associate Credential (1+0)

Covers procedures for final assessment for the Child Development Associate (CDA) credential. Emphasizes needs of a group of children in a child development setting by nurturing and maintaining a proper child care environment and by promoting good relations between parents and the child development center. (CDA curriculum)

ECDD 299 1-3 Credits As Demand Warrants

Practicum in Early Childhood Education

A practical application of all previous CDA competency courses. The student will assume responsibility for children in an approved early childhood setting. (CDA curriculum)

#### **Economics**

Admittance to 300 and 400 level School of Management courses will be granted only to students with upper division standing. Others will be admitted only with the written permission of the appropriate department head. Students enrolling in School of Management courses are expected to have completed the necessary prerequisites for each course.

A \$25.00 per semester student computing facility user fee will be assessed for any student enrolling in one or more School of Management courses except ECON 100X (AIS, ACCT, BA and ECON). This fee is in addition to any lab/material fees. Note: This fee does not apply to Tanana Valley Campus courses.

ECON 100X 3 Credits

doesvepad (Same as PS 100X Political Economy (3+0) s

Survey of the evolution and operation of the American domestic political economy with consideration of market failures and government responses. Review of major issues in political economy such as inflation, poverty and budget deficits. Explo-

ration of linkages between American and global systems. Fall, Spring 3 Credits

Introduction to Current Economic Problems (3+0) s Focuses on such current problems as unemployment, inflation, pollution, and poverty utilizing a less theoretical approach than is customary in introductory economics courses. Primarily for the student who plans no further work in economics.

As Demand Warrants ECON 111

N 111 3 Credits Economics of Rural Alaska (3+0)

Basic economic concepts as they relate to issues and problems of contemporary regional development in rural Alaska, Socio-economic consequences of the introduction of new technologies, modern economic intra-structures and corporate relationships to traditional, small scale communities.

4 Credits Fall, Spring

Principles of Economics (4+0+1) s

Goals, incentives and outcomes of economic behavior with applications and illustrations from current issues: operation of markets for goods, services, and factors of production; the behavior of firms and industries in different types of competition; and income distribution. The functioning and current problems of the aggregate economy, determination and analysis of aspects of international exchange. Materials fee: \$10.00. (Prerequisite: Sophomore standing or permission of instructor.)

Fall, Spring

Principles of Economics I: Microeconomics (3+0) s Price and market theory, income distribution, contemporary problems of labor, agriculture, market structure, and pollution. Also available via Independent Learning.

Fall, Spring 3 Credits

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.

3 Credits Fall, Spring Intermediate Statistics for Economics and Business (3+0)

Extension of topics developed in STAT 200. Development of statistical techniques and their application to economic and business problems. Simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, non-parametric methods, and decision theory. (Prerequisite: STAT 200.)

3 Credits

Introduction to Natural Resource Economics (3+0) s Microeconomic principles and their application to natural resource issues. Topics include supply, demand, marginality, optimality, elementary production economics, economic rent, and comparative advantage. These principles applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure, and public outdoor recreation problems.

3 Credits Spring

The Alaskan Economy (3+0) s

Economic problems in Alaska with analysis of historical trends and current patterns of economic growth; emphasis on present and future alternative economic policies, and their potential impacts. Also available via Independent Learning.

**ECON 321** 3 Credits

Intermediate Microeconomics (3+0) s

Analysis of demand and supply under various market forms, cost and theory of production, factor pricing and theory of distribution, and survey of welfare economics. (Prerequisites: ECON 200 and MATH 262 or equivalent, upper division standing.)

**ECON 322** 3 Credits Spring

Managerial Economics (3+0) Interpretation of economic data and applications of economic theory in business firms. Bridging the gap between theory and practice through empirical studies, cases, and decision problems. Emphasis upon decision- making using analysis of research data. Materials fee: \$10.00. (Prerequisites: ECON 200 and MATH 262 or equivalent, upper division standing.)

ECON 324 3 Credits

Intermediate Macroeconomics (3+0) s

Concepts and measurement of income, analysis of aggregate demand and supply and their relation to the level of prices, employment, and economic growth. (Prerequisites: ECON 200 and MATH 262 or equivalent, upper division standing.)

Spring

ECON 335 3 Credits Spring

Intermediate Natural Resource Economics (3+0) s

Extension of concepts developed in ECON 235, using a higher level of economic analysis. Topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation overtime, resource taxation, common property problems, externalities, public goods, valuation of non-market resources, and land use planning issues. (Prerequisite: ECON 200 or 235, upper division standing.)

ECON 350 3 Credits Fall Money and Banking (3+0) s

The liquid wealth system in the United States, including the commercial banking system, the Federal Reserve System, and non-bank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives. (Prerequisite: ECON 200, upper division standing.)

ECON 351 3 Credits Alternate Fall Public Finance (3+0) s

Economic justifications for government; federal, state and local government, taxation, spending and debt; their effects on allocation, distribution, stabilization and growth. (Prerequisite: ECON 200, upper division standing. Next offered: 1995-96.)

ECON 409W 3 Credits
Industrial Organization and Public Policy (3+0) s

Alternate Fall

The relationship of market structure to the economic conduct and performance of firms and industries, the determinants, measurement and classification of market structure, public policy toward mergers, industrial concentration, and aggregate concentration. (Prerequisites: ECON 200, 321, upper division standing. Next offered: 1995-96.)

ECON 420W 3 Credits Alternate Fall Labor Markets and Public Policy (3+0) s

Application of labor market analysis and wage theory as they relate to public policy issues. Topics include determination of wages, taxation and employment, economic impact of unions, economics of discrimination, and issues relating to women's and minorities' changing roles in the labor market. (Prerequisite: ECON 200, upper division standing. Next offered: 1995-96.)

ECON 434W 3 Credits Alternate Spring

Environmental Economics (3+0)

An extension of concepts introduced in ECON 235 using a higher lev

An extension of concepts introduced in ECON 235, using a higher level of economic analysis. An analysis of the economic forces involved in environmental degradation, preservation, and regulation. Topics include pollution, biodiversity, wilderness, and climatic change. (Prerequisite: ECON 200 or ECON 235, upper division standing. Next offered: 1996-97.)

ECON 436W 3 Credits
Energy Economics (3+0) s

Alternate Spring

Market forces and institutions affecting the allocation of energy resources. Special attention to intertemporal allocative decisions and the role that public policy plas in influencing the rate at which energy resources are used over time. (Prerequisite: ECON 200 or 235, upper division standing. Next offered: 1996-97.)

ECON 437W 3 Credits Alternate Fall

Regional Economic Development (3+0)
Determinants and effects of the spatial distribution of economic activity. Impact of

public policy on regional development within the Alaska context. (Prerequisite: ECON 200, upper division standing. Next offered: 1996-97.)

ECON 438W 3 Credits Alternate Spring

The Economics of Fisheries Management (3+0)

Review of theoretical economic concepts as applied to the management of a commercial fishery. Major current management policy issues affecting United States' commercial fishing. Emphasis on the practical application of the economic theory and policy insights derived from the course to problems of management of Alaska's fisheries. (Prerequisite: ECON 200 or 235, upper division standing. Next offered: 1995-96.)

ECON 451W 3 Credits Alternate Spring

Public Expenditure Analysis (3+0)
Purposes and economic effects of governmental expenditures, budgeting techniques, and their effects on resource allocation. (Prerequisite: ECON 200, upper division standing. Next offered: 1996-97.)

ECON 463O 3 Credits Fall

International Economics (3+0) s

Pure theory of international trade: comparative cost, terms of trade, and factor

movements. International disequilibrium: balance of payments and its impact on national economy, capital movement, economic development through international trade. (Prerequisite: ECON 200, upper division standing.) ECON 475 1-3 Credits

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, upper division standing.)

Fall, Spring

Fall

ECON 601 3 Credits
Microeconomic Theory I (3+0)

ECON 603 3 Credits
Macroeconomic Theory I (3+0)

Spring

ECON 611 3 Credits
Principles of Economic Analysis (3+0)

ECON 622 3 Credits Fall Managerial Economics (3+0)

Mathematical Economics (3+0)
ECON 626 3 Credits Spring

Econometrics (3+0)

ECON 630 3 Credits
Economic Issues of the Circumpolar North (3+0)
(Same as NORS 630)

ECON 635 3 Credits
Resource Economics (3+0)

ECON 636 3 Credits
Microeconomics II | Dynamic Resource Optimization (3+0)

ECON 638 3 Credits As Demand Warrants
Marine Policy Analysis (3+0)

ECON 670 0 Credit Seminar in Research Methodology (1+0)

ECON 675 3 Credits Fal Practical Quantitative Methods for Business Decision Making (3+0) (Same as BA 675)

#### Education

**ECON 623** 

3 Credits

ED 101 2 Credit Fall, Spring Orientation to Alaska Native Education (2+2)

A seminar in which Native Alaska educators present information and lead discussions on issues related to rural and urban Alaskan Native education. Topics include cultural differences in teaching and learning styles; curriculum development for multi-graded classrooms and small high schools; use of technology and community resources; and decision- making and local control. Practicum experiences in the classroom will be required. (Prerequisite: Permission of instructors.)

ED 106 3 Credits As Demand Warrants Reading Activities in the Classroom (3+0)

Methods, materials and teaching of reading. Techniques for working with small groups and for integrating a language experience approach using personal language backgrounds with basal reading programs. Use of teacher's guides, Demonstration lessons.

ED 131 1-3 Credits As Demand Warrants Implementation of an Adult Education Program (1+0, 2+0 or 3+0)

Procedure for planning and establishing a village-based adult education program. Includes organizing the classroom, equipment and materials; grades and record keeping, testing and assessing appropriate levels of materials for individual students; lessons plans, as well as history and functions of adult education; funding teacher education and evaluation tools.

ED 141 3 Credits As Demand Warrants Introduction to Methods and Materials in Bilingual Education (3+0)

Methods and problems of teaching in and preparing material for the bilingual classroom in the areas of reading, language arts, social studies, mathematics, sciences, art, music and health including lesson planning, scheduling, production of bilingual materials, and team teaching. (Recommended: Literacy in both languages of instruction.)

ED 200 2-6 Credits As Demand Warrants Peer Tutoring (1+3 to 6)

Peer tutoring offers an opportunity to explore issues and practice tutoring techniques. For students interested in teaching or those who wish to share their expertise in a content area. Students may take the Institute section (3 weeks) and/ or the Learning Activities Center section (12 weeks). Lab time arranged for variable credit; course may be repeated for up to six credits.

3 Credits

Fall, Spring

Introduction to Education (2+3)

The prospective teacher is acquainted with the nature of teaching including the scholastic, professional, and personality requirements for effective teaching. Involves laboratory time in public schools as teacher's aide. Open to all students. Required for all students majoring in education. (Prerequisite: Sophomore stand-

ED 208 3 Credits As Demand Warrants

Art for the Classroom Teacher (3+0) (Same as ART 208)

Concepts in art education for persons with limited art background working with young children. Combines a philosophy of art education, art history, and "handson" experiences to enable the teacher to effectively integrate visual arts into the curriculum as enjoyment and enrichment.

3 Credits

As Demand Warrants

Second Language Acquisition (3+0) An intensive study of how people acquire second languages, i.e., ones in addition to the ones they learn as young children in the home. Topics include psychological, social and cultural aspects of second language acquisition, theory of acquisition, applied linguistic and socio-linguistic research, and insights of teachers and students of second languages. Examination of acquisition of languages by people in the students' own communities.

As Demand Warrants

Methods and Materials for Teaching a Second Language (3+0) Intensive work in a broad repertoire of second language teaching methods. Includes designing, teaching, and assessing actual lessons. (Prerequisite: Experience as an educator in a bilingual/bicultural or second language classroom or permission of instructor.)

3 Credits As Demand Warrants

Curriculum Development for Teaching a Second Language (3+0) Development of scope and sequence for unit plans and yearly/multi-year curricula for teaching a second language. (Prerequisite: Experience in a second language classroom or permission of instructor; ED 211 strongly recommended)

ED 213 3 Credits As Demand Warrants

Human Development and Learning (3+0)

Interrelated principles of human growth, development, adjustment and learning. For students preparing for a career in teaching but also open to parents, counselors, community workers and others.

ED 214 3 Credits As Demand Warrants

Natural Approaches to Language Instruction (3+0)

Students explore modern approaches, methods, techniques, and activities which have been successful in teaching second languages.

ED 215 3 Credits As Demand Warrants

Methods of Teaching a Second Language (3+0)

Provides a basic knowledge of second language acquisition theory. Students taught to adapt materials for teaching Inupiaq, Yup'ik or English as a second language, and write and implement second language lesson plans. Attention paid to practicing different methods of instruction.

As Demand Warrants

Children's Literature (3+0)

A survey of children's literature and storytelling from around the world, including criteria for evaluation. Emphasizes methods of encouraging children's appreciation of a variety of selections. Students may study materials for a specific age group within 1-12 years.

ED 241

Methods and Materials in Bilingual Education (3+0) Overview of bilingual instruction. Students make and adapt materials for the classroom. Attention to practicing different methods of instruction.

3 Credits

As Demand Warrants

Child Development (3+0)

A study of the physical, emotional, cognitive, and social aspects of a child's development from the prenatal period through early adolescence. (Prerequisite: PSY 101 or permission of instructor)

3 Credits

As Demand Warrants

Methods of Teaching English as a Second Language and Standard English as a Second Dialect (3+0)

(Same as LING 262)

Covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affect they have on teaching styles. Roles of the second language teacher and their appropriateness covered. Presents techniques and activities consistent with specific language teaching methods and adaptation of these methods to the needs of western Alaska classrooms. (Prerequisite: Classroom experience.)

ED 275 3 Credits Fall, Spring

Introduction to Microcomputers for Teachers (3+0)

Computer technology and its present and potential impact on education. Topics include basic microcomputer terminology and operation, classroom applications of computer technology, and choosing and using hardware and software. (Prerequisite; ED 201 or concurrent enrollment in ED 201.)

ED 099, 199, 299 1-3 Credits Practicum in Education

As Demand Warrants

Individualized work experience. Credit is variable from 1 to 3 credits, depending upon the quality and quantity of the work experience. Credit may be earned in most discplines and programs.

3 Credits

Alternate Spring

Language Acquisition (3+0) (Same as LING 303)

Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary models, and implications for pedagogy and public policy. (Prerequisite: LING 101. Next offered: 1995-96.)

3 Credits

Fall, Spring

Literature for Children (3+0) Evaluation criteria and application to children's books selected by student. Study of outstanding authors, illustrators and content of specific categories of literature, book selection aids, and effective use of literature to promote learning. (Prerequi-

1 Credit

Spring

Information Sources for Educators (1+0)

(Same as LS 307)

A self-paced study course providing a survey of major library reference sources and computer databases for education/education related majors. Class meets for an introductory session and a computer literature search demonstration; otherwise, the student works at his individual rate and on his own time schedule.

Fall

Elementary School Music Methods (3+0) (Same as MUS 309)

Principles, procedures, and materials for teaching music to children at the elementary level.

ED 310 3 Credits Fall, Spring

Modes of Creative Expression in Education (3+0)

Use of art, music, dance, drama, photography and creative writing in education to stimulate creative expression. Methods of incorporating these modes of expression into teaching practices. (Prerequisite: ED 201.)

3 Credits

Introduction to Instructional Technologies (2+3) Principles, procedures, materials and apparatus associated with use of instructional technologies. Instructional (AV) equipment: video recorders, teleconferencing equipment, motion and still picture projectors, audio recorders, and other program-mable equipment reviewed. Systematic selection and utilization techniques. (Prerequisite: ED 201 or concurrent enrollment in ED 201.)

Fall, Spring

Diagnosis and Evaluation of Learning (3+0) Nature of classroom teaching-learning process, emphasizing teaching decisions. Strengths and weaknesses of various forms of diagnosis and evaluation of learning, with emphasis on cross-cultural settings. Informal, formal, process, and product assessment. (Prerequisite: ED 201.)

33 3 Credits History of Childhood (3+0) ED 333

As Demand Warrants

Surveys child rearing practices in the major cultures of the world and parent-child relationships in different time periods. Examines psychogenic personality changes caused by parent-child interaction through successive generations. (Prerequisite: Junior standing.)

3 Credits

As Demand Warrants

Education and Economic Development (3+0) (Same as RD 338)

Examines theory and evidence linking varied forms of education to economic growth and development. A comparative approach explores similarities and differences between rural Alaskan regional development and systematic nationbuilding efforts in developing countries. (Prerequisite: Permission of instructor.)

3 Credits

As Demand Warrants

Sociology of Education (3+0) (Same as SOC 345)

The influence of social, political, and economic forces upon schools. Examines how school organization affects teaching practices, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisite: Junior standing.)

3 Credits

As Demand Warrants

Structure of American Education (3+0) Fundamentals of public school organization, control and support in relation to federal, state and local agencies. Issues related to the structure and delivery of educational services analyzed with attention to issues in Alaska. (Prerequisite: Junior standing in education.)

ED 350 3 Credits Fall, Spring

Communication in Cross-Cultural Classrooms (3+0) Interdisciplinary examination of communication and language in cross-cultural educational situations, including language, literacy, and inter-ethnic communication related to classrooms in Alaska. Also available via Independent Learning.

(Prerequisite: ED 201.)

3 Credits

Fall, Spring

The Exceptional Learner (3+0) Understanding, identifying and serving the exceptional learner in the regular classroom in rural and urban settings. Includes the unique needs of exceptional students in rural settings from bilingual/multicultural backgrounds. Also available via Independent Learning. (Prerequisites: ED 201 and PSY 240.)

3 Credits As Demand Warrants

Cultural Influences in Education (3+0) Interdisciplinary study of the educational problems, concerns and successes in a variety of cultural contexts. Social, cultural and psychological factors inherent in the educational process and how they are affected by a multicultural setting. Attention given to curriculum improvement and teaching strategies appropriate for the multicultural classroom and school. (Prerequisite: ED 330 and junior standing.)

As Demand Warrants

International Perspectives on Education (3+0) A comparative analysis of the influences of changing political, social and economic conditions and relationships with other countries in the world on U.S. and Alaska education policies. Examination of school systems in several industrialized and developing countries with focus on understanding Alaska's educational system within the context of this wider global community. (Prerequisite: ED 201. Next offered: 1996-97.)

ED 402 3 Credits Fall, Spring

Methods of Teaching in the Secondary School (2+3) Principles and methods of teaching for junior high and high school classrooms.

Includes planning for effective teaching, classroom management, and the implementation of teaching plans in classroom settings. Materials fee: \$35.00. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

ED 407 3 Credits Fall, Spring

Reading Strategies for Secondary Teachers (3+0)

Techniques and materials to help secondary students acquire skills for greater comprehension of subject matter. Should be taken concurrently with ED 402. (Prerequisites: ED 330 and junior standing.)

**ED 410W** 3 Credits Fall, Spring Foundations of Literacy Development (3+0)

Language, reading, and writing development examined in children of varying ages and within various social contexts, with emphasis on impact of out-of- school styles on school literacy instruction. Materials fee: \$30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 411, 412, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

ED 411 3 Credits Fall, Spring Strategies for Reading and Writing Instruction in Multi-Cultural Class-

Methodology, instructional materials, and language arts content relevant to the instruction of developmental language, reading and writing in diverse K-8 classrooms. Includes practicum placement in elementary school. Materials fee: \$30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 412, and 413; and permission of instructor. X-CED program: PSY 240, ED 304, 310, and 330.)

3 Credits Fall, Spring Language Arts and Social Studies: Methods and Curriculum Development (3+0)

Study of concepts, content, methods and materials which characterize the teaching of language arts and social studies; the development of written plans and units; and practicum experience in elementary school. Materials fee: \$30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 413; and permission of instructor. X-CED program: ED 410 and 411.)

ED 413 3 Credits Fall, Spring

Mathematics and Science: Methods and Curriculum Development (3+0) Study of concepts, content, methods and materials which characterize the teaching of mathematics and science; the development of written plans and units; and practicum placement in elementary school. Materials fee: \$30.00 for any combination of ED 410, 411, 412, and 413. (Prerequisites: Fairbanks program: All required education courses through the 300 level; concurrent enrollment in ED 410, 411, and 412; and permission of instructor. X-CED program: ED 410 and

ED 420 3 Credits Fall

Alaska Native Education (3+0) s

(Same as ANS 420)

School systems historically serving Native people, current efforts toward local control, and the cross cultural nature of this education. (Prerequisite: ANTH 242 or HIST 100; or permission of instructor.)

3 Credits

Spring

Native Ways of Knowing (3+0) h (Same as ANS 421)

Focus on how culture and world view shape who we are and influence the way we come to know the world around us. Emphasis on Alaska Native knowledge systems and ways of knowing. (Prerequisite: Upper division standing.)

As Demand Warrants 3 Credits

**Building a Practical Philosophy of Education** 

A study of philosophy as a distinct discipline with its own terminology, concepts, and processes and how it functions in the field of education. Emphasis to an application of philosophy of education to cross-cultural situations in Alaskan classrooms. Available only via Independent Learning. (Prerequisite: Junior standing or permission of the instructor.)

3 Credits Small High School Programs (2+3)

Examines traditional and alternative approaches to the design of small high school programs, with emphasis on problems of designing secondary programs for the small rural communities of Alaska. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

3 Credits

Community as an Educational Resource (2+3)

Methods and techniques for developing and implementing a community-oriented curriculum with practical experience in identifying and using community educational resources. (Prerequisites: ED 201; admission to teacher education program. This course should be taken the semester prior to ED 453.)

3 Credits Spring

Microcomputer Application in the Classroom (2+2)

Strategies for effective use of microcomputers in the classroom; understanding potentials and limitations of the computer in the schools; developing classroom plans to take advantage of computer potentials; and evaluation of educational software. (Prerequisites: Upper division undergraduate or certified teacher status.)

3 Credits

Multicultural Teaching Techniques (2+3) Effective teaching strategies for cross-cultural and multicultural classrooms with attention to practices for secondary schools (small school design, computer-based instruction, telecommunications, community-based education, interdisciplinary linkages of coursework, experiential education, productive thinking skills, and individual programmed instruction). Weekly participation in multicultural class-rooms. (Prerequisites: ED 201; admission to Teacher Education Program. This course should be taken the semester prior to ED 453.)

3 Credits Alternate Spring Gender and Education (3+0)

(Same as ED 640 and WMS 440)

Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socializa-tion and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender; patterns of access and achievements; gender as an organizing principle in schools and classrooms; and feminist agendas and strategies for change. (Prerequisite: SOC 101 or ED 201 or permission of instructor. Next offered: 1995-96.)

As Demand Warrants 3 Credits Education and Cultural Transmission (3+0)

Education as a process for transmitting culture with examination of issues related to cultural transmission in a multicultural environment. Emphasis on dynamics of cultural change. (Prerequisite: ED 330 and junior standing.)

Fall, Spring 1-9 Credits **Practicum in Education** 

Practical application of general ideas and techniques addressed in methods courses in which the student is currently enrolled or previously completed. Materials fee: \$30.00 for any combination of ED 451, 632, or 634. (Prerequisites: ED 201, 330, 402 or equivalent; concurrent enrollment permitted with ED 402; permission of instructor.)

ED 4520 12 Credits Fall, Spring

Elementary Student Teaching (1+33) Supervised teaching in elementary schools approved by the department of education. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

Secondary Student Teaching (1+33)

Supervised teaching in secondary schools approved by the department of education. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

Student Teaching K-12 (1+33)

Supervised teaching in both elementary and secondary schools approved by the department of education. Open only to Music and P.E. majors seeking K-12 certification or to graduate students seeking K-12 small school certification. Students should expect to be involved in the school setting for the entire school day for the entire university semester. The department may limit registration, determine assignments, and cancel the registration of students doing unsatisfactory work. (Prerequisites: See requirements for admission to student teaching.)

3 Credits

Orientation to Teaching in Rural Alaska (2+3) Needs of rural schools, their environments and the recipients of school services with special attention given to cross-cultural educational issues. (Prerequisite: Permission of instructor.)

3 Credits

Alaskan Environmental Education (3+0) (Same as NRM 462)

Utilization of the environment inside and outside the formal classroom in all subject areas. Curriculum materials (K-12), interpretive and audiovisual aids, problem solving, and applications to situations from the public schools to summer campus, short courses, and workshops for individuals of any age. (Prerequisite: Junior standing or permission of instructor.)

ED 465 3 Credits Fall

Working with FAS/FAE Children (2+4) For families of children with FAS/FAE and professionals - teachers, social

workers, and health workers who deal with these children. Guest speakers, interviews, and reading materials. Project is the development of activities to use with these children with FAS/FAE. Access to work in a school setting required. (Not available on Fairbanks campus.)

ED 470 3 Credits **Human Resource Development (3+0)**  As Demand Warrants

Strategies and approaches which emphasize mobilization and utilization of human resources within general processes of socio-economic change and development in historical and cross-national contexts. (Prerequisite: Junior standing.)

3 Credits Marine Education (3+0) Spring

Instructional techniques and methods for integrating marine and freshwater programs into schools and communities using elementary level Alaska Sea Week Curriculum Guides, plus secondary level materials. Survey of marine biology, oceanography, fisheries, birds, marine mammals, freshwater ecology and the social and political implications of coastal and river issues. (Prerequisites: BIOL 105, 106 and MSL 111 or its equivalent.)

**Alternate Spring** 

LOGO: A Computer Language for Teachers (3+0) The study of the use of the LOGO language with Apple computers including the implications of this language for education its use in the curriculum. (Prerequisite: Upper division undergraduate or certified teacher status. Next offered: 1995-96.)

3 Credits

Spring

Education and Schooling in the Russian Far East (3+0) s (Same as ED 588)

Understanding Russia's educational system, culture, and its people. For students selected to participate in an exchange program with International Pedagogical University of Magadan. (Prerequisite: Enrollment in coursework leading to teacher certification.)

ED 489 3 Credits Spring

Education and Schooling in Japan (3+0) s (Same as ED 589)

Understanding Japan's educational system, culture, and its people. For students selected to participate in an exchange program with Hokkaido University of Education. (Prerequisites: Acceptance to the Teacher Education Program, successful completion of student teaching and permission of instructor.)

ED 490 3 Credits Fall, Spring

Curriculum Development in Cultural Perspective (3+0)

Issues in development of curriculum programs and materials in a cross-cultural environment. Emphasis on process, context, and content as well as curriculum change and evaluation strategies. Students work on a curriculum development project applicable to their individual circumstances. (Prerequisite: ED 330.)

1 Credit

As Demand Warrants Wildlife and Wetlands Curricula (1+0)

Wildlife education curricula, focusing on strategies for teaching biological and ecological concepts related to the goose populations which nest in the Yukon-Kuskokwim delta; strategies for teaching students the value of wetlands as wildlife habitat, migration, how wildlife becomes endangered and extinct and ways to develop a sense of personal responsibility and decision-making skills about wildlife.

ED 588 3 Credits Spring

Education and Schooling in the Russian Far East (3+0) s

(Same as ED 488)

Understanding Russia's educational system, culture, and its people. For students selected to participate in an exchange program with International Pedagogical University of Magadan. (Prerequisite: Enrollment in coursework leading to teacher certification.)

ED 589

Spring

89 3 Credits Education and Schooling in Japan (3+0) s (Same as ED 489)

Understanding Japan's educational system, culture, and its people. For students selected to participate in an exchange program with Hokkaido University of Education. (Prerequisites: Acceptance to the Teacher Education Program, successful completion of student teaching and permission of instructor.)

3 Credits Introduction of Applied Social Science Research (3+0) Fall

ED 603 3 Credits Spring

Field Study Research Methods (3+0)

Alternate Fall

ED 610 3 Credits Education and Cultural Processes (3+0)

As Demand Warrants

ED 611 3 Credits Learning, Thinking, and Perception in Cultural Perspective (3+0) 3 Credits

Alternate Spring ED 612 Cultural and Philosophical Foundations of Education (3+0) ED 615 Alternate Spring

Social Organization of Classrooms and Learning (3+0) ED 616 3 Credits As Demand Warrants

Education and Socio-Economic Change (3+0)

As Demand Warrants ED 618 3 Credits Higher Education: Basic Understandings (3+0)

ED 620 3 Credits Language, Literacy and Learning (3+0) Alternate Fall

ED 621 3 Credits Alternate Spring Cultural Aspects of Language Acquisition (3+0)

As Demand Warrants 3 Credits ED 622 Issues in Literacy Assessment (3+0)

3 Credits Survey of Research in Reading (3+0)

As Demand Warrants

ED 630 3 Credits Alternate Fall

Curriculum Theory (3+0)

ED 631 3 Credits

Alternate Fall

Small Schools Curriculum Design (3+0)

4 Credits Teaching as Reflective Inquiry (3+3) Fall

ED 633 As Demand Warrants 3 Credits Computer Tools for Teachers: Word Processing and Telecommunications (1+6)

ED 634 8 Credits Fall

Teaching as Decision-Making and Invention (4+0+8)

As Demand Warrants Strategies for Cooperating Teachers (3+0)

As Demand Warrants ED 636 3 Credits The Improvement of Elementary Teaching (3+0)

ED 640 3 Credits **Alternate Spring** Gender and Education (3+0) (Same as ED 440 and WMS 440) 3 Credits As Demand Warrants Teaching Youth at Risk (3+0) 3 Credits Spring Reflective Inquiry into Multicultural Classrooms and Communities (1+6)ED 644 Spring 3 Credits Designing Learning Environments (2+3) 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) Spring Educational Leadership in the School and Community (3+0) Fall ED 663 3 Credits School Law (3+0) ED 674 3 Credits Spring Program Planning and Management (3+0) 3 Credits Spring and Summer Preinternship Management Practicum (3+0) Fall, Spring ED 676 3 Credits Internship: Principal's Endorsement (0+9) 3 Credits As Demand Warrants Public School Finance (3+0) 3-6 Credits Fall, Spring Internship: Superintendent's Endorsement (0+9) ED 680 3 Credits Fall Comparative Education (3+0) (Same as NORS 680) 3 Credits Proseminar in Applied Research (1+6) ED 690 3 Credits Alternate Spring Seminar in Cross-Cultural Studies (3+0) 3 Credits As Demand Warrants Contemporary Issues in Education (3+0) **Electrical Engineering** A \$25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

3 Credits

Introduction to Electrical Engineering (3+0)

Basic modern devices, concepts, technical skills, and instruments of electrical engineering. (Corequisite: MATH 200.)

4 Credits

Electrical Engineering Fundamentals I (3+3)

Analysis of alternating-current circuits using complex notation and phasor diagrams, resonance, transformers, Laplace analysis, the complex frequency plane, and three-phase circuits. Introduction to network and system analysis. Laboratory fee: \$25.00. (Prerequisites: MATH 200, EE 102.)

4 Credits Spring

Electrical Engineering Fundamentals II (3+3) Electronics of vacuum and solid state devices, amplifier design, digital circuits, energy conversion, electromechanics, control systems, and instrumentation. Laboratory fee: \$25.00. (Prerequisite: EE 203.)

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.)

3 Credits

Applied Engineering Electromagnetics (3+0) Analysis and design of transmission lines and distributed linear circuits using impedance concepts. Development of electromagnetic field equations and their relation to circuit models. Magnetostatics and the magnetic circuit. Electromagnetic wave propagation. Application of the wave equation to engineering systems. (Prerequisites: PHYS 212, MATH 302, EE 204.)

Fall

3 Credits

Electromagnetic Waves and Devices (3+0) Theory and design of antennas, waveguides and other periodic structures. Antenna arrays, broadband design techniques and related topics. Theory and design of practical communication links. (Prerequisites: EE 311, 331, MATH 302.)

1 Credit

High Frequency Lab (0+3)

Laboratory experiments in transmission lines, impedances, bridges, scattering parameters, hybrids, and waveguides. Laboratory fee: \$25.00. (Corequisite: EE 311.)

Spring EE 332 1 Credit

Electromagnetics Laboratory (0+3) Use of Maxwell's equations in analysis of waveguides, cavity resonators, transmission lines, antennas, and radio propagation. Laboratory fee: \$25.00. (Corequisite: EE 312.)

**EE 333W** 4 Credits Fall

Physical Electronics (3+3)

Basic properties of semiconductors. Principles of semiconductor devices, diodes, transistors, and integrated circuits. Laboratory fee: \$25.00. (Prerequisite: EE 204, ENGL 211X or 213X.)

4 Credits

Electronic Circuit Design (3+3) Application of semiconductor devices in circuit design in computation, automatic

control, and communication. Laboratory fee: \$25.00. (Prerequisite: EE 333.)

4 Credits Computer Organization II (3+3)

Techniques of constructing input/output device drivers, 8 and 16 bit microprocessor organization, operation and programming, and central processor unit microprogrammable bit slice devices. Laboratory fee: \$25.00. (Prerequisite: EE 341.)

43 4 Credits Was 341 Digital Systems Analysis and Design (3+3)

Introductory principles of digital systems analysis and synthesis. Combinational and sequential logic functions leading to state machine design. Implementation techniques from integrated circuits (IC) through programmable logic devices (PLD); computer architecture from the perspective of state machine implementation. (Prerequisites: ES 201 or CS 201, one year of college physics for CS or EE 204 for EE.)

EE 353 Fall 3 Credits

Circuit Theory I (3+0)

Transient analysis by Laplace transform, state variable, and Fourier methods, filter networks, and computer aided analysis. (Prerequisite: EE 204.)

3 Credits

Engineering Signal Analysis (3+0) Analysis of both continuous and discrete-time signals and systems. Fundamentals

and applications of probability, statistics and stochastic processes to linear, timeinvariant systems. Development and applications of convolution, z-transform and Laplace transform theory to filters, modulation, multiplexing, sampling, interpolation, and related processes. (Prerequisites: EE 353, MATH 302.)

Spring 4 Credits Electrical Power Systems (3+3)

Alternate energy sources, transmission system components, elements of control, system protection, power flow, and computer-aided power flow analysis. Laboratory fee: \$25.00. (Prerequisite: EE 303.)

Fall **EE 406** 4 Credits

Electrical Power Engineering (3+3)

Symmetrical and unsymmetrical faults, protective relaying, economic operation of power systems, dynamic power system stability, and computer aided fault and transient stability analysis. Laboratory fee: \$25.00. (Prerequisite: EE 404 or equivalent.)

Spring EE 434W,O 4 Credits Instrumentation Systems (3+3)

Analysis and design of instrumentation systems: static and dynamic characteristics; accuracy, noise, reliability; sensors; signal conditioning; typical measurement systems. Laboratory fee: \$25.00. (Prerequisites: EE 334, 354, 442 and senior

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 343.)

4 Credits Digital Signal Processing (3+3)

Discrete Fourier Transform (DFT) analyses and applications; FFT implementations; discrete convolution/correlation/statistical theory with application; errors and noise analysis; FIR/IIR filter design and implementation techniques. Laboratory fee: \$25.00. (Prerequisite: EE 354 or equivalent.)

EE 461 4 Credits Communication Systems (3+3)

Theory design and implementation of communication systems. Measurement of modulation, noise, channel spectrum, satellite link budget, and microwave path design. Laboratory fee: \$25.00. (Prerequisites: EE 354 and senior standing.)

EE 464W.O 3 Credits Communication Networks (3+0)

Design of voice and data networks. Traffic measurement, network topology, circuit sizing, and network performance measures. Tariffs and economic considerations. Cost-performance relationships. (Prerequisites: EE 354 and senior stand-

4 Credits EE 471 Spring Fundamentals of Automatic Control (4+0)

Linear system representation by transfer functions and state variables. Feedback, time and frequency response of linear systems. Identification. Controllability and observability. Stability by Routh-Hurwitz criterion and frequency plane methods. Specifications of higher order linear systems. System design and compensation; introduction to sampled data systems. (Prerequisites: EE 353 and MATH 302.)

Advanced Electric Power Engineering Operations (3+0)

Alternate Fall Electric Power System Transients (3+0)

EE 605 3 Credits Alternate Spring Power System Stability and Control (3+0)

EE 606 3 Credits Alternate Spring Electric Power System Protection (3+0)

EE 610 3 Credits Alternate Fall Linear Systems (3+0)

EE 632 3 Credits As Demand Warrants Quantum Electronics (3+0)

3 Credits Alternate Fall Microwave Design I (2+3)

3 Credits Alternate Spring EE 635

Microwave Design II (3+0)

EE 643W.O 3 Credits Fall VLSI in Computer System Design (2+3)

Spring VLSI Fabrication and Testing Practicum (0+3) (Same as CS 644)

EE 652 3 Credits Alternate Spring Adaptive Systems and Neural Networks (3+0)

3 Credits Alternate Spring Space Systems Engineering (3+0)

3 Credits Alternate Fall EE 662

Digital Communication Theory (3+0) **EE 664** 3 Credits As Demand Warrants

Data Communication Techniques (3+0)

Alternate Spring 3 Credits Antennas (3+0)

EE 668 3 Credits Alternate Fall Microwave Systems Engineering (3+0)

EE 669 3 Credits Alternate Spring Radiowave Propagation (3+0)

EE 671 3 Credits Digital Control Systems (3+0)

As Demand Warrants

### **Electronics Technology**

**ELT 101** 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. Laboratory fee: \$10.00.

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. Laboratory fee: \$20.00.

As Demand Warrants 3 Credits

Arithmetic for DC Circuits (3+0) Review of arithmetic. Selected topics in algebra, trigonometry, graphs, analytic geometry, waveform analysis and decibel calculations. Calculations necessary for DC theory and continued study of electronics.

**ELT 109** 109 3 Credits Arithmetic for AC Circuits (3+0) As Demand Warrants

Selected topics in algebra, trigonometry, graphs analytic geometry, waveform analysis and decibel calculations. Calculations necessary for AC theory and continued study of electronics.

**ELT 111** 1-3 Credits As Demand Warrants Amateur Radio Licensing (1-3+0)

Overview of amateur radio. Code and radio theory provided for the Novice and General Amateur License Examination. Community emergency communications, net operations, repeaters, and public classroom applications for those already

**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.

As Demand Warrants Electronic Circuit Fundamentals (3+0)

Analysis of basic electronic circuits. Power supplies, amplifiers, and oscillators. Operational and failure analysis of basic circuits with troubleshooting procedures for each type.

**ELT 171** 3 Credits As Demand Warrants National Electric Code Study (3+0)

Systematic study of the National Electric Code and rules governing minimum requirements for installation of electrical services, feeders and branch circuits and requirements for construction and installation of electrical equipment.

## **Emergency Medical Technology**

Materials fee: \$15.00.

Fall, Spring

Emergency Trauma Training First Responder (3+0) Designed to provide basic emergency care knowledge and skills to the student who will provide the first emergency care. The objective of the first person on the emergency scene will be to recognize the needs of the victim and deliver quality care to the patient, minimizing discomfort and preventing further complications.

Fall, Spring Emergency Trauma Training Refresher (1+0)

For individuals who have been previously certified in Emergency Trauma Training (40 hrs). Certification is valid for two years. Materials fee: \$15.00. (Prerequisite: EMS 103 or ETT Certification which may not be expired more than one calendar

**EMS 119** 6 Credits Fall, Spring EMT: Emergency Medical Technician I (5+3)

Techniques to administer lifesaving first aid and operate an ambulance. Upon successful completion of this course, the student will meet the Alaska requirements for certification as an Emergency Medical Technician. Materials fee: \$75.00.

EMS 124 1 Credit As Demand Warrants EMT: Emergency Medical Technician Refresher (1+0)

Review of basic skills and emergency medical procedures at the Basic EMT 1, 2 or 3 level. Covers emergency medical care procedural changes, newly developed equipment and its use, changes in State licensure or other medico- legal requirements. Materials fee: \$50.00. (Prerequisite: EMT 1, 2 or 3 certification that may not be expired more than one calendar year.)

EMS 230 3 Credits As Demand Warrants EMT: Emergency Medical Technician II (3+0)

Improvement of EMT skills in trauma intervention for the seriously injured patient through advanced techniques in fluid therapy. Use of MAST pants, utilization of specific drug therapy and advanced airway care covered. Materials fee: \$115.00. (Prerequisite: EMT 1 certification as described in State EMT regulations; 7AAC26.010.)

EMS 231 2 Credit As Demand Warrants
Emergency Medical Technician III (1.5+1.5)

Introduction to basic cardiac anatomy and physiology, cardiac electrophysiology, recognition and treatment of basic lethal arrythmias, use of defibrillator monitor, use of morphine, lidocaine, and epinephrine 1:1000. Recognition and treatment of extremity pain due to isolated trauma. Materials fee: \$40.00. (Prerequisite: EMT 2 certification as described in State EMT regulations; 7AAC26.010.)

EMS 247 A, B 2 Credits As Demand Warrants
Arctic Survival (1+2)

Basic survival skills and techniques needed in northern latitudes. Prepares students to face survival situations in an arctic environment and enables them to maintain equipment, skills, and attitudes in a state of readiness. Includes 1 credit in lecture, 1 in practicum; students must take lecture portion to be eligible for practicum.

#### **Engineering and Science Management**

A \$25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

ESM 401 Credits Arr. Fa

Construction Cost Estimating and Bid Preparation (3+0)
Compilation and analysis of the many items that influence and contribute to the cost of projects to be constructed. Preparation of cost proposals and study of bidding procedures. Laboratory fee: \$20.00.

ESM 450W 3 Credits\* Fall, Spring Economic Analysis and Operations (3+0)

Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics, and human relations. Laboratory fee: \$20.00. (Not offered for credit toward the Master of Science in Engineering Management or Science Management. Prerequisites: ES 201 and senior standing in engineering or permission of instructor. Undergraduate engineering students who are taking graduate ESM courses as technical electives should have completed or be concurrently enrolled in ESM 450.) \*2 Credits meet the writing intensive requirement for the core curriculum.

ESM 601 3 Credits Engineers in Organizations (3+0)

ESM 605 3 Credits Engineering Economy (3+0)

ESM 608 3 Credits Fall
Legal Principles for Engineering Management (3+0)

ESM 609 3 Credits Alternate Fall

Project Management (3+0)

ESM 620 3 Credits Every Third Semester Statistics for ESM (3+0)

ESM 621 3 Credits Spring Operations Research (3+0)

ESM 623 3 Credits Fall, Spring Computer Programming for Engineering Managers (3+0)

ESM 684 3 Credits Spring and Fall Engineering Management Project (3+0)

### **Engineering Science**

A \$25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

ES 101 2 Credits

Fall, Spring

Introduction to Engineering (1.5+2)

Overview of the engineering profession and introduction to the fields of engineering. Basic concepts from engineering, physics and mathematics appled to engineering problem solving. Basic skills required of engineers, including an introduction to engineering communications: word processing, descriptive geometry, orthographic and isometric drawings, graphs, computer graphics and computer aided drawing (CAD). Laboratory fee: \$25.00. (Prerequisite: MATH 107; Corequisite: MATH 108 or calculus placement.)

ES 201 3 Credits Fall, Spring Computer Techniques (2+3)

Basic computer programming, in FORTRAN and BASIC, with applications from all fields of engineering. Laboratory fee: \$10.00. (Prerequisites: MATH 107 and 108 or enrollment in MATH 200.)

ES 208 4 Credits Spring

Mechanics (3+3)
Engineering-oriented coverage of statics and dynamics. Vector methods used where appropriate. (Prerequisites: ES 101, MATH 201, and PHYS 211.)

ES 209 3 Credits Fall, Spring Statics (3+0)

Force systems in two and three dimensions. Composition and resolution of forces and force systems; principles of equilibrium applied to various bodies, simple structures, friction, centroids, moments of inertia. Vector algebra used where appropriate, (Prerequisites: ES 101 and MATH 201; corequisite: PHYS 211.)

ES 210 3 Credits
Dynamics (3+0)

Fall, Spring

Motion of particles, kinematics and kinetics of plane motion of rigid bodies, and principles of work and energy, impulse and momentum. Vector methods used where appropriate. (Prerequisite: ES 209.)

ES 301 3 Credits Fall

Engineering Analysis (3+0)

Application of mathematical tools to typical engineering design problems. Selected topics from all fields of engineering. (Prerequisites: MATH 302, ES 210.)

S 307 3 Credits Fall Elements of Electrical Engineering (3+0)

Elementary circuits and theorems, natural, forced and steady state response, principles of electronics, circuit models and system parameters, elements of measurement and instrumentation, and characteristics of DC machines, and AC machines and transformers. (Prerequisite: MATH 202 or permission of instructor.)

ES 308 3 Credits Spring

Instrumentation and Measurement (2+3)
Instrumentation theory and concepts of digital and analog devices, transducers,

Instrumentation theory and concepts of digital and analog devices, transducers, data sensing transmission, recording, and display, instrumentation system, remote sensing, and hostile environmental conditions. Laboratory fee: \$25.00. (Prerequisite: ES 307.)

ES 331 3 Credits Fall, Spring Mechanics of Materials (2+3)

Analysis of internal forces in members subjected to axial, torsional, and flexural loads, singly and in combination. Stress-strain relationships and material property definitions; shear and moment diagrams, Mohr's Circle. Applications include beams, columns, connections, indeterminate cases. (Prerequisites: ES 208 or 209 and MATH 201.)

ES 334 3 Credits Fall

Elements of Material Science/Engineering (2+3) (Same as ME 334)

Properties of engineering materials. Crystal structure, defect structure, structure and properties, aspects of metal processing, heat treatment, joining, testing, and failure analysis for engineering applications and design. Laboratory fee: \$15.00. (Prerequisites: CHEM 106 and PHYS 212.)

ES 341 4 Credits Fall, Spring Fluid Mechanics (3+3)

Statics and dynamics of fluids; energy and momentum principles, dimensional analysis; flow in open channels, closed conduits and around submerged bodies. Laboratory fee: \$25.00. (Prerequisites: MATH 201 and ES 208 or 210.)

ES 346 3 Credits Fall, Spring

Basic Thermodynamics (3+0)
Thermodynamic systems, properties, processes, and cycles. Fundamental principles of thermodynamics (first and second laws), and elementary applications. (Prerequisites: MATH 201 and PHYS 211.)

ES 429 3 Credits Ethics and Liability in Professional Practice (2+3)

The professional, moral, ethical, and legal responsibilities of a professional in today's society and workplace. (Prerequisite: Senior or graduate standing or consent of instructor.)

#### **English**

The written communication requirement for any baccalaureate degree is the successful completion of ENGL 111X and ENGL 211X or 213X or equivalent.

#### DEVELOPMENTAL ENGLISH

**DEVE 060** 3 Credits As Demand Warrants

Elementary Exposition (3+0)

Intensive work in the process of writing and revising to improve one's writing skills. Placement by examination.

**DEVE 068** 1-3 Credits Fall, Spring

English Skills Laboratory (0+3-9)

Individualized instruction in language skills. Open entry/open exit, one credit lab modules in spelling/vocabulary, writing, and grammar usage. Enrollment in one or more based on diagnosed need or desire; may be repeated. Counts as elective credit only; does not fulfill degree requirements in written communications or humani-

3 Credits **DEVE 070** 

As Demand Warrants

Preparatory College English (3+0) Instruction in writing to improve students' fluency and accuracy and communication skills. Preparation for ENGL 111. Placement by examination or student decision. Materials fee: \$0.00-5.00. A student may elect to fulfill one half of the composition requirement by completing credit by examination in one of the required English courses. Permission of the Director of Communications in the English Department is required to begin all challenge procedures. Required composition courses may also be taken through University of Alaska Fairbanks correspondence study.

#### **ENGLISH**

ENGL 104 3 Credits As Demand Warrants

Institute on Language, Thought and Culture (3+0) Development of critical thinking, writing, and reading skills using the Bard College model. The intensive Institute establishes and nurtures learning communities which support bold thinking, risk-taking, collaboration, and independence. Offered only at the Kuskokwim Campus.

3 Credits

Fall, Spring

Methods of Written Communication (3+0)

Expository prose, including topic development. Practice in developing, organizing, writing, revising, and editing compositions. Materials fee: \$8.00. Also available via Independent Learning. (Prerequisite: Placement examination or DEVE 070.)

ENGL 190H 3 Credits Fall, Spring

Honors English Composition (3+0)

Extensive readings in a variety of disciplines. Frequent writing assignments addressing a wide range of topics for specific purposes and audiences. Emphasis upon writing as a tool for learning across the curriculum. ENGL 190H may be substituted for ENGL 111X. (Prerequisite: Admission to the Honors Program or recommendations of instructor.)

ENGL 200X 3 Credits Fall, Spring

World Literature (3+0) h

(Same as FL 200X)

Introduction to the reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, storytelling and drama. Students will gain an understanding of cultural differences and universals in text from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Course may be repeated for credit when content varies. Materials fee: \$8.00. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits

Fall, Spring

Intermediate Exposition, with Modes of Literature (3+0) Instruction in writing through close analysis of literature. Research paper required.

Materials fee: \$8.00. Also available via Independent Learning. (Prerequisites: Sophomore standing and completion of ENGL 111X or its equivalent.)

3 Credits

As Demand Warrants

Business, Grant, and Report Writing (3+0) Forms and techniques of business, grant, and report writing. (Special emphasis may be placed on one or another of these topics in a given semester.) Does not fulfill the second half of the baccalaureate requirements in written communication. (Prerequisite: ENGL 111X.)

ENGL 213X 3 Credits Fall, Spring

Intermediate Exposition (3+0)

Instruction in writing through close analysis of expository prose from the social and natural sciences. Research paper required. Materials fee: \$8.00. (Prerequisites: Sophomore standing and completion of ENGL 111X or its equivalent.) NOTE: Neither ENGL 211X nor ENGL 213X can be used as a prerequisite for any other course or for any particular course of study. However, either one of them will fulfill the second half of the requirement in written communication for the baccalaureate degree. A student who has taken one of these courses before declaring a major in which the other course may be considered more appropriate, or a student who changes major from a field in which one of these courses is considered more appropriate than the other, will not be required to take the other course.

ENGL 215 3 Credits

Spring

Introduction to Poetry (3+0) h

Analysis and appreciation of the various kinds of writing in verse (lyric, narrative, and other poetry), including the terminology used to describe poetic techniques. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits

Fall, Spring

Introduction to Fiction (3+0) h Analysis and appreciation of selected novels and short stories, including the terminology used to describe fictional techniques. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits

Spring

Introduction to the Study of Film (2+2) h

(Same as JB 217)

An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects. (Prerequisite: ENGL 111X.)

ENGL 218 3 Credits

Themes in Literature (3+0) h

Exploration of literary themes in various genres of literature, including fiction, poetry and drama. Such themes as "Women in Literature," "Literature of the North," and "Detective Stories in Literature and Film" may be offered. Specific theme is announced at registration. Course maybe repeated for credit when content varies. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits

As Demand Warrants

Aleut Narrative Art (3+0) h

Introduction to and survey of the oral and written literature of the Unangan, the Aleut people. All works in English translation, though some supplementary materials in the Aleut language (eastern and western dialects). Offered at the Aleutian campus. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 230 3-7 Credits ENGL 231 3-7 Credits Spring

English Language Proficiency (3+Var.)

Intensive listening, speaking, reading, and writing in English. Especially recommended for all students for whom English is a foreign language. These courses do not meet general degree requirements in written communications and are not classified as humanities. (Prerequisites: Open only to students for whom English is a foreign language. Permission of instructor required.)

3 Credits

Fall, Spring

Introduction to Creative Writing - Fiction (3+0) h

Forms and techniques of fiction for beginning students; discussion of students' work in class and in individual conferences. Materials fee: \$10.00. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits

Introduction to Creative Writing - Poetry (3+0) h

Forms and techniques of poetry for beginning students; discussion of students' work in class and in individual conferences. Materials fee: \$5.00. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 290H 2 Credits Fall

Summer Reading Program (Honors) (2+0) h

Selected readings in a variety of disciplines. Group discussions and written responses to the readings follow in the fall. Students keep a summer journal. May be epeated for credit. (Prerequisite: ENGL 111X or enrollment in the Honors Program.)

ENGL 301 3 Credits Fall

Continental Literature in Translation: From the Ancient World through the Renaissance (3+0) h

Readings in Greek plays, The Iliad, The Aeneid, Bible, Dante: the classical background out of which western literary tradition has risen. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 306 3 Credits

Survey of American Literature: Beginnings to the Civil War (3+0) h Comprehensive study of American thought as reflected in the works of early explorers, Calvinists, Rationalists, and Transcendentalists. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 307 3 Credits Spring Survey of American Literature: Civil War to the Present (3+0) h

Comprehensive study of American though as reflected in the writers of Realism, Naturalism, Modernism, an Post-modernism. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 308** 3 Credits

Survey of British Literature: Beowulf to the Romantic Period (3+0) h Survey of writers and works in Old and Middle English, including Chaucer, through Elizabethan period (Shakespeare), Restoration, and Neoclassic Period of the 18th Century. (Prerequisite: ENGL 111X or permission of instructor.)

**ENGL 309** 3 Credits Survey of British Literature: Romantic Period to the Present (3+0) h

Survey of writers and works from the early Romantic Period (Blake and Burns), through the Victorian period, James Joyce, and Stream-of- Consciousness, to the present. (Prerequisite: ENGL 111X or permission of instructor.)

L 310 3 Credits Literary Criticism (3+0) h **ENGL 310** Spring

History and principles of literary criticism, from earliest days to present. (Prerequisite: ENGL 111X or permission of instructor.)

ENGL 313W 3 Credits Spring Writing Non-Fiction Prose (3+0) h

Instruction in writing for students who wish to develop proficiency in organizing and composing essays on factual material in which they have genuine interest. Readings and research paper required. Course does not fulfill the second half of the general degree requirement in written communication. (Prerequisites: Junior standing, ENGL 211X or 213X or permission of instructor.)

ENGL 314W,O/2 3 Credits Fall, Spring

Technical Writing (3+0) h
Writing business letters (letters of inquiry, complaint, evaluation, and job application with resume), preparing tables, graphs, process descriptions, technical instructions, abstracts, grant proposals, and technical reports (progress, laboratory, survey, incident, inspection, feasibility, and research). Course does not fulfill the second half of the requirement in written communication. Materials fee: \$8.00. (Prerequisites: Junior standing and ENGL 211X or 213X or permission of instructor).

3 Credits Fall

Traditional English Grammar (3+0) h Identification and usage of the more common types of phrase and sentence structures. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits Spring Modern English Grammar (3+0) h

Structure of current English as seen through traditional and contemporary grammatical theories. (Prerequisite: English 111X or permission of instructor.)

**ENGL 333** 3 Credits Women's Literature (3+0) h (Same as WMS 333)

Reading discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period, or genre, but readings will include both primary and secondary texts. (Prerequisite: ENGL 111X; ENGL 211X recommended.)

3 Credits Fall Contemporary Native American Literature (3+0) h (Same as ANS 340)

Contemporary Native American writing in English, including novels, short stories, poetry, and plays. Examples of Native American film when related to a writing. Works discussed in relation to cultural contexts and interpretations. (Prerequisite: ENGL 111X or permission of instructor.)

3 Credits Narrative Art of Alaska Native Peoples (in English Translation) (3+0) h (Same as ANS 349)

Traditional and historical tales by Aleut, Eskimo, Athabaskan, Eyak, Tlingit, Haida, and Tsimshian storytellers. Bibliography, Alaska Native genres and viewpoints, and structural and thematic features of tales. (Prerequisite: ENGL 111X or permission of instructor.)

Alternate Spring Literature of Alaska and the Yukon Territory (3+0) h

Representative fiction, verse, and nonfiction dealing with Alaska and the Yukon Territory. Also available via Independent Learning. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1996-97.)

Fall, Spring ENGL 371W,O 3 Credits

Intermediate Creative Writing (3+0) h

Practice and guidance in writing fiction, poetry, drama, or essays. Students' work read and discussed in class and in conference wih 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 403W,O 3 Credits American Renaissance (3+0) h **Every Third Spring** 

American literature of the mid-nineteenth century: Poe through Whitman. (Prerequisite: ENGL 111X or permission of instructor. ENGL 306 recommended but not required. Next offered: 1995-96.)

ENGL 404 **Every Third Spring** 3 Credits American Realism (3+0) h

American literature from the Civil War to World War I: Twain through James. (Prerequisite: ENGL 111X or permission of instructor. ENGL 307 desirable but not required. ENGL 306 desirable but not required. Next offered: 1996-97.)

British Writers of the 19th Century: Romantic Period (3+0) h English literary romanticism including authors such as Byron, Keats, Shelley,

Coleridge, Wordsworth, Austen, the Bronte sisters, and Scott. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1996-97.)

ENGL 406 3 Credits **Every Third Fall** British Writers of the 19th Century: Victorian Period

Impact of industrialization, social reformation, religious controversy, and philosophical attitudes on literature. Authors to include (but not limited to): Browning, Tennyson, Thackeray, Eliot, Arnold, Dickens, Hazlitt, Ruskin, and Meredith. (Prerequisite: ENGL 111X or permission of instructor, ENGL 309 desirable but not required. Next offered: 1996-97.)

3 Credits **Every Third Spring** British Writers of the Restoration and 18th Century: Neo-Classical Period (3+0) h

Developments in drama, verse, and prose reflecting new forces in government, religion, and society during the Augustan Age. Attention to the mode of satire and to the fashion of sentimentalism in all genres. Authors to include (but not limited to): Dryden, Defoe, Addison, Steele, Swift, Pope, Johnson, Boswell, Goldsmith, and Sheridan. (Prerequisites: ENGL 111X and junior standing or permission of instructor, ENGL 308 recommended. Next offered: 1995-96.)

ENGL 408W,O3 Credits **Every Third Spring** American Origins. (3+0) h

Writers who contributed to the development of a national literary identity: Bradstreet through Cooper. (Prerequisites: ENGL 111X and junior standing or permission of instructor. ENGL 306 recommended but not required. Next offered: 1996-97.)

ENGL 414W 3 Credits Fall Research Writing (3+0) h

Practice in reporting primary and secondary research in the forms and styles appropriate to the student's field. Preference given to seniors. (Prerequisites: ENGL 111X and 211X or 213X or their equivalent.)

**ENGL 421** 3 Credits Alternate Spring Chaucer and His Age (3+0) h

Major poetry of Chaucer and his contemporaries, with emphasis on *The Canterbury Tales*, and survey of criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1996-97.)

ENGL 422W 3 Credits Shakespeare: History Plays and Tragedies (3+0) h

Major chronicle plays and tragedies, including significant criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required.)

ENGL 425W 3 Credits Spring

Shakespeare: Comedies and Non-Dramatic Poetry (3+0) h Major comedies and non-dramatic poems, including significant criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required.)

**ENGL 426** 3 Credits **Every Third Fall** Milton (3+0) h

Major poetry and prose, and survey of Miltonian criticism. (Prerequisite: ENGL 111X or permission of instructor. ENGL 308 desirable but not required. Next offered: 1996-97.)

ENGL 444W 3 Credits **Every Third Spring** 

Fiction in Translation (3+0) h Major fiction in English translation. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1996-97.)

**Every Third Semester** 

ENGL 445 3 Credits Alternate Fall 20th-Century Drama: From Chekhov to Ionesco (3+0) h

The major dramatists and their achievements. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1996-97.)

ENGL 446 3 Credits Alternate Spring Major Modern and Contemporary Poetry (3+0) hYeats to the present. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1995-96.)

ENGL 447 3 Credits Alternate Fall 20th-Century British Prose (3+0) h

Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1995-96.)

ENGL 448 3 Credits Alternate Spring 20th-Century American Prose (3+0) h
Study of fiction and nonfiction prose, modern and contemporary. (Prerequisite:

ENGL 111X or permission of instructor. Next offered: 1996-97.)

ENGL 452 3 Credits Every Third Fall
The British Novel to 1900 (3+0) h

Origin and development of the novel with concentration on significant novelists from Daniel Defoe to Thomas Hardy. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1996-97.)

ENGL 462 3 Credits Alternate Spring
Applied English Linguistics (3+0) h

Topic(s) for each offering of the course are announced. Examples are teaching English as a second language, dialects and education, dictionaries, stylistics, and composition. (Prerequisite: ENGL 111X or permission of instructor. Next offered: 1995-96.)

ENGL 471W 3 Credits Fall, Spring Undergraduate Writers' Workshop (3+0) h

Discussion of craft and techniques and student work. For advanced students who prepare a manuscript as a final project. May be repeated one time for credit. Materials fee: \$10.00. (Prerequisite: ENGL 371 or permission of instructor.)

ENGL 472 3 Credits Alternate Spring
History of the English Language (3+0) h

Origin and development of the English language from prehistoric times to the present. (Prerequisite: ENGL 111X or permission of instructor. ENGL 318 or a linguistics course is desirable, but not required. Next offered: 1996-97.)

ENGL 485 3 Credits Alternate Spring
Teaching Composition in the Schools (3+0)

Theoretical background and workshop experience for teaching composition in middle and high schools with current pedagogy on teaching of writing stressed. Variety of teaching methods demonstrated, practiced and discussed. (Prerequisites: Completion of university composition requirement with grade of "B" or higher, or permission of instructor. Next offered: 1995-96.)

ENGL 601 3 Credits Spring
Bibliography, Methods, and Criticism (3+0)

ENGL 603 3 Credits Every Third Fall Studies in British Literature: Old and Middle English (3+0)

ENGL 604 3 Credits Alternate Fall Studies in British Literature: Renaissance and 17th Century (3+0)

ENGL 606 3 Credits Alternate Fall Studies in British Literature: Restoration and 18th Century (3+0)

ENGL 607 3 Credits Alternate Fall Studies in British Literature: 19th Century (3+0)

ENGL 608 3 Credits Alternate Spring Studies in Modern British Literature (3+0)

ENGL 609 3 Credits Alternate Spring
Early American Literature (3+0)

ENGL 611 3 Credits Alternate Fall
Nineteenth-Century American Literature (3+0)

ENGL 612 3 Credits Alternate Spring Modern American Literature (3+0)

ENGL 615 3 Credits Alternate Spring Contemporary Literature (3+0)

ENGL 620 3 Credits Alternate Spring Images of the North (3+0) (Same as NORS 620)

ENGL 651 3 Credits As Demand Warrants Internship in Publishing (3+1) ENGL 671 Credits Arr. Fall, Spring Writers' Workshop

ENGL 673 3 Credits As Demand Warrants Professional Writing Workshop (3+0)

Forms of Poetry (3+0)

ENGL 682 3 Credits Every Third Semester Forms of Fiction (3+0)

**ENGL 681** 

3 Credits

ENGL 683 3 Credits As Demand Warrants Forms of Drama (3+0)

ENGL 684 3 Credits
Forms of Non-Fiction Prose (3+0)

Every Third Semester

ENGL 685 3 Credits
Teaching College Composition (3+0)

ENGL 687 3 Credits Alternate Fall
Writing Professional Prose (3+0)

ENGL 688 3 Credits Alternate Spring

Alternate Spring
Audiovisual Script Writing (3+0)

ENCL 689 3 Credits
Alternate Spring

ENGL 689 3 Credits
Editing Prose (3+0)

ENGL 692 Credits Arr.

Fall, Spring

#### English as a Second Language

Graduate Seminar

ESLG 051 1-3 Credits As Demand Warrants Speaking English as a Second Language

This class provides opportunity to engage in English conversation. For students who do not speak English as their first language, but who can understand and follow simple instructions in English. The emphasis is on large quantities of comprehensible English, and building student confidence in understanding and speaking it. May be repeated up to nine credits.

ESLG 061 1-3 Credits As Demand Warrants Reading English as a Second Language

Language experience approach and other methods are used to increase students' abilities and to build their confidence in reading English as it is encountered everyday. For students whose first language is not English, this class provides an opportunity to develop the skills involved in reading simple passages in English. May be repeated up to nine credits.

ESLG 071 1-3 Credits As Demand Warrants Writing English as a Second Language

This class provides an opportunity to develop skills at writing simple English compositions. For students whose first language is not English. The emphasis is on writing large quantities of English which is understandable to native English speakers, and on building students' confidence in communicating through written English. May be repeated up to nine credits.

# **Environmental Quality Engineering/ Science**

A \$25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any lab/material fees.

EQS 201 3 Credits Spring Environmental Management (3+0) s

Social processes which affect the environment including law, environmental assessment, social/economic constraints, political processes and society's influence on environmental values. Topics include NEPA, energy sources and impacts, population control, resource development, conservation and preservation, acid rain, greenhouse effect, deforestation, pollution and hazardous waste abatement and treatment strategies. Case studies used. Course integrated with and complements NRM 101.

**EQE 458** 3 Credits Fall

Energy and the Environment (3+0)

(Same as EQE 658 and ME 458 and 658) Overview of basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality. (Prerequisites: MATH 201, PHYS 103, CHEM 106 and

junior standing or above.) **Every Fifth Semester EQE 641** 3 Credits Environmental Quality Science Measurements (2+3)

**EQE 642** 3 Credits **Every Fifth Semester** Modeling for Environmental Management (3+0)

**EQE 643** 3 Credits Fall Air Pollution Management (4+0)

**EQE 644** 3 Credits Alternate Spring Environmental Management and Law (3+0)

**EQE 645 Every Fifth Semester** Unit Processes - Chemical and Physical (3+0)

**EQE 646** 3 Credits **Every Fifth Semester** Unit Processes - Biological (3+0)

**EQE 647** 3 Credits Every Fifth Semester Biotechnology (3+0)

**EOE 648** 3 Credits **Every Fifth Semester** Solid Waste Management (3+0)

**EQE 649** 3 Credits **Every Fifth Semester** Hazardous and Toxic Waste Management (3+0) (Same as GE 649)

**EOE 650** 3 Credits **Alternate Spring** Advanced Hazardous Waste Management (3+0)

3 Credits Fall Energy and the Environment (3+0) (Same as EQE 458 and ME 458 and 658)

#### Eskimo

**ESK 101** 5 Credits Fall **ESK 102** 5 Credits Spring Elementary Central Yup'ik Eskimo (5+0) h

Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and 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 As Demand Warrants** 1-3 Credits **ESK 104** 1-3 Credits **As Demand Warrants** Conversational Central Yup'ik (1+3)

Entry-level course to learn to speak and understand Yup'ik Eskimo. Focus on communication in everyday situations. Kuskokwim and Northwest Campuses only. (Prerequisite: ESK 103 for 104 or permission of instructor.)

**ESK 109** 3 Credits As Demand Warrants Central Yup'ik Orthography (3+0)

An entry level-class for persons fluent in Central Yup'ik. Covers reading, silent and oral, and writing, emphasizing specific skills and practical application of those skills through writing assignments. Dialect differences in the Central Yup'ik region are used to demonstrate standardization of the writing systems. (Prerequisite: Demonstrated conversational Yup'ik skills).

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.

**ESK 115** 1-3 Credits **ESK 116** 1-3 Credits As Demand Warrants **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.)

**As Demand Warrants ESK 118** 3 Credits Inupiaq Orthography (3+0)

Entry-level course designed for students who are fluent in Inupiaq. Silent and oral reading and writing. Emphasis on specific skills and practical application of skills through writing assignments. (Prerequisite: Demonstrated conversational Inupiaq skills.)

ESK 130 3 Credits As Demand Warrants Beginning Yup'ik Grammar (3+0) h

Literacy and grammatical analysis of the Central Yup'ik language are introduced in this course. Both Yup'ik speakers and non-speakers are eligible since the framework for learning to speak and write the language is offered. Considerations are given to dialect differences. (Prerequisite: ESK 103 or basic conversational Yup'ik skills).

**ESK 155** As Demand Warrants 1-3 Credits 1-3 Credits **ESK 156** As Demand Warrants Conversational Siberian Yupik (1+3)

Introductory courses for students who wish to acquire the ability to speak in Siberian Yupik, the language of St. Lawrence Island and parts of the Chukchi Peninsula in Siberia. Students first learn to understand simple spoken language, then to speak simple Siberian Yupik, developing a beginning level of communicative competence in the language. Northwest Campus only.

1-3 Credits **As Demand Warrants** 

Siberian Yupik Orthography (1+3) Introduction to the standard writing system (orthography) of Siberian Yupik. Students learn the skills of spelling, reading, and writing words in Siberian Yupik, which are the fundamentals of basic literacy. (Prerequisite: Ability to speak Siberian Yupik or instructor permission.) Northwest Campus only.

ESK 201 3 Credits Fall ESK 202 3 Credits Spring Intermediate Central Yup'ik (3+0) h

Continuation of ESK 101 and 102. Increasing emphasis on speaking, reading, and writing. (Prerequisite: ESK 102 or instructor permission.)

**As Demand Warrants** ESK 203 3 Credits Conversational Central Yup'ik III (3+0) h

A continuation of ESK 103 and 104. Kuskokwim campus only. (Prerequisite: ESK 104 or instructor permission.)

**ESK 204** 3 Credits **As Demand Warrants** 

Conversational Central Yup'ik IV (3+0) h
Continuation of ESK 203. Development of proficiency in the Central Yup'ik language, vocabulary for everyday situations, reading and writing.

3 Credits As Demand Warrants Regaining Fluency in Yup'ik (3+0) h

Yup'ik speaking skills and fluency for those with some background in the language. (Prerequisite: Permission of instructor. Each potential student must be evaluated for language capabilities.)

**ESK 206** 3 Credits **As Demand Warrants** Regaining Fluency in Yup'ik II (3+0) h

Continuation of ESK 205. Speaking skills and fluency for those with some background in the language. (Prerequisite: ESK 205 or permission of instructor. Each potential student must be evaluated for language capabilities.)

3 Credits As Demand Warrants Yup'ik Composition (3+0) h

An examination of the development of written Yup'ik and exploration of writing for entertainment, information, transcription of oral narratives and note taking in meetings where Yup'ik is the dominant language. New writing styles are examined, rather than simply translating the standard categories of English composition. Students receive extensive practice in Yup'ik orthography and participate in the evaluation of each other's writings. (Prerequisite: ESK 109.)

ESK 211 3 Credits Fall ESK 212 3 Credits Spring Intermediate Inupiaq Eskimo (3+0) h

Continuation of Eskimo 111 and 112, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary. (Prerequisite: ESK 112 or instructor permission.) ESK 218 3 Credits

As Demand Warrants

Inupiaq Composition (3+0)

An examination of the development of written Inupiaq uses to entertain, inform, persuade, transcribe oral narratives and take notes on such occasions as city council meetings. Open to new genres, rather than simply translating the standard categories of English composition. Students receive extensive practice in the Inupiaq orthography and actively participate in evaluation of each other's writing (Prerequisite: ESK 118 or equivalent.)

ESK 230 3 Credits As Demand Warrants Introduction to Interpreting and Translating I (3+0) h

Introduction to interpreting and translating, designed for both those wishing to enter the field and those who wish to upgrade their skills. Discussion of problems which arise during interpreting and translating along with suggestions on how to handle them. (Prerequisites: Must be fluent in English and Yup'ik. Permission of instructor.)

ESK 231 3 Credits As Demand Warrants
Introduction to Interpreting and Translating II (3+0) h

Introduction to Interpreting and Translating II (3+0) h Continuation of ESK 230. (Prerequisites: ESK 230.)

ESK 301 3 Credits Fall Advanced Central Yup'ik Eskimo (3+0) h

Continuation of ESK 201 and 202. Completes the basic study of the Central Yup'ik grammar. (Prerequisites: ESK 101, 102, 201, 202 or instructor permission.)

ESK 415 3 Credits
Additional Topics in Advanced Yup'ik Eskimo (3+0) h

Further study of Yup'ik linguistics. Includes text transcription, editing, analysis, and discussion. Yup'ik dialectology. Study of related Eskimo languages from the standpoint of Central Yup'ik. Additional topics to be studied depending upon the interests of the students and the instructor. (Prerequisites: ESK 101, 102, 201, 202 or instructor permission.)

ESK 417 3 Credits Spring Advanced Inupiaq Eskimo (3+0) h

Advanced study in Inupia Eskimo. Continuation of ESK 212. (Prerequisites: Completion of ESK 111, 112, 211, 212 or permission of instructor.)

#### **Fire Science**

FIRE 101 3 Credits Fall Introduction to Fire Science (3+0)

A course designed to inform students of career opportunities within municipal fire protection and related fields including history, nomenclature, fire department functions and the incident command system. Materials fee: \$5.00.

FIRE 105 3 Credits Spring Fundamentals of Fire Prevention (3+0)

Organization and function of fire prevention programs, inspections, surveying, mapping, recognition of fire and life safety hazards, fire protection engineering, public fire education and enforcement. Materials fee: \$5.00. (Prerequisite: FIRE 101 or instructor permission.)

FIRE 107 3 Credits Spring

Municipal Fire Tactics and Strategy (3+0)

Principles of fire control through utilization of personnel, equipment and extinguishing agents. Materials fee: \$5.00. (Prerequisite: FIRE 101 or instructor permission.)

FIRE 110 3 Credits Fall
Introduction to Hazardous Waste Operations and Emergency Response
(3+0)

Review of federal and state hazardous materials laws and regulations. Career opportunities related to the field of Hazardous Materials including transportation, emergency response and site clean up. Course meets the requirements for the eight hour Hazardous Materials Awareness Level, First Responder to Hazardous Material Incidents, Basic Incident Command System ICS. Materials fee: \$5.00.

FIRE 111 3 Credits Fall

Supervision and Management for Emergency Services (3+0)
Review of management, organization, planning, and supervision to meet the needs of Emergency Services. Materials fee: \$5.00. (Prerequisite: FIRE 101 or instructor permission.)

FIRE 115 3 Credits Alternate Spring

Fire Apparatus and Equipment (3+0)

Fire apparatus design, specifications and performance capabilities, effective utilization of apparatus in fire emergencies. Materials fee: \$5.00. (Prerequisite: FIRE 101 or instructor permission. Next offered: 1996-97.)

FIRE 117 3 Credits Rescue Practices I (3+0) Spring

Rescue situations and techniques including vehicle extrication, rescue carries, ventilation principles, structural rescue, use of portable hand and power tools, wildland/canine search and rescue, ice and water rescue and emergency life saving principles. Materials fee: \$75.00 plus \$11.25 for additional mandatory insurance plus \$40.00 cleaning/repair deposit. (Prerequisites: Advanced First Aid, EMS 103 or 119, or instructor permission. All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator.)

IRE 120 3 Credits

Fall

Introduction to Fire Chemistry and Physics (3+0)
Introduction to nomenclature, principles, problem solving of basic chemistry and physics as they relate to fire and hazardous material situations. Emphasis on problem solving and understanding how chemical and physical properties of materials and basic mathematics impact today's fire fighters. Materials fee: \$5.00.

FIRE 123 3 Credits Alternate Spring

Fire Investigation (3+0)

Determining origin and cause of fires (mechanical, accidental, or incendiary) for structural, wildland and transportation incidents; fire effects on materials; related laws; recognizing and preserving evidence, interviewing witnesses and suspects, rules of arrest and detention procedures, and court discipline. Materials fee: \$5.00. (Prerequisite: FIRE 101 or permission of instructor. Next offered: 1996-97.)

FIRE 131 3 Credits Alternate Fall Firefighter I, Series I (2+2)

The initial phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: \$75.00 plus \$40.00 cleaning/repair deposit. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1996-97.)

FIRE 133 3 Credits Alternate Spring Firefighter I, Series II (2+2)

The second phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: \$75.00 plus \$40.00 cleaning/repair deposit. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1996-97.)

FIRE 135 3 Credits Alternate Fall Firefighter I, Series III (2+2)

The third phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: \$75.00 plus \$40.00 cleaning/repair deposit. (Prerequisite: All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Next offered: 1995-96.)

FIRE 137 3 Credits Alternate Spring
Firefighter I, Series IV (2+2)

The final phase in a four phase process for achieving State of Alaska Fire Fighter I certification. Fundamental knowledge of fire behavior, fire organizations, types of fire equipment emergency response services possess and methods of their use. Successful completion of all four phases will qualify the student for Alaska State Fire Fighter I certification. Materials fee: \$75.00. (Next offered: 1995-96.)

RE 143 1 Credit Fall

Firefighter Internship, Series 1 (0+var)

Practical exprience in fire operations and training by arrangement through local fire departments. Materials fee: \$5.00.

FIRE 145 1 Credit Spring

Firefighter Internship, Series 2 (0+var)

Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: \$5.00. (Prerequisite: FIRE 143.)

FIRE 147 1 Credit Summer Firefighter Internship, Series 3 (0+var)

Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: \$5.00. (Prerequisite: FIRE 145.)

**FIRE 151** 3 Credits Spring

Wildland Fire Control I (3+0) Designed to provide national certification for both entry-level and experienced fire fighters with fundamental knowledge of wildland fire organization, fire behavior, air operations, suppression methods, safety, the incident command system, portable pumps, water use, and chain saws. Materials fee: \$5.00.

**FIRE 155** 3 Credits Alternate Spring

Wildland Fire Behavior (3+0) Provides fire behavior knowledge to determine basic input data for fire behavior calculations such as rate of spread, fire line intensity, flame length, and area/ perimeter growth using fire behavior prediction systems. Prepare fire perimeter maps, assess and predict chances of extreme fire behavior conditions, assess fire line data and fire behavior estimations, identify fire suppressin limitations, and make recommendations for fire line location and safe control tactics. Materials fee: \$5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1996-97.)

Wildland Air Operations and Safety (3+0)

Alternate Fall

Basic use of aircraft in wildland fire operations including helicopter operations, types and capacities, helibase/helispot construction, logistics support and specialoperations, Fixed wing operations include establishment of air bases, retardant operations, aircraft fueling and paracargo support. Emphasis on aviation safety. Materials fee: \$5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1995-96.) Was 158

**FIRE 159** 3 Credits Wildland Fire Operations Function (3+0)

Overview of the operations function including organization; implementation of the incident action plan; tactical use of crews, engines, bulldozers; appointment of supervisors in accordance with span of control; utilization of fixed wing and rotor wing aircraft. Functional positions of crew boss, staging area manager and strike team leader covered. Materials fee: \$5.00. (Prerequisites: FIRE 151, 155, 157 and 254, or instructor permission. Next offered: 1995-96.)

3 Credits

Alternate Fall

Wildland Fire Logistics Function (3+0)

Overview of the support and service branches of the logistics function within the incident command system. Emphasis on entry-level positions of ordering manager, receiving and distribution manager, base camp manager, euipment manager, and medical unit leader. Materials fee: \$5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1996-97.)

3 Credits

Alternate Spring

Wildland Fire Planning Function (3+0) Provides an overview of the planning process, organizational relationships with other functions, use of planning matrix board, check-in and resource status procedures, evaluation, analysis and display of incident information, documentation, demobilization, use of technical specialist and components of an incident action plan. Materials fee: \$5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1995-96.)

**FIRE 202** 3 Credits Fire Hydraulics (3+0) Fall

Review of applied mathematics; hydraulic principles; applications of formulas and calculations; water supply and distribution. Materials fee: \$5.00. (Prerequisites: FIRE 101 and satisfactory demonstration of basic math skills (pretest), or instructor permission.)

3 Credits Hazardous Materials I (3+0) Fall

Basic fire chemistry relating to most categories of hazardous materials. Problems of recognition, reactivity and health encountered by fire fighters. Materials fee: \$5.00. (Prerequisite: Satisfactory demonstration of basic chemistry knowledge (pretest) or instructor permission.)

**FIRE 205** 3 Credits

Hazardous Materials II (3+0)

Chemistry review of common hazardous materials control, confinement and containment operations with an emphasis on decontamination procedures. Basic Incident Command System instruction. Meets the requirements of the 24 hour Operations Level, First Responder to hazardous materials incidents. Materials fee: \$5.00. (Prerequisite: FIRE 203 or instructor permission.)

**FIRE 206** 3 Credits

Alternate Fall

Building Construction for Fire Protection (3+0) Fundamentals of building construction as it relates to fire protection. Materials fee: \$5.00. (Prerequisite: FIRE 101 or employment or experience in related field, such as fire protection, insurance, construction architecture, or engineering. Next offered: 1996-97.)

**FIRE 207** 3 Credits Fall, Spring

Hazardous Materials III (2+2) Advanced information for protection and safety of personnel engaged in response and field cleanup of hazardous materials and substances at the Hazardous Materials Technician level (EPA course #165.15). Materials fee: \$75.00. (Prerequisite: FIRE 205 or permission of instructor.)

**FIRE 208** 3 Credits Alternate Fall

Fire Service Records and Reports (3+0)

Provides the student with a basic understanding in the use of records and reports systems including computers, ANFIRS reporting, maintenance of training, equipment and apparatus records, writing and submitting narrative reports, accident/ injury reports, managing documentation, and legal requirements for maintaining records. Materials fee: \$5.00. (Prerequisite: FIRE 101 or instructor permission. Next offered: 1995-96.)

**FIRE 209** 3 Credits Fall, Spring

Hazardous Materials IV (3+0) Preparation for Incident Commander as the Safety Officer positions on complex hazardous materials incidents or large site cleanup operations. Materials fee: \$5.00. (Prerequisite: FIRE 207 or instructor permission.)

**FIRE 212** 3 Credits Alternate Fall

Building and Fire Codes (3+0) Introduction to life safety aspects of Uniform Building Code. Emphasis on Uniform Fire Code for fire inspections on existing buildings, flammable liquids, hazardous materials, and special processes. Preparation for the Uniform Fire Code Exam administered by International Conference of Building Officials. Materials fee: \$5.00. (Prerequisites: FIRE 101 and 206, or instructor permission. Next offered: 1995-96.)

3 Credits

Alternate Spring

Fire Protection Equipment and Systems (3+0) Portable fire extinguishing equipment, protection systems for specific hazards including sprinkler systems, halon, dry chemical, fire detection, and alarm systems. Materials fee: \$5.00. (Prerequisite: FIRE 101 or instructor permission. Next offered: 1995-96.)

**FIRE 216** 3 Credits **Alternate Spring** 

Methods of Instruction for Fire Service Training (3+0)

Skills necessary to instruct fire service courses including adult education techniques, classroom setup, use of audiovisual equipment, presentation, and evaluation methods of students and instruction. Materials fee: \$5.00. (Next offered: 1996-

**FIRE 218** 3 Credits Fall

Rescue Practices II (3+0)

Provides instruction in four of the most common rescue situations that fire departments encounter in the Interior of Alaska rescue: vehicular extrication, rope rescue, confined space rescue and ice/water rescue. Class stresses basic knowledge and hands-on experience. All students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Materials fee: \$75.00 plus \$13.50 mandatory insurance plus \$40.00 cleaning/repair deposit. (Prerequisites: FIRE 117 and EMS 103 or 119 or instructor permission.)

Alternate Spring

Hazardous Materials Contingency Planning (3+0)

Planning for a large scale hazardous material incident within the community to include hazards analysis, impact on population and growth, response capabilities and integration with other response plans. Materials fee: \$5.00. (Next offered: 1996-97.)

3 Credits

Hazardous Materials Tactical Operations (2.5+1) Prepares students to handle tactical operations involving hazardous materials at fixed facilities as well as transportation incidents involving flammable and combustible liquids, corrosives, poisons, cryogenics, oxidizers, LPG, etiological materials, etc. Materials fee: \$5.00. (Prerequisite: FIRE 207 or instructor permis-

sion. Next offered: 1995-96.) 3 Credits

As Demand Warrants

Fire Fighter II/III (2.5+1)

Advanced technical knowledge of fire alarms, communications, fire behavior, self contained breathing apparatus, rescue, safety, ladders, fire hose, nozzles and appliances, fire streams, water supplies, sprinklers, overhaul and inspections. Students are required to wear a complete set of fire department approved protective clothing (turnout gear). Limited quantities are available for loan through the Fire Science Program Coordinator. Materials fee: \$75.00. (Prerequisites: FIRE 131, 133, 135 and 137, or instructor permission.)

3 Credits

Alternate Spring

Hazardous Materials Inspector (3+0) Evaluation of storage conditions in a hazardous materials facility and providing

limited technical assistance to the building owners. Knowledge of the codes as they apply to the storage of hazardous materials. Materials fee: \$5.00. (Prerequisites: FIRE 205 and FIRE 212 or instructor permission. Next offered: 1995-96.)

Fall

Firefighter Internship, Series 4 (0+var)

Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: \$5.00. (Prerequisite: FIRE 145 or 147.)

**FIRE 246** 1 Credit Spring

Firefighter Internship, Series 5 (0+var)

Practical experience in fire operations and training by arrangement through local fire departments. Materials fee: \$5.00. (Prerequisite: FIRE 244.)

**FIRE 248** 

Summer

Firefighter Internship, Series 6 (0+var)

Practical experience in fireoperations and training by arrangement through local fire departments. Materials fee: \$5.00. (Prerequisite: FIRE 246.)

Computer Aided Management of Emergency Operations (2.5+1)

Assistance to emergency planners and first responders to plan for and safely handle chemical accidents through the use of a computer. CAMEO contains chemical nomenclature and response information for 3,311 commonly transported chemicals. Materials fee: \$5.00. (Next offered: 1996-97.)

3 Credits

Alternate Spring

Wildland Fire Prevention (3+0) Overview of wildland fire prevention including data collection, problem identification, problem analysis, action planning, fire reporting, fire cause determination, enforcement of laws and ordinances, public fire education, and the economics of fire prevention. Materials fee: \$5.00. (Prerequisite: FIRE 151 or instructor permission. Next offered: 1995-96.)

3 Credits

permission.)

Fall

Wildland Fire Business Management (3+0) Fire business management objectives, including duties and responsibilities of fire finance section relating to management practices and programs. Procedures required in various finance positions including financial management of a large complex wildland fire. Materials fee: \$5.00. (Prerequisite: FIRE 151 or instructor

**FIRE 256** 3 Credits Alternate Fall Wildland Fire Planning and Multiple Use Management (3+0)

Fire management and its role in a multiple use resource program. Includes prescribed and wild fire practices, environmental concerns, management goals and objectives, and prefire planning. Materials fee: \$5.00. (Prerequisite: FIRE 151, FIRE 155, or instructor permission. Next offered: 1995-96.)

3 Credits

Alternate Spring

Wildland Fuels Management (3+0) Use of fire as a resource management tool. Natural and prescribed fire planning. Development and procedures to meet management objectives, components for conducting safe, prescribed burning. Materials fee: \$5.00. (Prerequisites: FIRE 151, 155, 158 and 262 or instructor permission. Next offered: 1995-96.)

**FIRE 260** 3 Credits As Demand Warrants

Fire Research and Development (3+0)

Research and development in the area of fire prevention, detection, prescribed burns, fire suppression, and post suppression. Materials fee: \$5.00.

Alternate Fall

Wildland Fire Control II (3+0)

Instruction in tactical operations of fireline construction, use of handcrews, heavy equipment, water and engines, firing operations, wildland/urban interface and using combinations of resources. Advanced level course for trained and experienced wildland fire fighters. Materials fee: \$5.00. (Prerequisites: FIRE 151, 155, 157, 159, and 254 or instructor permission. Next offered: 1996-97.)

Alternate Spring

Wildland Fire Command Function (3+0)

An overview of the command function including use of single and unified command, roles and responsibilities of the incident commander and staff, development and implementation of strategic decision, providing information to the media, and managing the incident from initial attack of small, noncomplex fires to larger, more complex initial attack suppression organizations dealing with escape attack situations. Materials fee: \$5.00. (Prerequisites: FIRE 151, 155, 252 or instructor permission. Next offered: 1996-97.)

#### **Fisheries**

Fisheries courses are offered at both the Fairbanks Campus and at the UAF Juneau Center for Fisheries and Ocean Science. Those offered only at Fairbanks are identified by the initial "F" following the course number. Courses offered only at Juneau are identified with a "J" following the course number. The frequency of offering is identified by location for those courses offered at both units.

3 Credits

Fairbanks, Spring Juneau, Alternate Fall

Introduction to Fisheries (3+0) A survey of the values, habitats, biology, ecology and management of fishes with particular reference to Alaskan fisheries and issues.

FISH 261F 3 Credits

Introduction to Seafood Science and Nutrition (3+0)

Application of scientific and engineering principles in the harvesting, processing, preservation and marketing of Alaska's rich fisheries resources. For sophomorelevel natural sciences/environmental studies students. (Prerequisites: CHEM 105 or BIOL 105 or consent of instructor.)

FISH 336-J 3 Credits

Introduction to Aquaculture (3+0)

Alternate Spring

Alaska's aquaculture industries, salmon ocean ranching, shellfish mariculture, and kelp mariculture contribute to the world's increasingly important aquaculture production. Survey of worldwide production, introduction to production systems, and familiarization with Alaskan systems. Team taught by SFOS specialists and featuring invited lecturers, laboratory demonstrations, and field trips. (Prerequisites: BIOL 106X. Next offered: 1996-97.)

3 Credits

Alternate Spring

Marine Fishes of Alaska (2+3)

(Same as BIOL 380)

Taxonomy, recognition, distribution, life history and ecological relationships of marine fishes of Alaska will be studied. Life history traits that make species susceptible to commercial exploitation, changes in climate, ocean circulation or pollution will be emphasized. Laboratory fee: \$30.00. (Prerequisites: BIOL 105X, 106X and 222. Next offered: 1996-97.)

As Demand Warrants

I 381 3 Credits As Demand Biology of Commercially Important Salmonid Fishes (3+0) Biology, life history and ecology of economically valuable salmonids. Management of salmonid fisheries. (Prerequisite: BIOL 427.)

FISH 382 4 Credits As Demand Warrants

Biology of Commercially Important Marine Fishes (3+2)

Review of the major marine fish resources of Alaska. Taxonomy, distribution, life history and ecological relationships of marine fishes, with emphasis on demersal fishes, early life history and the effects of fisheries on stocks. (Prerequisite: BIOL 222 [BIOL 209-J].)

4 Credits

As Demand Warrants

Biology of Commercially Important Invertebrates (3+3)

Topics include the taxonomy, morphology, physiology and ecology of commercially important invertebrates. History of the management and fishery of the major species presented. Emphasis on Alaskan species. (Prerequisite: BIOL 222 [BIOL 209-J].)

FISH 384 3 Credits Alternate Spring

Freshwater Fishes of Alaska (2+3)

(Same as BIOL 384)

Life histories of Alaskan freshwater fish emphasizing species sought by fishermen. Reproduction, age, growth, migration, food, inter- relationships and habitat requirements. (Prerequisites: BIOL 105X and 106X or permission of instructor. Next offered: 1995-96.)

1 400 3 Credits Fisheries Science (3+0) FISH 400

Fall

(Same as NRM 400)

The subject of fishery science is reviewed to reflect the emerging concept of a study area integrated over a broad sweep of disciplines: oceanography, limnology, marine biology, fish population dynamics, aquaculture, economics, processing, product quality and development, and marketing. Demonstrates how such different subjects have feedback loops to one another and stresses the science fundamentals involved. Laboratory fee: \$10.00. (Prerequisite: one 200-level biology class. Corequisite: STAT 200 [STAT 373-J].)

401 3 Credits Fisheries Management (3+0) (Same as NRM 401)

Fairbanks, Spring Juneau, Alternate Fall

Principles, concepts and techniques of fisheries management in terms of their biological, economic, social and political aspects. Topics are stocking and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. Examples of several fisheries are used to clarify concepts and practices. (Prerequisite: BIOL 271. Next offered Juneau: 1995-96.)

4 Credits

Alternate Fall

Renewable Resource Management Systems (4+0)

Develops abilities to recognize, process and apply critical information in the management of renewable resources by examples from Alaskan fisheries. The computer as a primary tool of resource management. (Prerequisite: STAT 200 [STAT 373-J]. STAT 401 recommended. Next offered: 1995-96.)

As Demand Warrants

Modeling, Simulation and Ecological Theory (3+0)

Introduction to formal models (mathematical, graphical and simulation) in fisheries and ecology. Nature and uses of modeling approaches; choice of assumptions; simulation techniques and model verification; examples and case histories. (Pre-requisites: MATH 200, BIOL 271 [BIOL 281-J].)

FISH 421-J 4 Credits

Alternate Spring

Fisheries Population Dynamics (4+0)

Review and analysis of the major quantitative techniques available for assessing and predicting the status of fish populations. Demonstration and use of field and laboratory techniques and model verification; examples and case histories. (Prerequisite: STAT 200 [STAT 373-J]. FISH 418 recommended. Next offered: 1995-96.)

FISH 427 4 Credits Ichthyology (3+3) n Alternate Spring

(Same as BIOL 427)
Major groups of fishes, emphasizing fishes of northwestern North America.
Classification structure, evolution, general biology, and importance to man.
Laboratory fee: \$30.00. (Prerequisites: BIOL 205 or 317 or permission of instructor. Next offered: 1995-96.)

FISH 436-J 3 Credits Salmon Culture (1+4) Alternate Fall

Biology and technology of artificial propagation of salmonids. Reproduction, embryology, growth, nutrition, genetics and pathology of salmonids in both extensive (sea ranching) and intensive rearing systems. Bioengineering of incubators, rearing containers, water diversion systems and other related topics. Laboratory exercises in measuring effects of environmental characteristics on development and growth of salmon. (Prerequisites: BIOL 222 [BIOL 209-J], CHEM 106, FISH 381. Next offered: 1995-96.)

FISH 445-J 3 Credits Alternate Spring Sampling Methods in Fisheries (2+2)

A review of standard and specialized sampling techniques in aquatic habitats. Basic sampling theory and statistical considerations, demonstrations, use of field laboratory techniques, ship-board sampling. (Prerequisite: STAT 200 [STAT 373-J]. Next offered: 1995-96.)

FISH 460-K 3-6 Credits As Demand Warrants Food Science and Technology Internship (1+0+3) n (Same as FSN 460-K)

A combination of traditional and industrial training opportunities. Assigned required readings and discussion of appropriate topics in food science and technology. Information applied during hands-on experience in a food processing plant. Discussion includes fundamental information and solutions to industrial problems. Faculty mentor assigned to each intern. Required written evaluation of internship. 30 hours in-plant work experience for 12-24 weeks. (Prerequisites: 16 credits in natural sciences, MATH 200 or MATH 272 or permission of instructor.) Course offered only in Kodiak.

FISH 601-F 3 Credits
Quantitative Fishery Science (2+3)

Alternate Spring

FISH 602 3 Credits Advanced Fisheries Management (2+3) Juneau, Alternate Fall Fairbanks, Alt Spring

FISH 606-J 4 Credits Juneau, Alternate Spring Finfish and Shellfish Diseases (3+3)

FISH 621-J 4 Credits Alternate Fall
Advanced Fisheries Population Dynamics I (3+2)

FISH 622-J 4 Credits Alternate Spring Advanced Fisheries Population Dynamics II (3+2)

FISH 625 4 Credits Alternate Spring
Analysis of Vertebrate Population (3+3)
(Same as WLF 625)

FISH 650 3 Credits Fairbanks, Alternate Fall Juneau, As Demand Warrants (Same as BIOL 650)

FISH 651-J 3 Credits Alternate Spring Fishery Genetics (3+0)

FISH 652-J 3 Credits
Use of Electrophoresis in Fisheries (1+4)

As Demand Warrants

FISH 661-F 3 Credits As Demand Warrants Seafood Processing and Preservation (3+0) (Same as FSN 661-K)

FISH 662-F 3 Credits
Seafood Composition and Analysis (3+0)
(Same as FSN 662-K)

As Demand Warrants

FISH 666-J 3 Credits Alternate Spring Biological Assessment in Fisheries and Aquatic Environments (3+0)

#### **Food Science and Nutrition**

FSN 460-K 3-6 Credits As Demand Warrants Food Science and Technology Internship (1+0+3) n (Same as FISH 460-K)

A combination of traditional and industrial training opportunities. Assigned required readings and discussion of appropriate topics in food science and technology. Information applied during hands-on experience in a food processing plant. Discussion includes fundamental information and solutions to industrial problems. Faculty mentor assigned to each intern. Required written evaluation of internship. 30 hours in-plant work experience for 12-24 weeks. (Prerequisites: 16 credits in natural sciences, MATH 200 or MATH 272 or permission of instructor.) Course offered only in Kodiak.

Spring

Fall

FSN 661-K 3 Credits Seafood Processing and Preservation (3+0) (Same as FISH 661-F)

FSN 662-K 3 Credits Seafood Composition and Analysis (3+0) (Same as FISH 662)

FSN 663-K 3 Credits Alternate Years
Statistical Quality Control and Sensory Evaluation (3+0)

FSN 671-K 4 Credits Alternate Years Unit Operations in Food Processing (3+3)

FSN 672-K 4 Credits Alternate Years
Laboratory Methods in Food Science and Nutrition (2+6)

FSN 673-K 3 Credits Alternate Years
Current Topics in Food Science and Nutrition (3+0)

FSN 674-K 4 Credits Alternate Years Research and Development Projects in Food Science and Nutrition (2+6)

FSN 692-K 1 Credit As Demand Warrants Food Science and Nutrition Seminar (1+0)

# Foreign Languages

FL 110 2 Credits As Demand Warrants How to Pronounce French, German, Italian, and Spanish (2+0)

Designed for students and others in radio, television, journalism, drama, music (esp. voice), etc. who want to pronounce French, German, Italian and Spanish correctly and with confidence. The method is practical and direct. Concrete examples are used.

FL 200X 3 Credits Fall, Spring
World Literature (3+0) h
(Same as ENGL 200X)

Introduction to the critical reading and appreciation of a wide variety of literary texts from different cultures. Includes exposure to a variety of approaches to myth, poetry, storytelling and drama. Students will gain an understanding of cultural differences and universals in texts from American, American minority, Western European and non-Western sources. Specific content to be announced at time of registration. Course may be repeated for credit when content varies. Materials fee: \$8.00. (Prerequisite: ENGL 111X or permission of instructor.)

#### French

For information on studying in French-speaking countries, see Study Abroad; on compulsory placement tests, see Course Placement; on "bonus credit", see Alternative Ways to Earn Credit.

FREN 075 3 Credits As Demand Warrants
FREN 076 3 Credits As Demand Warrants
Conversational French I and II (3+0)

An introductory course for students who wish to acquire the ability to speak French. Students first learn to understand simple spoken language, then to speak simple French, developing a beginning level of communicative competence. (Prerequisite: FREN 075 for 076.)

**FREN 101** 5 Credits **FREN 102** 5 Credits

Fall 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 audiovisual materials. Materials fee: \$4.00.

**FREN 201** 3 Credits **FREN 202** 3 Credits

Fall Spring

Intermediate French I and II (3+0) h

Continuation of FREN 102. Increasing emphasis on reading ability and cultural material. Conducted in French. Materials fee: \$4.00. (Prerequisite: FREN 102 or equivalent.)

FREN 301W,O 3 Credits FREN 302W,O 3 Credits

Spring

Advanced French (3+0) h

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in French. Materials fee: \$4.00. (Prerequisite: FREN 202 or equivalent or permission of instructor.)

Studies in the Culture of the French Speaking World (3+0) h Intensive study of selected aspects of the culture of the French speaking world. Conducted in French, Students may repeat course for credit if topic varies. Materials fee: \$4.00. (Prerequisites: FREN 302 or equivalent; junior standing or permission of instructor. Next offered: 1995-96.)

N 432W 3 Credits Studies of Literature in French (3+0) h

Alternate Fall

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in French. Student may repeat course for credit when topics vary. Materials fee: \$4,00. (Prerequisites: FREN 302 or equivalent and at least junior standing, or permission of instructor. Next offered: 1996-97.)

3 Credits Selected Topics in French (3+0) h As Demand Warrants

Intensive course focusing on topics not covered in FREN 431 or FREN 432. Course may be repeated for credit if topic varies. Materials fee: \$4.00. (Prerequisites: FREN 302 or equivalent; junior standing, or permission of instructor. Next offered: Spring 1996.)

FREN 488 3 Credits As Demand Warrants

Individual Study: Senior Project h Designed for the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Conducted in French. (Prerequisites: At least 10 credits in upper division French or permission of instructor.)

# Geography

**GEOG 101** 3 Credits Fall, Spring

Introductory Geography (3+0) s

World regions, an analysis of environment, with emphasis on major culture realms. Also available via Independent Learning.

3 Credits World Economic Geography (3+0) s

Study of the world's major economic activities: their physical and cultural bases, spatial growth and distribution patterns, and their significance in interregional and international development. (Prerequisite: GEOG 101 or permission of instructor.)

**GEOG 205** 3 Credits Fall, Spring

Elements of Physical Geography (3+0) n

Analysis of processes that form the physical environment and resulting physical patterns. Study of landforms, climate, soils, water resources, vegetation, and their world and regional patterns. Also available via Independent Learning. (Offered every Spring at the Northwest Campus.)

GEOG 205X 4 Credits

Fall, Spring

Elements of Physical Geography (3+3) n

Analysis of processes that form the physical environment and resulting physical patterns. Study of landforms, climate, soils, water resources, vegetation, and their world and regional patterns. Laboratory fee: \$25.00. (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. (Prerequisite: Permission of instructor. Next offered: 1995-96.)

**GEOG 302** 3 Credits

Spring

Geography of Alaska (3+0) s Regional, physical and economic geography of Alaska. Special consideration of the state's renewable and nonrenewable resources, and of plans for their wise use. Frequent class study of representative maps and visual materials. Also available via Independent Learning. (Prerequisites: GEOG 101, 205.)

G 303 3 Credits Way 202 Geography of United States and Canada (3+0) s

Introductory systematic study of the area as a whole, followed by detailed study of the physical and cultural landscape forms, patterns, and associations of each major region in turn. Consideration of the United States and Canada in current world economic and political geography. (Prerequisite: GEOG 101 or 203, or 205 or permission of instructor. Next offered: 1995-96.)

GEOG 3040 3 Credits **Alternate Spring** 

Advanced Economic Geography (3+0) s

Major theories of economic geography with particular focus on those theories relevant to underdeveloped regions. Emphasis on theories appropriate to northern regions. (Prerequisite: Introductory course in World Economic Geography or equivalent. Next offered: 1995-96.)

GEOG 305W 3 Credits

Alternate Fall

Geography of Europe (except U.S.S.R.) (3+0) s Regional, physical, economic and cultural eography of Europe, except U.S.S.R.

(Prerequisites: GEOG 101, 205. Next offered: 1995-96.)

**GEOG 306** 3 Credits **Alternate Spring** 

Geography of Russia (3+0) s The physical, cultural and historical geography of Russia and the Ukraine, Central

Asia, Siberia and parts of Eastern Europe. (Prerequisite: GEOG 101 or 203 or 205 or permission of the instructor. Next offered: 1995-96.)

**GEOG 309** 4 Credits Cartography (1+9) s Alternate Spring

Graphic techniques for presenting geographic data through the construction of maps, projections and charts. Materials fee: \$150.00. (Prerequisite: Permission of instructor. Next offered: 1997-98.)

GEOG 311W 3 Credits Geography of Asia (3+0) s

Regional geography of Asia, exclusive of the Soviet Union. Physical framework, natural resources, peoples, major economic activities, and characteristic landscapes of the major regions of Japan, China, Southeast Asia, India-Pakistan, and the Asiatic countries of the Middle East. (Prerequisite: GEOG 101 or 203 or 205 or permission of the instructor. Next offered: 1996-97.)

GEOG 315W 3 Credits

As Demand Warrants

Geography of Africa (3+0) s Physical and cultural geography of Africa, by regions. Significance of Africa in current world cultural, economic, and political geography. Major emphasis on regions south of the Sahara. (Prerequisites: GEOG 101, 203 or 205.)

**GEOG 327** 

Cold Lands (3+0) s

Spring

Comparative physical, human, and economic geography of cold regions, with particular attention to Siberia, Greenland, Scandinavia and Canada. Special attention given to different approaches taken toward economic development in cold regions. (Prerequisite: GEOG 101 or 203 or 205 or permission of the instructor.)

**GEOG 338** 3 credits Fall

Introduction to Geographic Information Systems (2+3) (Same as NRM 338)

Geographic data concepts including mapping systems, data sources, editing data, GIS analysis and computer mapping. Introduction to Global Positioning Systems. GIS applications in natural resources management. Materials fee: \$35.00. (Prerequisite: Knowledge of PC's or unix workstations desirable.)

3 or 4 Credits

Spring

Maps and Landscape Analysis (3+0) or (3+3) n Application of methodology of physical geography to analysis of regional landscapes. Optional laboratory for one additional credit. (Prerequisites: GEOG 101 or **GEOG 341** 4 Credits GIS Analysis (3+3)

Spring

(Same as NRM 341) GIS analysis of natural resources including spatial query, attribute query, vector, grid, image, topographic and network analysis techniques. (Prerequisite: GEOG 338.)

**GEOG 401** 3 Credits Weather and Climate (3+0) n Alternate Fall

Introduction to the study of weather and classification of climates. (Prerequisite: Permission of the instructor. Next offered: 1996-97.)

**GEOG 402** 3 Credits Alternate Fall

Resources and Environment (3+0) s Interdisciplinary analysis of the earth as a natural resource base, and the management issues of resource extraction, allocation, development, conservation and preservation. (Prerequisites: GEOG 101, 205. Next offered: 1997-98.)

GEOG 404W 3 Credits

Urban Geography (3+0) s A world survey of urbanization with particular emphasis on the accelerating urban revolution. Conditions favoring the rise of cities, locational and site factors, regional and interregional resource availability, and human factors. Changing functions and patterns of urban areas. National and international problems inherent in trends toward a predominantly urbanized economy and culture. Implications of urbanization in Alaska. (Prerequisite: GEOG 101. Next offered: 1995-96.)

3 Credits 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: 1996-97.)

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: 1996-97.)

**GEOG 438** 3 Credits Alternate Spring

Arc Macro Language GIS Programming (3+0) (Same as NRM 438)

Arc macro language. Programming of pop-up menus and tools for GIS editing, display, and analysis. (Prerequisite: NRM 338 or equivalent. Next offered: 1996-

**GEOG 463** 3 Credits

Wilderness Concepts (3+0)

(Same as NRM 463)

Discovery of wilderness concepts, including the history and evolution of wilderness thought, the contemporary meaning of wilderness, and survey of economic and non-economic wilderness values for individuals and society.

GEOG 482W,O 3 Credits

Spring

Geography Seminar (3+0) s History, philosophy and methodology of geographic thought from the Sumerians to the present with particular attention to changing philosophies of geography. (Prerequisite: Senior Geography major and permission of instructor.)

**GEOG 637** 3 Credits Alternate Fall

Geography of Northern Development (3+0) (Same as NORS 637)

Geological Engineering

Introduction to Geological Engineering (1+0) Multiple aspects of geological engineering as a profession; the area and scope of the field. Graded pass/fail.

3 Credits **GE 261** 

Spring

General Geology for Engineers (2+3)

Study of common rocks and minerals, landforms, erosion. Geologic materials and engineering application of geology. Laboratory fee: \$15.00. (Prerequisite: Geology, science, or engineering majors, or permission of instructor.)

GE 365 3 Credits Fall

Geological Engineering I (3+0) Geological and geotechnical factors for the solution of engineering problems. Special emphasis on soils and permafrost. Some fieldwork and student report. (Prerequisites: GEOS 101 or GEOS/GE 261 and ES 208 or 209.)

3 Credits

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

3 Credits

Principles of Engineering Geology and Terrain Analysis (3+0) Evaluation of terrain characteristics using basic geomorphic and engineering principles. Consideration given to Alaskan applications. (Prerequisite: GEOS 101 or GE 261.)

**GE 381W** 2 Credits Summer

Field Methods and Applied Design I (0+9+3) Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation. (Prerequisites: GE 261, GEOS 321 and GEOS 332 or equivalent.)

**GE 382W** 4 Credits

Field Methods and Applied Design II (0+9) Techniques and geologic mapping and geotechnical instrumentation applied to engineering design and resource evaluation. (Prerequisites: GE 261, GEOS 321 and GEOS 332 or equivalent.)

4 Credits

Exploration Geophysics (3+3) Theory and application of gravity, magnetic, electrical, electro-magnetic, radioactive, and seismic methods as used for geophysical exploration. Some field work. (Prerequisites: MATH 200 and PHYS 211 or equivalent.)

3 Credits

Spring

Subsurface Hydrology (2+3)

Hydraulic characteristics of earth materials, engineering problems and models related to subsurface fluids, and properties of water. (Prerequisites: GE/GEOS 261 and PHYS 211.)

**GE 430** 3 Credits Alternate Fall

Geomechanical Instrumentation (3+0) Geomechanical instrumentation is widely used by the mining and construction industries as well as by researchers. Course topics include the measurement of groundwater pressure, ground deformation, stress, and temperature as well as the planning of monitoring programs, instrument calibration, maintenance, and installation, data collection, interpretation, and reporting. Case histories are used. (Prerequisites: GE 261 and ES 331. Next offered: 1995-96.)

2 Credits Applied Ore Microscopy (1+3) Alternate Fall

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: 1995-96.)

3 Credits

Spring

Exploration Design (3+0) Geologic, engineering, and economic considerations applied to the design and development of mineral exploration programs. (Prerequisites: GEOS 214 and 314 or permission of instructor.)

Slope Stability (3+0)

Alternate Spring

Slope design for open pit mining and other excavations. Stability analysis by various methods and on-site measuring and monitoring techniques. (Prerequisite: ES 331 or permission of instructor. Next offered: 1995-96.)

Remote Sensing for Engineering (3+0) Applications of remote sensing to geological engineering problems. Introduction to digital satellite image processing with hands-on practice. (Prerequisites: GEOS 101 or GE/GEOS 261, 408, PHYS 212.)

3 Credits

Spring

Geological Engineering II (1+6)

Design factors and procedures for the solution of geological engineering problems. A term design-project is the focus of the course. (Prerequisite: Senior standing or

3 Credits

Alternate Fall

Advanced Applied Mining Geology (2+3)

Spring

Electron Microprobe Methods in Mineral Exploration and Development (2+3)

GE 633 3 Credits Fluid Inclusion Methods in Mineral and Petroleum Exploration (2+3)

Spring Geostatistical Ore Reserve Estimation (2+3) (Same as MIN 635)

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)

3 Credits Alternate Spring Tunneling Geotechniques (3+0)

**GE 671** 3 Credits Alternate Spring Engineering Applications of Digital Image Processing (2+3)

# Geoscience (Geology and Geophysics)

A \$20.00 per semester student computing facilities user fee is assessed for Department of Geology and Geophysics courses 200 level and above. This fee is in addition to any material/laboratory fees.

GEOS 100X 4 Credits Spring Introduction to Earth Science (3+3) n

Survey of four main disciplines of earth science: geology, oceanography, meteorology, and astronomy. Lab portion goals: vehicle to learn scientific methodology, evidence to support theories presented in lectures. (Prerequisite: English placement test)

GEOS 101X 4 Credits Fall, Spring The Dynamic Earth (3+3) n

Physical geology: a study of the earth, its materials, and the processes that effect changes upon and within it. Laboratory training in use of topographic maps and recognition of common rocks and minerals. Laboratory fee: \$15.00.

GEOS 102X 4 Credits Spring Environmental Geology (3+3) n

Application of principles of geological sciences to the solution of practical problems. Origin, distribution, availability and exploitation of earth's mineral and energy resources. Study of geologic hazards including prediction and mitigation. Numerous examples and case studies from Alaska. Laboratory fee: \$15.00. (Prerequisite: GEOS 101X or instructor permission.)

**GEOS 103** 3 Credits As Demand Warrants Landscapes and Resources of Alaska (3+0)

Geology of Alaska and of the processes which formed it. Origins of mountains, volcanos, islands, and glaciers.

Independent Learning Only **GEOS 104** 3 Credits Principles of Geology

Provides an understanding of earth processes (both on the earth's surface and at depth) and origin and classification of major rock types. Other topics include factors that have shaped the Earth, geologic events and processes occurring today, and ideas of future occurrences. Will not substitute for GEOS 101X.

4 Credits Spring The History of Earth and Life (3+3) n

Historical geologic interpretation, geologic time scale, stratigraphic record and interpretation. Sedimentation and plate tectonics, fossil record and utilization, biostratigraphy, and geologic evolution of the North American continent. Lab examination of fossils, interpretation of geologic maps and stratigraphic columns. Laboratory fee: \$15.00. (Prerequisite: GEOS 101X with lab (4 credits) or GEOS/ GE 261.)

GEOS 120X 4 Credits Spring Glaciers, Earthquakes, and Volcanoes: Past, Present, and Future (3+3) n

A survey course for the non-specialist on the causes, effects, measurements, and prediction of glaciers, earthquakes and volcanoes. Laboratory fee: \$15.00.

As Demand Warrants **GEOS 212** 3 Credits Geology of Alaska (3+0) n

Modern geologic processes in Alaska will be used as a basis for understanding past geologic evolution of the region. The origin and recovery of Alaska's petroleum and mineral resources will be discussed. For non-majors. (Prerequisite: GEOS 101X.)

**GEOS 213** 4 Credits

Mineralogy (2+6) n Mineral chemistry, atomic structure, elementary crystallography, optical crystallography and descriptive and determinative mineralogy. Instrumental determinative techniques (x- ray diffraction, petrographic microscope). Laboratory fee: \$15.00., (Prerequisites: GEOS 101X or 261; CHEM 105 and concurrent registration in MATH 107-108.)

**GEOS 214** 4 Credits

Spring

Fall

Petrology and Petrography (2+6) n Origin, occurrence, and classification of igneous, sedimentary, and metamorphic rocks. Laboratory work involves hand lens identification and thin section examination of representative rocks. Laboratory Fee: \$15.00. (Prerequisite: GEOS 213.)

Paleobiology and Paleontology (2+3) n

Survey of the history of life on earth as represented in the fossil record. Contribution of paleontology to the study of evolution, past environments, and paleogeography; biostratigraphically important invertebrate fossil groups and their temporal ranges; evolution of terrestrial flora and fauna; current issues in paleontology. Laboratories will emphasize recognition of major fossil groups and paleontological problem solving. (Prerequisites: GEOS 112, BIOL 103 or BIOL 106.)

**GEOS 262** 3 Credits Alternate Fall Rocks and Minerals (2+3)

Physical properties of minerals and rocks, classification, mode of occurrence and economic applications. Role of rock materials in soil formation and fluid flow; influence on economic deposits and construction. Labs on recognition and measurement of physical properties. Course may not be used to satisfy degree requirements in Geology or Geological Engineering. (Prerequisites: GE/GEOS 261, 101X or equivalent. Next offered: 1995-96.)

**GEOS 304** 3 Credits Geomorphology (3+0) n

Surface features of the Earth and the processes which create or modify them. Application to Quaternary history, environmental science and related fields. Laboratory examination of topographic maps and aerial photographs, introduction to geomorphic measurements. (Prerequisite: GEOS 101X.)

**GEOS 314** 4 Credits Structural Geology (3+3) n Spring

Origin and interpretation of primary and secondary geologic structures. Graphical solution of structural problems. Laboratory fee: \$15.00. (Prerequisites: GEOS 112X, PHYS 103 or 211, MATH 201, GEOS 214 [or concurrent registration].)

**GEOS 321** 3 Credits Sedimentology (2+3) n

Origin, classification, composition, transportation, deposition, and diagenesis of sediments. Laboratory covers identification and description of hand specimens as well as techniques of textural and compositional analysis. Laboratory fee: \$15.00. (Prerequisite: GEOS 213 or permission of instructor. Next offered: 1995-96.)

4 Credits

Stratigraphy and Sedimentation (3+3) n Analysis of sequence in sediments including principles of litho-, bio- and chronostratigraphy and facies analysis. Surface and subsurface methods utilizing petrologic and geophysical data. Laboratory emphasizes correlation problem from geologic maps and subsurface data. Laboratory fee: \$15.00. (Prerequisites: GEOS 101X or 261, and 112X).

3 Credits **Alternate Spring** Ore Deposits and Structure (1+6)

Distribution and characteristics (especially mineralogy, morphology, and structure) of major mineral deposit types with background on structural techniques. Emphasis on application to mineral exploration and development. Laboratory exercises stress recognition of major mineral deposit types, zoning and grade patterns; and use of structural techniques in mineral deposit exploration/development. Laboratory fee: \$15.00. (Prerequisite: GEOS 262 or permission of instruc-

6 Credits Alternate Summer

Field Geology (Arranged) n

tor. Next offered: 1995-96.)

Practical experience in collecting and presenting basic field data. Includes field mapping of stratigraphic and structural problems, aerial photographs, plane table maps, and preparation of professional reports and geologic maps. Students pay own transportation, subsistence and tuition. Entrance by preregistration only; apply through the department. Early registration recommended. Geophysics option students may enroll for 4 credits if they also register for GEOS 451. All others must take 6 credits. (Prerequisites: Junior standing in geology and permission of instructor. Next offered: Summer 1996.)

GEOS 370 4 Credits Alternate Spring

Sedimentary and Structural Geology for Petroleum Engineers (3+3) in Origin and distribution of sedimentary rocks including depositional environments, stratigraphic relationships, and structures. Emphasis on the relationship to petroleum occurrences and petroleum exploration. Laboratory exercises on mapping, structural problems and facies relationships in petroleum exploration. Laboratory fee; \$15.00. (Prerequisite: GEOS 101X or GE 261. Next offered: 1995-96.)

GEOS 401 3 Credits Alternate Fall

Invertebrate Paleontology (2+3) n
Study of invertebrate phyla with extensive geologic records. Emphasis on principles of biostratigraphy and paleoecology, application to geologic problems, and case studies from Alaska. Laboratory study of fossil assemblages with emphasis on stratigraphically significant groups. Designed to complement GEOS 322. Laboratory fee: \$15.00. (Prerequisite: GEOS 215 or permission of instructor; GEOS 322 recommended. Next offered: 1996-97.)

GEOS 408 2 Credits Alternate Spring
Photogeology (1+3) n

Use of topographic maps, geologic maps, aerial photographs, and satellite imagery in interpretation of geological structures, landscapes, landforms, and geomorphic processes. Techniques included are map compilation, photo mapping, statistical treatment of map data, and composite mapping for planning. Laboratory fee: \$15.00 (Prerequisite: GEOS 304 or permission of instructor. Next offered: 1995-96.)

GEOS 410 2 Credits Fall
Potential Methods in Geophysics (1+3) n

Theory of potential methods and application to geophysical exploration. Basic techniques and methods of interpretation of gravimetric and magnetic measurements. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 411 3 Credits Spring
Seismic Exploration (2+3) n

Fundamental principles of seismic exploration techniques, beginning with basic laws of seismic wave propagation and ending with practical application of the techniques, including reflection and refraction methods. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 412 2 Credits Fall

Electrical Methods in Geophysics (1+3) n

Electrical resistivity and current flow in the earth and the practical application in the realm of geophysical exploration. Class meets for one-half of the semester only. (Prerequisites: MATH 201, PHYS 212, or permission of instructor.)

GEOS 417 3 Credits Fall Introduction to Geochemistry (3+0) n (Same as GEOS 618)

Application of chemical principles and elemental/isotopic behavior to the study of the earth. Topics include: aqueous geochemistry, high-temperature mineral-elemental chemistry, isotopic chemistry, kinetics and thermochemistry. Students in GEOS 618 will do additional reading and problems and must have all prerequisites and graduate standing. (Prerequisites: CHEM 105X-106X and either GEOS 213, 214, and 322 or CHEM 331 and 332.)

GEOS 418 3 Credits Fall

Basic Geophysics (3+0) n

Concepts and techniques of geophysics including origin of the earth, its structure, and large scale dynamic processes responsible for its surface features. Geohysical techniques including seismology, gravity, magnetometry, and electrical methods discussed along with measurements of the earth's thermal structure, rotation rates, and tide effects. (Prerequisite: Permission of the instructor.)

GEOS 420 4 Credits Alternate Fall

Elements of Seismology (3+3) n
Global distribution of earthquakes; causes and effects of earthquakes with reference to Alaska; instrumentation utilization for determination of earthquake sources and subsurface structures; techniques for studies of seismotectonics and earthquake prediction. (Prerequisite: Geoscience students: MATH 201; Civil Engineering students: ES 331. Next offered: 1995-96.)

GEOS 422 3 Credits Spring

Geoscience Applications of Remote Sensing (2+3) n
Remote sensing and its applications to geologic, environmental and physical
sciences. Includes nomenclature, a review of sensing systems, and forms in which
data is available. Emphasis on use of LANDSAT, radar imagery, thermal imagery
and color infrared photograph. (Prerequisites: PHYS 104, 212, junior standing or
consent of instructor.)

GEOS 430 3 Credits Spring Statistics and Data Analysis in Geology (3+0) n

Computer-supported geologic applications of elementary statistics, Markov chains, time-series analysis, trend-surface analysis, factor analysis, cluster analysis, discriminant analysis, and multiple regression. Laboratory fee: \$15.00. (Prerequisites: MATH 200 or STAT 301; senior standing or permission of instructor.)

GEOS 432 3 Credits Alternate Fall and Spring Geology of Mineral Resources (3+0) n

Occurrence and characteristics of metallic and selected non-metallic mineral deposits, geographic locations, petrotectonic settings, mineralogic and petrologic features, and theories of genesis, with applications to exploration and development. (Prerequisites: GEOS 214, 314, 322, 401. Next offered: 1995-96.)

GEOS 432L 2 Credits Alternate Fall and Spring Geology of Mineral Resources Laboratory (1+3) n

Laboratory workincludes identification, characterization and systematic description of major ore types. Laboratory fee: \$15.00. (Prerequisites: GEOS 214, Next offered: 1995-96.)

GEOS 451 2 Credits Summer

Practical Field Geophysics n

A field experience in data acquisition and reduction. Techniques used include gravimetric, radiometric, resistivity, magnetic, electro-magnetic and seismic. Taught concurrently with the last two weeks of GEOS 351. Entrance by preregistration only; apply through the department. Class usually is filled to capacity by February of current year. (Prerequisites: MATH 201, PHYS 212, introductory exploration geophysics, and permission of instructor.)

GEOS 462 4 Credits Alternate Fall

Glacial and Periglacial Geology (3+3) n
Glaciers and their geological processes. Emphasizes recognition and understanding of glacial landforms, sediments, and stratigraphic relations, and implications for paleoclimatology, and paleogeography. Includes non-glacial techniques and methods for interpreting Quaternary sediments. Laboratory fee: \$15.00. (Prerequisite: GEOS 304. Next offered: 1995-96.)

GEOS 465 3 Credits As Demand Warrants Geoarchaeology (3+0) (Same as ANTH 465)

Geological context of archaeological sites and the geologic factors that affect their preservation, with emphasis on Alaska. Includes a one or two-day field trip planned for a weekend in late April or early May. Materials fee: \$5.00. (Prerequisites: GEOS 101X, an introductory course in archaeology, or permission of instructor. Next offered: 1995-96.)

Spring

GEOS 475W,O 2 Credits
Presentation Techniques in the Geosciences (1+3)
(Same as GEOS 675)

Instruction and practice in oral and written communication skills specifically related to the geosciences. Oral and written presentation of abstracts, resumes, proposals, and reports required. Works critically analyzed by instructor(s), and peers for both geoscience content and communication effectiveness. Laboratory fee: \$15.00. (Prerequisite: Senior standing in geology.)

GEOS 482 1 Credit Fall, Spring Geology Seminar (1+0)

A weekly seminar series on a geologic theme of current interest for a complete semester. (Prerequisite: Senior or graduate standing or permission of instructor.)

GEOS 600 4 Credits
Introduction to X-ray Spectrometry (2+6)

GEOS 602 3 Credits Alternate Fall Geophysical Fields (3+0)

GEOS 603 1-2 Credits As Demand Warrants
Advanced Field Mapping (0+3)-(1+3)

GEOS 604 3 Credits Alternate Spring Intermediate Seismology (3+0)

GEOS 605 3 Credits Geochronology (3+0)

GEOS 606 2 Credits Alternate Spring Volcanology (2+0)

GEOS 607 2 Credits
Advanced Paleomagnetism (1+3)
Spring

GEOS 609 2-4 Credits Fall-Spring
Advanced Geomorphology (2-4+0-3)

GEOS 610 3 Credits Alternate Spring
Advanced Seismology (3+0)

GEOS 611 3 Credits
Advanced Structural Geology and Tetonics (3+0)

GEOS 612 3 Credits Alternate Fall Geologic Evolution of Alaska (3+0)

GEOS 613 3 Credits
Global Tectonics (3+0)

Alternate Spring

GEOS 614 3 Credits	Alternate Spring
Ice Physics (3+0) GEOS 615 3 Credits	Fall
Sea Ice (3+0)	
GEOS 616 3 Credits Permafrost (3+0)	Alternate Spring
GEOS 617 3 Credits Glaciers (3+0)	Alternate Fall
GEOS 618 3 Credits Introduction to Geochemistry (3+0) (Same as GEOS 417)	n Fall
GEOS 620 3 Credits Geodynamics (3+0)	Alternate Fall
GEOS 621 3-4 Credits Advanced Petrology (2-3+3-6)	As Demand Warrants
GEOS 635 1-4 Credits Advanced Economic Geology (1-4+6	As Demand Warrants
GEOS 637 4 Credits Rock-Forming Minerals (3+3)	As Demand Warrants
GEOS 640 4 Credits Petrology of Carbonate Rocks (3+3)	Alternate Spring
GEOS 643 3 Credits Sandstone Depositional Environmen	Alternate Fall
GEOS 647 3 Credits Advanced Sedimentology and Strati	As Demand Warrants igraphy (3+0)
GEOS 649 3 Credits Geomorphology of the Unglaciated	As Demand Warrants Arctic and Subarctic (3+0)
GEOS 650 3 Credits Paleoecology of Beringia (3+0)	As Demand Warrants
GEOS 651 3 Credits Quaternary Seminar (3+0) (Same as ANTH 651)	As Demand Warrants
GEOS 652 3 Credits Quaternary Vegetation History (2+3	Alternate Fall
GEOS 661 3 Credits Microwave Active Remote Sensing (	(3+0) Alternate Spring
GEOS 662 3 Credits Microwave Scattering from Land, S	lea and Ice (3+0)
GEOS 670 1-3 Credits Selected Topics in Volcanology (1-3-	+0) Fall
GEOS 671 3 Credits Volcano Seismology (3+0)	Alternate Spring
GEOS 675 2 Credits	Spring

#### German

For information on studying in German-speaking countries, see Study Abroad; on compulsory placement tests, see Course Placement; on "bonus credit", see Alternative Ways to Earn Credit.

Presentation Techniques in the Geosciences (1+3)

**GER 075** 3 Credits

(Same as GEOS 475W,O)

As Demand Warrants As Demand Warrants

3 Credits Conversational German I and II (3+0)

An introductory course for students who wish to acquire the ability to speak German. Students first learn to understand simple spoken language, then to speak simple German developing a beginning level of communicative competence in the language. (Prerequisite: GER 075 for 076.) **GER 101** 5 Credits **GER 102** 5 Credits

Fall 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 audiovisual materials. Materials fee: \$2.00.

**GER 201** 3 Credits **GER 202** 3 Credits

Fall Spring

Intermediate German I and II (3+0) h Continuation of GER 102. Increasing emphasis on reading ability and cultural material. Conducted in German. Materials fee: \$2.00. (Prerequisite: GER 102 or

GER 301W,O 3 Credits GER 302W,O 3 Credits

Fall Spring

Advanced German (3+0) h

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in German. Materials fee: \$5.00. (Prerequisite: GER 202 or equivalent.)

3 Credits Alternate Spring Studies in the Culture of the German Speaking World (3+0) h

Study of the cultures of the German speaking world. Conducted in German. Students may repeat course for credit if topic varies. Materials fee: \$5.00. (Prerequisites: GER 301 or equivalent; junior standing or permission of instructor. Next offered: 1995-96.)

**GER 432W** 3 Credits Alternate Spring Studies of Literature in German (3+0) h

Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in German. Student may repeat course for credit when topics vary. Materials fee: \$5.00. (Prerequisites: GER 302 or equivalent and at least junior standing, or permission of instructor. Next offered: 1996-97.)

3 Credits As Demand Warrants Selected Topics in German (3+0) h

Intensive course focusing on topics not covered in GER 431 or GER 432. Course may be repeated for credit if topic varies. Materials fee: \$4.00. (Prerequisites: GER 302 or equivalent; junior standing, or permission of instructor. Next offered: Fall 1995.)

**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 101 1 Credit As Demand Warrants

CNR - Normal Nutrition Counseling (1+1)

First in a series of four courses examines basic applied nutrition and counseling techniques. Counseling opportunities are provided to allow students to practice skills learned in the classroom. Graded Pass/Fail.

**HLTH 102** As Demand Warrants 1 Credit CNR - Therapeutic Nutrition Counseling (1+1)

Second in a series of four courses examines basic therapeutic knowledge and nutrition counseling techniques. Counseling opportunities are provided to allow students to practice skills learned in the classroom. Kuskokwim Campus only. Graded Pass/Fail. (Prerequisite: HLTH 101 or permission of instructor.)

1 Credit As Demand Warrants CNR - Nutrition Education and Food Preservation (1+1)

Third in a series of four courses examines methods for planning and presenting group nutrition education talks and food preservation methods. Graded Pass/Fail. (Prerequisite: HLTH 102 or permission of instructor.)

HLTH 104 1 Credit As Demand Warrants CNR - Community Resources and Problem Solving (1+1)

Fourth in a series of four courses examines community nutrition resources and methods for community nutrition problem solving. Graded Pass/Fail. (Prerequisite: HLTH 103 or permission of instructor.)

**HLTH 108** 3 Credits As Demand Warrants

Nurse Aide/Patient Care Assistant Training

Basic skills necessary to assist nurses and to be efficient health care team members. Supervised work in conjunction with health care professionals in hospitals and agencies appropriate for these experiences. (Prerequisite: High school diploma or permission of instructor.)

1 Credit Industrial First Aid (1+0) As Demand Warrants

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 compleion of course, students will receive a Mines Safety Health Administration Certificate, a State Industrial First Aid Card, and the American Heart Association CPR card. Materials fee: \$15.00.

**HLTH 203** 3 Credits Science of Nutrition Independent Learning Only

Principles of nutrition and their relationship to the life cycle. Importance of nutrition awareness and good dietary habits stressed.

**HLTH 204** 3 Credits As Demand Warrants

Medical Terminology (3+0) Study of medical terminology including analysis and origin of word roots, prefixes and suffixes. Understanding the word components, students will be able to build and define medical words. Content will be presented by body systems focusing on terms for anatomy, diagnostic, laboratory, and medical specialties. Includes use of medical dictionary, word pronunciation, and abbreviations. Designed for health care providers.

**HLTH 281** 1 Credit As Demand Warrants

Pharmacology Update (1+0) Update on pharmacology including review of old drugs and information on new drugs. Review of pharmaceutical calculations and pharmacodynamics. (Prerequisite: Practicing or licensed nurse.)

#### History

HIST 100X 3 Credits Fall, Spring

Modern World History (3+0) s Significant aspects of modern world history, using either a chronological or an issues approach to be announced when offered. The chronological approach will examine major global developments in the twentieth century, while the issues approach will deal with such aspects of the modern world as revolutionary change, the interaction of peoples, ideology, and the historical background of significant contemporary events.

HIST 101 3 Credits

Western Civilization (3+0) s

Origins and major political, economic, social, and intellectual developments of western civilization to 1500. Also available via Independent Learning.

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.

3 Credits As Demand Warrants

History of the Yukon-Kuskokwim Delta (3+0) s

The region's history beginning with oral traditions about the creation of the area, and ending with passage of the Alaska Native Land Claims Act in 1971. Concentrates on Yup'ik social, economic, and educational changes, including both native and non-native accounts. Offered only at the Kuskokwim Campus.

**HIST 105** 1 Credit As Demand Warrants Introduction to the History and Culture of the Seward Peninsula (1+0) (Same as ANTH 105)

Cultural history of the Seward Peninsula peoples for the last 10,000 years using physical anthropology, ethnography, ethnohistory, linguistics, archaeology, social anthropology, ecology, and climatology. Eskimo and Euro- American cultures which have existed in western Alaska. Materials fee: \$5.00.

HIST 110 3 Credits Fall, Spring

History of Alaska Natives (3+0) s

The history of Alaska Natives from contact to the signing of the Land Claims Settlement Act.

3 Credits HIST 115

Alternate Spring

Alaska, Land and Its People (3+0) s

A survey of Alaska from earliest days to present, its peoples, problems, and prospects. (Next offered: 1995-96.)

**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: 1995-96.)

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: 1995-96).

**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 Spring

**HIST 132** 3 Credits

History of the U.S. (3+0) s

Fall semester: The discovery of America to 1865. Colonial period, revolution, formation of the constitution, western expansion, Civil War, Spring semester: From the reconstruction to the present. Both courses also available via Independent Learning.

HIST 141 3 Credits Alternate Fall

Africa to 1800 (3+0) s Major developments and trends in African history to 1800, with particular emphasis on political, social, and economic factors. Topics include early civilizations, cultural diversity, migrations, trade routes, religion, customs, and the slave trade. (Next offered: 1995-96.)

HIST 142 3 Credits Alternate Spring

Africa Since 1800 (3+0) s

Introduction to the complex issues which have formed modern Africa, including imperialism, colonialism, partition, scial unrest, and numerous other difficulties resulting from contact with non-African societies. (Next offered: 1995-96.)

HIST 200 3 Credits As Demand Warrants

Heritage of Alaska Natives (3+0) Alaska Native cultures, kinship systems, world views and social organizations. Covers pre-contact days to the present including effects of the Native Land Claims Act.

HIST 201 3 Credits

History of the Bering Straits (3+0) s

As Demand Warrants

Covers prehistory, exploration and permanent settlement, material culture, religion, education. Focus on the influence these factors have had on development of the region. Includes analysis of perceptions of others in writings about the region.

3 Credits

**Alternate Spring** 

History of Women in America (3+0) s (Same as WMS 202)

A chronological approach; study of issues of concern; introduction to different approaches utilized in analysis of women's past; consideration of multi-racial backgrounds. (Next offered: 1995-96.)

3 Credits

As Demand Warrants

Movies: Mirror of the World (3+0) s

World history using the medium of film to highlight cultural, economic and political conditions of each country. Films will be from the USA, Mexico, Central America, South America, England, France, Russia, Turkey, India, China, Japan, Australia, Africa, and the Arctic. Offered only at the Kuskokwim Campus,

As Demand Warrants

Alaska History for Local Historians (3+0)

Techniques of regional and local historical research using exploration accounts, oral history, education reports, census studies, newspapers, etc. Final project of original research required. This local history course is currently available with emphasis on the Bering Straits, Bristol Bay, and Aleutian/Pribilof regions.

3 Credits

As Demand Warrants

Gold Rush Era: Myth and Reality (3+0)

The Gold Rush Era of 1880-1905 in Alaska and the Yukon. Emphasis on the Klondike, but Juneau, Nome and Fairbanks are also investigated. Fact and fiction utilized to understand the myth and reality of the era.

HIST 305 3 Credits Europe: 1789-1850 (3+0) s Alternate Fall

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: 1995-96.)

HIST 306 3 Credits Alternate Spring

Europe: 1850-1900 (3+0) s

The European Imperium I industrialization, nationalism, imperialism and their impact on political, economic, social and intellectual history. (Prerequisite: HIST 102 or permission of instructor. Next offered: 1995-96.)

3 Credits Europe: 1900-1945 (3+0) s Alternate Fall

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: 1996-97.)

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: 1995-96.)

**HIST 320** 3 Credits Alternate Spring

Modern Scandinavia (3+0) s Scandinavia (Denmark, Finland, Iceland, Norway, and Sweden) from the 19th Century to the present: the development of parliamentary democracy and welfare systems, cooperation and neutrality, and Scandinavia's experience in the world wars. (Prerequisite: HIST 101 or 102 or permission of the instructor. Next offered: 1995-96.)

**HIST 321** 3 Credits

Alternate Fall Alternate Spring

**HIST 322** 3 Credits English History (3+0) s

Fall semester: Pre-Roman Britain to the end of the Puritan Revolution, emphasizing social and political developments. Spring semester: From the restoration of 1660 to the present, emphasizing social, economic, and political developments. Attention given to the British Empire and Commonwealth. (Next offered: 1995-96.)

**HIST 330** 3 Credits

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: 1996-97.)

3 Credits Modern Japan (3+0) s Alternate Spring

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: 1995-96.)

3 Credits

Independent Learning Only

Maritime History of Alaska (3+0) 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.)

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: 1995-96.)

3 Credits

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: 1996-97.)

HIST 355 3 Credits Alternate Spring

Canadian History: 1867 to Present (3+0) s The political, social, and economical development of Canada from Confederation

to the present. (Next offered: 1995-96.)

**HIST 375** 3 Credits Alternate Fall History of the Northern Pacific (3+0) s

Development and interrelationships and problems of the North Pacific (Siberia, Canada, Alaska) from the 18th century to the present. (Prerequisite: Junior standing or permission of instructor. Next offered: 1995-96.)

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: 1995-96.)

**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: 1996-97.)

HIST 405 3 Credits Alternate Fall

Modern Germany (3+0) s

Germany from 1848 to present: unification, the Second Empire, WWI, the Weimar Republic, National Socialism, WWII, the Holocaust, the creation of two post-war German states with different societies and reunification. Emphasis on political, social and economic developments. (Prerequisite: HIST 101 or 102. Next offered: 1995-96.)

HIST 424 3 Credits Alternate Spring

Topics in Women's History (3+0) s

(Same as WMS 424)

An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present, (Prerequisites: A lower division history course and junior standing or permission of instructor. Next offered: 1995-96.)

HIST 430W 3 Credits Alternate Fall

American Colonial History (3+0) s

Early America European settlement, economic and social development of the American community, establishment of political independence. (Prerequisites: HIST 131, 132 or permission of instructor. Next offered: 1996-97.)

HIST 435W 3 Credits

Alternate Spring

Civil War and Reconstruction (3+0) s Political, economic, social and diplomatic history of 1860-77, disruption and re-establishment of the Union. (Prerequisites: HIST 131, 132 or permission of instructor. Next offered: 1995-96.)

3 Credits

U.S. Westward Expansion 1763-1867 (3+0) s

Westward expansion and acquisition of territory, admission of new states, development of land policy, treatment of native people. (Prerequisite: HIST 131 or permission of instructor. Next offered: 1995-96.)

3 Credits

Alternate Spring

The Development of the American and Canadian West 1867-Present (3+0) s

Building of transcontinental railroads and plains settlement in U.S. and Canada and Klondike gold rush. Theories of frontier development, statehood movements and views of the West as a "colonial" region in the 20th century. (Prerequisite: HIST 132 or HIST 440 or permission of instructor.)

HIST 442 3 Credits Fall

History of the American Military s

(Same as MILS 442)

The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves. Also available via Independent Learning. (Prerequisite: Sophomore standing or permission of instructor.)

HIST 450W 3 Credits Twentieth Century America (3+0) s Alternate Spring

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: 1995-96.)

HIST 451 3 Credits Independent Learning Only

History of U.S. Foreign Policy s Evolution of U.S. foreign policy with emphasis on post-World War II period and emergence of a bipolar distribution of power. Includes discussion of the Vietnam War, American policy in the Middle East, and the foreign policy views of the Kennedy, Nixon, Carter and Reagan administrations. (Prerequisite: Junior standing or permission of the instructor.)

HIST 455 3 Credits Military History (3+0) s Alternate Fall

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: 1996-97.)

3 Credits 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 461 3 Credits History of Alaska (3+0) s Fall

(Same as NORS 661) Alaska from prehistoric times to the present, including major themes such as Native Alaska, colonial Alaska, military Alaska, statehood, Alaska Native Claims Settlement Act of 1971, and the Alaska National Interest Lands Act of 1980. Also available via Independent Learning. (Prerequisite: Junior standing.)

HIST 464 3 Credits History of Russia (3+0) s (Same as NORS 664)

Was 344

Spring

Origin and development of Russia from early times to the present. Emphasis on the nineteenth and twentieth centuries. (Prerequisites: HIST 101, 102 or permission of the instructor

HIST 465 3 Credits

Russian Eastward Expansion (3+0) s (Same as NORS 665)

A history of Russian exploration, conquest and settlement in Siberia, Central Asia and the Caucasus region, including the impact of this contact on the indigenous peoples and on relations with other countries. (Prerequisites: HIST 101, 102 or permission of instructor.)

HIST 470W 3 Credits Spring

Researching and Writing Alaska History (1.5+3)
Introduction to research methodology, differing historical interpretations, resources used by historians, such as primary materials and secondary sources, and appropriate footnoting. Research paper required based on archival sources. (Prerequisite: Senior standing or permission of instructor.)

HIST 475W 3 Credits Historiography (3+0) s

Historical interpretation by different historians on a topic of the student's choosing. (Prerequisites: History major with junior or senior standing or instructor permission.)

HIST 476W,O 3 Credits

Spring

Historical Method (3+0) s

Preparation and writing of a senior thesis using primary research materials on a topic of the student's choosing. (Prerequisites: HIST 475 and instructor permis-Polar Exploration and its Literature (3+0) s

Alternate Spring

**HIST 481** 

(Same as NORS 681)

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: 1995-96.)

1 482 3 Credits WW 38V History of Circumpolar Research (3+0) s (Same as LS 482 and NOBE (22) HIST 482 (Same as LS 482 and NORS 682)

Alternate Spring

Studies the history of arctic and subarctic sciences through geological, biological and atmospheric sciences and the people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology research in education, government and law covered. The literature and source material on these fields analyzed. (Prerequisite: HIST 110 or 115 or ANTH 242 or BIOL 104 or permission of instructor. Next offered: 1995-96.) 1 483W 3 Credits
20th Century Circumpolar History (3+0) s V 2 8 Alternate Fall
(Same as NORS 683)

(Same as NORS 683)

A comparative history of the circumpolar north, including Alaska, Siberia, Scandinavia, Greenland and Canada. Focus on social, economic, political and environmental issues of the 20th century, such as exploration, aboriginal land claims, subsistence, military strategy, transportation, oil development, Arctic haze, and scientific research in the Arctic. (Prerequisite: Junior standing or permission of the instructor. Next offered: 1995-96.)

HIST 600 3 Credits Fall

Perspectives on the North (3+0)

(Same as NORS 600)

Alternate Spring

Researching and Writing Public Northern History (1+3)

(Same as NORS 690)

Honors

**HONR 390** 3 Credits As Demand Warrants

Liability and Values (3+0) h

The study of standards of conduct and moral judgement. The professional, moral and ethical responsibilities of the individual to employers, employees and society will be examined. (Prerequisites: Sophomore standing and permission of the Honors Director or instructor.)

#### **Human Services**

**HMSV 201** 3 Credits

As Demand Warrants

Introduction to Human Services (3+0)

Examines purposes and functions of the various social and human service programs which constitute society's organized response to social problems. Federal, state and local programs and agencies are described, including those directed at child welfare, alcohol and drug abuse, mental health, juvenile delinquency, and discrimination. (Prerequisite: SOC 101 or PSY 101).

HMSV 205 3 Credits

Factors in Health and Disease (3+0)

Introduction to the phenomenon of human disease. Cases presented demonstrate ways the normal healthy state may be disrupted by external or internal influences. Natural histories of major types of disease are reviewed.

3 Credits Crisis Intervention (3+0) Alternate Fall

Theoretical foundations and appropriate techniques and strategies for helping individuals, families, and groups during stressful situations. Application of the

crisis approach to stress-induced situations, such as natural disasters, developmental life crises, rapid social change, and situational crises such as illness and personal loss. (Prerequisites: SOC 101, PSY 101 or permission of instructor. Next offered: 1995-96.)

**HMSV 215** 3 Credits As Demand Warrants

Death and Dying (3+0) s

An interdisciplinary study of thanatology with material from multicultural, humanistic and life span perspectives. Topics include attitudes in societies, individual responses to bereavement, children's understanding of death and ethical issues associated with choices at the end of life. (Prerequisite: Instructor permission.)

2 Credits

As Demand Warrants

Case Management (2+0) (Same as SWK 225)

Basic knowledge and skills to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management

considered and discussed.

**HMSV 230** 3 Credits As Demand Warrants

Alcoholism: Causes and Consequences (3+0)

Examination of theories concerning the causes of alcoholism. Physical and psychological factors, personality disorders or disease states. Data supporting these theories evaluated. (Prerequisite: SOC 101 or PSY 101 or permission of instructor.)

HMSV 255 3 Credits Fall

Foundations of Counseling I (3+0)

(Same as PSY 255)

Survey of counseling philosophy approaches and types of counseling systems in use. Topics include approach and system match; psychoanalysis, behavior therapy, and humanistic approaches; counseling ethics and ethical problems. (Prerequisites: PSY 101, 240 or permission of instructor.)

HMSV 284 Variable Credits **As Demand Warrants** 

**Human Services Seminar** 

Identification and discussion of issues relevant to the human services field. Specific topics announced. (Prerequisite: Permission of instructor.)

3 Credits

As Demand Warrants

Alcoholism: Treatment and Prevention (3+0)

Survey and evaluation of alcoholism and alcohol abuse treatment and prevention programs with emphasis on prevention strategies. (Prerequisites: HMSV 230.)

1 Credit

Spring

Peer Advisor Training (1+0)

Emphasis on developing skills needed to assist exploratory/undecided students with their academic planning and decision making. Topics include resource referral, communication/active listening, academic and career planning, time and stress management, group dynamics, and values clarification. (Prerequisites: Sophomore standing and application.)

HMSV 342 1-3 Credit Fall, Spring

Peer Advising Practicum (0+3 or more)

Supervised peer advising experience (both individually and paired with faculty member) in the Academic Advising Center or appropriate department, allowing for application of theory and skills gained in HMSV 340. (Prerequisite: HMSV 340.)

**HMSV 356** 3 Credits

Foundations of Counseling II (3+0)

Spring

Continuation of HMSV 255. Specific counseling strategies studied in-depth include crisis intervention, individual techniques such as the rational therapies, and specific behavioral approaches. Other topics include role of the counselor in community education and consultation, methods of promoting community change and issues in cross-cultural counseling. (Prerequisite: HMSV 255 or PSY 255.)

3 Credits As Demand Warrants

Management of Human Services Programs (3+0)

Basic methods of program management and personnel supervision, with emphasis on applications in rural or isolated locations. Supervised in-service activities. (Prerequisite: HMSV 255.)

**HMSV 415** 3 Credits Group Processes (3+0)

As Demand Warrants

Study of various groups including problem solving/task-oriented, encounter, therapy, career guidance, and assertive training. Different theoretical orientations to group counseling discussed. (Prerequisites: HMSV 255, 356.)

**HMSV 445** 3 Credits

Fall

Community Psychology (3+0) (Same as PSY 445)

Foundations of community psychology including community assessment consultations. Community assessment activities explored include selecting study areas, surveys, evaluation of services, and use of results. During the community consultation portion, education, prevention, and service issues are covered. Attention given to rural and small community assessment and change especially as it applies to Alaska. (Prerequisites: PSY 101, SOC 101 and HMSV 201.

3-6 Credits

As Demand Warrants

Practicum in Human Services Supervised work experience in case management including interviewing, assessment, facilitating, and intervening. Enrollment can be prior to or concurrent with placement in a human service agency. Student's study and work directed by a university instructor and an agency supervisor. (Prerequisites: HMSV 255. Student must be a major in the program.)

#### **Human Service Technology**

**HST 105** 3 Credits

Personal Awareness and Growth (3+0) Interpersonal and intrapersonal communication explored. Personal growth process presented from a holistic perspective. Focus will identify opportunities for personal enrichment through increased awareness of self and others.

Spring 3 Credits

Cultural Diversity in Human Services (3+0)

The impact of culture on the delivery of human services including Alaskan Native cultures; examination of relationship of multicultural and multi-ethnic concepts. Issues of age, class, disablement, race, gender and sexual orientation will also be discussed.

HST 125 3 Credits

Introduction to Addictive Processes (3+0)

Focus on gaining knowledge of the psycho-social aspects of addiction. Historic and behavioral approaches, disease concept and current trends relating to addiction presented. Twelve step and self-help approaches explored.

Spring 3 Credits

Basic Principles Group Counseling (3+0) Concepts and techniques of working with small groups, including establishing group goals, effective group interaction, termination and evaluation. Development of therapeutic group activities presented.

3 Credits

Crisis and Grief Counseling (3+0) Helping people in crisis from a theoretical and experiential perspective. Understanding how people feel, think and behave during periods of crisis and grieving. Suicide, violence, life transitions and AIDS explored.

3 Credits HST 215

Individual Interviewing (3+0) Introduction to interpersonal communication skills. Focus on gathering client information through the interviewing process. Emphasis on development of one to one interviewing, behavioral observation and documentation skills.

Fall, Spring 2 Credits

Human Service Practicum I (0+8) Integration of human service theory with skill-based training through a professional, supervised experience in a human service agency. Practicum requires a minimum of 8 hours of placement per week. (Prerequisites: Permission of instructor.)

HST 231 2 Credits

Fall, Spring

Human Service Practicum II (0+8) Continuation of HST 230. (Prerequisite: HST 230.)

1 Credit

Human Service Seminar I (1+0)

Fall, Spring

Human service documentation including progress notes, social history, mental status exam, and journaling. Student shared learning and peer support based on practicum experience.

**HST 241** 1 Credit

Fall, Spring

Human Service Seminar II (1+0) Human service documentation skills, student shared learning and peer support based on practicum experience. (Prerequisite: HST 240.)

1-4 Credits As Demand Warrants

Current Issues in Human Service (1-4+0)

Selected current issues of importance to the human service field. Emphasis on issues impacting Alaskan communities. Repeatable for credit by HST majors to a maximum of 9 credits. Materials fee: \$0.00-75.00.

3 Credits

Spring

Ethics in Human Service (3+0) Professional and ethical issues related to the helping professions. Ethical concerns in multicultural and rural human service delivery. Ethics and legal issues related to substance abuse counseling in Alaska.

3 Credits

Substance Abuse Counseling (3+0) Introduction to the basic principles of substance abuse counseling. Application of counseling modalities to intervention and treatment of individuals, families and groups experiencing alcohol and drug abuse or dependence. Cross-cultural issues addressed. (Prerequisite: HST 125.)

#### Humanities

Admission to this program is presently suspended.

3 Credits

The Humanities: A Cultural Perspective (3+0) h

Examination of humanities using a non-Yup'ik culture and the Yup'ik culture as bases. Introduction of fundamental principles of Yup'ik and non-Yup'ik performing and visual arts, ideas and cultural developments that have stirred and enriched civilization, and aspects of Yup'ik and non-Yup'ik culture to help students develop greater awareness of forces that affect them. Offered only at the Kuskokwim campus.

3 Credits **HUM 131** 

As Demand Warrants

Introduction to Alaska Literature (3+0)

Survey of Alaskan literature, poetry and drama with emphasis on appreciation of literature written by both natives and non-Natives. Students read examples from oral Native tradition, the frontier era, and meet contemporary living writers by audioconference.

3 Credits **HUM 161** 

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 201X 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.)

3 Credits

Unity in the Sciences (3+0) h A detailed treatment of scientific methods and principles within a larger cultural context. Explanation of the roles of mathematics and logic in the structure of the scientific enterprise. (Prerequisite: Open to students beyond the freshman level or

by permission of the instructor.) 3 Credits

As Demand Warrants

Introduction to Humanities I (3+0) Integrated exploration of fundamental principles of literature, music, and visual

3 Credits

literature, science, art and music.

As Demand Warrants

Introduction to Humanities II (3+0) Study of specific historical period or periods with reference to philosophy, **HUM 220** 3 Credits As Demand Warrants Film: Aesthetics, Criticism, History (3+0) h

Film as an art form, featuring documentaries and examples from the early history of film. Emphasis on aesthetic value of film as art and the place of film in the contemporary history of art.

3 Credits As Demand Warrants **HUM 2423 Credits** As Demand Warrants

Eskimo and World Literature (3+0)

Examination of literature of the Eskimo peoples as well as of other Native North Americans, Asians, and Europeans. Universal and timely themes are compared which communicate aspects of the human experience valid across cultures and times. HUM 241 is not prerequisite to HUM 242.

**HUM 3290** 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: 1995-96.)

**HUM 332** 3 Credits Alternate Spring Varieties of Visual Expression: Art as Image and Idea (3+0) h

Discussion of the visual elements of art, principles of visual organization, the process of artistic perception and its evaluation by the viewer. (Prerequisite: 3 credits in the visual arts or permission of instructor. Next offered: 1995-96.)

**HUM 342** Alternate Spring 3 Credits Synthesis in Musical Expression (3+0) h

In-depth study of one of the classical composers to show culmination of generic efforts and inter-arts relationships. (Prerequisite: MUS 123 or 124, or permission of instructor. Next offered: 1995-96.)

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: 1995-96.)

3 Credits Architecture: Art, Design, Technology and Social Impact (3+0) h

Concepts of environmental, urban, and industrial design. Relationship of human and natural environment is stressed in this history of architecture with special attention given to contemporary conditions in urban areas and effects of industrialization and mechanization on human living and working spaces, artistic design, and aesthetics. (Prerequisites: ART 261 and 262 or HUM 201 and 202 or permission of instructor. Next offered: 1996-97.)

3 Credits Alternate Spring Senior Seminar (3+0) h

Consideration of the humanities at the University of Alaska and on alternate approaches elsewhere. Student project paper required with oral presentation and defense. (Prerequisite: Open requirements, or by permission of the instructor. Next offered 1995-96.)

# Japanese

For information on studying in Japan, see Study Abroad; on compulsory placement tests, see Course Placement; on "bonus credit", see Alternative Ways to Earn

JPN 100A 3 Credits As Demand Warrants Introduction to Conversational Japanese I (3+0) h

Introduction to basic conversational Japanese, nonverbal forms of communication, and various aspects of Japanese society and culture. Note: JPN 100A and JPN 100B are not equivalent to JPN 101 and do not satisfy core curriculum requirements. This course may be taken for a letter grade or Pass/Fail.

3 Credits Introduction to Conversational Japanese II (3+0) h As Demand Warrants

Introduction to basic conversational Japanese, nonverbal forms of communication, and various aspects of Japanese society and culture. Note: JPN 100A and JPN 100B are not equivalent to JPN 101 and do not satisfy core curriculum requirements. This course may be taken for a letter grade or Pass/Fail. (Prerequisite: JPN 100A or instructor permission.)

JPN 101 5 Credits JPN 102 5 Credits Fall Elementary Japanese I and II (5+0) h Spring

Introduction to spoken and written Japanese. The student will acquire a vocabulary of approximately 1,000 words and will learn to read and write the two syllabaries, hiragana and katakana, as well as 150 kanji. Cultural dimension is explored implicitly through language and explicitly through audiovisual materials. Courses are taught in Japanese. Materials fee: \$10.00.

JPN 201 4 Credits 4 Credits JPN 202

Fall Spring

Intermediate Japanese I and II (4+0) h The student will learn to read and write an additional 250 kanji. Conversational ability and listening comprehension enhanced by using videotape materials. Courses are taught in Japanese. Materials fee: \$5.00. (Prerequisite: JPN 102 or equivalent.)

JPN 301 3 Credits JPN 302 Spring 3 Credits Advanced Japanese (3+0) h

Development of advanced conversational and reading skills. Topics may include: modern Japanese prose fiction; newspaper Japanese; advanced conversation through the study of common contractions and idiomatic usage in the standard Tokyo dialect; and a study of television drama series. May be repeated with different topics. Materials fee: \$5.00. (Prerequisite: JPN 202 or equivalent.)

3 Credits Women's Voices in Japanese Literature (3+0) h (Same as WMS 331)

A close reading of selected novels, short stories, poems, and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society, the role of women writers as social critics, and cross-cultural differences and similarities in women's issues. (Prerequisites: ENGL 211X or 213X, ENGL/FL 200X; HIST 121, 122 or 331 recommended. Next offered: 1995-96.)

Alternate Spring 3 Credits Japanese Cultural Traditions (3+0) h

A study of Japanese cultural traditions as revealed in the literary, visual, and performing arts. Discussion of literature in English translation is integrated with slide-lectures on Buddhist painting and sculpture, picture scrolls, castle decoration, woodblock prints, the tea ceremony, gardens, and the No, Kabuki, and puppet theatres. Course is taught in English. Materials fee: \$15.00. (Prerequisite: Junior standing or consent of instructor. Next offered: 1995-96..)

3 Credits Alternate Spring Twentieth Century Japanese Prose Fiction (3+0) h

A study of selected novels, short stories, and film scripts in translation representative of styles and themes which characterize twentieth century Japanese literature. Analysis of each work in terms of characterization, themes, structure, style, and as an expression of social problems or intellectual issues in modern Japanese society. Course is taught in English. Materials fee: \$15.00. (Prerequisite: Junior standing or consent of instructor. Next offered: 1996-97.)

3 Credits Alternate Spring Studies in Japanese Culture (3+0) h

Further study of advanced written and spoken Japanese through essays, newspaper and journal articles, and television documentaries dealing with topics in Japanese culture. Materials fee: \$5.00. (Prerequisite: JPN 302. Next offered: 1996-97.)

3 Credits Alternate Spring Studies of Literature in Japanese (3+0) h

Intensive study of authors, literary texts, movements, genres, themes or critical approaches. Conducted in Japanese. Student may repeat course for credit when topics vary. Materials fee: \$5.00. (Prerequisites: JPN 302 or equivalent; at least junior standing or permission of instructor. Next offered: 1995-96.)

3 Credits As Demand Warrants

Seminar on Contemporary Japan (3+0) h
Ties together various threads of the Japanese Studies program and gives students an opportunity to apply their knowledge to contemporary issues in Japan. Provides a forum for student presentations of research papers begun in Japan. (Prerequisite: Upper division semester in Japan at pre-approved program.)

# Journalism-Broadcasting

JB 101

3 Credits Introduction to Mass Communications (3+0) h

Fall

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.

3 Credits Introduction to Broadcasting (3+0) h Spring

Principles of broadcasting as they relate to the people of the United States, including history, government involvement, and social effects.

JB 105 3 Credits Spring

History of the Cinema (3+0) h

History and development of the medium of film in the United States and abroad during the last 100 years. Content will vary each semester. Materials fee: \$25.00. Also available via Independent Learning.

3 Credits

As Demand Warrants

Writing for the Media (3+0) h Basic journalism writing, including information gathering, grammar, word use and style, news story structure, interviewing techniques, headline writing, and writing for broadcast news. Emphasis on student mastery of clear, concise writing. Available via audioconferencing, (Prerequisite: ENGL 111X or instructor permission.)

JB 203 3 Credits Fall, Spring

Basic Photography (2+3) h

Photography fundamentals, including use of an adjustable camera, film and exposure techniques, filters, flash techniques, and an introduction to color. Darkroom procedures including black and white film processing and printing, photograph design and composition. Students must have use of an adjustable camera. Laboratory fee: \$40.00.

3 Credits

Fall, Spring

Audio Production (2+3)

Sound production for radio, television, film, and stage amplifications. Emphasis on writing, recording, control room techniques, and editing. Laboratory fee: \$25.00.

3 Credits

Introduction to the Study of Film (2+2) h (Same as ENGL 217)

An appreciation course designed to introduce the student to the various forms of cinematic art with special emphasis on humanistic and artistic aspects. (Prerequisite: ENGL 111X.)

JB 240 3 Credits Spring

International Communications (3+0) h Historical development of different mass communication systems around the globe. The relationship between press philosophies and their practical implementation. Mass communication systems of selected countries as representative examples of generalized systems.

4 Credits

Fall, Spring

News Reporting and Writing (2+4) h

Finding and getting the story, writing the lead, developing story structure, writing on deadline, editing copy, writing headlines and captions, cropping and sizing pictures, and writing for broadcast news. Laboratory fee: \$25.00. (Prerequisites: ENGL 111 and ENGL 211, 213 or 311, junior standing or instructor permission.)

08 3 Credits Film and TV Criticism (3+0) h

Theoretical approaches to viewing, analyzing and evaluating film and television program content. Laboratory fee: \$25.00.

Fall, Spring

Magazine Article Writing (2+1) h Writing articles for publication. Students repeating the course limited to six credits. Laboratory fee: \$25.00. (Prerequisite: JB 301 or permission of instructor.)

JB 316 3 Credits

Television Productions (2+4)

Television production, floor directing, audio, camera, film chain, staging, lighting,

and switching. Materials fee: \$40.00. (Prerequisite: JB 215 or permission of

JB 317W 3 Credits

Fall

Broadcast Journalism (3+0) Overview of the broadcast journalism field. Emphasis on intensive broadcast news writing practice, including interviewing techniques, ethical issues and current controversies, structure of television and radio news operations and broadcast reporting experiences. (Prerequisite: JB 301 or instructor permission.)

3 Credits

Spring

Journalism in Perspective (3+0) h Present problems and trends in mass communication with emphasis on historical development, including survey of world press coverage and problems. (Prerequisite: Junior standing.)

JB 323 3 Credits Fall

Publication Editing (3+0) Publication management and editing: content selection, design, editorial responsibility, and economics of publishing. Laboratory fee: \$25.00. (Prerequisite: Junior standing.)

JB 324

3 Credits Typography and Publication Design (2+2)

Typography, layout, and design, coupled with a study of the methods of printing production. Materials fee: \$25.00. (Prerequisite: Permission of instructor.)

IB 326 3 Credits

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 stand-

JB 340 3 Credits Spring

Spring

Mass Media and Society (3+0) s

The growth and development of mass media research in the U.S. in the twentieth century. Methods used in media research, how the data are used by media professionals, and how to evaluate current media research. Different forms of research conducted using local media. Use of Neilson and Arbitron ratings books.

3 Credits

Women, Minorities and the Media (3+0) s

(Same as WMS 380)

Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how accurately the media reflects our society demographically. Presented from a feminist, multiculturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age, and sexual orientation. (Prerequisite: Junior standing.)

JB 389 3 Credits Fall

Internet and Electronic Resources (3+0)

(Same as LS 389)

Introduction to the Internet, its access techniques, its resources, and the principles and skills necessary for using electronic resources. Resources will include OPACs, on-line databases, electronic journals, and information content databases. Students will be expected to have basic skills in library research, computer literacy and/or journalism. Materials fee: \$25.00. (Prerequisites: LS 100X, LS 101X or permission of instructor.)

TR 400 1-3 Credits Media Practicum (1+6) Fall, Spring

Practical training in print or electronic communication. Participation at an approved publication or broadcast station required. (Prerequisite: Senior standing or permission of instructor.)

JB 402 3 Credits

Advanced Photography (2+3) h Continuation of JB 203. Emphasis on continuing development of photographic skills by application of basic technical skills to a variety of areas of photography. Laboratory fee: \$40. (Prerequisite: JB 203 or instructor permission.)

3 Credits Color Photography (2+3) h As Demand Warrants

Techniques of exposing and printing color negatives. Color theory in photography, Advanced electronic flash techniques and studio work. Laboratory fee: \$50. (Prerequisite: JB 203 or instructor permission. Next offered: 1996-97.)

Was 204

**IB 404** 3 Credits Photojournalism (2+3) h Fall

Fundamentals of visual communication through photography; issues and techniques of modern photojournalism; news, features, sports, and the photo essay assignments as encountered at a daily newspaper; preparation of photographs for publication. Students must have basic 35mm camera equipment. Laboratory fee: \$40. (Prerequisite: JB 203 or instructor permission.)

JB 405 3 Credits

Alternate Years

Advanced Photography Seminar (2+3)

(Same as JB 605)

Advanced discussion of photojournalism and photographic topics. Topics range from the photographic essay to the history of photography and working in series. Weekly classroom meetings supplemented by field, studio, and darkroom sessions. Laboratory fee: \$40.00. (Prerequisite: Completion of two or more of JB 402, JB 403, JB 404 and instructor permission.)

3 Credits Broadcasting Programming (3+0)

Alternate Year

Programming practices at radio and TV stations, networks, cable companies and relationship of the practices with sales, audience, and government. (Prerequisites: JB 215 and JB 316 or permission of instructor. Next offered: Fall 1995.)

Alternate Year

Broadcast Station Management (3+0)

Overview of broadcast station management, including management theories, media competition, media research, regulatory issues of concern to managers, organizational planning, and future trends in media. Case studies in practical problem solving techniques. (Prerequisites: Senior standing or permission of instructor. Next offered: Fall 1994.)

JB 411W 3 Credits Alternate Year Advanced Writing for Publication (3+0) h

Writing advanced prose for publication in books or magazines. May be repeated for credit with permission of instructor. Laboratory fee: \$25.00. (Prerequisite: JB 311 or permission of instructor. Next offered: Fall 1994.)

3 Credits

Mass Media Law and Regulation (3+0) s

Common law, statutory law and administrative law that affects the mass media, including libel, copyright, access to the media, constitutional problems, privacy, shield laws, and broadcast regulations. (Prerequisite: JB 301 or permission of instructor.)

JB 415 3 Credits Spring Electronic Newsgathering (2+2)

Electronic news gathering, electronic field production using remote videotape equipment. Scriptwriting, budgets, location sound recording, interview techniques, editing, videography, and other aspects of field production. Materials fee: \$40.00. (Prerequisites: JB 316, 317.)

16 3 Credits Advanced TV News Production (1+6) JB 416 Fall

In-depth experience with television news production including electronic newsgathering. Emphasis on producing broadcast quality news footage and packages. Materials fee: \$40.00. (Prerequisites: JB 316, 317 and 415.)

Alternate Year 3 Credits Magazine Production (2+3)

Writing, photography, editing, design, layout, advertising, and circulation through the editing and publication of a magazine under journalism faculty supervision. Materials fee: \$25.00. (Prerequisite: JB 301. Next offered: Spring 1996.)

3 Credits Public Relations (3+0) h

Techniques, causes and consequences of influencing public opinion; propaganda, mass communication and public relations as instruments of economic, political, and social change. (Prerequisite: JB 301 or permission of instructor.)

3 Credits Ethics and Reporting in the Far North (3+0) (Same as JB 640 and NORS 640)

Historical overview of media coverage of the northern frontier with focus on journalistic ethics. Comparison made to media climate in third world countries. Requires an essay on journalism ethics as related to the First Amendment of the Constitution of the United States for 600 level.

Alternate Year 3 Credits Advanced News Reporting (2+2) h

Advanced reporting of news with emphasis on public affairs. Develops sophisticated news judgment, writing and investigative reporting skills for print and electronic media. Laboratory fee: \$25.00. (Prerequisites: JB 301, junior standing or permission of instructor. Next offered: Spring 1995.)

Spring 3 Credits Multi Media Theory and Practice (2+3) h

Study of theory and techniques needed to produce multi media with a special project for a university or community agency as the required final. For the purpose of this course multi media is defined as computer based, user-driven products with audio, visual and text components and also video or film where appropriate.

Materials fee: \$75.00. (Prerequisites: Understanding of computer graphics (programs like Illustrator, Freehand, etc.) plus some mastery of a specialty like writing, art or television production.)

3 Credits Communication Methodologies (3+0) (Same as COMM 601) Alternate Years

(Same as JB 405)

**Alternate Years** 3 Credits Advanced Photography Seminar (2+3)

Spring 3 Credits JB 611 Advanced Writing for Publication (2+3) h

**Alternate Years** 3 Credits Advanced Mass Media Law and Regulation (3+0) h

Fall 3 Credits Advanced Editing for Professionals (3+0) h

Alternate Years 3 Credits Public Relations Theory and Practice (3+0)

Fall JB 640 3 Credits Ethics and Reporting in the Far North (3+0) (Same as JB 440 and NORS 640)

JB 641 3 Credits Alternate Years Comparative Media Systems (3+0) h

JB 680 Fall 3 Credits Diversity and Media (3+0)

3 Credits Spring Multi Media Theory and Practice (2+3) h (Same as JB 484)

#### **Justice**

JUST 110 Fall, Spring 3 Credits

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.

3 Credits Fall Research Methods (3+0) s

(Same as PS 222) Application of social science research methods to solving scientific and nonscientific questions arising in justice or political science. Basic methods include experimentation and survey research. (Prerequisite: JUST 110 or PS 101.)

Spring 3 Credits Criminology (3+0) s

The study of the major areas of deviant behavior and its relationship to society, law, and law enforcement, including the theories of crime causation. (Prerequisite: JUST 110.)

**JUST 258** 3 Credits

Juvenile Delinquency (3+0) s Survey of the structure and process of the juvenile justice system and the major theories of juvenile delinquency. Materials fee: \$10.00. (Prerequisite: JUST 110. Next offered: 1995-96.)

Alternate Spring 3 Credits Principles of Corrections (3+0) s

An introduction to adult institutions, community-based programs, and theories of incarceration. Correctional programs are examined. (Prerequisite: JUST 110, junior standing. Next offered: 1995-96.)

**JUST 320** Variable Credit Practicum

A research-oriented exercise directed at the resolution of a specific problem within an agency of the criminal justice system. (May be repeated to a maximum of 6

credits.) Spring

JUST 330O/2 3 Credits Law, Justice and Society (3+0) s Study of moral issues related to the proper reach, extent, and enforcement of the

law. (Prerequisites: PS 101 or JUST 110.) Spring JUST 335W 3 Credits Women, Crime and Justice

(Same as WMS 335) Interaction of women with the American justice system focusing on women as victims, offenders and working professionals in justice agencies. Materials fee: \$10.00. (Prerequisites: JUST 110 and junior standing.)

Rural Justice in Alaska (3+0) s

Indian justice system including historical development of the Federal/Indian relationship, constitutional basis for federal power over Indians, relationship of tribes in Alaska to the state and federal justice agencies, the effect of urban life on native peoples, the issue of cultural conflict when imposing the western system of justice on native offenders. (Prerequisites: JUST 110 and junior standing.)

3 Credits Police Problems (3+0)

Analysis of the nature of coercive power and the special problems faced by people who assume the responsibility of coercing others; how coercive power affects personality and how personality affects the way different types of people respond to the challenge and responsibilities of using coercive means; conditions that discourage excessive use of coercive means and encourage police officers to develop in morally and politically mature ways. Materials fee: \$10.00. (Prerequisites: JUST 110 and junior standing.)

3 Credits **JUST 352** 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 Crdits Spring

Introduction to Legal Research and Writing (3+0) (Same as PS 404)

Methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101 or JUST 110, JUST/PS 303.)

**JUST 452** 3 Credits Alternate Spring

Comparative Criminal Justice (3+0) s

The study of crime problems, legal systems and the organization and performance of criminal justice agencies (police, courts, corrections, juvenile) in selected countries. (Prerequisites: JUST 110 and junior standing. Next offered: 1996-97.)

JUST 460O/2 3 Credits Political Philosophy of Crime Control (3+0) s

Major concepts of the structure and process of criminal justice revisited with emphasis on current issues. (Prerequisite: JUST 110 and senior standing. Restricted to Justice majors only.)

3-9 Credits Internship

Fall, Spring

Supervised work experience in criminal justice agencies. (Prerequisite: Permission of director of intern program. Note: Department approval required for 9

**JUST 492** Variable Credit Seminar

Fall, Spring

Various topics of current interest and importance to the justice major will be presented. Topics will be announced prior to each offering. (Prerequisites: JUST 110 and junior standing and permission of instructor.)

#### Library Science

LS 100X 1 Credit Library and Information Strategies (1+0)

Fall

Principles of information organization and how libraries can provide access to information and scholarly resources. Emphasis on use of a library via distance delivery methods. For students who do not have direct physical access to the Rasmuson Library.

1 Credit

Fall, Spring

Library Information and Research (0+0) An introductory course which presents library information-finding and research strategies and principles of information organization and retrieval. Printed, electronic and microform resources are covered. This is a lecture-based course.

LS 307

07 1 Credit Information Sources for Educators (1+0)

(Same as ED 307)

A self-paced study course providing a survey of major library reference sources and computer databases for education/education related majors. Class meets for an introductory session and a computer literature search demonstration; otherwise, the student works at his individual rate and on his own time schedule.

As Demand Warrants

09 1 Credit Information Resources (1+0)

Information organization, scholarly communication and research reporting for a specific discipline, including major disciplinary reference sources and bibliographic databases in the disciplines. This course should be taken before or during the semester when the student prepares a term paper for an upper division course. Course may be repeated when there is a change in discipline. (Prerequisite: Junior standing in specific discipline or permission of the instructor. LS 101 recommended.)

LS 389 3 Credits Fall

Internet and Electronic Resources (3+0)

Introduction to the Internet, its access techniques, its resources, and the principles and skills necessary for using electronic resources. Resources will include OPACs, on-line databases, electronic journals, and information content databases. Students will be expected to have basic skills in library research, computer literacy and/or journalism. Materials fee: \$25.00. (Prerequisites: LS 100X, LS 101X or permission of instructor.)

LS 482 3 Credits Alternate Spring

History of Circumpolar Research (3+0) s (Same as HIST 482 and NORS 682)

Studies the history of arctic and subarctic sciences through geological, biological and atmospheric sciences and the people through anthropology, ethnography, linguistics and history. Cold regions engineering and technology research in education, government and law covered. The literature and source material on these fields analyzed. (Prerequisite: HIST 110 or 115 or ANTH 242 or BIOL 104 or permission of the instructor. Next offered: 1995-96.)

#### Linguistics

**LING 101** 3 Credits

Fall, Spring

Nature of Language (3+0) h The study of language: systematic analysis of human language and description of its grammatical structure, distribution, and diversity. Also available via Independent Learning.

3 Credits

Alternate Fall

Languages of the World (3+0) h

A comprehensive survey of the world's languages | past and present. Topics include genetic relationships among languages, linguistic change, language universals, language classification, and language families, as well as the interaction of culture and language. (Next offered: 1995-96.)

**LING 262** 3 Credits

As Demand Warrants

Methods of Teaching English as a Second Language and Standard English as a Second Dialect (3+0)

(Same as ED 262)

Covers basic underlying assumptions about the nature of language, language learning, language teaching, characteristics of good language learners, optimal language learning environments, and what affect they have on teaching styles. Roles of the second language teacher and their appropriateness covered. Presents techniques and activities consistent with specific anguage teaching methods and adaptation of these methods to the needs of western Alaskan classrooms. (Prerequisite: Classroom experience.)

LING 303 3 Credits Spring

Language Acquisition (3+0) (Same as ED 303)

Theories of the acquisition and development of first and second languages, including consideration of biological and sociocultural factors. Survey of traditional and contemporary models, and implications for pedagogy and public policy. (Prerequisite: LING 101.)

Alternate Fall

Introduction to Phonetics and Phonology (3+0) h

Scientific study of human speech sounds, mechanism of their production, and sound systems of languages. (Prerequisite: Upper division standing or permission of instructor. Next offered: 1995-96.)

**LING 320** 3 Credits **Alternate Spring** 

Introduction to Syntactic Theory (3+0) h

Study of principles and processes of sentence construction in language. (Prerequisites: LING 101 or its equivalent, at least junior standing or permission of the instructor. Next offered: 1995-96.)

**LING 340** G 340 3 Credits Aspects of Bilingualism (3+0) h

Every Third Spring

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: 1996-97.)

3 Credits

Alternate Fall

Theory and Methods of Second Language Teaching (3+0) (Same as LING 610)

Theory and practice of teaching a second language, including methodological approaches, second language acquisition theory, materials, and testing. (Next offered: 1996-97.)

G 420 3 Credits Semantics (3+0) h **LING 420** 

**Every Third Spring** 

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: 1997-98.)

Was 350

Alternate Fall

Alternate Fall

LING 430 3 Credits Historical Linguistics (3+0) h (Same as LING 630)

Introduction to comparative and historical linguistics: methods of linguistic reconstruction, historical change, genetic relationships, dialectology. Includes Indo-European and Alaskan languages. (Prerequisite: LING 318. Next offered: 1996-97.)

LING 450 3 Credits Every Third Spring Language Policy and Planning (3+0) s

Consideration of minority languages, including Alaskan Native Languages, in light of their histories, current status, and factors affecting future maintenance. Materials fee: \$15.00. (Next offered: 1996-97.)

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: 1996-97.)

LING 610 3 Credits Alternate Fall
Theory and Methods of Second Language Teaching (3+0)
(Same as LING 410)

LING 630 3 Credits
Historical Linguistics (3+0)
(Same as LING 430)

# Marine Science and Limnology

MSL 111X 4 Credits Juneau Alternate Fall
The Oceans (3+3) n Fairbanks Spring

Study of the oceans from the broad perspective offered by combining insights from biology, physics, chemistry, and geology. Topics include the evolution of the oceans and marine life, forces acting on water and the resulting currents and waves, and relationships between the physics and chemistry of water bodies and their biological productivity. Societal questions related to fisheries management, global climate change, and pollution will be discussed. Laboratory fee: \$20.00. (Prerequisites: High school biology and algebra. High school chemistry or physics desirable.)

MSL 411 3 Credits Juneau As Demand Warrants Current Topics in Oeanographic Research (3+0)Fairbanks Alternate Fall

Study of research problems from biology, chemistry, geology and physics. Topics include sea floor hydrothermal vents and their indigenous communities, manganese nodules, tsunami prediction, radioisotopes in the sea, Bering Sea productivity, and the role of the ocean in global warming due to fossil fuel carbon dioxide. (Prerequisites: Four semesters of natural sciences at 100 level or above or permission of the instructor. Next offered Fairbanks: 1996-97.)

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: 1995-96.)

MSL 450 5 Credits Alternate Summer Biology and Ecology of Marine Invertebrates (3+9) (Same as MSL 651)

Advanced understanding of marine invertebrates in an evolutionary and ecological context. Animals studied according to habitat phylogenetic relationships. Field and laboratory work at the Kasitsna Bay Laboratory on Kachemak Bay. Students are required to write a research proposal related to the course subject matter. (Prerequisites: Graduate standing, one year of biology and permission of instructor. Basic courses in ecology and invertebrate zoology recommended. Next offered: Summer 1996.)

MSL 460 1-3 Credits Alternate Summer Marine Studies for Science Teachers

Field studies in oceanography and marine biology emphasizing a hands-on approach to scientific observation, data collection and analysis. Small boat and beach excursions. Students may enroll for one, two, or three weeks at 1 credit per week. Two additional credits may be earned by students concurrently enrolled in MSL 498 and completing their own investigative research project. Course offered at the Kasitsna Bay Laboratory. (Prerequisites: B.S. or B.A. degree and collegelevel science background or permission of instructor(s). Next offered: Summer 1997.)

MSL 610 3 Credits Marine Biology (3+0) Spring

MSL 611 5 Credits Alternate Summer Field Problems in Marine Biology (0+Arr)

MSL 615 3 Credits Alternate Fall Physiology of Marine Organisms (2+0)

MSL 619 3 Credits Alternate Spring Biology of Marine Mammals (3+0)

MSL 620 4 Credits
Physical Oceanography (3+3)

MSL 621 3 Credits Alternate Fall
Polar Marine Science (3+0)

MSL 622 3 Credits Alternate Spring Satellite Oceanography (3+0)

MSL 625 2 Credits Shipboard Techniques (1+3)

MSL 629 3 Credits
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 Biological Oceanography (3+0)

MSL 651 5 Credits
Biology and Ecology of Marine Invertebrates (3+9)
(Same as MSL 450)

MSL 652 2 Credits
Marine Ecosystems (3+0)

Alternate Spring

MSL 660 3 Credits Spring
Chemical Oceanography (3+0)
(Same as CHEM 660)

MSL 661 2 Credits Alternate Spring
Isotope Techniques for Aquatic Sciences (2+0)

MSL 663 3 Credits Alternate Spring
Biochemistry and Molecular Biology of Photosynthesis (3+0)
(Same as BIOL 663 and CHEM 663)

MSL 664 3 Credits
Algal Biology: Physiological Ecology (3+0)
(Same as BIOL 664)

Alternate Spring

MSL 665 3 Credits Alternate Spring
Microbial Biochemistry (2+3)

MSL 670 2 Credits Alternate Fall
Nutrient Dynamics (2+0)

MSL 673 3 Credits
Microbial Biochemistry and Bioenergetics (3+0)
(Same as CHEM 673)

Alternate Spring

MSL 680 3 Credits Alternate Fall Physical-Chemical Limnology (3+0)

#### **Mathematics**

No student will be permitted to enroll in a course having prerequisites if a grade lower than C is received in the prerequisite course.

#### DEVELOPMENTAL MATHEMATICS

DEVM 050 3 Credits
Basic College Mathematics (3+0)
Fall, Spring

Operations with whole numbers, fractions, decimals, percents and ratios, signed numbers, evaluation of algebraic expressions and evaluation of simple formula. Metric measurement system and geometric figures. Also available via Independent Learning.

2 Credits

Alternative Approaches to Math: Basic College Math (2+0)

(Same as CCC 052)

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.)

3 Credits

Fall, Spring

Fall

Elementary Algebra (3+0)

First year high school algebra. Evaluating and simplifying algebraic expressions, solving first degree equations and inequalities, integer exponents, polynomials, factoring, rational expressions, equations and graphs of lines. Also available via Independent Learning. (Prerequisite: DEVM 050 or placement.)

**DEVM 061** 1 Credit Independent Learning Only

Review of Elementary Algebra

Designed to assist students in reviewing material covered by DEVM 060. Individuals who have not previously taken an elementary algebra course are recommended to enroll in DEVM 060.

**DEVM 062** 3 Credits Fall, Spring

Alternative Approaches to Math: Elementary Algebra (3+0) (Same as CCC 062)

Elementary algebra. Algebraic equations, first-degree equations, polynomials, factoring, integral exponents and rational expressions using alternative teaching styles tailored to the specific cultural backgrounds of the students. (Prerequisites: DEVM 050 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**DEVM 065** 1-3 Credits Mathematics Lab (0+3-9) Fall, Spring

Designed to assist students in reviewing and reinforcing course concepts covered by DEVM 050, 060 and 070. Consists of instruction which may include lab instruction, individual student work or group work. Recommended for students who need more time and help to master the material in Developmental Math courses. (rerequisite: Placement.)

**DEVM 070** 3 Credits Fall, Spring

Intermediate Algebra (3+0) Second year high school algebra. Operations with rational expressions, radicals, rational exponents, logarithms, inequalities, quadratic equations, linear systems, functions, Cartesian coordinate system and graphing. Also available via Independent Learning. (Prerequisite: DEVM 060 or placement.)

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.

3 Credits

Fall, Spring

Alternative Approaches to Math: Intermediate Algebra (3+0) (Same as CCC 072)

Intermediate algebra. Exponents, radicals, graphing, systems of equations, quadratic equations, inequalities and complex numbers using alternative teaching styles tailored to specific cultural backgrounds of the students. (Prerequisites DEVM 060 or appropriate placement test scores. Students must meet federal eligibility requirements.)

**DEVM 081** 1 Credit Independent Learning Only

Review of Basic Geometry

High school geometry without formal proofs. Topics include basic definitions, measuremen, parallel lines, triangles, polygons, circles, area, solid figures and volume. (Prerequisite: DEVM 060.)

**DEVM 082** 1 Credit Fall, Spring

Hands-On Geometry (1+0)

Basic concepts and uses of geometry. Emphasis on "hands-on" and applied problems. (Prerequisite: A solid knowledge of arithmetic -- no algebra required.)

MATHEMATICS TS Math 13 | X Fall, Spring

Functions for Calculus (3+0) m

A study of algebraic, logarithmic, and exponential functions, together with selected topics from algebra. Note: No credit may be earned for more than one of MATH 107 or 161. Also available via Independent Learning. (Prerequisites: Two years of high school algebra and MATH 107 placement or higher.)

MATH 108 2-3 Credits

Fall, Spring

Trigonometry (2-3+0) m

A study of the trigonometric functions. Also available via Independent Learning. (Prerequisite: MATH 107 or concurrent registration in MATH 107.)

MATH 131X 3 Credits

Fall, Spring

Concepts and Contemporary Applications of Mathematics (3+0) m Applications of mathematics in modern life including applications of graph theory in management science; uses of probability and statistics in industry, government and science; and applications of geometry to engineering and astronomy. Problem solving emphasized. (Prerequisites: High school geometry and algebra II.)

3 Credits

Concepts of Mathematics (3+0) m

Mathematical thought and history for students with a limited mathematical background. Mathematical reasoning rather then formal manipulation. Topics may include number theory, topology, set theory, geometry, algebra and analysis. (Prerequisites: MATH 131X.)

**MATH 161** 3 Credits

Algebra for Business and Economics (3+0) m

Functions of one and several variables with attention to linear, polynomial, rational, logarithmic, and exponential relationships. Geometric progressions as applied to compound interest and present value. Linear systems of equations and inequalities. Note: No credit may be earned for more than one of MATH 107 or 161. (Prerequisites: Two years of high school algebra and MATH 161 placement or higher.)

**MATH 181** 3 Credits Finite Math (3+0)

As Demand Warrants

Topics in matrix theory including Markov chains, linear programming, simplex method. Partitions, binomial and multinomial theorems, counting techniques, probability and finite stochastic processes. May be used as a prerequisite for STAT 200. (Prerequisite: DEVM 070 or placement.)

4 Credits MATH 201X 4 Credits Fall, Spring Fall, Spring

MATH 202X 4 Credits Fall, Spring

Calculus (4+0) m

Techniques and application of differential and integral calculus, vector analysis, partial derivatives, multiple integrals, and infinite series. Note: No credit may be earned for more than one of MATH 200, 262 or 272. MATH 200 and 201 also

available via Independent Learning. (Prerequisites: MATH 107, 108.) **MATH 205** 3 Credits

Fall

Mathematics for Elementary School Teachers I (3+1) m

Elementary set theory, numeration systems, and algorithms of arithmetic, divisors, multiples, integers, introduction to rational numbers. Materials fee: \$10.00, Also available via Independent Learning. (Prerequisites: Two years high school mathematics, including at least one year of algebra. Restricted to B.Ed. students; others by permission of instructor.)

**MATH 206** 3 Credits

Spring

Mathematics for Elementary School Teachers II (3+1) m

A continuation of MATH 205. Real number systems and subsystems, logic, informal geometry, metric system, probability, and statistics. Materials fee: \$10.00. Also available via Independent Learning. (Prerequisite: MATH 205.)

**MATH 215** 2 Credits

Introduction to Mathematical Proofs (2+0) m

Emphasis on proof techniques with topics including logic, sets, relations, equivalence induction, number theory, graph theory and congruence classes. In addition, a rigorous treatment of topics from calculus could be given. (Prerequisites: MATH 200, 201 or concurrent with 201 or instructor permission.)

MATH 262X 4 Credits

Fall, Spring

Calculus for Business and Economics (4+0) m

Ordinary and partial derivatives. Maxima and minima problems, including the use of Lagrange multipliers. Introduction to the integral of a function of one variable. Applications include marginal cost, productivity, revenue, point elasticity of demand, competitive/complementary products, consumer's surplus, etc. Note: No credit may be earned for more than one of MATH 200, 262 or 272. (Prerequisite: MATH 161.)

Fall

MATH 272X 3 Credits Calculus for Life Sciences (3+0) m

Differentiation and integration with applications to the life sciences. Note: No credit may be earned for more than one of MATH 200, 262 or 272. (Prerequisites: MATH 107 and 108.)

**MATH 302** 3 Credits

Fall, Spring

Differential Equations (3+0)

Nature and origin of differential equations, first order equations, and solutions, linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, and applications. (Prerequisite: MATH 202.)

MATH 305 3 Credits Geometry (3+0)

As Demand Warrants

Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine gemetry, projective geometry, and topology. (Prerequisite: MATH 202 or permission of instructor.)

Alternate Spring Introduction to the History and Philosophy of Mathematics (3+0)

Includes a detailed study of certain important periods of history as examined by such thinkers as Plato, B. Russell, D. Hilbert, L.E.J. Brouwer and K. Godel. For students of mathematics, science, history and philosophy. (Prerequisite: MATH 202 or permission of instructor. Next offered: 1996-97.)

**MATH 307** 3 Credits Fall

Discrete Mathematics (3+0)

Logic, counting, sets and functions, recurrence relations graphs and trees. Additional topics chosen from probability theory. (Prerequisite: MATH 201 or permission of instructor.)

**MATH 308** 3 Credits

Abstract Algebra (3+0)

Theory of groups, rings and fields. (Prerequisite: MATH 215 or permission of instructor. Recommended: MATH 307 and/or MATH 314.)

**MATH 310** 3 Credits

Numerical Analysis (3+0)

Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, and error analysis. (Prerequisite: MATH 302 or permission of instructor. A knowledge of FORTRAN or BASIC is desirable. Also a knowledge of differential equations is desirable.)

**MATH 314** 3 Credits Fall, Spring

Linear Algebra (3+0) Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations, and characteristic values. Inner product spaces. (Prerequisite: MATH 201.)

**MATH 371** 3 Credits Probability (3+0)

As Demand Warrants

Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions, and characteristic functions. Materials fee: \$5.00. (Prerequisite: MATH 202.)

MATH 401W 3 Credits MATH 402W 3 Credits

Fall Spring

Advanced Calculus (3+0)

A rigorous treatment of one and several dimensional calculus. Includes mappings from n-space and their continuity, differentiability and integrability properties as well as sequences and series. Materials fee: \$10.00. (Prerequisites: MATH 215 and 202 for MATH 401; MATH 401 for MATH 402.)

MATH 404W,O

3 Credits

As Demand Warrants

Topology (3+0) Introduction to topology, set theory, open sets, compactness, connectedness, product spaces, metric spaces and continua. (Prerequisites: MATH 202 and 215. Recommended: MATH 314 and/or 308.)

**MATH 408** 3 Credits As Demand Warrants

Mathematical Statistics (3+0)

Distribution of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, and test of hypotheses including various criteria for tests. Materials fee: \$5.00. (Prerequisites: MATH 371 and STAT 200.)

**MATH 412** 3 Credits Differential Geometry (3+0) Alternate Spring

Introduction to the differential geometry of curves, surfaces, and Riemannian manifolds. Basic concepts covered include the Frenet-Serret apparatus, surfaces, first and second fundamental forms, geodesics, Gauss curvature and the Gauss-Bonnet Theorem. Time permitting topics such as minimal surfaces, theory of hypersurfaces and/or tensor analysis may be included. (Prerequisites: MATH 314. Corequisite: MATH 402 or permission of instructor. Next offered: 1996-97.)

Applied Analysis I (4+0)

Vector calculus, including gradient, divergence, and curl in orthogonal curvilinear coordinates, ordinary and partial differential equations and boundary value problems, and Fourier series and integrals. Materials fee: \$10.00. (Prerequisite: MATH 302.)

**MATH 422** 4 Credits Spring

Applied Analysis II (4+0) Topics in multi-variate calculus, including boundary value problems and partial differential equations of mathematical physics complex functions, including series, integrals, residues, conformal mapping, and potential theory. Materials fee: \$10.00. (Prerequisite: MATH 421.)

MATH 423 3 Credits As Demand Warrants

Applied Mathematics (3+0)

Topics to be determined at the time of registration to fit the needs of the students. (Prerequisite: Senior standing or permission of instructor.)

**MATH 460** 3 Credits Fall

Mathematical Modeling (3+0)

Analysis, construction, and interpretation of mathematical models. Applications to the physical, biological, and social sciences. Topics selected from combinatorics, probability, statistics, perturbation, numerical analysis, and differential equations. Students develop a modeling project. Materials fee: \$10.00. (Prerequisite: MATH 201. Recommended: One or more of MATH 302, 314, STAT 300, 401; and some programming experience.)

**MATH 490** 1 Credit

Senior Seminar (1+0) Advanced topics selected from areas outside the usual undergraduate offerings. A substantial level of mathematical maturity is assumed. (Prerequisites: At least one of MATH 308 or 401.)

**MATH 600** 1 Credit Teaching Seminar (1+0)

**MATH 611** 

Fall, Spring

**MATH 608** 3 Credits

As Demand Warrants

Partial Differential Equations (3+0) 3 Credits

Alternate Fall

**MATH 612** 3 Credits Mathematical Physics (3+0) Alternate Spring

(Same as PHYS 611, 612)

Alternate Spring

**MATH 615** 3 Credits Applied Numerical Analysis (3+0)

**MATH 621** 3 Credits Advanced Applied Analysis (3+0)

Alternate Fall

**MATH 622** 3 Credits As Demand Warrants

Topics in Applied Analysis (3+0) **MATH 630** 3 Credits

Advanced Linear Algebra (3+0)

As Demand Warrants

**MATH 631** 4 Credits Fall

Fall

Spring

Theory of Modern Algebra I (4+0)

As Demand Warrants

3 Credits Theory of Modern Algebra II (3+0)

**MATH 641** 4 Credits Real Analysis I (4+0)

**MATH 642** 3 Credits Real Analysis II (3+0) As Demand Warrants

4 Credits Complex Analysis (4+0)

**MATH 651** 4 Credits Topology (4+0)

**Alternate Spring** 

**MATH 655** 3 Credits As Demand Warrants

Algebraic Topology (3+0)

Alternate Spring

**MATH 660** 3 Credits Advanced Mathematical Modeling (3+0)

**MATH 661** 3 Credits Optimization (3+0)

As Demand Warrants

(Same as CS 661)

Applied Combinatorics and Graph Theory (3+0)

**Alternate Spring** 

# **Mechanical Engineering**

A \$25.00 per semester student computing facility user fee is assessed for School of Engineering courses. This fee is in addition to any material/laboratory fees.

1 Credit

Aerodynamics for Pilots (1+1) Nature of the atmosphere, elementary airfoil theory, drag and power requirements, performance computations, and introduction to stability. For those with minimum mathematical background who desire a basic understanding of flight. (Prerequisites: High school algebra and general science.)

ME 302 4 Credits Spring Mechanical Design I (3+3)

Kinematics and dynamics of mechanisms. Analysis and design of displacements, velocities, accelerations, and forces in linkages, cams, and gear systems by analytical, experimental, and computer methods. Laboratory fee: \$15.00. (Prerequisites: ES 208, 210.)

Spring ME 313 3 Credits

Mechanical Engineering Thermodynamics (3+0)

Continuation of ES 346 including power and refrigeration cycles (Rankine, Brayton, Otto, and Diesel), compressible flow (isentropic, shock waves, and flow in ducts with friction), combustion and gas vapor mixtures. (Prerequisites: ES 341, 346).

3 Credits

Industrial Processes (2+3)

Manufacturing processes used in modern industry. Primary and secondary manufacturing processes, casting, hot and cold forming, machining, welding, and mass production tools and techniques as related to economic and efficient product design. Laboratory fee: \$35.00.

334 3 Credits
Elements of Material Science/Engineering (2+3) Fall ME 334

(Same as ES 334)

Properties of engineering materials. Crystal structure, defect structure, structure and properties, aspects of metal processing, heat treatment, joining, testing, and failure analysis for engineering applications and design. Laboratory fee: \$15.00. (Prerequisites: CHEM 106 and PHYS 212.)

ME 403 4 Credits Spring Mechanical Design II (3+2)

Design and analysis of machines by analytical, experimental and computer methods. Identification of requirements and conceptual design of mechanical systems, detailed design of components, strength, life, reliability, and cost analysis. Laboratory fee: \$15.00. (Prerequisites: ME 302 and ES 331.)

ME 404 3 Credits Spring Stress Analysis (3+0)

Analysis of the strength, stability and rigidity of machine components by analytical and computer methods. (Prerequisites: ES 331, MATH 302, ES 201.)

ME 408 3 Credits

Dynamics of Systems (2+2)

Response of mechanical systems to internal and external forces. Free and forced vibration, random vibration. Discrete and continuous systems. Vibration parameter measurements and stability criteria. Laboratory fee: \$15.00. (Prerequisites: ES 201, 301.)

ME 409 3 Credits Controls (2+2)

Analysis and design of control systems. Block diagrams, transfer functions, and frequency analysis. Closed loop systems and system stability. Industrial controllers and system compensation. Laboratory fee: \$15.00. (Prerequisites: ES 201, 301. Corequisite: ME 408.)

ME 414 3 Credits 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.)

2 Credits Thermal Systems Laboratory (1+3)

Testing and evaluation of components and energy systems such as pumps, fans, engines, heat exchangers, refrigerators, and heating/power plants. Laboratory fee: \$15.00. (Prerequisites: ES 341, ME 313, ME 441.)

ME 416 3 Credits Design of Mechanical Equipment for the Petroleum Industry (3+0)

Design, selection, and operation of euipment used in production and processing of crude oil and gas. Instrumentation and control systems used with mechanical equipment. (Prerequisites: ES 341, 346.)

ME 441 3 Credits Spring

Heat and Mass Transfer (3+0)

Fundamental concepts of heat and mass transfer including steady state and transient conduction, laminar and turbulent free and forced convection, evaporation, condensation, ice and frost formation, black body and real surface radiation, and heat exchangers. (Prerequisite: ES 346.)

ME 450 3 Credits Alternate Fall Theory of Flight (3+0)

Airfoil theory in subsonic flow. Performance, stability and control of aircraft. Aircraft design. (Prerequisite: ES 346. Corequisite: ES 341.)

Alternate Spring Aerodynamics (3+0)

Aerodynamics of non-lifting and lifting airfoils in incompressible irrotational flow, wings of finite span, the Navier-Stokes equations, boundary layers, numerical methods, supersonic and transonic flow past airfoils, rocket aerodynamics, rocket drag. (Prerequisites: ES 341, ES 346, ME 313. Next offered: 1996-97.)

Introduction to Astrodynamics (3+0)

Geometry of the solar system, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories. Elements of orbit determination. (Prerequisite: ES 210.)

3 Credits Propulsion Systems (3+0)

Basic principles of propulsion: turbojet, turboprop and rocket engines. Fluid mechanics and thermodynamics of flow in nozzles, compressors, combustors and turbines. Liquid and solid propellant rockets. Heat transfer in rocket motors and nozzles. Design and testing methods for components of propulsion systems. (Prerequisites: ES 341, ME 313 and senior standing. Next offered: 1995-96.)

3 Credits

Energy and the Environment (3+0) (Same as ME 658 and EQE 458 and 658)

Overview of basic concepts of energy supply, demand, production of heat and power impacts of energy use on the environment. Extensive discussion of mitigation technologies and strategies for meeting energy needs while preserving environmental quality. (Prerequisites: MATH 201, PHYS 103, CHEM 106 and junior standing or above.)

ME 464 3 Credits Spring

Corrosion Engineering (3+0) Principles and forms of corrosion and factors that affect it. Methods of testing and measurement, control and prevention are examined. Laboratory fee: \$15.00. (Prerequisite: Senior standing in engineering.)

ME 487W.O 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)

3 Credits As Demand Warrants Power Analysis (3+0)

3 Credits ME 631 Alternate Fall Advanced Mechanics of Materials (3+0)

ME 634 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 658 3 Credits Fall Energy and the Environment (3+0) (Same as ME 458 and EOE 458 and 658)

ME 685 **Alternate Spring** 3 Credits Arctic Heat and Mass Transfer (3+0)

ME 687 3 Credits Alternate Spring Arctic Materials Engineering (3+0)

# Mechanics-Diesel/Heavy Equipment

**MECN 101** 7 Credits Heavy Equipment I Spring

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 Heavy Equipment II

Spring

Introduction to electrical and hydraulic systems, and crawler tractor undercarriage final drive and steering clutches. Materials fee: \$100.00.

1 Credit

As Demand Warrants

Basic Auto Maintenance (1+0) Covers basic automobile system functions, owner maintenance of electrical, cooling, and fuel systems, auto lubricants and fluids, tires and wheels, tune-ups, and cold weather maintenance and operation. For the person without mechanical experience. Materials fee: \$10.00.

# Military Science

**MILS 100** 1 Credit **MILS 200** 1 Credit Fall, Spring Fall, Spring

Outdoor Skills Laboratory (0+2)

Fundamentals of orienteering, marksmanship, arctic survival, skiing, and snowshoeing. Emphasis on practical work. The same skills are not taught both semes-

MILS 111 2 Credits

U.S. Army and Society I (2+0) Origin, development, organization and function of the American military. Struc-

ture and purpose of the U.S. Army and ROTC program and the civilian-military relationship. An introduction to chain of command and small unit organization includes characteristics of officers and their relation to subordinates.

2 Credits

Spring

U.S. Army and Society II (2+0) Survey of human behavior and leadership in the army and military environment. Role of the soldier, military training, discipline, ethics, and professionalism presented. Introduction to behavioral dimensions and management techniques used by successful officer-leaders.

2 Credits

Spring

Map Reading and Orienteering (2+0) Introduction to military and civilian topographical maps and their related informational content. Use of the lensatic compass and map as navigational instruments. Exercises in orienteering complement academic instruction.

2 Credits

U.S. Defense and World Affairs (2+0) s
Effect of current world events on the military leader and defense structure. Relationship of historical and political events to the decision- making processes. Socio-political influence on military thought of the effect of geography on the economic base of a nation. Current military strengths and weaknesses of power groups.

**MILS 202** Credits Spring

Communications Arts for the Military Leader (2+0)
Principles of public speaking and instructional techniques. Emphasis on development of functional skills through rehearsed and unrehearsed presentations. Use of audiovisual aids. Intensive practice in developing lesson plans and skill in presentation.

**MILS 250** 

**Basic Camp** 

A six-week camp in basic military skills and leadership experience in preparation for entrance into the advanced course. For students who did not take the basic course. (Prerequisite: At least two years of schooling remaining upon completion of camp. Admission by arrangement with professor of military science.)

**MILS 300 MILS 400**  Fall, Spring

Outdoor Skills Laboratory (0+2)

Advanced training in orienteering, marksmanship, arctic survival, skiing and snowshoeing. Students assist in instruction and in organizing and managing the lab. May be repeated for a maximum of two credits at each level. (Prerequisite: Junior or senior standing in military science.)

MILS 301 3 Credits Spring

heory and Dynamics of Tactical Operations (3+1) Concepts, principles, and techniques applicable to the doctrine of tactical operations. Emphasizes role of small unit leader in managing individuals and small units in offensive, defensive, and specialized combat operations. Practical application of performance objectives and the integration of support functions emphasized. Laboratory in leadership development. (Prerequisite: Junior standing in MILS or permission of instructor.)

**MILS 303** 3 Credits Advanced Leadership (3+1) Fall

(Same as BA 303)

An interdisciplinary approach to the study of effective leadership in the contemporary environment. Analysis of individual skills, emphasizing a behavioral approach to effective decision making. For ROTC cadets, class and laboratory includes preparation for MILS 350. (Prerequisite: Junior standing in MILS or permission of instructor.)

**MILS 350** 3 Credits

**Advanced Camp** Six- week camp structured as a leadership workshop allowing students to utilize leadership skills in a variety of situations in a military environment. (Prerequisites: Must be enrolled as an advanced course cadet and have completed MILS III.)

2 Credits

**Cadet Troop Leadership Training** 

Three-to-five-week full-time leadership training and development, serving in leadership positions with the active Army. Application of leadership and management principles in real life junior officer situations/positions. (Prerequisites: Must be enrolled as an advanced course cadet and completed MILS III and MILS 350.)

3 Credits

Seminar on Tactical Operations (3+1) s

A study of tactical operations from the time of Hannibal to the present. Introduces a variety of historical examples where application or violation of sound tactical principles, or various styles and types of leadership, have produced success or failure. (Prerequisite: Senior standing in MILS or permission of instructor.)

**MILS 404** 3 Credits Spring

Seminar in Leadership and Management (3+0)

Overview of management principles and practices, and military justice. Orientation on various military administrativ, training, logistical, and maintenance tools. Class includes preparation for commissioning. (Prerequisite: Senior standing in MILS.)

**MILS 442** 3 Credits Fall

History of the American Military (s)

(Same as HIST 442)

The military's place in American life and society from the Colonial era to the present. Role of the military institution in shaping the nature of American society while reflecting the character of the society it serves. Also available via Independent Learning. (Prerequisite: Sophomore standing or permission of instructor.)

# Mineral Preparation Engineering

**MPR 601** 3 Credits Froth Flotation (2+3) Fall

**MPR 606** 3 Credits Plant Design (2+3)

Alternate Fall

MPR 611 3 Credits Alternate Fall

Hydrometallurgy (3+0)

Alternate Fall

**MPR 612** Solution Concentration and Purification (3+0)

**MPR 684** 3 Credits Mineral Preparation Research (1+6) Spring

Fall

**MPR 688** 1 Credit

Graduate Seminar I (1+0)

(Same as MIN 688)

# Mining Engineering

MIN 101 3 Credits Fall

Minerals, Man and the Environment (3+0)

general survey of the impact of the mineral industries on man's economic, political, and environmental systems. Course fee: \$20.00.

MIN 102 1 Credit Introduction to Minerals Industry (1+0)

Fundamentals of the mineral industry.

2 Credits Introduction to Mining Engineering (2+0) Fall

Spring

Concepts and methods utilized in mining engineering. Practical training in safety and mining unit operations.

1 Credit 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. Course fee: \$50.00.

3 Credits Mine Surveying (2+3) Fall

Surveying principles for surface and underground control of mining properties. Field and office procedures for preparation of maps and engineering data. (Prerequisites: MATH 107, 108.)

MIN 301 3 Credits Spring

Mine Plant Design (3+0) Quantitative study and design of various systems and equipment used in haulage, hoisting, drainage, pumping and power (compressed air and electricity). Importance of the natural conditions and production level in the equipment selection procedure emphasized. (Prerequisites: ES 208, 307, 341.)

MIN 302 3 Credits Spring

Underground Mine Environmental Engineering (2+3) Analysis of underground mine ventilation systems, ventilation planning, design and engineering control, mine ventilation network. (Prerequisite: MIN 103.)

3 Credits

Introduction to Metallurgy (3+0)

Overview of the extractive metallurgy of gold, silver, and platinum group metals; from gravity concentration to cyanidation and smelting. (Prerequisites: CHEM 211, PHYS 212. Next offered: 1995-96.)

MIN 313 3 Credits Alternate Fall

Introduction to Mineral Preparation (2+3) Elementary theory and principles of unit processes of liberation, concentration, and solid-fluid separation as applied to mineral beneficiations. Materials fee: \$20.00. (Prerequisite: Junior standing or permission of the instructor. Next offered: 1995-96.)

3 Credits Alternate Spring

Unit Preparation Processes (1+6) Liberation and concentration by gravity, electro-magnetic, and electrostatic methods. Economic analysis and flowsheets for different ores developed. (Prerequisite: MIN 313. Next offered: 1995-96.)

3 Credits Spring Rock Mechanics (2+3)

Physical and mechanical properties of rock; rock mass classification systems; stress distribution in the vicinity of mining openings, design criteria and support for structures in rock mass, instrumentation and monitoring of opening's stability as well as strata control and surface subsidence. (Prerequisites: ES 331 and STAT 451 or equivalent.)

**As Demand Warrants** 1 Credit Practical Engineering Report

Twelve weeks of practical work in some industry or project related to the student's option, or equivalent. To be taken during one or more of the summer vacations prior to the fourth year.

**MIN 407W** 3 Credits Fall

Mine Reclamation and Environmental Management (3+0) Principles and practices of mine reclamation and waste disposal Pre-mining

assessments and plans. Design of settling and tailings ponds and waste impoundments. Stream bed restoration and revegetation. Course fee: \$20.00. (Prerequisite: ES 341.)

Mineral Valuation and Economics (3+0)

Introduction to engineering economics, ore sampling and reserve calculations, and mine feasibility studies. (Prerequisites: GEOS 332, GE 372 or MIN 301.)

**MIN 409** 3 Credits Spring Operations Research and Computer Applications in Mineral Industry (3+0)

Use of operations research and computer techniques for understanding, analysis, forecasting and optimization of mining operations and systems. (Prerequisites: MIN 301 or concurrent registration, ES 201, and STAT 301 or 451.) MIN 415 3 Credits Alternate Fall

Coal Preparation (2+3) Unit operations, flowsheets, washability characteristics, and control by sink-float methods for coal preparation plants. Market requirements and economics of preparation. (Prerequisite: MIN 313. Next offered: 1996-97.)

Emission Spectroscopy, X-Ray Spectroscopy, and Atomic Absorption (2+3)

Can be taken for any combination of parts A, B, C as demand warrants. (Admissionby special arrangement.)

MIN 418A - Theory and application of emission spectrography: two one-hour

classes and one three-hour lab per week for five weeks. One credit.

MIN 418B - Theory and application of x-ray spectography and diffractometer: two one-hour classes and one three-hour lab per week for five weeks. One credit. MIN 418C - Theory and application of atomic absorption spectrophotometry: two one-hour classes and one three-hour lab per week for five weeks. One credit.

3 Credits Mining Access, Safety and Environmental Law

History of mining law. Laws and regulations governing access to property, safety and environmental control as they pertain to mining. (Next offered: 1995-96.)

MIN 443 3 Credits Fall

Rock Fragmentation (3+0)

Selection and design of modern mining rock breaking and disintegrating techniques. In particular, cutting, drilling, blasting, water jets and other methods are covered. (Prerequisite: MIN 370.)

MIN 445 3 Credits Design of Surface Mines for Conventional and Arctic Conditions (3+0) Surface mining methods. Principles and reclamation techniques, design of surface mine infrastructure. (Prerequisite: MIN 443 or concurrent registration.)

**MIN 446** 3 Credits

Underground Mining Methods and Their Design (3+0) Design of main development openings; mining methods such as room and pillar, open stoping, supported stopes and caving systems; selection of mining method and mine planning processes covered. (Prerequisites: MIN 301, 302, and 370.)

Alternate Spring Placer Mining (3+0)

Placer formation and identification, reserve estimation, mine and wash plant design. Includes surface and underground mining methods, equipment specification, environmental compliance and reclamation. Course fee: \$20.00. (Prerequisites: MIN 301 and MIN 313. Next offered: 1995-96.)

Alternate Spring Open Pit Mining (3+0)

Modern methods of open pit design and operation. Pit optimization techniques, haul road design, pit operations planning and production scheduling, slope stability, land reclamation. Use of mine design software and optimization. (Prerequisites: MIN 409, MIN 445, or permission of instructor. Next offered: 1995-96.)

**Alternate Spring** Ground Control (3+0)

Stability and design for ground control of surface and underground mining excavations; reinforcement and monitoring systems for openings constructed in rock mass. Construction in swelling rock and frozen ground, underground hazards (bursts and water inflow), monitoring of deformation and stresses associated with the opening's presence. (Prerequisites: MIN 370, 443. Next offered: 1995-96.)

3 Credits Mining Design Project (1+6)

Design of mine layout including extraction and beneficiation and economic evaluation of a mining project. A comprehensive written report of the design and analysis is required. (Prerequisites: MIN 408, 445, 446, and 447; MIN 408 can be taken concurrently.)

621 3 Credits Advanced Mineral Economics (3+0) MIN 621 Fall

**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)

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 OptimizationModels in the Mineral Industry (3+0)

MIN 673 3 Credits Alternate Fall Advanced Rock Mechanics (2+3)

MIN 674 3 Credits Alternate Spring Advanced Ground Control (2+3)

1 Credit Graduate Seminar I (1+0)

(Same as MPR 688)

**MIN 689** 1 Credit Graduate Seminar II (1+0) Spring

#### Museum Studies

MSM 211 3 Credits Alternate Fall Fundamentals of Museum Studies I (3+0)

Origin, structure and development of museums, types of museums and their functions, professional directions and ethics. Collection management systems and techniques, role and ethics of museum conservation. (Prerequisite: Sophomore standing or permission of the instructor. Next offered: 1995-96.)

3 Credits MSM 212 **Alternate Spring** 

Fundamentals of Museum Studies II (3+0) Museum education, including educational goals and objectives, the museum visitor, program development and publicity. A comprehensive survey of exhibits theory and practices, museum management, administrative frameworks, legal considerations, and financial management. (Prerequisite: MSM 211. Next offered: 1995-96.)

MSM 311 3 Credits Alternate Fall Museum Administration (3+0)

Administrative philosophy and procedures in public and private, large and small museums; the types and sources of support and interactions with local and national supportive groups. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1995-96.)

**Alternate Spring** Museum Collection Management (3+0)

Basic curatorial techniques and problems. Field collecting and other forms of acquisition through accessioning, cataloging, preparation, exhibit, teaching, and research. (Prerequisites: MSM 211 and 212 or permission of the instructor. Next offered: 1995-96.)

MSM 487 As Demand Warrants 3 Credits Museum Practicum

Supervised participation in one or more phases of museum operations or disciplines. (Prerequisites: MSM 211 and 212 and permission of the instructor.)

**MSM 488** As Demand Warrants Individual Research: Field Collecting Museum Specimens

Philosophies, purposes and goals of field collection, procedures for collecting museum specimens, and methods of handling before they reach the museum. Field trips may be required. By arrangement with the appropriate curator(s). May be repeated for credit with permission of instructor. (Prerequisites: MSM 211 and 212 and prior disciplinary preparation or permission of the instructor.)

#### Music

#### APPLIED MUSIC

Fall, Spring MUS 161, 162 2 or 4 Credits MUS 261, 262 2 or 4 Credits MUS 361, 362 2 or 4 Credits MUS 461, 462 2 or 4 Credits Fall, Spring Fall, Spring Fall, Spring Private Lessons h

Private instruction in piano, organ, voice, orchestral and band instruments, or guitar. Private instruction shall consist of one private lesson and one master class per week. Music performance majors may enroll for four credits. All others will normally enroll for two credits. See accompanying box for private lesson fees. (Prerequisite: Admission by audition. Course may not be audited. Credit-No Credit grading not permitted.)

MUS 190 0 Credit Recital Attendance (1+0) Recital and concert attendance.

**MUS 390** 0 Credit Fall, Spring Junior Recital

Half-length solo music performance recital. (Prerequisites: MUS 262 or equivalent, junior standing in music study, permission of instructor.)

Senior Recital

Full length music solo recital. (Prerequisites: MUS 362 or equivalent, senior standing in music study, MUS 390 or equivalent, permission of instructor.)

Advanced Private Lessons

Private instruction as arranged. See accompanying box for private lesson fees.

#### CLASS LESSONS AND APPLIED MUSIC FEES

MUS 151 Class Lessons

Lesson fees for non-music majors and music majors enrolled in 11 or fewer credits: \$70.00 Lesson fees for music majors enrolled in 12 or

more credits: \$35.00. Note: Class lessons for guitar for all students:

\$35.00.

MUS 153

Lesson fees for non-music majors and music **Functional Piano** 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 \$135.00, Fall 1995; \$165.00, Spring 1996.

#### MUSIC ENSEMBLES AND CLASS LESSONS

**MUS 101** 1 Credit Choral Society (0+3) h Fall, Spring

Fall, Spring

Fall, Spring

Fall, Spring

**MUS 151** 1 Credit Class Lesson (0+3) h

Class instruction in piano, voice, orchestral instrument, or guitar. See accompanying box for class lesson fees. (MUS 151 may be repeated for credit. Course may not be audited.)

MUS 153 1 Credit Fall. Spring Functional Piano (1+0) h

Laboratory instruction to help music majors obtain performance, sight-reading, and harmonization-transposition skills needed to pass the Piano Proficiency Examination. It also provides non-music majors an opportunity to study basic piano skills on a space-available basis. See accompanying box for class lesson fees. (Prerequisites: Music majors - MUS 131 or equivalent or concurrent enrollment in MUS 131; non-music majors: permission of instructor. Course may not be audited.)

**MUS 203** 1 Credit Orchestra (0+3) h

Fall, Spring

(Admission by audition.)

1 Credit Concert Band (0+3) h (Admission by audition.)

Fall, Spring

Fall, Spring 1 Credit MUS 211 "Choir of the North" (0+3) h

(Admission by audition.)

Piano Proficiency (0+1)

Fall, Spring

Final phase of completion of piano proficiency examination. (Prerequisites: MUS 153 and permission of instructor.)

**MUS 307** Fall, Spring 1 Credit Chamber Music (0+3) h

String, brass, or woodwind chamber music; piano chamber music and accompanying; stage band, and Madrigal singers. (Prerequisite: Permission of instructor.)

MUS 313 1, 2, 3 Credits Opera Workshop (0+3, 6 or 9) h Fall, Spring

Fall, Spring

1 Credit Arctic Chamber Orchestra (0+3) h Chamber Music. (Admission by audition.)

**MUS 319** 1 Credit Fall, Spring

UAF Chamber Singers (0+3) h The UAF Chamber Singers is an auditioned vocal ensemble of no more than 24 singers, male and female. The music learned and performed will be primarily, but not limited to, a cappella pieces with an emphasis on pre-classical and 20th century music. The group will perform alone and with other UAF music groups. (Prerequisites: Audition and permission of instructor.)

MUS 606 1-2 Credits As Demand Warrants

Advanced Chamber Music (0+3)-(1+3)

#### MUSIC THEORY, MUSIC HISTORY AND MUSIC **EDUCATION**

MUS 103 3 Credits Fall, Spring

Music Fundamentals (3+0) h

An introductory study of the language of music. Includes basic notation, melodic and rhythmic writing, scales, bass and treble clefs, and basic harmony. Also available via Independent Learning.

MUS 123 3 Credits Spring

Appreciation of Music (3+0) h A guide to the richer enjoyment of classical music through a study of the main periods, styles, and composers from the time of the Gregorian chant to the present.

3 Credits

Music in World Cultures (3+0) h A survey of traditional and folk music around the world, with an emphasis on

Oriental and African music. Examines different uses of music in various societies, and includes demonstration of ethnic musical instruments.

**MUS 131** 2 Credits **MUS 132** 2 Credits

Fall Spring

Basic Theory (1+2) h

First semester: Intensive training in fundamentals of music, pitch and rhythm notation, scales, modes, triads, and techniques of harmonization. Second semester: Concentration upon acquisition of skills in harmonization and techniques of formal and harmonic analysis. (Prerequisites: For MUS 131, concurrent enrollment in 133; For MUS 132, 134 unless exempted by music theory placement test.)

Fall Spring

**MUS 134** 2 Credits Basic Ear Training (2+0) h

Ear training skills including sight reading, sight singing, error detection, and dictation. Use of programmed materials in a laboratory situation in addition to classroom instruction. (Prerequisite: Concurrent enrollment in MUS 131 or 132 unless exempted by music theory placement examination.

**MUS 200X** 3 Credits Fall, Spring

Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h (Same as ART 200X and THR 200X)

Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends. Materials fee: \$25.00. (Prerequisite: Sophomore standing or permission of instructor.)

MUS 221

3 Credits

sites: MUS 131 and 132 or permission of the instructor.)

Fall

**MUS 222** 3 Credits

Spring History of Music (3+0) h Fall semester: Music before 1750. Spring semester: Music since 1750. (Prerequi-

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.

2 Credits **MUS 232** 2 Credits

Spring

Advanced Theory (1+2) h

Continued study of harmony and musical form through analysis of representative works from the standard repertoire. The second semester is devoted to study and synthesis of 20th century stylistic and harmonic idioms. (Prerequisites: Concurrent enrollment in MUS 233 for 231 and 234 for 232 unless exempted by music theory placement test.)

MUS 233 1 Credit MUS 234 1 Credit

Fall Spring

Advanced Ear Training (0+2)

Continued training in sight singing and melodic dictation skills begun in MUS 133 and 134. Harmonic dictation and error detection skills also included. (Prerequisites: Concurrent enrollment in MUS 231 for 233 and 232 for 234 required unless exempted by music theory placement test.)

**MUS 309** 3 Credits Fall

Elementary School Music Methods (3+0)

(Same as ED 309)

Principles, procedures, and materials for teaching music to children at the elementary level.

MUS 315 2 Credits Fall, Spring

Music Methods and Techniques (1+2)

Instruction in voice and the basic instruments of band and orchestra. Emphasis on teaching methods. Course may be repeated for credit. See Music Department Handbook. Materials fee: \$75.00 for brass section only. (Prerequisite: Permission of instructor.)

**MUS 319** 1 Credit Fall, Spring

UAF Chamber Singers (0+3)

An auditioned vocal ensemble of no more than 24 male and female singers. The music learned and performed will be primarily, but not limited to, a cappella pieces with an emphasis on pre-classical and 20th century music. Performances alone and with other UAF music groups. (Prerequisites: Audition and 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: 1995-96.)

2 Credits

Alternate Fall

Introduction to Computer-based Music Technology (1+3) h

An introduction to personal computer-based software and music synthesis hardware to enable the student to print music scores and/or develop MIDI format sequencer files. May be repeated for credit. (Prerequisites: MUS 232 or equivalent or permission of instructor. MUS 432 recommended. Next offered: 1995-96.)

MUS 3510 3 Credits Conducting (3+0) h

Alternate Fall

Principles of conducting; interpretation of vocal and instrumental ensemble music. (Prerequisite: MUS 232.)

MUS 405W 3 Credits Secondary School Music Methods (2+3) Spring

Principles and methods of teaching music in junior and senior high school with emphasis on philosophies, management, objectives, teaching techniques, choral, and general music programs. Includes use of teaching plans in classroom and rehearsal settings. (Prerequisite: Permission of instructor, Should be taken prior to ED 453.)

MUS 410 3 Credits Alternate Fall

Women in Music History (3+0) h

(Same as WMS 410)

Lives and works of female musicians, composers, and performers will be traced from the earliest days of the ancient and mythological through the medieval, Baroque Classical, and Romantic periods with special emphasis on composers of the 20th century. (Prerequisite: Junior standing or permission of instructor. Next offered: 1995-96.)

MUS 421W 3 Credits 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: 1995-96.)

3 Credits

Alternate Spring

Music in the Seventeenth and Eighteenth Centuries (3+0) h

Style and performance practices of opera, oratorio, cantata, sonata, and concerto, as well as chamber music. Development of keyboard instruments as well as other instrumental genres: strings, winds, and brasses. Style study of representative works from early Baroque composes through Bach, Handel, Bach's sons, Hayden, Mozart, Beethoven, and others. Musical developments in Italy, England, France, Germany, Austria, and cross-cultural influences. (Prerequisites: MUS 221 and 222 or permission of instructor. Next offered: 1995-96.)

offered: 1995-96.)

MUS 423W 3 Credits Alternate Fall

Music of the Nineteenth Century (3+0) h

Musical trends in the 19th century. Romanticism, Nationalism, Italian Opera, and
Wagnerian Music Drama, as exemplified by representative works, chosen from the
music of Weber, Berlioz, Mendelssohn, Schumann, Brahms, Wagner, Chopin,
Tchaikowsky, and others. Related readings in other aspects of the Romantic
movement. (Prerequisite: MUS 221 or 222 or permission of the instructor. Next
offered: 1995-96.)

MUS 424W 3 Credits Alternate Spring

Music in the Twentieth Century (3+0) h

Music since 1900. Style studies of significant works from the modern repertoire.

Hindemith, Bartok, Schoenberg, Stravinsky, the avant-garde, and others. (Prerequisite: MUS 221 or 222 or permission of the instructor.)

MUS 431 3 Credits As Demand Warrants Counterpoint (3+0) h

Contrapuntal techniques by means of analysis and synthesis of pieces in contrapuntal idioms. (Next offered: 1995-96.)

MUS 432 3 Credits Alternate Fall
Orchestration and Arranging (3+0) h
Instrumentation and arranging for vocal and instrumental ensembles. (Next

MUS 433 2-3 Credits As Demand Warrants Seminar in Musical Composition (2+0, 3+0) h

Development of compositional skills based upon the works of predominately twentieth-century composers. Repeatable for credit. (Prerequisites: MUS 232 or equivalent and/or permission of instructor. Next offered: 1995-96.)

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

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: 1995-96.)

MUS 601 3 Credits F 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 Alternate Fall
Topics in Music History (1-3+0)

MUS 631 3 Credits Alternate Fall Seminar in Music Theory: History and Pedagogy (3+0)

MUS 641 3 Credits Alternate Fall
Methods of Ethnomusicological Research (3+0)

MUS 651 2-3 Credits As Demand Warrants Advanced Conducting and Rehearsal Techniques (2-3+0)

MUS 671 3 Credits As Demand Warrants
Psychology of Music (3+0)

MUS 690 0 Credit Fall, Spring Graduate Recital

# **Natural Resources Management**

NRM 101 3 Credits Fall

Natural Resources Conservation and Policy (3+0)
Concepts, management practices and issues/concerns associated with the conservation of natural resources; natural and social science aspects of resource conservation and policy; resource commentaries and discussion sessions provide opportunities for developing a personal philosophy related to natural resources. Majors in all fields welcome. (Prerequisite: Placement in ENGL 111.)

NRM 102 1-2 credits Fall, Spring
Practicum in Natural Resources Management

Practical experience in natural resources management. Supervised individual study on a farm, in a greenhouse, managed forest, agency or business, or another approved location. (Prerequisites: Natural Resource Management majors only and permission of instructor.)

NRM 122 3 credits Spring

Food Facts, Fads and Consumer Choices (3+0)

Consideration of the food supply and its safety, available alternatives in the marketplace and applied basic nutrition as it relates to food choices and health.

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NRM 204 3 Credits Natural Resources Legislation and Policy (3+0)

Background on selected federal lands management legislation and agency policies affecting resources conservation, development, and preservation.

RM 211 3 Credits Fall
Introduction to Applied Plant Science (2+3)

Basic principles and requirements for plant growth and development with special attention to the production and management of field and greenhouse grown crops. (Prerequisite: A basic course in the subject area.)

NRM 215 3 Credits Alternate Fall Plant Propagation (2+3)

Principles and practices of plant propagation useful in horticulture, botany, forestry, agronomy, revegetation projects and plant research. Emphasis on both macro- and micropropagation (tissue culture) of Alaska native plants by seeds, spores and vegetative propagules such as cuttings. (Prerequisite: NRM 211 or permission of instructor. Next offered: 1996-97.)

NRM 251 4 credits Spring

Silvics and Dendrology (3+3)

Addresses ecological requirements and characteristics of tree species of the Northern Forest and western North American forest; silvical characteristics including range, climate, soils, shade tolerance, growth, and principal enemies. Family and species characteristics for identification on sight or with a key. Field trips required. Laboratory fee: \$20.00. (Prerequisites: BIOL 105, 106 and 271 or permission of instructor.)

NRM 277 3 Credits Alternate Spring (Same as BIOL 277)

Introduction to Conservation Biology (3+0)
Introduction to the basic ecological, genetic, management, legal, and historical developments in conservation biology and focused efforts to manage biological diversity resources, with a status review of important habitats and endangered

diversity resources, with a status review of important habitats and endangered species. (Prerequisites: BIOL 105, 106. Next offered: 1995-96.)

NRM 290 1 Credit Spring

Resource Management Issues at High Latitudes (0+3)
Broad perspective of high latitude resource management issues. On-site analyses of resource management needs, opportunities, and/or conflicts in the industries of: agriculture, forestry, mining, seafood, petroleum, recreation, and tourism. Includes 10 day field trip. May be repeated for credit with instructor's permission. (Prerequisites: Permission of instructor. Graded pass/fail.)

NRM 300 1-6 Credits Fall, Spring, Summer Internship in Natural Resources Management

Supervised pre-professional experience in a business or agency (public or private). Open to students majoring or minoring in natural resources management only. Course may be repeated for credit up to a maximum of 6 credits. (Prerequisites: NRM 101, junior standing, 3.0 gpa, permission of instructor, and an approved internship plan.)

NRM 303 3 Credits Spring

Environmental Ethics and Actions (3+0)

Exploration of the history of modern Western views of the relationship between people and nature, alternative foundations for an environmental ethic (utilitarianism, spiritual activity, rights-based, and respect-based ethics) and practices of such ethics in business, profession, and general life-style today. (Prerequisite: At least junior standing or permission of instructor.)

NRM 304O 3 Credits Fal Perspectives in Natural Resources Management (3+0)

Analysis of philosophical/ethical, economic, scientific, and political foundations of diverse natural resource management perspectives. (Prerequisites: NRM 101, COMM 131X or 141X, junior standing or permission of instructor.)

NRM 305 3 Credits
Nutrition for Children, Adolescents and Adults (3+0)

Alternate Fall

Application of basic nutrition principles to health and well-being of children, adolescents and adults including nutritional and related health problems found among Alaskans. (Prerequisite: BIOL 105 or CHEM 105 or equivalent, or permission of instructor. Next offered: 1995-96.)

NRM 3100 3 Credits
Agricultural Concepts (3+0)

Food and fiber origins are traced through world production techniques and use patterns to show how components of the agricultural industry (government, multinational corporations and consumers) are affected byand can affect policy, production, marketing and end-products. (Prerequisites: BIOL 105, 106.)

NRM 312 3 Credits Alternate Spring

Introduction to Range Management (3+0)
Applied ecological treatment of soil, plant and grazing animal relationships on uncultivated lands. Origin of the discipline, management practices, important rangelands of North America; emphasis on Alaska's rangelands and grazers. (Prerequisites: BIOL 105, 106, BOT 239 or permission of instructor; NRM 320, 321 recommended. Next offered: 1996-97.)

# Biol 239/Biol 271 See Memo Black Book COURSE DESCRIPTIONS/175

NRM 313 4 Credits Alternate Spring

Introduction to Plant Pathology (3+3)
Plant pathology; non-parasitic and parasitic causes of plant diseases; methods of plant infestation and mechanism of plant defenses; epidemiology and disease control. (Prerequisites: BIOL 105, 106; BOT 239 recommended. Next offered: 1996-97.)

NRM 320 3 Credits Alternate Fall Introduction to Animal Science (2+3)

Origin, history, and economic significance of breeds of dairy and beef cattle, swine, sheep, and poultry. Discussion of reindeer, bison, and musk-ox. Management and production systems with special reference to Alaska. (Prerequisite: A course in general biology. Next offered: 1996-97.)

NRM 321 3 Credits Alternate Fall

Applied Animal Nutrition (2+3)

Application of feeding standards and feedstuffs analysis to the nutrition of farm animals. Comparative anatomy of the digestive system of pig, horse, and cow. (Prerequisite: A course in general biology. Next offered: 1995-96.)

NRM 338 3 credits Fall Introduction to Geographic Information Systems (2+3)

(Same as GEOG 338)
Geographic data concepts including mapping systems, data sources, editing data, GIS analysis and computer mapping. Introduction to Global Positioning Systems. GIS applications in natural resources management. Materials fee: \$35.00. (Prerequisite: Knowledge of PC's or unix workstations desirable.)

NRM 340 3 Credits Spring

Natural Resources Measurement and Inventory (2+3)
Techniques and instrumentations used to measure and inventory natural resources, including land, timber, range, wildlife, water, and recreation resources. (Prerequisite: Junior standing or permission of instructor.

NRM 341 4 Credits Spring
GIS Analysis (3+3)
(Same as GEOG 341)

GIS analysis of natural resources including spatial query, attribute query, vector, grid, image, topographic and network analysis techniques. (Prerequisite: NRM 338.)

NRM 365W 3 Credits Was ALR 4(10) Spring
Principles of Outdoor Recreation Management (2+3)

Theories, practices, economics, and problems fundamental to the use of land and related natural resources for recreation. (Prerequisite: Junior standing or permission of the instructor.)

NRM 370 3 Credits Fall Introduction to Watershed Management (2+3)

The hydrologic cycle and the influence of land management techniques on water quantity, quality, and timing. Water yield, soil erosion and non-point pollution, snowpack management, and land use alternatives. (Prerequisites: NRM 101 and GEOS 101 or permission of instructor.)

NRM 375 3 Credits Forest Ecology (2+3)

Basic forest ecology concepts including work on the physical (wind, temperature, water, etc.), biotic (population and community dynamics), genetic and successional and landscape dynamics and how this basic information can be used in development of wise management plans for forest ecosystems. (Prerequisite: NRM 338.)

NRM 380W 3 Credits Fall, Spring Soils and the Environment (2+3)

Soil development and classification; physical and chemical properties; biological activity; water movement and nutrient cycling in natural and manipulated ecosystems. (Prerequisite: CHEM 105.)

NRM 400 3 Credits Fall Fisheries Science (3+0)

(Same as FISH 400)

The subject of fishery science is reviewed to reflect the emerging concept of a study area integrated over a broad sweep of disciplines: oceanography, limnology, marine biology, fish population dynamics, aquaculture, economics, processing, product quality and development, and marketing. Demonstrates how such different subjects have feedback loops to one another and stresses the science fundamentals involved. Laboratory fee: \$10.00. (Prerequisite: one 200-level biology class. Corequisite: STAT 200 [STAT 373-J].)

NRM 401 3 Credits Fairbanks, Spring Fisheries Management (3+0) Juneau, Alternate Fall (Same as FISH 401)

Principles, concepts and techniques of fisheries management in terms of their biological, economic, social and political aspects. Topics are stocking and introductions, habitat manipulation, sustainable yield, regulation, management organizations and their responsibilities. Examples of several fisheries are used to clarify concepts and practices. (Prerequisite: BIOL 271. Next offered Juneau: 1995-96.)

NRM 404 3 Credits

Processes of Natural Resources Decision Making (3+0)

Analysis of decision-making models and evaluation criteria within the institutional and social constraints of federal and state agencies. (Prerequisites: NRM 101 and

sophomore standing.)

NPM 405W 2 Credits Fall Spring

NRM 405W 2 Credits
Senior Thesis in Natural Resources Management (2+0)
Fall, Spring

Problem-solving with emphasis on writing and analysis. Individual project under the guidance of faculty sponsor involving formulation of a question in natural resources management and preparation of a formal, comprehensive written report. Must be repeated for a maximum of 4 credits. (Prerequisites: NRM core, senior standing, senior thesis orientation workshop, or permission of instructor.)

NRM 407 3 Credits Environmental Law (3+0)

The role of common law theory in regulatory, statutory, and constitutional interpretation in the field of environmental protection, including air and water pollution, toxic/hazardous substances, and land-use regulation. (Prerequisite: Junior or senior class standing or permission of instructor.)

NRM 412 3 Credits Alternate Fall Field Crop Production (3+0)

Agronomic principles and practices involved in the production, storage, marketing, and utilization of field crops. (Prerequisite: NRM 211. Next offered: 1996-97.)

NRM 420 3 Credits Alternate Spring
Animal Nutrition and Metabolism 3+0)

Nutrition and metabolism of domestic animals; ruminant and monogastric. (Prerequisites: CHEM 105, 106; biochemistry recommended. Next offered: 1995-96.)

NRM 425 3 Credits Alternate Spring Ungulate Management and Production Systems (2+3)

Functional biology of large herbivores (ungulates) and the management of world's grazing systems. Production strategies (cropping, herding ranching, and farming) as they pertain to productive and/or commercial management of wild ungulates with emphasis on Alaska's species. Laboratory presents specific examples with guest lecturers, films, and an introduction to modeling of grazing systems. (Prerequisites: BIOL 105X-106X and a wildlife or animal science course or permission of instructor. Next offered: 1996-97.)

NRM 430 3 Credits
Land-Use Planning (3+0)
History, legal framework principles processes and practices of land use planning

History, legal framework, principles, processes, and practices of land use planning. Important Alaskan issues and problems. (Prerequisite: Upper division standing.)

NRM 431 3 Credits
Wildlife Policy and Administration (3+0)
(Same as WLF 431)

Study of laws and agencies shaping wildlife management in North America. History and current status of major policy issues. Organization of and funding sources for state and federal programs in wildlife conservation. (Prerequisite: A 3 credit course in wildlife management principles or permission of instructor.)

NRM 438 3 Credits Arc Macro Language GIS Programming (3+0) (Same as GEOG 438)

Arc macro language. Programming of pop-up menus and tools for GIS editing, display, and analysis. (Prerequisite: NRM 338 or equivalent. Next offered: 1996-

NRM 445 4 Credits
Managing Food Production Systems (3+3)

Alternate Spring

Principles of the firm applied to development of a diversified plan for food production. Budget and cash flows, using a personal computer. (Prerequisites: NRM 310, 320, basic economics [can be taken concurrently], and basic knowledge of operation of a personal computer, or permission of instructor. Next offered: 1995-96.)

NRM 450 3 Credits
Forest Management (3+0)

Alternate Fall

Forest land management for production of goods and services; relation of timber production to other forest land uses. Sustained yield, allowable cut, information needs, valuation, decision making. (Prerequisites: NRM 251, 340, ECON 235 (or equivalent), or permission of instructor. Next offered: 1996-97.)

NRM 451W 3 credits Silviculture (2+3) NRM 251 Alternate Spring

Examines biological, environmental, and silvicultural considerations essential for successful regeneration and maintenance of boreal and western North American forests. For persons in land management, including timber, woodlot, wildfire habitat, streamside, aesthetics. Provides intense look at science and art of forest stand management. Involves considerable critical writing. Field trips required. (Prerequisites: NRM 251, BIOL 271, junior standing or permission of the instructor. Next offered: 1996-97.)

NRM 452 3 Credits Forest Protection (3+0) Alternate Fall

Principles and practical management systems for protection from fire, insects, and diseases. Factors in managing forest ecosystems, problems and techniques important in high latitude forests, especially in Alaska. (Prorequisites: BIOL 105, 106, 271, BOT 239; NRM 251 or instructor's permission. Next offered: 1996-97.)

NRM 453 3 Credits Alternate Fall

Harvesting and Utilization of Forest Products (2+3) Manual and mechanized timber harvesting systems including timber cutting, yarding, and transport processes. Technology of processing wood into various products including lumber, plywood, veneer, pulp, and energy. (Prerequisites: NRM 101 and 251 or permission of instructor. Next offered: 1995-96.)

Interpretive Services (3+0)

Alternate Spring

Naturalist and other visitor programs in outdoor recreation areas: philosophy, planning, and development of interpretive programs; resources, agencies, users, interpretive media, and program evaluation. (Prerequisite: Junior standing or permission of instructor. Next offered: 1996-97.)

NRM 462 3 Credits

Alaskan Environmental Education (3+0)

(Same as ED 462)

Utilization of the environment inside and outside the formal classroom in all subject areas. Curriculum materials (K-12), interpretive and audiovisual aids, problem solving, and applications to situations from the public schools to summer camps, short courses, and workshops for individuals of any age. (Prerequisite: Junior standing or permission of instructor.)

NRM 463 3 Credits Fall

Wilderness Concepts (3+0) (Same as GEOG 463)

Discovery of wilderness concepts, including the history and evolution of wilderness thought, the contemporary meaning of wilderness, and survey of economic and non-economic wilderness values for individuals and society.

Outdoor Recreation Planning (3+0)

ALRAGO Alternate Spring

Allocations of natural resources for recreational purposes, including concomitant services. Macrobehavioral patterns influencing the allocation process. (Prerequisites: NRM 101 and ECON 235 or equivalent, or permission of instructor, Next offered: 1995-96.)

NRM 480 3 Credits Alternate Fall

Soil Management for Quality and Conservation (3+0)

Managing soil in disturbed and natural ecosystems to reduce soil losses and maintain or improve soil quality. Methods for maintaining soil quality, preserving soil against loss from erosion, remediating contaminated soil, and reclaiming degraded soils discussed. (Prerequisite: NRM 380. Next offered: 1995-96.)

NRM 485 3 Credits Soil Biology (3+0) n Alternate Spring

Major groups of organisms in the soil and their interrelationships; the major biological processes which take place in the soil and their significance to soil productivity, plant growth, and environmental quality; and methodology for studying soil organisms and soil biological processes. (Prerequisites: A course in biology or microbiology and a course in soils or permission of instructor. Next offered: 1995-96.)

NRM 625 Alternate Spring Advanced Ungulate Management and Production Systems (2+3)

NRM 630 3 Credits

Planning Theory (3+0)

Fall

NRM 631 3 Credits Planning Practicum (3+0) Spring

NRM 640 3 Credits Alternate Spring Simulation and Modeling in Resource Management (3+0)

NRM 641 4 Credits Alternate Spring Natural Resources Applications of Remote Sensing (2+3)

NRM 651 3 Credits Alternate Spring Advanced Silviculture (3+0)

NRM 665 3 Credits Alternate Spring Advanced Outdoor Recreation (3+0)

NRM 670 3 Credits Alternate Fall Biometeorology (3+0)

NRM 672 2 Credits Alternate Fall Dynamics of Nitrogen in Forest Ecosystems (2+0)

Alternate Spring NRM 673 3 Credits Soil Microbiology and Biochemistry (3+0)

(Same as BIOL 673)

NRM 675 3 Credits Applied Ecosystem Science (3+0)

3 Credits

Alternate Fall Alternate Fall

NRM 680 3 Credits

Environmental Decision-Making (3+0)

Alternate Spring

NRM 681 Natural Protection and Management (3+0)

#### Northern Studies

For information on studying at McGill University, Montreal, Canada; the University of Copenhagen, Denmark; or opportunities for study in the U.S.S.R., see Study Abroad.

3 Credits **NORS 484** 

Fall

Seminar in Northern Studies (3+0) s An interdisciplinary seminar focusing on topics relating to the North with emphasis on the physical sciences, the peoples and the socioeconomic and political aspects of the area. Specialists in the various fields will assign readings and conduct discussions. (Prerequisite: At least junior standing or permission of instructor.)

**NORS 600** 3 Credits Perspectives on the North (3+0) (Same as HIST 600)

Fall

**NORS 601** 3 Credits Research Methods and Sources in the North (3+0) Fall

**NORS 606** 3 Credits Alternate Fall Science, Technology and Development in Northern Regions (3+0)

**NORS 610** Northern Indigenous Peoples and Contemporary Issues (3+0) (Same as ANTH 610)

**NORS 614** 3 Credits **Alternate Spring** Human Adaptation to the Circumpolar North (3+0) (Same as PSY 614)

**NORS 616** 6 Credits As Demand Warrants Lab Theatre I "Write Theatre" (3+9) (Same as THR 416)

**NORS 618** As Demand Warrants 6 Credits Lab Theatre II "Do Theatre" (3+6) (Same as THR 418)

**NORS 620** 3 Credits Alternate Spring Images of the North (3+0) (Same as ENGL 620)

**NORS 625** 3 Credits Visual Images of the North (3+0) Alternate Spring

**NORS 630** 3 Credits Economic Issues of the Circumpolar North (3+0) (Same as ECON 630)

Alternate Fall **NORS 637** 3 Credits Geography of Northern Development (3+0)

(Same as GEOG 637) 3 Credits

Fall

Spring

Ethics and Reporting in the Far North (3+0) (Same as JB 440 and 640)

**NORS 648** 3 Credits Alternate Spring Environmental Politics of the Circumpolar North (3+0) (Same as PS 648)

3 Credits **NORS 650 Alternate Spring** Comparative Government and Politics in the Circumpolar North (3+0) (Same as PS 650)

NORS 651 3 Credits Alternate Spring Law, Justice and Society in the Circumpolar North (3+0) (Same as PS 651)

**NORS 652** 3 Credits Alternate Spring International Relations of the North (3+0) (Same as PS 652)

NORS 661 3 Credits History of Alaska (3+0) (Same as HIST 461)

**NORS 664** 3 Credits History of Russia (3+0)

Spring

Fall

Fall

(Same as HIST 464)

**NORS 665** 3 Credits Russian Eastward Expansion (3+0)

(Same as HIST 465)

As Demand Warrants

Alternate Spring

Alternate Spring

Alternate Fall

3 Credits Comparative Education (3+0) (Same as ED 680)

**NORS 681** 3 Credits Polar Exploration and its Literature (3+0) (Same as HIST 481)

3 Credits History of Circumpolar Research (3+0) (Same as HIST 482 and LS 482)

3 Credits 20th Century Circumpolar History (3+0) (Same as HIST 483)

3 Credits Alternate Spring Researching and Writing Public Northern History (1+3) (Same as HIST 690)

# Office Management and Technology

A \$25 per semester student computing facility user fee will be assessed for any ABUS, CAPS or OMT course of 2 credits or more at the 100-level of higher. This fee is in addition to any lab/material fees.

7 100 3 Credits Alphabetic Shorthand (3+0) As Demand Warrants **OMT 100** 

Introduces alphabetic shorthand, including alphabet, shortcuts, phasing, and other abbreviating devices.

As Demand Warrants 1-3 Credits Keyboarding I/Beginning Typewriting (1-3+0)

Basic keyboarding skills with emphasis on correct techniques and development of speed and accuracy. Introduction to centering, typing of personal and business letters, envelopes, simple tables and manuscripts. For those with no previous typing training. May be taken in 1 credit segments in the Office Professions lab. Materials fee: \$10.00.

T 104 1 Credit Typing Skill Building (1+0) As Demand Warrants

Supervised training to improve speed and/or accuracy on straight and numerical copy. May be repeated up to 3 credits. Materials fee: \$5.00. (Prerequisite: OMT 103 or permission of instructor.)

As Demand Warrants Keyboarding II/Intermediate Typewriting (3+0)

Instruction and training to atain at least minimal typing skill, experience and knowledge necessary for typist beginning an office career. Lab arranged. Materials fee: \$10.00. (Prerequisite: OMT 103 or one year high school typing or permission of instructor.)

3 Credits As Demand Warrants Keyboarding III/Advanced Typewriting (3+0)

Training and practice to achieve level of typing skill, experience, knowledge and production output required in business office positions. Lab arranged. Materials fee: \$10.00. (Prerequisite: OMT 105 or permission of instructor.)

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.

As Demand Warrants Proofreading (1+0)

Provides instruction and practice in finding, making and correcting errors commonly made but often overlooked in business communication. Practice in recognizing frequently-made errors, where they are likely to occur and special techniques of finding them. Open lab.

OMT 110 3 Credits As Demand Warrants Office Procedures (3+0)

Duties and responsibilities of general office employees including filing, processing mail, telephone communication, meeting the public, office supplies, banking, employment procedures and grooming.

As Demand Warrants 3 Credits Business English (3+0)

Comprehensive review of grammar, punctuation, capitalization and spelling, with emphasis on business and office occupations.

As Demand Warrants WordPerfect (1-3+0)

Provides practice on an IBM/PC or Macintosh computer using WordPerfect software. The applications cover basic, intermediate and advanced topics. Materials fee: \$10.00. (Prerequisite: Keyboarding speed of 35 wpm or permission of

OMT 153 1-3 Credits Fall, Spring Microsoft Word (1-3+0)

Provides instruction on an IBM/PC or Macintosh computer using Microsoft Word software. The applications cover basic, intermediate and advanced topics. Materials fee: \$10.00. (Prerequisite: Keyboarding speed of 35 wpm or permission of instructor.)

OMT 203 As Demand Warrants

Calculating Machines (2+0) Provides basic operating knowledge of the electronic calculator for such applications as discounting, amount and percent of change, prorating interest, commissions and payroll. Development of proficiency in use of machines for initial job placement. Open lab. (Prerequisite: ABUS 155 strongly recommended.)

As Demand Warrants **OMT 207** 2 Credits Machine Transcription (2+0)

Training in machine transcription with emphasis on mailable copies. Review of language skills and vocabulary included. Materials fee: \$10.00. (Prerequisite: OMT 105 or permission of instructor.)

3 Credits As Demand Warrants Legal Typewriting (3+0)

Provides legal procedures background and skill improvement in typewriting and transcription. Emphasis on understanding legal processes as well as developing expertise in typewriting and office procedures. Materials fee: \$10.00. (Prerequisite: OMT 105 or permission of instructor.)

As Demand Warrants OMT 211 2 Credits Medical Typing (2+0)

Provides training for employment as an office worker, particularly as a forms typist, in a hospital or medical bureau or office or toward qualifications as a medical assistant or secretary. (Prerequisite: OMT 105 or demonstration of equivalent proficiencies.)

As Demand Warrants 1 Credit

Medical Machine Transcription (1+0) Instruction and practice in formatting medical papers including a Medicare form, an admission form, a dental report; preparing patient histories, medical reports, file cards and other medical documents. Practice in transcribing from machine dictation and in using medical terminology correctly. Materials fee: \$5.00. (Prerequisite: OMT 105 and 207.)

As Demand Warrants 1 Credit

Legal Machine Transcription (1+0) Instruction and practice in formatting legal papers including a lease, bill of sale, subpoena, stipulations, interrogatories, notices and various types of orders. Transcription from machine dictation; using the language of the law correctly. Materials fee: \$5.00.

3 Credits Filing/Records Management (3+0)

Instruction in basic alphabetic storage with filing rules and cross-referencing and procedures for retrieving records manually. Includes adaptations of the alphabetic storage method including geographic, numeric and subject; storing and retrieving special records (card files, visible records, microrecords); organization and operation of records management programs and control of records systems.

1-2 Credits As Demand Warrants **CPS** Review

Prepares students for the CPS (Certified Professional Secretary) examination. Review sessions offered in six areas covered by the exam: behavioral science in business, business law, economics and management, accounting, office administration and office technology. One credit is granted for any combination of three of the above review topic areas. Materials fee: \$10.00.

OMT 231 3 Credits As Demand Warrants

Business Communications (3+0) Composition and evaluation of various kinds of common communications between a business person and associates, customers and dealers. Included are interoffice memos, letters, reports and oral communications. (Prerequisite: OMT 131 or permission of instructor.)

Office Management (3+0)

As Demand Warrants

Review of procedures, basic attitudes and skills required of a secretary. Range of opportunities for secretarial advancement through knowledge relating to ergonomics, automation, employee relations, productivity, etc. (Prerequisite: OMT 110 or permission of instructor.)

As Demand Warrants

Cooperative Work Experience
On-the-job training related to occupational objectives. Weekly seminar with coordinator required. (Prerequisites: Permission of instructor and 12 credits in OMT courses.)

# **Paralegal Studies**

PLS 101 3 Credits As Demand Warrants

Introduction to Paralegal Studies (3+0)

A general survey of the skills required to work as a paralegal in today's job market. Focus on paralegal regulation, licensing and ethical considerations; use of law library to locate and research legal issues; use of interviewing, investigating and discovery techniques to develop facts of a case. Legal vocabulary of approximately 200 words is learned and discussed. Research project on topic selected by student replaces final exam. Materials fee: \$10.00.

3 Credits

As Demand Warrants

Torts (3+0)

Study of the basic essentials needed to effectively assist an attorney in the filing or defense of claims based on personal injury and property damage. A basic vocabulary of legal terminology associated with tort law is studied together with important statutes and case law. Emphasis on Alaska law. Materials fee: \$10.00. (Prerequisite: PLS 101 or instructor permission.)

3 Credits Civil Procedure (3+0) As Demand Warrants

Basic vocabulary and concepts essential to effectively assist an attorney with the procedural aspects of civil litigations. Materials fee: \$10.00. (Prerequisite: PLS 101 or instructor permission.)

Criminal Law for Paralegals (3+0)

Study of both the substantive criminal law and the rudiments of criminal procedure, focusing on both Alaska law and procedure and important constitutional considerations associated with due process, search and seizure and Fifth Amendment rights. Learn and work with a basic vocabulary unique to criminal law and procedure. Materials fee: \$10.00. (Prerequisite: PLS 101 or instructor permission. Does not substitute for JUST 352. Next offered: 1995-96.)

3 Credits

As Demand Warrants

Contracts/Real Property (3+0) Basic vocabulary and concepts essential to effectively assist an attorney with the preparation of contracts and real property transactions. Materials fee: \$10.00. (Prerequisite: PLS 101 or instructor permission.)

As Demand Warrants

Family Law (3+0) Basic vocabulary and concepts essential to understanding family law and assisting a practicing attorney. Materials fee: \$10.00. (Prerequisite: PLS 101 or instructor permission.)

As Demand Warrants

Paralegal Studies Practicum (3+0)

An internship involving a minimum of 150 hours of work under the supervision of an attorney, and, when available, a practicing paralegal for that attorney in a local law office or law related situation. Must seek approval of faculty advisor for admittance. Materials fee: \$10.00. (Prerequisites: Must have completed at least 75% of paralegal studies degree requirements with a minimum 2.8 cumulative grade point average or approval of UAF faculty advisor. Note: Students meet as a class only once. All subsequent classes or meetings with UAF faculty advisor are arranged by individual student(s) and advisor.)

# **Petroleum Engineering**

A \$25.00 per semester student computing facility user fee is assessed for Petroleum Engineering courses at the 400-level or higher. This fee is in addition to any material/lab fees.

**PETE 103** 1 Credit Fall

Survey of the Energy Industries (1+0) Overview of global energy supply and demand, alternate energy options, and petroleum production technology.

**PETE 205** 3 Credits Fall

Introduction to Petroleum Drilling and Productions (3+0) Fundamental principles of drilling, well completions, production engineering; field trips to Alaskan oil fields if possible. (Prerequisite: MATH 200.)

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.)

4 Credits

Fall

Reservoir Rock and Fluid Properties (4+0) Fundamental concepts of reservoir rock and fluid properties including porosity, permeability, fluid saturations, capillary pressure, relative permeabilities, classification of petroleum reservoirs by fluid phase contents, oil, gas and water properties, fluid sampling, and PVT analysis. (Prerequisites: MATH 201, ES 346 and GEOS 101 or GE 261.)

3 Credits

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.)

Reservoir Rock and Fluid Properties Laboratory (0+3) Measurement of properties of reservoir rock and reservoir fluids; determination of porosity, permeability, fluid saturations, capillary pressures, specific gravity density, viscosity, surface tension, PVT properties and interpretation of PVT reports for reservoir fluid samples. (Prerequisite: PETE 301.)

3 Credits

Fall

Advanced Thermodynamics for Petroleum Engineers (3+0) Thermodynamics in the transport of petroleum fluids from the formation to the surface with an emphasis on multi-phase, multi-component equilibrium processes. (Prerequisites: MATH 302, CHEM 321 and ES 346 and concurrent registration in ES 341.)

**PETE 400** 1 Credit Fall

Practical Engineering Report (0+3)

Report on practical experience from petroleum engineering summer job. (Prerequisite: Senior standing in engineering or geoscience, or permission of instructor.)

3 Credits

Petroleum Production Engineering (3+0) Well completion, workovers, surface and subsurface equipment design, suckerrod pumping, gas lift, stimulation techniques, sand control. Laboratory includes measurement of gas and oil streams. (Prerequisites: ES 341 and ES 346.)

PETE 411W 1 Credit

Drilling Fluids Laboratory (0+3)

Design, composition and measurement of drilling fluid properties, evaluation of mud activities and chemical treatment of contaminated drilling fluid. (Prerequisites: PETE 205 and concurrent enrollment in PETE 426.)

3 Credits

Spring

Reservoir Characterization (3+0)

Application of well logs to delineate reservoir rock properties and its spatial variations. Estimation of petroleum in place. Impact of facies variation and depositional models for the design of production policies. Impact of formation structure on enhanced oil recovery methods. Reservoir surveillance. (Prerequisites: PETE 301, 302, and GEOS 370)

3 Credits

Spring

Drilling Engineering (3+0) Principles of drilling, drilling fluids, drilling mud, drilling problems, mud logging,

drill stem testing, rig types, rig design and selection. Drilling optimization. Well control. (Prerequisites: ES 331, 341.)

**PETE 431** 2 Credits

Natural Gas Engineering (2+0) Natural gas production and condensate reservoirs. Design of processing, transportation, distribution and flow measurement systems. (Prerequisite: PETE 301.)

**PETE 456** 3 Credits

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 evalua-tions. Case studies. (Prerequisites: MATH 202 and PETE 476.)

3 Credits

Petroleum Recovery Methods (3+0)

Flow and physiochemical principles of oil recovery by water, chemicl, thermal and miscible floods. Prediction of recovery for each of these methods. (Prerequisites: PETE 301 and 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,

**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 loglog type curve analysis and effect of reservoir heterogeneities on pressure behavior. (Prerequisites: PETE 476 and MATH 302)

3 Credits

Well Completions and Stimulation Design (2+3) Design of casing programs, cementing, open-hole and set-through completions,

well stimulation; completion and workover fluids; and evaluation of sand control and workover operations. (Prerequisites: PETE 205, ES 341 and PETE 426.)

PETE 487W 2 Credits Spring Petroleum Project Design (2+0)

Emphasis on design and analysis of petroleum exploration, production and reservoir engineering systems by analytical, experimental and computer methods. Identification of requirements, conceptual and detailed project design and cost analysis. Completion of an engineering project. (Prerequisite: Senior standing.)

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** As Demand Warrants 3 Credits 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** Fall 3 Credits Advanced Reservoir Simulation (3+0)

**PETE 665 Every Third Semester** 3 Credits Advanced Phase Behavior (3+0)

**PETE 666 Every Third Semester** 3 Credits 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)

3 Credits **Every Third Semester** Non-Newtonian Fluid Mechanics (3+0)

# Philosophy

3 Credits Fall, Spring Introduction to Philosophy (3+0) h

Terms, concepts, and problems as reflected in writings of great philosophers. (Prerequisite: Sophomore standing or permission of the instructor.)

**PHIL 202** 3 Credits

Spring

Introduction to Eastern Philosophy (3+0) h Basic assumptions, problems and systems of the major philosophical traditions of the Far East. (Prerequisite: PHIL 201 or permission of the instructor.)

**PHIL 204** 3 Credits Introduction to Logic (3+0) h Fall, Spring

Spring

Principles of deductive and inductive logic and application of these principles to critical thinking in science and other fields; brief introduction to symbolic logic and its application. (Prerequisite: Sophomore standing.)

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: 1995-96.)

Ethics (3+0) h

Examination of ethical theories and basic issues in moral thought. (Prerequisite: At least junior standing.)

PHIL 3410 3 Credits Alternate Fall

Epistemology (3+0) h The nature of knowledge, truth and certainty. (Prerequisite: PHIL 201. Next offered: 1996-97.)

**PHIL 342** 3 Credits Alternate Spring Metaphysics (3+0) h

Theories of reality and their relationship to science, philosophy and religion. (Prerequisite: PHIL 201. Next offered: 1996-97.)

Fall PHIL 351 3 Credits History of Philosophy and Science (3+0) h

Ancient and medieval periods. (Prerequisite: Six credits in philosophy and/or natural and social science.)

PHIL 352 3 Credits Spring History of Philosophy and Science (3+0) h

Renaissance, modern, and recent periods. (Prerequisite: Six credits in philosophy and/or natural and social science.)

As Demand Warrants 3 Credits 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.)

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: 1996-97.)

3 Credits PHIL 481 Alternate Spring

Philosophy of Science (3+0) h Comparison and discussion of various contemporary methodological positions. (Prerequisite: Junior standing. Next offered: 1995-96.)

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: 1995-96.)

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: 1996-97.)

3 Credits As Demand Warrants Topics in Comparative Philosophies (3+0) h

Explores, on an advanced level, modern and traditional philosophical questions, problems, and approaches to and within different cultural settings. Student should have at least an acquaintance with a second language and some multicultural experience. (Prerequisite: Nine credits in philosophy.)

**PHIL 486** 3 Credits As Demand Warrants B.A. Thesis in Philosophy (1+2+var) h

Independent research on a topic demonstrating both student's ability to philosophically analyze as well as ability to do cultural and historical research. (Prerequisite: Completion of all major requirements in philosophy.)

#### **Physical Education**

PE and PER courses are available to all UAF students who meet stated prerequisites. Students with disabilities are encouraged to participate. Any students requiring special accommodations are asked to contact the department office as soon as possible.

1 Credit

Fall, Spring

Physical Activities and Instruction (0+3)

Instruction, practice, and activity in a variety of physical activities, sports, and dance in separate sections. Courses may be taken for credit one time only. Laboratory fees as indicated.

PER 101 - Multifitness Conditioning

PER 102 - Running for Fitness

PER 103 - Cycling for Fitness PER 104 - Walking for Fitness

PER 105 - Weight Training for Fitness

PER 106 - Aerobics PER 107 - Low Impact Aerobics

PER 108 - Power Lifting

PER 109 - Beginning Ice Skating PER 110 - Intermediate Ice Skating

PER 111 - Ice Skating for Conditioning

PER 112 - Beginning Ice Dancing PER 113 - Intermediate Ice Dancing

PER 114 - Advanced Ice Dancing PER 115 - Beginning Ice Hockey

PER 116 - Intermediate Ice Hockey

PER 117 - Speed Skating PER 118 - Curling

PER 119 - Beginning Swimming

PER 120 - Intermediate Swimming

PER 121 - Advanced Swimming PER 122 - Conditioning Swimming

PER 123 - Aqua Aerobics

PER 124 - Water Polo PER 125 - Springboard Diving

PER 126 - Synchronized Swimming

PER 127 - Beginning Fencing PER 128 - Intermediate Fencing

PER 129 - Advanced Fencing PER 130 - Beginning Aikido

PER 131 - Intermediate Aikido PER 132 - Advanced Aikido

PER 133 - Beginning Tae Kwon Do PER 134 - Intermediate Tae Kwon Do

PER 135 - Advanced Tae Kwon Do PER 136 - Beginning Tai Chi Chuan

PER 137 - Intermediate Tai Chi Chuan PER 138 - Advanced Tai Chi Chuan

PER 139 - Beginning Yoga PER 140 - Intermediate Yoga

PER 141 - Advanced Yoga

PER 142 - Beginning Karate PER 143 - Intermediate Karate

PER 144 - Advanced Karate PER 145 - Basketball

PER 146 - Volleyball PER 147 - Soccer

PER 148 - Team Handball

PER 149 - Orienteering PER 150 - Canoeing

PER 151 - Kayaking PER 152 - Rock Climbing

PER 153 - Mountaineering

PER 154 - Racquetball PER 155 - Tennis

PER 156 - Table Tennis PER 157 - Badminton

PER 158 - Billiards PER 159 - Golf

PER 165 - Beginning Bowling (Lab fee: \$35) PER 166 - Intermediate Bowling (Lab fee: \$35) PER 167 - Advanced Bowling (Lab fee: \$35)

PER 168 - Beginning Pistol Marksmanship (Lab fee: \$35)

PER 169 - Intermediate Pistol Marksmanship (Lab fee: \$35) PER 170 - Advanced Pistol Marksmanship (Lab fee: \$35) PER 171 - Beginning Rifle Marksmanship (Lab fee: \$35)

PER 172 - Intermediate Rifle Marksmanship (Lab fee: \$35) PER 173 - Advanced Rifle Marksmanship (Lab fee: \$35)

PER 174 - Beginning Ballet

PER 175 - Intermediate Ballet

PER 176 - Advanced Ballet PER 177 - Beginning Jazz Dance

PER 178 - Intermediate Jazz Dance

PER 179 - Advanced Jazz Dance

PER 180 - Modern Dance PER 181 - Ballroom Dance

PER 182 - Western Dance

PER 183 - Folk Dance

PER 184 - Square Dance

PER 187 - Cross-Country Skiing

PER 188 - Downhill Skiing PER 189 - Ski Mountaineering

PER 190 - Recreational Fitness Activities

PER 199 - Varsity Athletics

PE 205 2 Credits Alternate Fall

Introduction to the Human Movement Sciences (2+0)

The interrelationship of the biological sciences, sociopsychological, historical and philosophical foundations and the role of the humanities in physical activity, fitness, sport and dance. Clarification of career possibilities included. (Next offered: 1995-96.)

2 Credits

Alternate Fall

Advanced Life Saving (1+3)

Knowledge and skills to provide aid and treatment in aquatic emergencies. Instruction in American Red Cross Cardio-Pulmonary Resuscitation, Advanced Lifesaving, Advanced Swimmer, and Basic First Aid. Certification fee: \$5.00 covers American Red Cross Advanced Life Saving Certification. (Prerequisite: Swim Test. Next offered: 1995-96.)

Water Safety (1+3) Review and practice of swimming and lifesaving skills. Includes review of courses instructors are eligible to teach, teaching methods relative to those courses, general teaching methods, and practice teaching.

1 Credit

Every Third Fall\*

As Demand Warrants

Fundamentals of Softball (1+3)

Basic skills in softball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

1 Credit

Every Third Fall\*

Fundamentals of Basketball (1+3) Basic skills in basketball will be presented, with appropriate consideration for adult and youth groups. Emphasis will be on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

1 Credit

Every Third Spring\*

Fundamentals of Ice Sports (1+3) Basic skills in ice sports for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

1 Credit

Every Third Spring\*

Fundamentals of Snow Sports (1+3) Basic skills in snow sports for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

Every Third Fall\*

Fundamentals of Volleyball (1+3) Basic skills in volleyball for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

PE 216 1 Credit

Alternate Fall\*

Fundamentals of Rhythms (1+3) Basic skills in rhythms for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1995-96.) \*Meets for 7 weeks.

1 Credit

Alternate Spring\*

Fundamentals of Recreational Activities (1+3) Basic skills in recreational activities for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1995-96.) \*Meets for 7 weeks.

**Every Third Fall\*** 

Fundamentals of Soccer (1+3)

Basic skills in soccer for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

PE 219 1 Credit

As Demand Warrants\*

Fundamentals of Aquatics (1+3) Basic skills in aquatics for adult and youth groups, Emphasis on developing personal performance skills and safety procedures for effective class management.
\*Meets for 7 weeks.

Every Third Spring\*

Fundamentals of Wrestling (1+3)

Basic skills in wrestling for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1996-97.) \*Meets for 7 weeks.

1 Credit

Alternate Fall\*

Fundamentals of Gymnastics (1+3) Basic skills in gymnastics for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1995-96.) \*Meets for 7 weeks.

PE 222 1 Credit Alternate Spring\*

Fundamentals of Track and Field (1+3) Basic skills in track and field for adult and youth groups. Emphasis on developing personal performance skills and safety procedures for effective class management. (Next offered: 1995-96.) \*Meets for 7 weeks.

1 Credit

Alternate Fall

Fundamentals of Resistive Training (1+3)

Principles and practices of resistive training for enhancement of muscle strength, strength endurance, cardiovascular endurance, and body composition components of physical fitness with emphasis on development of correct and safe techniques using the various resistive modes available. (Next offered: 1995-96.)

PE 225

Alternate Spring

Fundamentals of Cardiovascular Training (1+3)

Survey of techniques of development of health and performance related to cardiovascular fitness; safe and effective cardiovascular training in various modes (e.g. aerobics, aquatics, running, and mechanical); and system training as it pertains to each mode. (Next offered: 1995-96.)

1 Credit

Alternate Fall

Fundamentals of Movement Mechanics (1+3) Basic principles of body mechanics underlying common (non-athletic) movements and activities. Emphasis on preventative self-care for various populations. (Next offered: 1995-96.)

3 Credits PE 232

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: 1995-96)

3 Credits

Fall, Spring

Advanced First Aid (3+0) Knowledge and skills to provide efficient aid and treatment in emergencies. Progresses through the Basic, Standard, and Advanced First Aid packages of the American Red Cross, Successful completion leads to certification by the American Red Cross in Advanced First Aid. Materials Fee: \$10.00.

Every Third Fall\*

Advanced Theory and Techniques for Teaching Gymnastics (1+3) In-depth study of advanced skills, strategies, and analysis in gymnastics. (Prerequisite: PE 221. Next offered: 1996-97.) \*Meets for 7 weeks.

1 Credit

Every Third Fall\*

Advanced Theory and Techniques for Teaching Basketball (1+3) In-depth study of advanced skills, strategies, and analysis in basketball. (Prerequisite: PE 212. Next offered: 1996-97.) \*Meets for 7 weeks.

Every Third Fall\*

Advanced Theory and Techniques for Teaching Ice Sports (1+3) In-depth study of advanced skills, strategies, and analysis in teaching ice sports. (Prerequisite: PE 213. Next offered 1996-97.) \*Meets for 7 weeks.

04 1 Credit Every Third Spring\* Advanced Theory and Techniques for Teaching Snow Sports (1+3) In-depth study of advanced skills, strategies, and analysis in teaching snow sports. (Prerequisite: PE 214. Next offered 1996-97.) \*Meets for 7 weeks.

Every Third Fall\*

Advanced Theory and Techniques for Teaching Volleyball (1+3) In-depth study of advanced skills, strategies, and analysis in volleyball. (Prerequisite: PE 215. Next offered: 1996-97.) \*Meets for 7 weeks.

1 Credit

Alternate Spring\*

Techniques in Teaching Creative Dance (1+3)

Skill and practice in organizing creative dance experiences for all age groups. Emphasis on learning techniques will free people to create from theirown movement vocabularies. Some emphasis on correct body alignment and techniques of moving. (Prerequisite: PE 216. Next offered: 1995-96.) \*Meets for 7 weeks. PE 307 1 Credit

Alternate Spring\*

Techniques in Camping and Outdoor Recreation (1+3) In-depth study of advanced skills and organizational techniques in camping and outdoor recreation. One weekend campout required. Laboratory fee: \$25.00. (Prerequisite: PE 217. Next offered: 1995-96.) \*Meets for 7 weeks.

**Every Third Fall\*** 

Techniques in Track and Field (1+3)

In-depth study of advanced skills and analysis of track and field. (Prerequisite: PE 222. Next offered: 1996-97.) \*Meets for 7 weeks.

2 Credits

As Demand Warrants

Aquatic Instructor (1+3) Knowledge and skills to teach swimming to children and adults, beginner through advanced swimmer and lifesaving. For American Red Cross Water Safety Instructor Certificate. Certification fee: \$5.00. (Prerequisites: Current American Red Cross Lifesaving Certificate and swim test.)

PE 310 1 Credit Every Third Spring\*

Techniques in Teaching Folk and Square Dance (1+3) Techniques and practical application in organizing and teaching varying age and

ability levels in folk and square dance. Dances include partner and non-partner folk dances, some fad dances and traditional square dance, and practice in cueing and calling. (Prerequisite: PE 216. Next offered: 1996-97.) \*Meets for 7 weeks.

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: 1995-96.)

PE 317W 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: 1996-97.)

1-6 Credits

Practicum in Physical Education (0+var)

Supervised training as apprentice instructor or leader in university class or within the community. Planning and conducting activities with increasing responsibility. Class may be repeated. Only 2 credits may count toward department requirement. (Prerequisites: Appropriate 300 level technique courses and junior standing or equivalent background.)

3 Credits

Spring

Physical Education for Children (3+0) Introduction to a variety of games, fundamental movement activities and sports

appropriate for the K-5 student. Practical application of methods and techniques of instruction specific to physical education including: lesson planning, behavior control, maintenance of a quality learning environment, observation and evaluation techniques. (Prerequisites: PSY 101, junior standing and permission of instructor.)

PE 337W 3 Credits Alternate Fall

Exercise and Sport Psychology (3+0) (Same as PSY 337)

Theoretical and practical applications of psychological issues related to participa-tion in physical activities, including exercise adherence, performance enhancement, group dynamics, leadership and coaching behaviors, arousal/anxiety, intervention strategies and lifespan participation. (Prerequisites: PSY 101, PE 316 or 317 or permission or instructor. Next offered: 1995-96.)

2 Credits

As Demand Warrants

Judging and Coaching Gymnastics (1+3)

Techniques for teaching, coaching, judging, and administering men's and women's gymnastics, including apparatus, tumbling, and floor exercise. (Prerequisite: Junior standing or previous gymnastic experience.

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: 1996-97.)

PE 405 2 Credits

Concepts and Design of Physical Fitness Programs (1-1/2+1-1/2) Problems, methods of achievement, and maintenance of physical fitness. Assessment of personal fitness status, participation in selected fitness activities, and acquisition of skills in basic physical fitness activity. (Prerequisites: BIOL 111,

112. Next offered 1995-96.) 3 Credits

Alternate Fall

Instructional Methodology for Physical Activity (2+3)

Philosophy, curriculum development, methods for facilitating learning/skill development and controlling behavior, measurement and evaluation, observation off community programs, and instructional laboratories for adolescents and adults. (Prerequisite: Junior standing. Next offered: 1995-96.)

2 Credits

As Demand Warrants

Aquatics Program Management (2+0)

Aquatic program planning and implementation, competitive swim team coaching and administration, and management of swimming pools. (Prerequisite: PE 219 or

3 Credits Alternate Spring

Sport and Physical Activity in Today's World (3+0)

Examines the contributions of physical activity to survival, artistic development, and classic and popular culture as they have influenced the role of physical activity in the contemporary world. (Prerequisite: Junior standing. Next offered 1995-96.)

**Every Third Fall** PE 412 3 Credits

Principles and Problems in Athletic Coaching (3+0)

Philosophy and objectives of athletic competition at various age levels. Roles and responsibilities of the coach. Problems of athletic coaching and management of athletes and their training. For those who plan to take leadership or coaching roles in school or community athletic programs. (Prerequisite: Junior standing. Next offered: 1996-97.)

21 4 Credits Physiology of Exercise (3+3) n Alternate Fall PE 421

Study of the responses and adaptations of the human body to physical work, exercise and systematically applied stressors, including effects of environmental stressors, especially those specific to northern regions. (Prerequisite: BIOL 111, 112. Next offered: 1995-96.)

Alternate Fall 3 Credits

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: 1995-96.)

4 Credits Alternate Fall

Biomechanics of Human Performance (3+3) n

Mechanical analysis of human movement, focusing internally on musculo- skeletal interactions and externally on the body with the environment. (Prerequisites: BIOL 111, 112, MATH 107. Next offered: 1995-96.)

PE 437 Alternate Spring 3 Credits Adapted Programs of Physical Activity (3+0)

Theory and practical guidelines for developing adapted movement activities and programs for persons who are impaired, disabled, or handicapped; "mainstreaming" such individuals in regular programs in physical education and recreation. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1995-96.)

3 Credits **Every Third Spring** 

Care and Prevention of Athletic Injuries (3+0)

Scientific bases for the care and prevention of sports and physical activity injuries. Rationale and strategies for taping and wrapping for injury prevention and rehabilitation, techniques in pre-activity conditioning and post-injury reconditioning, and equipment safety. (Prerequisites: BIOL 111, 112, PE 205 or permission of instructor. Next offered: 1996-97.)

3 Credits Alternate Spring

Measurements and Evaluation in Physical Activity (3+0)

Evaluation theory and application 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 use of computer programs to calculate statistical values. (Prerequisites: Completion of 8 credits from PE 211 through 222. Next offered: 1995-96.)

1-6 Credits Fall, Spring

Internship in Exercise Science (.5+var)

For exercise science majors. Provides an opportunity to synthesize and integrate knowledge gained from academic programs through a process of experience, problem solving and experienced professional supervision. (Prerequisites: Senior standing in exercise science and departmental approval.)

### **Physics**

**PHYS 101** 3 Credits

Fall, Spring Introduction to Space Science (3+0) n

An exploration of the discoveries of the space age for the general student. Topics include solar-terrestrial relations, the earth's upper atmosphere and magnetosphere (including the aurora), stratosphere, troposphere, and space communications, with emphasis on fundamental physical processes. (Prerequisite: High school algebra.) PHYS 102X 4 Credits

Spring

Energy and Society (3+3) n Exploring the concept of energy as defined by the laws of physics. Investigating the sources, conversion, distribution and ultimate dispersion of energy, as well as the consequences of its use in the development and maintenance of modern society. Designed for non-science majors. Laboratory fee: \$20.00. (Prerequisite: Minimum two years of high school algebra.)

PHYS 103X 4 Credits

College Physics (3+3) n Classical physics including vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity, fluids, heat, temperature, Laws of Thermodynamics, and kinetic theory. For mathematics, science and liberal arts majors. Laboratory fee: \$20.00 (Prerequisites: High school algebra, trigonometry and geometry or instructor permission.)

PHYS 104X 4 Credits

College Physics (3+3) n Coulomb's Law, electrical potential, capacitance, Kirchoff's Laws, magnetic fields, Faraday's Law, electromagnetic waves, physical and geometrical optics, waves and particles, atomic and nuclear physics. For mathematics, science and liberal arts majors. Laboratory fee: \$20.00. (Prerequisite: PHYS 103X or instructor permission.)

**PHYS 113** 1 Credit

Concepts of Physics (1+0) Review of experimental and theoretical studies of fundamental interactions of nature leading to major advances in human knowledge. Application of these discoveries to modern technologies, such as solid state electronics, lasers, holography, nuclear fusion, medical diagnostics, remote sensing, etc.

**PHYS 163** 1 Credit As Demand Warrants

The Dynamic Aurora Borealis (1+0) n An introductory course on what aurora are, why they occur, how we have learned what we know about the aurora and what effect they have had on humans in the past and the present. (Prerequisite: High school science interest.)

PHYS 211X 4 Credits General Physics (3+3) n Fall, Spring

Vectors, kinematics, Newton's Laws, momentum, work, energy, rotational motion, oscillations, waves, gravity, and fluids. For engineering, mathematics and physical science majors. Laboratory fee: \$20.00. (Prerequisites: Concurrent enrollment in MATH 201X and one year of high school physics, or instructor permission.)

PHYS 212X 4 Credits General Physics (3+3) n Fall, Spring

Heat, temperature, Laws of Thermodynamics, Coulomb's Law, electrical potential, capacitance, Kirchoff's Laws, Biot-Sarvart Law, Faraday's Law, and electromagnetic waves. For engineering, mathematics and physical science majors. Laboratory fee: \$20.00. (Prerequisite: MATH 201; PHYS 211X or ES 208 or concurrent enrollment in ES 210 or instructor permission.)

4 Credits

Spring

Elementary Modern Physics (3+3) n Geometrical and physical optics: elementary-level modern physics including special relativity, atomic physics, nuclear physics, solid-state physics, elementary particles, simple transport theory, kinetic theory, and concepts of wave mechanics. Laboratory fee: \$20.00. (Prerequisites: PHYS 211X or 212X or permission of instructor.)

PHYS 275X 4 Credits

Introduction to Astronomy (3+3) n The exploration of the universe is one of the most natural of all human drives; people of all eras have sought to determine their basic relationships with the rest of the universe. Examination of the science of astronomy and its social consequences, with an emphasis on the interrelationships between astronomy and other sciences, and on the inseparable nature of our view of the cosmos and our view of ourselves. Designed for non-science majors. Laboratory fee: \$20.00. (Prerequisite: Minimum two years of high school algebra or permission of instructor.)

**PHYS 276** 3 Credits Astronomy (3+0) n

Science elective for the gneral student. Stellar astronomy, physical properties and distribution of stars, interstellar matter, evolution of stars, galactic structure, and cosmology. Evening demonstrations. (Prerequisites: PHYS 275 or permission of **PHYS 311** 4 Credits **PHYS 312** 4 Credits Mechanics (4+0) n

Fall Spring

Newtonian mechanics, motion of systems of particles, rigid body statics and dynamics, moving and accelerated coordinate systems, Lagrangian and Hamiltonian mechanics, continuum mechanics, theory of small vibrations, tensor analysis, rigid body rotations, special theory of relativity. (Prerequisites: PHYS 211X and at least concurrent enrollment in MATH 302; PHYS 311 for 312, or permission of instructor.)

**PHYS 313** 4 Credits

Thermodynamics and Statistical Physics (4+0) n

Thermodynamic systems, equations of state, the laws of thermodynamics, changes of phase, thermodynamics of reactions, kinetic theory, and introduction to statistical mechanics. (Prerequisite: PHYS 212X or permission of instructor.)

**PHYS 331** 3 Credits **PHYS 332** 3 Credits

Fall Spring

Electricity and Magnetism (3+0) n

Electrostatics, dielectrics, magnetostatics, magnetic materials, and electromagnetism. Maxwell's equations, electromagnetic waves, radiation, physical optics, and selected topics from electronics. (Prerequisites: PHYS 212X and MATH 202 or permission of instructor.)

PHYS 381W,O 3 Credits PHYS 382W 3 Credits

Fall Spring

Physics Laboratory (1+6) n

Laboratory experiments in classical and modern physics. (Prerequisite: PHYS 213, PHYS 381 for 382, or permission of instructor.)

PHYS 411 PHYS 412 4 Credits 4 Credits

Fall Spring

Modern Physics (4+0) n

Relativity, elementary particles, quantum theory, atomic and molecular physics, x-rays, and nuclear physics. (Prerequisites: PHYS 213, MATH 302 and MATH 314, PHYS 411 for 412, or permission of instructor.)

4 Credits

Spring

Solid State Physics and Physical Electronics (4+0) n

Theory of matter in the solid state and the interaction of matter with particles and waves. (Prerequisites: MATH 302, 314 and PHYS 411 or permission of the instructor.)

4 Credits

Geometrical and Physical Optics (3+3) n

Geometrical optics, interference and diffraction theory, non-linear optics, Fourier optics, and coherent wave theory. (Prerequisites: MATH 302, 314 and PHYS 331 or permission of instructor.)

**PHYS 611** 3 Credits **PHYS 612** 3 Credits

Alternate Fall 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 Statistical Mechanics (3+0) **Alternate Spring** 

**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)

Alternate Fall

Methods of Numerical Simulation in Fluids and Plasma (3+0) (Same as MSL 629)

**PHYS 631** 3 Credits

**PHYS 632** 3 Credits Electromagnetic Theory (3+0) Alternate Fall

**PHYS 640** 3 Credits Alternate Spring

Auroral Physics (3+0)

**Alternate Spring** 

**PHYS 645** 3 Credits

Fundamentals of Geophysical Fluid Dynamics (3+0)

Alternate Fall

**PHYS 650** 3 Credits Alternate Fall

Aeronomy (3+0)

3 Credits **PHYS 651** 

Alternate Fall Alternate Spring

PHYS 652 3 Credits Quantum Mechanics (3+0) **PHYS 660** 3 Credits Radiative Transfer (3+0) Alternate Spring

**PHYS 672** 3 Credits Magnetospheric Physics (3+0)

3 Credits

Alternate Spring

Alternate Fall

### **Political Science**

Space Physics (3+0)

PS 100X 3 Credits (Same as ECON 100X)

Fall, Spring

Political Economy (3+0) s Survey of the evolution and operation of the American domestic political economy with consideration of market failures and government responses. Review of major

issues in political economy such as inflation, poverty and budget deficits. Exploration of linkages between American and global systems. 3 Credits Fall, Spring

Introduction to American Government and Politics (3+0) s Principles, institutions, and practices of American national government; the

Constitution, federalism, interest groups, parties, public opinion, and elections. Also available via Independent Learning.

1 Credit

As Demand Warrants

Parliamentary Procedures (1+0)

(Same as ANS 110)

Rules and principles of parliamentary procedures and application to group deci-

3 Credits Comparative Politics (3+0) s Fall

Introduction to the systematic study of government and politics in countries other than the United States. Through lecture and discussion, students will explore such questions as why some countries are democracies and other countries dictatorships; why some remain stable and peaceful, while others seem in constant turmoil. This is a prerequisite for other courses in comparative politics.

PS 202 3 Credits Spring

Cases in Comparative Politics (3+0) s In-depth examination of various types of governments as they appear in different regions of the world. Particular countries will be chosen as subjects for lecture, group discussions, and individual research projects. Cases may be drawn from Western, Eastern or Central Europe, Latin America, Asia or Africa. Recommended as preparation for 300 and 400 level courses in comparative politics. (Prerequisite: PS 201 or consent of instructor.)

3 Credits Alaska Government and Politics (3+0) s

A comprehensive introduction to Alaska's government and politics, in the context of American state and local government and politics. Topics include political history, constitution, political parties, interest groups, elections, public opinion, governor, legislature, judiciary, administration and local governments. Compares Alaska to the contiguous 48 states, and examines how government institutions and processes respond to social, environmental, and political changes of Northern communities.

PS 212 3 Credits Alternate Spring Introduction to Public Administration (3+0) s

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: 1995-96.)

3 Credits

Research Methods (3+0) s (Same as JUST 222)

Application of social science research methods to solving scientific and nonscientific questions arising in justice or political science. Basic methods include experimentation and survey research. (Prerequisite: PS 101 or JUST 110.)

PS 263 Fall, Spring 3 Credits Alaska Native Politics (3+0) s

Political development, organization, interests and activities of Alaska Natives; treatment of ethnic leadership issues, history of federal Indian policy, evolution of Native leadership, village and regional government, land claims, and community politics from the Alaska Native brotherhood to ANCSA to the Alaska Native Coalition. Compares Alaska Native political developments to those of other circumpolar Northern Native communities.

3 Credits

Fall, Spring

Values and Choice (3+0) h

The central question, "What is Justice?" will be posed of both Western and non-Western value and ethical theories. Value choices on issues such as abortion,

pornography, gender inequality in the workplace, and alternative life styles will be examined. (Prerequisites: At least two lower-division courses in "Perspectives on the Human Condition" or equivalent (PS/ECON 100X, HIST 100X, ANTH/SOC 100X, ART/MUS/THR 200X, ENGL/FL 200X) and junior standing.)

PS 301 3 Credits

PS 302W,O

Alternate Fall

American Presidency (3+0) s The institution of the presidency in the American political system. (Prerequisite:

PS 101 or consent of instructor. Next offered: 1995-96.)

Alternate Spring

3 Credits Congress and Public Policy (3+0) s

The American Congress in the political system. (Prerequisite: PS 101. Next offered: 1995-96.)

3 Credits

Politics and the Judicial Process (3+0) The role of federal courts as political institutions. The politics of judicial selection, the nature of judicial decision-making and intracourt politics, litigations as a policymaking device, changes in the nature and scope of judicial power, governmental attorneys, the legal bureaucracy, and judicial agenda setting. (Prerequisite: PS 101. Next offered: 1996-97.)

3 Credits

Alternate Spring

Government and Politics of Russia and the Periphery (3+0) s

An examination of current developments in Russia from a number of perspectives: the effect of history and geography on political change; the nature of Russian government and society; the legacies of Lenin, Stalin, Gorbachev, and the ideological nature of regimes and leadership; economic forces and the political struggle in governance; revolution, democracy and reform; and the international role of Russia, particularly in relation to the former Soviet republics, Eastern Europe and other border areas. (Prerequisites: PS 201 or consent of instructor. Next offered: 1995-96.)

PS 312 3 Credits Alternate Fall

East Asian Governments and Politics (3+0) s Modern East Asia (including China, Taiwan, Japan, North and South Korea) politics and society, including governmental institutions, political processes and regional and global foreign relations. (Prerequisite: PS 201 or consent of instructor.

Next offered: 1995-96.)

Alternate Fall

Political Ideologies (3+0) s

An examination of the purpose of ideology as an orienting set of political ideas with mass appeal. Analysis of twentieth century ideologies, including anarchism, communism, liberalism, socialism, environmentalism and feminism. (Prerequisite: PS 101 or consent of instructor. Next offered: 1996-97.)

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 move-ment, pragmatism. (Prerequisite: PS 101 or consent of instructor. HIST 131 and 132 strongly recommended. Next offered: 1995-96.)

3 Credits

International Politics (3+0) s Introduction to the problems, literature and terminology of international relations.

Provides a basis for understanding current international affairs. Examines relations between nations, regions and groups, as well as ideas of conflict, security, trade, technology, negotiation, cooperation, revolution, modernization and community.

PS 322 3 Credits Alternate Spring

International Law and Organization (3+0) s Case studies in international law (rights and duties of states, jurisdiction and sovereignty, treaties, use of force and adjudication processes); development of regional organizations and integration; the United Nations. (Prerequisite: PS 321 or consent of instructor. Next offered: 1996-97.)

3 Credits

Alternate Fall

Issues of International Political Economy (3+0) s

Exploration of the manner in which political and economic forces interat to affect international flows of goods, money, investments, and technology. International political economic relations are examined in several contexts. (Prerequisite: PS 100X. Next offered: 1995-96.)

PS 325 3 Credits

Native Self- Government (3+0) s

(Same as ANS 325)

Indigenous political systems, customary law and justice in Alaska emphasizing the organization of Native governance, federal Indian Law and Alaska state chartered local government. Comparisons between Alaska Native political development and those of tribes in the contiguous 48 states and northern hemisphere tribal people. (Prerequisites: HIST 100, PS 263.)

PS 3300 3 Credits

Law, Justice and Society (3+0) s

Spring

Spring

Examines legal reasoning and major legal theories through lecture, debate and discussion. Recommended as preparation for PS 435 and 436 (Constitutional Law I and II) and for pre-law students. (Prerequisites: PS 101.)

PS 401W 3 Credits **As Demand Warrants** 

Political Behavior (3+0) s Attitudes, opinions, beliefs of the American electorate and the impact of these factors on political behavior; role of political organizations (parties and interest groups) in modern American politics.

Public Policy (3+0) s

Alternate Spring

Discussion of how policy process works and how policy analysis is conducted. Examples of policy issues from recent cases, especially in Alaska. (Prerequisites: PS 101 or consent of instructor. Next offered: 1995-96.)

3 Credits

Spring

Introduction to Legal Research and Writing (3+0)

(Same as JUST 404)

Methods of legal research and preparation of legal materials. Introduction to the resources of law libraries and the techniques of presenting issues in legal form. (Prerequisites: PS 101 or JUST 110.)

PS 411W U 11W 3 Credits (P) Classical Political Theory (3+0) h

appl- Phiost

Alternate Fall

Political ideas from ancient Greece, Rome, and the Judaeo-Christian tradition. Theories of Plato, Aristotle, Cicero, Augustine, and Aquinas. (Prerequisites: PS 101 or consent of instructor. Next offered: 1995-96.)

PS 412W 3 Credits

Modern Political Theory (340) s

Modern Political Theory (3+0) s

Political ideas from the Renaissance to the modern world. Theories of Machiavelli, Modern Political Theory (3+0) s Hobbes, Locke, Rousseau, Burke, Marx, and Lenin. (Prerequisites: PS 101 or consent of instructor; PS 411 strongly recommended. Next offered: 1995-96.)

3 Credits

As Demand Warrants

Contemporary Political Theory (3+0) s

An examination of contemporary theories about "What is democracy?" including theoretical investigation of the nature of existing "democracies." Theory is used to provide an account of the process of determination of policy in democratic capitalist systems. Evaluation of existing "democratic" systems by comparing their nature with the realizable democratic ideals. (Prerequisite: PS 101 or consent of instructor.)

PS 420 3 Credits

**Alternate Spring** 

Environmental Politics (3+0) s Examination of politics of federal environmental policy decisions focusing on the environmental movement as a force reshaping American society. Topics include limits to growth thesis, impact assessment policy, and wilderness politics. (Prerequisite: PS 101 or consent of instructor. Next offered: 1996-97.)

3 Credits

Fall

Federal Indian Law and Alaska Natives (3+0) s

(Same as ANS 425)

The "special relationship" between the federal government and Native Americans based on land transactions and recognition of tribal sovereignty. Federal Indian law and policy evolving from this relationship. Legal rights and status of Alaska Natives. (Prerequisites: PS 101 and HIST 100; or consent of instructor; PS 263 is recommended.)

3 Credits

Alternate Fall

Constitutional Law I: Institutions and Governmental Powers (3+0) s Constitutional doctrines and historical evolution of federalism and the separation of powers in the United States. Emphasis on the courts role in arbitering intergovernmental and interbranch disputes, the constitutional status of the administrative bureaucracy, and the control of the war power and foreign policy. (Prerequisite: PS 101 or consent of instructor. Next offered: 1995-96.)

3 Credits

Alternate Spring Constitutional Law II: Civil Rights and Civil Liberties (3+0) s

Origin and development of civil rights and civil liberties in the United States. Emphasis on the social, political and philosophical justifications of rights as expressed in judicial decision and constitutional doctrine. (Prerequisite: PS 101 or consent of instructor. Next offered: 1995-96.)

PS 437 3 Credits Alternate Spring

American Foreign Policy (3+0) s

U.S. foreign policy in the postwar and post cold war period, including development of policy (domestic and foreign influences), administration of political, economic and military policies, and evaluation of policy effectiveness. Analyzes the historical background of the U.S. role in the world today and leading personalities and events that are a part of it. (Prerequisites: PS 321 or consent of instructor. Next offered: 1995-96.)

3 Credits

Alternate Fall

Peace and National Security (3+0) s Analysis of requirements for the reduction of global tensions in relation to national security needs, with a focus on the politics of war and conflict, ideas of peace and order, obstacles to national protection, new strategic beliefs, and methods of assessing national security policies. (Prerequisite: PS 321 or consent of instructor.

Next offered: 1996-97.) 3 Credits

Alternate Spring

Comparative Aboriginal Rights and Policies (3+0) s

(Same as ANS 450)

A case-study approach in assessing Aboriginal Rights and Policies in different Nation-State Systems. Seven Aboriginal situations examined for factors promoting or limiting self-determination. (Prerequisites: Upper division standing or consent of instructor. Next offered: 1995-96.)

3 Credits

Alternate Fall

Government and Politics of Canada (3+0) s

A detailed examination of the Canadian political system, covering the Canadian constitution, the federal structure, parliamentary government and public policy, as well as contemporary issues concerning Native rights and the Canadian North. Students will complete a major research paper on specific policy areas (language, education, health care, environment, natural resources, foreign relations). (Prerequisite: PS 201 or consent of instructor. Next offered: 1995-96.)

3 Credits

Alternate Spring

Government and Politics of Latin American (3+0) s

Exploration of major issues and concepts in the development and governances of modern Latin America, including the legacies of colonialism, revolution, the military in government, economic development and the quest for stable democratic government. Includes an overview of the region and cases drawn from the Caribbean, Mexico, Central and South America. (Prerequisite: PS 201 or consent of instructor. Next offered: 1996-97.)

Fall, Spring 3 Credits

Internship in Public Affairs (3+0)

Individual study of public agencies or organizations through actual experience. (Admission by consent of the instructor.)

3 Credits

Senior Seminar in Political Science (3+0) s

Provides scope and depth to the study of political science. Exploration of new literature in the field and interdisciplinary perspectives. Requirements include a major research paper. (Prerequisite: Junior standing.)

Alternate Spring

Environmental Politics of the Circumpolar North (3+0)

(Same as NORS 648)

3 Credits

Alternate Spring

Comparative Government and Politcs in the Circumpolar North (3+0)

(Same as NORS 650)

Alternate Spring

Law, Justice and Society in the Circumpolar North (3+0)

(Same as NORS 651)

3 Credits

**Alternate Spring** 

International Relations of the North (3+0) (Same as NORS 652)

Psychology

3 Credits Introduction to Psychology (3+0) s Fall, Spring

Principles of general psychology emphasizing natural science and social science orientation. Cultural, environment, heredity, and psychological basis for integrated behavior; visual, audition and the other senses; motivation and emotion; basic processes in learning, problem solving, and thinking; personality; psychological disorders - their prevention and treatment, and therapeutic strategies. Also available via Independent Learning or via television as a self-paced, computeraided course; special telecourse fee: \$30.00.

PSY 230 3 Credits

As Demand Warrants

Psychology of Adjustment (3+0) s Study of the psychology of adjustment, growth, and creativity, including advances in personal psychology, understanding personality patterning, and an exploration of techniques and methods for furthering creative potential. (Prerequisite: PSY

PSY 240 3 Credits

Fall, Spring Developmental Psychology in Cross-Cultural Perspective (3+0)

Individual development examined from both a psychological and cross-cultural perspective. Development of cognition, personality, and social behavior; attention to relevant research on those cultures found in Alaska. Also available via Independent Learning. (Prerequisite: PSY 101.)

PSY 250 3 Credits Fall, Spring

Introductory Statistics for Behavioral Sciences (3+0) (Same as SOC 250)

Purposes and procedures of statistics: calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means. (Prerequisite: MATH 107 or equivalent.)

PSY 255 3 Credits

As Demand Warrants

Foundations of Counseling (3+0) (Same as HMSV 255)

Survey of counseling philosophy, approaches, and types of counseling systems in use. Topics include approach and system match; psychoanalysis, behavior therapy, and humanistic approaches; counseling ethics and ethical problems. (Prerequisites: PSY 101 and 240 or permission of instructor.)

PSV 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 310 3 Credits **Alternate Spring** 

Cross-Cultural Psychology (3+0) s
Major theories and research related to understanding the impact of culture on psychological development, cognition, social behavior, perception, and models for the conceptualization of distress and disease. Models for research and inquiry across culture will be discussed in the context of examining the cross-cultural research on selected topics. (Prerequisite: PSY 101 and PSY 240. Next offered: 1996-97.)

PSY 330 3 Credits Spring

Social Psychology (3+0) s

(Same as SOC 330)

Analysis of intergroup relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. (Prerequisite: PSY 101 or SOC 101.)

PSY 337W 3 Credits

Exercise and Sport Psychology (3+0)

(Same as PE 337)

Theoretical and practical applications of psychological issues related to participation in physical activities, including exercise adherence, performance enhancement, group dynamics, leadership and coaching behaviors, arousal/anxiety, intervention strategies and lifespan participation. (Prerequisites: PSY 101, PE 316 or 317 or permission or instructor. Next offered: 1996-97.)

PSY 345 3 Credits Fall

Alternate Spring

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.)

3 Credits

Alternate Spring

Comparative Psychology (3+0) n

An integrated multidisciplinary behavioral approach emphasizing basic premises, causal factors, functional consequences and interrelationships. Synthesis of animal behavior and ethology in development and maintenance of behavioral patterns in individual organisms and social groups. (Prerequisites: PSY 101, BIOL 105, 106 and/or permission of instructor. Next offered: 1996-97.)

**PSY 3600** 3 Credits Alternate Spring

Psychology of Women Across Cultures (3+0) s (Same as WMS 360)

Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1995-96.)

PSY 370 3 Credits Alternate Fall
Drugs and Drug Dependence (3+0) s
(Same as SOC 370)

A multidisciplinary approach emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological, psychological and sociological aspects of drug abuse, recommended drug education alternatives and plans, and treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1996-97.)

PSY 380 3 Credits Alternate Fall

Human Behavior in the Arctic (3+0) s

Living systems in Alaska and behavioral characteristics that have to do with stress and isolation. Material includes structural design as related to behavioral research. (Prerequisite: PSY 101. Next offered: 1995-96.)

PSY 440 3 Credits Alternate Spring Learning (3+0) s

Theory and research on the fundamentals of learning. Topics include animal learning, classical conditioning, instrumental learning, discrimination learning, biological constraints on learning, and cross-cultural differences in learning styles. (Prerequisite: PSY 101. Next offered: 1995-96.)

PSY 445W 3 Credits Fal Community Psychology (2+3) s

Survey of principles and applications of community psychology, emphasizing person-environment interactions and societal and cultural impacts upon individual and community functioning. Attention given to interventions which facilitate psychological competence and empowerment, prevent disorder and promote social change. Experiential learning emphasized through community experience/volunteer lab requirement. (Prerequisites: PSY 101 and PSY/SOC 330.)

PSY 455 3 Credits Spring Clinical Psychology (2+3)

Survey of clinical psychology methods and approaches with consideration of psychological assessment and treatment. Topics include specific counseling strategies such as psychoanalysis, behavior therapy, crisis intervention, rational-emotive and humanistic approaches, along with ethics in clinical practice and issues in cross-cultural counseling and psychological assessment and treatment. A clinical lab will allow students to apply their classroom learning and get hands-on experience in clinical skills. (Prerequisites: PSY 240 and PSY 345.)

PSY 460 4 Credits Alternate Fall Physiological Psychology (3+3) n

An integrated multidisciplinary approach to the study of neuroanatomy and neurophysiology emphasizing the basic principles, cortical and subcortical organization, functional mechanisms, and the physical-chemical foundations in physiological bases of behavior with special reference to neuroanatomy, neurochemistry, and electrophysiological measures employed in the study of behavior and brain activity. Research topics include brain dynamics, the neural bases of learning, the neural substrates of emotion and motivation, states of consciousness, and stress and psychosomatic relationships. (Prerequisite: PSY 101, BIOL 105, 106 or BIOL 211, 212 and/or permission of instructor. Next offered: 1995-96.)

PSY 470 3 Credits Alternate Spring Sensation and Perception (3+0) n

An integrated psychophysiological inquiry emphasizing principles, functions and organization, fundamental mechanisms, and the structural complexity extant in the sensory physiology of audition, gustation, kinesthesis, olfaction, proprioception, somesthesis, and vision. Theoretical models and systems of perception with reference to biological, cultural, developmental, hereditary, physiological, psychological, and social effects on sensory perceptions. (Prerequisites: PSY 101, PSY 460, and BIOL 105, 106 or BIOL 211, 212 and/or permission of instructor. Next offered: 1995-96.)

PSY 473W 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.)

PSY 475 4 Credits Alternate Spring

Experimental Psychology (2+6) s

An integrated approach to the study of experimental psychology. Emphasis on research methodologies and techniques. Design, execution, and analysis of individual projects involving both animal and human subjects. (Prerequisites: PSY 101, PSY/SOC 250 or STAT 200, and PSY/SOC 473. Special permission of instructor is required if prerequisites have not been met.. Next offered: 1996-97.)

PSY 610 3 Credits Alcohol: Pharmacology and Behavior (3+0)

PSY 614 3 Credits
Human Adaptation to the Circumpolar North (3+0)
(Same as NORS 614)

PSY 615 3 Credits As Demand Warrants
Drug Action: Physiology and Behavior (3+0)

PSY 618 3 Credits As Demand Warrants
Community Treatment Alternatives (3+0)

PSY 620 3 Credits As Demand Warrants
Treatment of Drug and Alcohol Dependency (3+0)

PSY 625 3 Credits As Demand Warrants Prevention of Alcohol and Drug Dependency (3+0)

PSY 630 3 Credits Community Psychology (3+0)

PSY 631 3 Credits
Community Psychology: Cross-cultural Applications
and the Ethics of Change (3+0)

PSY 635 3 Credits Spring Field-Based Research Methods (3+0)

PSY 638 3 Credits
Proseminar in Community Psychology (3+0)
(Same as SOC 638)

Alternate Fall

PSY 645 3 Credits
Prevention Theories and Strategies (3+0)
(Same as SOC 645)

As Demand Warrants

PSY 646 3 Credits As Demand Warrants School Counseling (3+3) (Same as COUN 646)

PSY 650 3 Credits As Demand Warrants Cross-Cultural Psychopathology (3+0)

PSY 655 3 Credits Alternate Spring Healing: Implications for Clinical/Community Practice (3+0)

PSY 660 3 Credits
Counseling Theories and Applications (3+0)
(Same as COUN 623)

PSY 661 3 Credits Fall Cross-Cultural Counseling (3+0) (Same as COUN 660)

PSY 662 3 Credits
Counseling Theories and Applications II (3+0)

Alternate Spring

PSY 663 3 Credits Clinical Methods and Assessment (3+0)

PSY 664 3 Credits As Demand Warrants Behavior Therapy (3+0)

PSY 665 3 Credits As Demand Warrants Psychoanalytic Theory and Clinical Method (3+0)

PSY 666 3 Credits As Demand Warrants Family and Network Therapy (3+0)

PSY 667 3 Credits
Existential Psychotherapy (3+0)

As Demand Warrants

PSY 668 3 Credits Spring Crisis Intervention (3+0)

PSY 674 3 Credits Spring Group Counseling (3+0) (Same as COUN 674)

PSY 677 3 Credits
Psychological Assessment - Intelligence (3+0)

As Demand Warrants

PSY 678 3 Credits Psychological Assessment - Personality (3+0)

PSY 688 3 Credits Fall, Spring Practicum in Community Psychology (2+7)

PSY 690 3-12 credits Fall, Spring Internship in Community Psychology (0+40)

### Religion

**RELG 205** 3 Credits As Demand Warrants

Introduction to the Bible (3+0) h

A study of the Bible as literature of ancient Israel and the early Christian Church.

2 Credits

As Demand Warrants

Arctic Native Religion: Shamanism (2+0) h

Basic principles and beliefs of Shamanism with emphasis on North American and Arctic Shamanism. Introduction to traditional functions of Shamanism; past and present perceptions of Shamanism.

3 Credits

As Demand Warrants

Religions of the World (3+0) h

A survey of the development of major religions of the Eastern and Western world including contemporary world religions.

### **Rural Development**

**RD 200** 3 Credits Fall

Community Development in the North (3+0) s

Examines rural community development efforts in circumpolar countries and the impact of these efforts on Northern communities and indigenous peoples.

Issues in Alaskan Maritime Development (3+0)

Introduction to the current concepts, strategies, and issues of maritime development in Alaska, including community development, fisheries quotas and sustainable development efforts. Emphasis on environmental and cultural impact assessments of maritime development. (Prerequisite: ENGL 111X. Next offered: 1996-97.)

1-3 Credits

As Demand Warrants

Grant Writing for Community Development (1-3+0)

Focuses on basic elements of grant proposals and processes of preparing proposals for governmental and private funding sources. Emphasis on applied skills through preparation of actual grant proposals.

3 Credits

As Demand Warrants

Rural Alaska Land Issues (3+0)

The history and significance of ANCSA, ANILCA and other land issues in rural areas of Alaska.

3 Credits

**As Demand Warrants** 

Co-Management of Renewable Resources (1.5+Arr)

Examines efforts of cooperative management of natural resources among users and federal and state management agencies. Recent initiatives in Alaska and Canada involving salmon, migratory birds, marine mammals, and brown bear discussed.

3 Credits

As Demand Warrants

Perspectives on Subsistence in Alaska (3+0) s

Examines the socio-economic, cultural, legal and political dimensions of subsistence in Alaska.

3 Credits

As Demand Warrants

Resource Management Research Techniques (3+0)

Overview of standard methods of field-based scientific research conducted by resource management agencies in rural Alaska including elementary statistical concepts, survey techniques, and tools used in land and renewable resources research. (Prerequisites: NRM 101 and BIOL 104X.)

3 Credits

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.)

3 Credits

**Alternate Spring** 

Tribal People and Development (3+0) s Comparative examination of socio-economic development processes on tribal peoples in third and fourth world societies. Attention to implications of these processes for Alaska Native people. (Prerequisite: Junior standing or permission of instructor. Next offered: 1995-96.)

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)

Examines theory and evidence linking varied forms of education to economic growth and development. A comparative approach explores similarities and differences between rural Alaskan regional development and systematic nationbuilding efforts in developing countries. (Prerequisite: Permission of instructor.)

**RD 3500** 3 Credits

Spring

Community Research Techniques (3+0)

Basic techniques and concepts associated with community-based research and evaluation activities related to the needs of rural institutions and communities.

RD 351

Community Planning and Grant Writing Techniques (3+0)

Examination of the major components of planning and grant writing processes as they relate to community level land-use, business and social service projects. (Prerequisite: RD 350 or SOC 473 or permission of instructor.)

3 Credits

As Demand Warrants

Women and Development (3+0) s

(Same as WMS 375)

The effect of modernization and development processes on the role of women in a variety of Third World and tribal world contexts as well as the increasingly important "new" role women play in these complex processes.

**RD 400** 3 Credits Fall, Spring

Rural Development Internship

Structured experience in an appropriate educational, agency or corporate setting. Approved project required. Enrollment only by prior arrangement with the instructor.

RD 425 3 Credits As Demand Warrants

Cultural Impact Analysis (3+0)

An examination of the potential impacts of development projects on cultural systems; use of impact data to shape the actual project in positive directions. Data gathering and analysis techniques related to impact predictions. Student impact analysis required. (Prerequisite: RD 350 or permission of instructor.)

Managing Community Development Programs (3+0)

Examines appropriate management and accountability approaches for smallscale, community-based programs and projects, particularly those found in rural and/or cross-cultural contexts. (Prerequisite: RD 350 and RD 351 or permission of instructor.)

**RD 475W** 3 Credits Fall, Spring

Rural Development Senior Project Under faculty supervision, the student completes a major theoretical, research and/ or applied project which relates the student's applied emphasis area to rural development considerations. (Prerequisite: Senior standing or permission of instructor.)

RD 492

1-3 Credits Rural Development Seminar (3+0) As Demand Warrants

Various topics of current interest and importance to the Rural Development major. Topics announced prior to each offering and course may be taken for repeat credit. (Prerequisites: Upper division standing, RD 300 or equivalent, and permission of instructor.)

### **Rural Human Services**

2 Credits

Alternate Semesters

Cross-Cultural Bridging Skills (2+1)

Issues and impacts relevant to effective cross-cultural communication. Understanding barriers to effective cross-cultural communication in rural settings and development of effective cross-cultural communication skills from a Native perspective. Development of bridging and networking skills that integrate Native values and principles. Student must spend one week in intensive study at selected delivery site.

2 Credits

**Alternate Semesters** 

Issues of Personal Development in the Delivery of Rural Human Services

Dynamics and impacts of personal development issues relevant to the delivery of rural human services focusing on understanding types, application, and processes of personal development. Facilitating personal development through processes that integrate or reflect Native values and principles. Student must spend one week in intensive study at selected delivery site.

**RHS 120** 2 Credits Alternate Semesters

Family Systems I (2+1) Survey of historical forces that exerted influence on Alaska Native families, the impacts of those forces, and discussion of their contemporary effects from a Native perspective. Focus on developing options and strategies for developing healthy Native families as the foundation for healthy Native communities. Emphasis on developing the understanding and skills necessary to facilitate development and maintenance of healthy families through healthy individuals. Student must spend one week in intensive study at selected delivery site.

2 Credits

**Alternate Semesters** 

Processes of Community Change (2+1)

Contemporary foundations of rural social development and relevant issues from a Native perspective. Developing the understanding and skills necessary for facilitating positive individual, family, and community development based on an ecological systems approach. Emphasis on developing the skills necessary to identify, develop, and mobilize individual, family, and community resources in rural Native communities. Student must spend one week in intensive study at selected delivery site.

**Alternate Semesters** 

Alaska Native Values and Principles (2+1)

Traditional Native values and principles, their applicability to today's world, and issues relevant to their integration into today's lifestyles. Developing understanding and skills necessary for facilitating formulation of positive world views within Native individuals, families, and communities. Emphasis on developing an understanding of and appreciation for spirituality as a value and its role in the life processes of Alaska Natives. Student must spend one week in intensive study at selected delivery site.

2 Credits

Alternate Semesters

Introduction to Rural Counseling (2+1)

Identification and examination of issues relevant to the delivery of rural counseling services focusing on developing the understanding and skills necessary for the effective delivery of rural counseling services. Opportunities for development of basic rural counseling skills with emphasis on integration of Native values and principles and exploring strategies that facilitate positive individual, family, and community growth and development through enhancement of healthy lifestyles in rural Native communities. Student must spend one week in intensive study at selected delivery site.

**RHS 220** 2 Credits Alternate Semesters

Family Systems II (2+1) The dynamics and issues relevant to personal healing and recovery from a Native perspective focusing on developing the understanding and skills necessary to healing and recovery in Native individuals, families, and communities. Emphasis on achieving healthy lifestyles through self-understanding based on truth, grieving, and positive proactive repositioning. Student must spend one week in intensive study at selected delivery site.

**RHS 250** 2 Credits Rural Counseling II (2+1) **Alternate Semesters** 

An examination and discussion of the differences and similarities between Native and Western counseling skills. Identifies and examines issues relevant to the development and delivery of basic rural counseling skills and services. Focuses on identifying and building on individual, family, and community strengths as the foundation for development of intervention strategies. Addresses the importance of integrating Native traditional values and principles into intervention strategies and service delivery. Emphasis on developing and enhancing basic rural counseling skills and short- and long-term intervention strategies. Student must spend one

week in intensive study at selected delivery site.

**Alternate Semesters** 

2 Credits Addictions: Intervention and Treatment (2+1)

Dynamics, issues, impacts, treatment options and intervention strategies relevant to behavioral and chemical addictions. Understanding addictive processes and developing treatment options and intervention strategies from a Native perspective. Emphasis on development of treatment options and intervention strategies that integrate Native values and principles. Student must spend one week in intensive study at selected delivery site.

2 Credits

As Demand Warrants

Interpersonal Violence (2+1)

Types, causes, and impacts of interpersonal violence focusing on developing an understanding of interpersonal violence and development of treatment options and intervention strategies from a Native perspective. Emphasis on development of treatment options and intervention strategies that integrate Native values and principles. Student must spend one week in intensive study at selected delivery site.

**RHS 270** 2 Credits **Alternate Semesters** 

Networking, Negotiating, and Conflict Resolution (2+1)

The dynamics of networking, negotiation, and conflict resolution from a Native perspective. Focusing on Alaska Native individuals, families, and communities, identification, examination and discussion of issues relevant to developing effective communication skills. Emphasis on identifying and understanding issues impacting conflict resolution, focusing on developing and strengthening networking and negotiating skills relevant to the delivery of effective rural human service. Student must spend one week in intensive study at selected delivery site.

2 Credits

**Alternate Semesters** 

Case Management (2+1) Identification and discussion of issues, components, procedures, responsibilities, skills, and processes for case management in rural settings with diverse populations. Emphasis on case management processes unique to rural and village Alaska and to the fields of mental health, addictions, and interpersonal violence. Oral and written communication skills essential to effective case management explored. Student must be willing and able to work independently outside the classroom and in the community.

4 Credits

Alternate Semesters

Rural Human Services Practicum

Taken as part of the final sequence of courses in the Rural Human Services Certificate Program, practicum provides students with 100 hours of supervised learning experience in an approved rural human service organization/agency. Provides students with opportunities for personal and professional development, self-analysis, and growth. Emphasis on developing the understanding and skills necessary to integrate Native healing theory and problem solving into the delivery of rural human services. Student must be willing and able to work independently outside the classroom and in the community.

**RHS 288** 1 Credit **Alternate Semesters** 

Directed Study: Resource Assessment (1+0)

Provides students with an opportunity to demonstrate an ability to identify and develop local, regional, and statewide resources of benefit to their community. Focus on gathering information on resources and creating a human services resource directory relevant to the needs of individuals, families, and communities. Emphasis on application of multicultural communication skills. Student must be willing and able to work independently outside the classroom and in the commu-

**RHS 289** 1 Credit **Alternate Semesters** 

Directed Study: Community Development (1+0)

Provides students with an opportunity to demonstrate an ability to develop, implement, and evaluate a village-based community development project through a supervised, professional experience. Focus on developing positive, effective, meaningful development projects that are culturally appropriate. Emphasis on developing a process that facilitates community ownership and responsibility for the project. Student must be willing and able to work independently outside the classroom and in the community.

2 Credit Grief and Healing (2+1) As Demand Warrants

Exploration of the dynamics of grief and healing from an Alaska Native perspective. Special emphasis on Native values and principles focused on developing culturally relevant, understandings, awarenesses, and professional skills. (Prerequisites: Concurrent enrollment in RHS 220; 250; 260.)

### Russian

For information on studying in Russian-speaking countries, see Study Abroad; on compulsory placement tests, see Course Placement; on "bonus credit", see Alternative Ways to Earn Credit.

**RUSS 075** 3 Credits **As Demand Warrants** As Demand Warrants

**RUSS 076** 3 Credits

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 100A 3 Credits

RUSS 100B 3 Credits

Fall Spring

Beginning Russian I and II (3+0) h

An introductory course in the Russian language and culture with an emphasis on the spoken and written language. After completion of RUSS 100A and 100B the student will be able to continue on to RUSS 102. Note: Both RUSS 100A and RUSS 100B must be taken to equal one semester of the foreign language core require-

- 2 Semual 245701

**RUSS 101** 5 Credits **RUSS 102** 5 Credits

Fall Spring

Elementary Russian I and II (5+0) h

Introduction to language and culture: development of competence and performance in the language through understanding, recognition and use of linguistic structures; increasing emphasis on listening comprehension and speaking; basic vocabulary of approximately 750 words; exploration of the cultural dimension, implicitly through language, and explicitly through texts and audiovisual materi-

**RUSS 201** 4 Credits **RUSS 202** 4 Credits

Fall 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 3010** 3 Credits **RUSS 3020** 3 Credits "Wappr. Lab

Fall Spring

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in Russian. Materials fee: \$5.00. (Prerequisite: RUSS 202 or instructor permission.)

**RUSS 431** 3 Credits

Studies in Russian Culture (3+0) h

Advanced Russian (3+0) h

Study of the cultures of the Russian speaking world. Conducted in Russian. Students may repeat course for credit if topic varies. Materials fee: \$10.00. (Prerequisites: RUSS 301 or equivalent; junior standing or permission of instruc-

**RUSS 432** 3 Credits Spring

Studies of Literature in Russian (3+0) h Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in Russian. Student may repeat course for credit when topics vary. Materials fee: \$10.00. (Prerequisites: RUSS 302 or equivalent, and at least junior standing, or permission of instructor.)

**RUSS 482** 3 Credits As Demand Warrants

Selected Topics in Russian (3+0) h Intensive course focusing on topics not covered in RUSS 431 or RUSS 432. Course may be repeated for credit if topic varies. Materials fee: \$4.00. (Prerequisites: RUSS 302 or equivalent; junior standing, or permission of instructor. Next offered: Fall 1996.)

**RUSS 488** 3 Credits As Demand Warrants

Individual Study: Senior Project h Designed to permit the student to demonstrate ability to work with the language and the culture through the analysis and presentation, in the language, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Conducted in Russian. (Prerequisite: At least 10 credits in upper division Russian or permission of instructor.)

### Science Application

Science application courses are not offered on the Fairbanks campus.

**SCIA 100** 1 Credit As Demand Warrants

Introducing Astronomy (1+0) History of astronomy, the structure of the universe and is parts and the techniques used for studying the universe. Observation of celestial bodies with various optical instruments.

**SCIA 101** 3 Credits Independent Learning Only

Fundamentals of Petroleum An overall view of the petroleum industry in terms understandable by the lay person as well as the professional. Included are lessons on petroleum geology, prospecting, leasing, drilling, production, pipelines, refining, processing and marketing. Sponsored by the Alaska Mining and Petroleum Training Service.

**SCIA 107** 1 Credit Rock Identification (1+0) As Demand Warrants

Physical properties of igneous, sedimentary and metamorphic rocks. Sight identification of rocks with emphasis on rocks found on the Seward Peninsula.

1 Credit

As Demand Warrants

Mineral Identification (1+0)

Physical and field identifiable chemical properties of rocks and minerals. Emphasis on minerals found on the Seward Peninsula.

**SCIA 130** 1 Credit Moose Ecology (1+0) As Demand Warrants

Natural history of moose, the ecological concepts of energy flow, nutrient cycling, food webs and population dynamics. Attention to the Seward Peninsula moose population and factors used in making wildlife management decisions.

1 Credit Subarctic Horticulture (0+3) As Demand Warrants

Soils, plant propagation, disease and insect control, variety selection, fertilization, greenhouse construction and care and gardening techniques. Emphasis on development and care of greenhouses and gardens in the Nome area.

1 Credit

As Demand Warrants

Alaska Plants (1+0) n

Introduction to the topics of plant taxonomy and identification with specific reference to common Alaskan plants and vegetation types. (Next offered: Fall 1994.)

**SCIA 161** 1 Credit Birds of Alaska (1+0) As Demand Warrants

Biology of birds including behavior, anatomy, physiology, ecology, systematics and field identification.

**SCIA 162** 1 Credit As Demand Warrants

Mammals of Alaska (1+0) n

Introduction to the mammals of Alaska and their importance to the local ecology and economy from a scientific research standpoint. Emphasis on important and/or common species for study of classification, habitat, life cycle and economic importance. (Prerequisite: Background or interest in general science or natural history or permission of instructor. Next offered: Fall 1994.)

**SCIA 230** 2 Credits As Demand Warrants

Biology and Management of King Crab in Norton Sound (1+3) Anatomy, physiology and ecology of the King Crab. Topics include scientific methodology, field biologist's duties and problems of fishery management. Students work with Alaska Department of Fish and Game biologists in an ongoing study. Six-student limit in lab; may register for lecture portion only.

3 Credits

As Demand Warrants

Horticultural Science in a Subarctic Environment (2+3)

Plant anatomy, physiology, genetics, ecology, propagation, insect and disease control, soils, greenhouse construction and care and gardening techniques. Students will develop and conduct a horticultural research project in the Nome area.

### Social Work

3 Credits

Fall, Spring

Social Work in the Human Services (3+0)

Introduction to the profession of social work and the human services delivery system. Examines historical development of social work focusing on the knowledge, values, and skills that characterize the social worker. Orientation to the context for social work, including the diversity of human needs, human services, social policy and legislation. Services, programs, and career opportunities within rural and urban Alaska, as well as nationally, are discussed.

2 Credits

As Demand Warrants

Case Management (2+0) (Same as HMSV 225)

Basic knowledge and skills to develop service plans in human service work and to maintain appropriate case records. Legal and ethical issues in case management considered and discussed. (Prerequisite: PSY 101, SOC 101 or permission of

SWK 303

3 Credits

As Demand Warrants

Indian Child Welfare Act: Origins and Implementation (3+0)

Examination of the social and political conditions affecting the enactment and implementation of the Indian Child Welfare act, including legal interpretations, provisions, amendments, implementations, and applications in Alaska. (Prerequi-sites: SWK 103.)

3 Credits Social Welfare: Policies and Issues (3+0)

Social policies and how they effect the delivery of social services. Factors influencing development of the current social service system. Analysis of dilemmas which develop in a welfare system attempting to deal with rapid social change. Alternative approaches to the solution of social problems and possible future developments. (Prerequisites: SWK 103, SOC 100X, ECON/PS 100X.)

Spring

Rural Social Work (3+0) Preparation for practice in rural areas characterized by the need for multiple delivery systems, unique local customs, and inadequate resources. Emphasis on preparation for practice nationally with unique features of Alaska incorporated at key points. (Prerequisites: SWK 103, SOC 100X.) **SWK 3420** 3 Credits Spring

Human Behavior in the Social Environment (3+0) Theoretical frameworks for organizing knowledge about personality development and social behavior of individuals. Includes study of the life cycle and processes that shape individual differences. (Prerequisites: BIOL 103X, SOC 100X, SWK 103, PSY 240, SOC 242, ANTH 242, social work major.)

3 Credits

Fall

Child Abuse and Neglect (3+0)

Dynamics, implications and treatments of child abuse and neglect for individuals and families in rural and urban Alaska. (Prerequisite: SWK 103, PSY 240 or permission of instructor.)

**SWK 460** 3 Credits

Social Work Practice I (3+0)

Development of beginning skills in interviewing and helping processes with individuals, families and groups. Application of intervention strategies and techniques made to case materials, primarily in family and child welfare services. Contracting, case management and social brokerage. (Prerequisites: SWK 306, SWK 320, SWK 341, SOC/PSY 473, which can be taken concurrently with SWK 460, social work major, senior standing, concurrent with SWK 461.)

6 Credits

Practicum in Social Work I (0+15)

Individual training and practice in a social service agency. Students complete 200 hours of direct practice in an approved agency under the supervision of a field instructor. (Prerequisites: SWK 306, SWK 320, SWK 342, SOC/PSY 473, which can be taken concurrently with SWK 461, social work major, senior standing, concurrent with SWK 460.)

3 Credits

Spring

Social Work Practice II (3+0)

Further development of student's knowledge of direct practice with clients and development of beginning skills in community work including social planning. Emphasis on aspects of rural practice such as utilization of community associations and the informal helping network. (Prerequisites: "C" grade or better in SWK 460 and SWK 461, social work major, senior standing, concurrent with SWK 464.)

6 Credits

Practicum in Social Work II (0+15)

Continuation of SWK 461; further direct practice experience in an agency. Students complete 200 hours of practice in an approved agency under the supervision of a field instructor. (Prerequisites: "C" grade or better in SWK 460 and SWK 461, social work major, senior standing, concurrent with SWK 463.)

SWK 484 3 Credits As Demand Warrants

Seminar in Social Work Practice Areas (3+0)

Covers problem areas in social work. Problem areas vary in different semesters, content announced in class schedule prior to each semester. Course may be repeated for credit when topic varies. (Prerequisites: SWK 103, junior or senior standing or permission o instructor.) standing or permission o instructor.)

Sociology

**SOC 100X** 3 Credits

Individual, Society and Culture (3+0) s

An examination of the complex social arrangements guiding individual behavior and common human concerns in contrasting cultural contexts. Also available via Independent Learning and via the television as a self-paced, computer-aided course. Special telecourse fee: \$30.00.

SOC 101 3 Credits Introduction to Sociology (3+0) s Fall, Spring

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: \$30.00.

3 Credits

Fall, Spring

Social Institutions (3+0) s

A continuation of SOC 101: application of the concepts from short surveys of sociological phenomena. Institutions of society, such as family, political and economic order, are examined, including their operation in the Alaska rural and cross-cultural milieu. Also available via Independent Learning or via television as a self-paced, computer-aided course; special telecourse fee: \$30.00. (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.

3 Credits

Fall

Social Problems (3+0) s A study of major contemporary social problems, analysis of factors causing these problems. Emphasis on cross-cultural differences in Alaska and other parts of the world. Also available via television as a self-paced, computer- aided course; special telecourse fee: \$30.00.

**SOC 242** 3 Credits

Spring

The Family: A Cross-Cultural Perspective (3+0) s

Contemporary patterns of marriage and family relationships. Developmental, systems, and social psychological approaches used to analyze these relationships. Family life cycle stages examined include mate selection, marriage, early marital interaction, parenthood, the middle and later years, and possible dissolution. Attention given to cross-cultural differences in Alaska as well as in other parts of the world. Also available via Independent Learning. (Prerequisite: SOC 101 or permission of instructor.)

SOC 250 3 Credits Fall, Spring

Introductory Statistics for Behavioral Sciences (3+0) (Same as PSY 250)

Purposes and procedures of statistics; calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means. (Prerequisite: MATH 107 or equivalent.)

3 Credits

Spring

Rural Sociology (3+0) s Societal processes, changing values, economic development, demographic change, agrarian reforms, planned change, and rural community networks. Part of focus on rural communities of Alaska. Special telecourse fee: \$30.00. (Prerequisite: SOC 101 or permission of instructor.)

SOC 3070 3 Credits

Spring

Demography (3+0) s A study of formal demographic variables such as fertility, mortality, and migration and their interaction with social demographic variables like social class, religion, race, residence, attitudes, and values. Alaskan population dynamics examined.

As Demand Warrants

Urban Sociology (3+0) s

Origin and development of urban society as an industrial-ecological phenomenon; the trends of migration and metropolitanism with futuristic implications; and the rural-urban dichotomy in the Alaskan context.

3 Credits

Alternate Spring

Sociology of Later Life (3+0) s An analysis of the social status and role of the aging in America, with comparisons with elderly in Alaska as well as those elsewhere. (Prerequisite: SOC 101. Next offered: 1995-96.)

SOC 330 3 Credits Spring

Social Psychology (3+0) s (Same as PSY 330)

Analysis of intergroup relationships in terms of process and value orientation, their influences on the personality, and aspects of collective behavior on group and person. Aspects of social interaction that have cultural and intercultural variation. (Prerequisite: SOC 101 or PSY 101.)

3 Credits

Fall

Sociology of Deviant Behavior (3+0) s

A study of the causes of deviant behavior, both criminal and non-criminal, with emphasis on the nature of social interaction and an examination of the social control groups and institutions. (Prerequisite: SOC 101.)

SOC 345 3 Credits As Demand Warrants

Sociology of Education (3+0) (Same as ED 345)

The influence of social, political, and economic forces upon schools. Examines how school organization affects teaching practices, how peer groups affect student learning, and how national political and economic concerns determine what becomes an educational issue. (Prerequisites: SOC 101 and junior standing.)

3 Credits

Social Stratification (3+0) s

The differential distribution of social power, privilege, and life chances in class and caste as the basis for social organization. Emphasis on occupational, educational, and other correlates which determine social structure. Also includes a comparative study of class and caste in India and the United States. (Prerequisite: SOC 101.)

SOC 370 3 Credits Alternate Fall

Drugs and Drug Dependence (3+0) s (Same as PSY 370)

A multidisciplinary approach emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological, psychological and sociological aspects of drug abuse, recommended drug education alternatives and plans, and treatment and rehabilitation of acute and chronic drug users. Also available via Independent Learning. (Prerequisite: PSY 101 or SOC 101 or permission of instructor. Next offered: 1995-96.)

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.)

3 Credits

As Demand Warrants

Social Change (3+0) s

Philosophy of change and its affiliation to socio-cultural change in terms of history, technology, axiology, and social movement. (Prerequisite: SOC 101 or permission

3 Credits

Alternate Fall

Formal Organization (3+0) s Theoretical and analytical approaches to the study of contemporary complex formal organizations, including their coordination, status and role interrelationships, and their diverse publics. Formal organizations unique to Alaska's multicultural population considered. (Prerequisite: SOC 101. Next offered: 1995-96.)

3 Credits

American Minority Groups (3+0) s

An examination of the status of minority groups and intergroup relations in America, including changes in sociological, economic and political status. Theories and concepts of minority role behavior and intergroup relationships are applied to American and Alaskan racial and ethnic groups. Special telecourse fee: \$30.00. (Prerequisite: SOC 101. Next offered: 1995-96.)

**SOC 473W** 3 Credits Fall

Social Science Research Methods (3+0) s

(Same as PSY 473.)

Techniques of social research: sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments, and attitude scaling. (Prerequisite: PSY/SOC 250.)

SOC 638 3 Credits Alternate Fall

Proseminar in Community Psychology (3+0) (Same as PSY 638.)

3 Credits

Alternate Fall

Prevention Theories and Strategies (3+0)

(Same as PSY 645.)

Spanish

For information on studying in Spanish-speaking countries, see Study Abroad; on compulsory placement tests, see Course Placement; on "bonus credit", see Alternative Ways to Earn Credit.

**SPAN 075 SPAN 076** 

3 Credits

As Demand Warrants 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 SPAN 100B 3 Credits

Pan 10 As Demand Warrants 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. Note: Both SPAN 100A and SPAN 100B must be taken to equal one semester of the foreign language core requirement.

**SPAN 101** 5 Credits **SPAN 102** 5 Credits

Fall 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 audiovisual materials. Materials fee: \$3.00. (Prerequisite for SPAN 102: SPAN 101 or SPAN 100A and 100B or the equivalent.)

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 SPAN 202**  3 Credits

Spring

3 Credits Intermediate Spanish I and II (3+0) h

Continuation of SPAN 102. Increasing emphasis on reading ability and cultural material. Conducted in Spanish. Materials fee: \$5.00. (Prerequisite: SPAN 102 or

SPAN 301

3 Credits

Fall

SPAN 302 3 Credits

Spring

Advanced Spanish (3+0) h

Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, and special grammatical problems. Conducted in Spanish. Materials fee: \$5.00. (Prerequisite: SPAN 202 or equivalent or instructor permission.)

Studies in the Culture of the Spanish Speaking World (3+0) h

Study of the cultures of the Spanish speaking world. Conducted in Spanish. Students may repeat course for credit if topic varies. Materials fee: \$3.00. (Prerequisites: SPAN 302 or equivalent; junior standing or permission of instruc-

SPAN 432 3 Credits Spring

Studies of Literature in Spanish (3+0) h Intensive study of authors, literary texts, movements, genres, themes and/or critical approaches. Conducted in Spanish. Student may repeat course for credit when topics vary. Materials fee: \$3.00. (Prerequisites: SPAN 302 or equivalent and at least junior standing or permission of instructor.)

3 Credits

As Demand Warrants

Selected Topics in Spanish (3+0) h

Intensive course focusing on topics not covered in SPAN 431 or SPAN 432. Course may be repeated for credit if topic varies. Materials fee: \$4.00. (Prerequisites: SPAN 302 or equivalent; junior standing, or permission of instructor. Next offered: Spring 1996.)

SPAN 488 3 Credits

As Demand Warrants

Individual Study: Senior Project h

Designed for the student to demonstrate ability with the language and the culture through the analysis and presentation, in Spanish, of a problem chosen by the student in consultation with the department. The student must apply for senior project and submit a project outline by the end of the 6th week of the semester preceding the semester of graduation. Offered normally in the semester preceding the student's graduation. Conducted in Spanish. (Prerequisite: At least 10 credits in upper division Spanish or permission of instructor.)

### Statistics

**STAT 200** 3 Credits Fall, Spring

Elementary Probability and Statistics (3+0)

Descriptive statistics, frequency distributions, sampling distributions, elementary probability, estimation of population parameters, hypothesis testing (one and two sample problems), correlation, simple linear regression, and one-way analysis of variance. Parametric and nonparametric methods. Materials fee: \$10.00. (Prerequisites: MATH 107, 161, 181 or consent of instructor)

262, 272 or equivalent.)

STAT 300 3 Credits
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 oneway analysis of variance. A student may not use STAT 200 and 300 to meet the requirement of a year's sequence course in statistics. (Prerequisite: MATH 200.

**STAT 401** 4 Credits Fairbanks, Juneau

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 techrandom and randomized complete block designs, multiple comparisons and orthogonal contrasts. Materials fee: \$10.00. (Prerequisite: STAT 200 [STAT 373-J] or STAT 300 or consent of the instructor.)

3 Credits Scientific Sampling (3+0)

Sampling methods, including simple random, stratified and systematic; estimation procedures, including ratio and regression methods; special area and point sampling procedures; optimum allocation. Materials fee: \$10.00. (Prerequisite: STAT 200 or 300 or consent of the instructor.)

**STAT 461** 3 Credits Alternate Spring

Applied Multivariate Statistics (3+0) Estimation and hypothesis testing, multivariate normality and its assessment, multivariate one and two sample tests, confidence regions, multivariate analysis of variance, discrimination and classification, principal components, factor analysis clustering techniques, and graphical presentation. Statistical computing packages utilized in assignments. Materials fee: \$10.00. (Prerequisite: STAT 401 or consent of instructor. Next offered: 1995-96.)

**STAT 602** 3 Credits Experimental Design (3+1)

Fairbanks, Alternate Spring Juneau, As Demand Warrants

**STAT 621** 3 Credits Distribution-Free Statistics

Fairbanks, Alternate Fall Juneau, As Demand Warrants

**STAT 631** 3 Credits Categorical Data Analysis (3+0) Alternate Fall

**STAT 640** 3 Credits Exploratory Data Analysis (2+2)

Fairbanks and Juneau **As Demand Warrants** 

3 Credits Sampling Theory (3+0) Juneau, As Demand Warrants Fairbanks, Alternate Spring

STAT 680 3 Credits

Alternate Fall

Data Analysis in Biology (2+3) (Same as BIOL 680 and WLF 680)

Note: The following courses are statistical in orientation. A description and listing of prerequisites for undergraduate courses may be found in the appropriate departmental course listings.

ANTH 421 - Analytical Techniques

BA 360 - Production/Operations Management ECON 227 - Intermediate Statistics for Economics and Business

ECON 626 - Econometrics

ESM 621 - Operations Research

FISH 601 - Quantitative Fisheries Science

GEOS 430 - Statistical and Data Analysis in Geology

MATH 371 - Probability

MATH 408 - Mathematical Statistics PSY 250 - Introductory Statistics for Behavioral Sciences

WLF 621 - Vertebrate Population Dynamics

### Theatre

THR 101, 201

THR 301, 401 1-3 Credits Theatre Practicum (0+Var.) h

Fall, Spring

Participation in drama workshop or lab production as performer or technical staff member. Credit in this course may not be applied to a major program in theatre.

3 Credits Fundamentals of Acting (3+0) h Fall, Spring

Basic stage acting techniques for persons with little or no prior acting experience. Emphasis on physical, emotional and imaginative awareness. Scene work fundamentals introduced.

**THR 161** 3 Credits Fall

Introduction to Tuma Theatre (2+3) h (Same as ANS 161)

For Native and non-Native students with no prior acting or theatre experience. Includes both academic and practical components to examine traditional Alaska Native theatre mythology, ritual, ceremony and performance methods. Application of exercises and developmental scenes drawn from the Alaska Native heritage.

**THR 200X** 3 Credits Fall, Spring

Aesthetic Appreciation: Interrelation of Art, Drama, and Music (3+0) h

(Same as ART 200X and MUS 200X)

Understanding and appreciation of art, drama, and music through an exploration of their relationship. Topics include the creative process, structure, cultural application and diversity, the role of the artist in society, and popular movements and trends. Materials fee: \$25.00. (Prerequisite: Sophomore standing or permission of instructor.)

3 Credits

As Demand Warrants

Russian Theatre and Culture (3+0) h

Classes in Russian art and theatre; tour of St. Petersburg museums; attendance of theatre performances, workshops and lectures given by leading figures in the theatre and arts in Russia. Translation provided for lectures and workshops. (Prerequisites: Basic course in theatre and/or a background working in theatre. Letter of application and resume required. Russian language desirable but not necessary. Next offered: Summer 1993.)

215 3 Credits Dramatic Literature (3+0) h THR 215

Fall

Studies of drama and forms of plays such as tragedy, comedy, melodrama, farce, tragic comedy. Reading plays of the classic theatre designed to give basic knowledge of masterpieces of the world drama.

THR 220 3 Credits As Demand Warrants

Voice and Diction for the Theatre (2+2)

Development of fluency and clarity in the voice, study and practice to improve speech and eliminate faults of articulation and pronunciation. Emphasis on preparing the student for vocal work in theatre, radio, and television, including individual analysis and tape recordings. (Prerequisite: Any 100 level oral communication course or permission of instructor.)

THR 221 3 Credits Spring

Intermediate Acting (1+4) h

Continued development of physical, emotional and imaginative awareness. Text and character analysis, scene and monolog study and presentation. Introduction to improvisation. (Prerequisite: THR 121 or permission of the instructor.)

3 Credits

Alternate Spring

Movement for the Actor (1+4) h Principles of stage movement, body awareness, and control as explored through analysis, exercise, study of historical dance and scene work. (Next offered: 1995-

**THR 241** 3 Credits Fall

Basic Stagecraft (2+2) h

Materials of scene construction and painting and their use.

3 Credits

Fall

Stage Management (3+0) h Organizational skills for a successful stage manager, completion of a prompt script including creating all forms and schedules necessary, working with actors, directors and designers. (Prerequisites: THR 121, THR 211, THR 241 or permission of instructor.)

**THR 247** 3 Credits Fall

Introduction to Theatrical Design (3+0) h

Introduction to all the design elements used in the theatre. Analysis of line, texture, color, and how they relate to designing for the theatre including costumes, scenery and lighting.

THR 254

Fall, Spring

254 3 Credits WQS 2 354
Beginning Costume Design and Construction (3+0) h Introduction to theory and practice of costume design for the theatre, methods used to make costumes out of a variety of media. Projects include simple hatmaking, maskmaking, stenciling, hot gluing and body padding.

**THR 311** 3 Credits Alternate Spring

Theatre Management (2+3) h

Introduction to the organizational, economic, and administrative aspects of theatre. Focus on ticket sales, budgeting, and promotion. (Prerequisite: 6 credits in theatre and completion of MATH 131. Next offered: 1995-96.)

As Demand Warrants

Moscow-St. Petersburg: Russian Theatre Today (3+0) h

Introduction to the present state of theatre in Russian; study of performances of theatre by companies in Russian; meet producers, directors, designers, actors, Master classes and workshops with leading Russian theatre professionals and scholars. (Prerequisite: THR 200X or THR 211 or demonstrated equivalent experience in theatre study.)

Alternate Fall

Advanced Acting I (1+4) h

Refinement of physical, emotional and imaginative awareness. Introducing a variety of character building methods. Study and performance of scenes and short plays. Introduction of audition techniques. (Prerequisite: THR 221, or permission of the instructor. Next offered: 1995-96.)

THR 325 3 Credits Alternate Fall

Theatre Speech (2+2) h

Vocal techniques for actors. Standard stage diction and foreign dialects. (Prerequisite: THR 221 or permission of instructor. Next offered: 1995-96.)

329 3 Credits Children's Theatre (1+6) h

Rehearsal and performance of children's plays. Rehearsals during the first half of the semester will be followed by performances. Emphasis on audience-actor interaction and performance style for the child audience. (Prerequisites: Audition, THR 121, THR 221, or permission of instructor.)

THR 331 3 Credits Alternate Spring

Fundamentals of Stage Direction (1+4) h Introduction to the history, theory, basic concepts of stage direction, interpretative script analysis, creative visualization, conceptualization, use of space, working with actors and designers. Direction of short scenes and plays. (Prerequisite: THR 221 or permission of instructor. Next Offered: 1996-97.)

3 Credits

Intermediate Stagecraft (2+2) h

An examination of the less common scenic materials with methods and techniques for their use. Students will spend approximately \$40 for materials. (Prerequisite: THR 241 or permission of instructor.)

3 Credits

Scene Design (3+0) h
Principles and techniques of theatrical scene design. Includes designing projects directed at solving particular scenic problems or in a specific scenic style with specific physical limitations. Materials fee: approximately \$40. (Prerequisite: THR 241 or permission of the instructor. Next offered: 1995-96.)

3 Credits

Lighting Design (3+0) h Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained from the experiments. Materials fee: approximately \$40. (Prerequisite: THR 343 or permission of the instructor. May be taken concurrently with THR 343. Next offered: 1995-96.)

**THR 348** 3 Credits Alternate Spring

Sound Design in the Theatre (2+2) h

Exploration and application of the elements of design as they relate to sound for theatre, dance, other art forms, and life in American and other cultures. Production work is required. (Prerequisite: THR 241 or permission or the instructor. Next offered: 1997-98.)

3 Credits

Spring

Makeup for Theatre (1+4) h

Theatrical makeup for actors, teachers, directors, and other theatre workers; makeup materials and use, straight and character makeup, illusory and plastic relief, national types, and influence of lighting. Materials fee: approximately \$85. (Prerequisite: Any lower division theatre course or permission of the instructor.)

History of Fashion and Dress (3+0) s

Social history of costume in Western Civilization, from Ancient Greece to the present time. Includes instruction in the methods of research used to find visual source material, and assignments that exercise these research skills. (Prerequisite: HIST 101 or HIST 102 or permission of the instructor.)

3 Credits THR 361

Spring

Advanced Alaska Native Performance (2+3) h

(Same as ANS 361)

In-depth study of Alaska Native theatre techniques and tradition, including traditional dance, song and drumming techniques, mask characterizations and performance application and presentation of a workshop production developed by the students during the semester. (Prerequisite: ANS/THR 161.)

3 Credits

**Alternate Years** 

Film and Video Directing (1+6) h

Introduction to the history, theory, basic concepts of film and video direction, script preparation, story board, blocking actors and staging the camera, sound, editing. Direction and shooting short videos. (Prerequisite: THR 331 or ENGL 217 or permission of instructor. Next offered: 1996-97.)

3 Credits

Alternate Years

Theatre History I (3+0) h

Theatrical form and practice from its origins in storytelling and ritual through the French Neoclassic Theatre. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1995-96.)

3 Credits Theatre History II (3+0) h Alternate Years

Theatrical form and practice from the English Restoration through the present. (Prerequisites: Junior standing and THR 211 or permission of instructor. Next offered: 1995-96.) THR 413W 3 Credits Alternate Fall

Playscript Analysis (3+0) h

Investigation of the structure of playscripts designed to develop skills in analysis and interpretation for performance. (Prerequisites: Junior standing, THR 211 or permission of instructor. Next offered: 1995-96.)

THR 416W

As Demand Warrants

416W 6 Credits Lab Theatre I "Write Theatre" (3+9) h

(Same as NORS 616)

An intensive course for actors, directors and playwrights interested in script development/training with the participation of Russian professionals. Experience working in a multicultural environment developing new scripts up to stage readings. Selected dramatic material will be workshopped under Russian and/or American directors. Work required: dramatic scenes, writing, acting, keeping a journal. (Prerequisites: Basic theatre classes/training. Letter of application and resume. Russian language desired but not necessary.)

6 Credits

**As Demand Warrants** 

Lab Theatre II "Do Theatre" (3+6) h

(Same as NORS 618)

Production oriented course for actors, directors, stage managers, technical directors, and designers. Hands-on experience in a professional environment for a multicultural audience, with a mixed Russian and American cast and crew. Exposure to new artistic concepts and production traditions through search for theatricality and visualization in performance. Includes a one week run of each show within a repertory season. (Prerequisites: Basic acting and/or technical courses. Letter of application and resume. Russian language desired but not necessary.)

THR 421 3 Credits Alternate Spring

Advanced Acting II (1+4) h

Acting techniques for periods and styles. Intensive scene and monologue work. Introduction of ensemble work. Public performance of short plays. Intensive audition work. (Prerequisite: THR 221 or permission of the instructor. Next offered: 1995-96.)

THR 435 3 Credits Alternate Spring

Advanced Stage Direction (1+4) h

Major theories and current trends in stage direction including different styles, periods and stage configurations. Emphasis on practical preparation for production, from concept to execution, of a one act play for public performance. (Prerequisite: THR 331 or permission of instructor. Next offered: 1995-96.)

3 Credits

Alternate Fall

Lighting Design II (2+2) h Further exploration and application of elements of design (color, texture, intensity, line, composition) as they relate to lighting for theatre, dance, other art forms, and life. Production work required. (Prerequisite: THR 347 or permission of the instructor. Next offered: 1997-98.)

3 Credits

Spring

Advanced Costume Design and Construction (3+0) h Examination of the methods and materials used in the design and construction of

costumes for the theatre. Special projects in design, pattern drafting, and advanced construction. (Prerequisite: THR 254 or permission of instructor.)

3 Credits Tuma Theatre Seminar (2+4) h

Advanced study and application of Alaska Native Performance techniques. Active participation in playwriting, acting, directing or designing in the development and performance of either a workshop or fully mounted Tuma Theatre production. (Prerequisites: ANS/THR 161, ANS/THR 361 or permission of instructor.)

As Demand Warrants

Thesis in Northern Theatre (2+4) h

Specialized and applied research may include Tuma Theatre play direction, playwriting, design, acting in a major role, or other research relevant to the study of Northern Theatre. (Prerequisites: ANS/THR 161 and ANS/THR 361; permission of instructor.)

**THR 499** 

Fall, Spring

Thesis Project (1+4) h

Final step in acting/directing/design or playwright training which involves performing a leading role on main stage, or a one-person show, or a directing/ designing/writing project for the UAF season. (Prerequisite: Permission of instructor.)

## Trades and Technology

**TTCH 101** 2 Credits As Demand Warrants

Machine Woodworking I (2+0)

Introduction to woodworking power machines (circular saw, jointer, radial arm saw), joints, fasteners, and different stains and finishes used on wood.

**TTCH 105** 1 Credit As Demand Warrants

Basic Electrical Wiring (1+0) Familiarizes the student with fundamental kills 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 Basic Plumbing (3+0) As Demand Warrants

Introduction to methods and materials used in household plumbing. Topics includes pipe fittings and valves, pipe hangers and brackets, copper and plastic pipe fitting and plumbing fixtures.

**TTCH 117A** 1 Credit As Demand Warrants

Four-Cycle Engine Repair (1+0)

Covers four-cycle engine theory and principls of operation. Classroom activities include step-by-step disassembly, inspection and assembly of a four-cycle engine.

1 Credit

As Demand Warrants

Two-Cycle Engine Repair (1+0) Covers two-cycle engine theory and principles of operation. Classroom activities include step-by-step disassembly, inspection and assembly as well as familiariza-tion with tools used in small engine repair.

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, meter-

ing devices and related components. Assumes no previous knowledge on part of

**TTCH 130** 3 Credits As Demand Warrants

Blueprint and Schematic Reading (3+0)

Basic blueprint and schematic reading skills used by building maintenance personnel. Introduction to machine drawings, building drawings, hydraulic and pneumatic drawings, electrical schematics and symbols, air conditioning and refrigeration drawings, welding and joining symbols.

TTCH 131 3 Credits As Demand Warrants

Maintenance Mathematics (3+0) Practical application of mathematics for industry, including arithmetic review, ratios and proportion, powers and roots, algebra, geometry and trigonometry. Mathematical applications of basic physics with reference to units of measurement, use of precision measuring tools, measurement of forces, temperature, fluids and electricity.

**TTCH 132** 

As Demand Warrants

H 132 3 Credits Building Maintenance Materials (3+0)

Basic properties, processes and uses of metals and non-metals in tools, machines and building materials. Practical application to building maintenance situations will be emphasized.

3 Credits **TTCH 133** 

As Demand Warrants

Basic Hand and Power Tools (3+0) Uses, care and maintenance of hand and power tools. Familiarity and skill development with these tools through construction of shop projects.

1 Credit

As Demand Warrants

Maintenance Safety (1+0) Industrial safety including recognizing safety hazards, working safely, handling materials safely, using machinery safely, personal protective equipment, electrical safety, fire protection and government safety regulations.

1 Credit

As Demand Warrants

Basic Maintenance Troubleshooting (1+0)

Systematic approaches to troubleshooting, scheduled and unscheduled maintenance of plant equipment and systems.

3 Credits

As Demand Warrants

Basic Shielded Metal-Arc Welding (3+0)

Introduction to welding in preparation of further study. Topics include welding safety, electrical welding equipment, electrode identification and selection. Welding practice on mild steel in various welder positions. No previous knowledge of welding required.

**TTCH 146** 2 Credits

As Demand Warrants

Furnace Repair (2+0)

Theory of operation, maintenance and repair of oil burning furnaces, both forced air and radiant. Routine maintenance and upkeep of a furnace and trouble shooting procedures for emergency servicing for the homeowner.

TTCH 147 1 Credit As Demand Warrants

Burner Maintenance and Repair (1+2)

Instruction in troubleshooting 10 common problems, reading manuals, changing parts, setting electrodes, changing nozzles, understanding controls and ordering replacement parts.

3 Credits

As Demand Warrants

Heating Systems Design (3+0)

Comprehensive instruction in installation and systems approach to design of heating systems including installation procedures of current systems, heat loss calculation, heat distribution through hydronic and air systems, and boiler and furnace sizing.

**TTCH 300** 1-3 Credits Fall, Spring

Internship in Technology (0+12)

Supervised practical experience working with private industry, government units or agencies in technologies. Opportunities to apply theories and practical application and to observe procedures and operations of the businesses or agencies. (Prerequisites: Upper division standing and permission of instructor.)

3 Credits

Fall

Technology and Society (3+0)

Concepts of social change related to the effects of technology on society and application of the concepts and processes of technology as they evolve from ideas to implementation. Emphasis on the expanded study of the creation, utilization, adaptation of tools, machines, materials, and systems to the solutions of problems and the extension of the human potential. (Prerequisites: Upper division standing and permission of instructor.)

1-6 Credits

Fall, Spring

Advanced Technical Experiences: Discipline Area (variable) Formal technical upgrade training provided by various agencies, manufacturers, businesses, or industries which are evaluated on an individual basis and must

support the student's professional objectives. For Bachelor of Technology students only. The National Guide to Educational Credit for Training Programs used. (Prerequisites: Upper division standing and permission of instructor.)

TTCH 099, 199, 299 As Demand Warrants 1-3 Credits

Practicum

Individual work and development of skills learned in prior courses.

### Welding and Materials Technology

WMT 101 3 Credits

As Demand Warrants

Introduction to Welding (2+2) Introduction and orientation to the processes and procedures involved in the welding field with a "hands-on" approach.

3 Credts

**As Demand Warrants** 

Intermediate Welding (2+2)
Continuation of WMT 101. (Prerequisite: WMT 101.)

3 Credits

Welding I (3+0)

Fall, Spring

Entry-level course in basic oxy-acetylene, arc welding, and flame cutting. Attendance at first two classes is mandatory. Materials fee: \$200.00.

Welding II (3+0)

Fall, Spring

Are welding techniques and basic MIG and TIG welding. Attendance at first two classes is mandatory. Materials fee: \$200.00. (Prerequisite: WMT 103 or permission of instructor.)

**As Demand Warrants** 

Oxy-Acetylene Welding (OAW)

A maximum of three credits awarded for successful completion of any of the four sections; 110A-Certif OAW (1G); 110B-Certif OAW (2G); 110C-Certif OAW (3G); 110D-Certif OAW (4G). Presented in competency-based manner.

1 Credit

As Demand Warrants

Bronze Gas Welding (OAW Bronze) (1+0)

Credit is granted for successful completion of the certification test. WMT 115A-Certif OAW (1G). Presented in competency-based manner.

3 Credits

As Demand Warrants

Ocy-Acetylene Welding and Cutting (2+5)

Safe oxy-acetylene welding techniques and procedures of common metals. Welding of these metals taught in flat, horizontal, vertical and overhead positions. Attendance at first two class meetings is mandatory. Materials fee: \$200.00.

Spring

Spring

WMT 130 1-3 Credits As Demand Warrants Shielded Metal Arc Welding (SMAW)

All positions emphasized for multiple pass fillet welds. A maximum of three credits are awarded for successful completion of any of the four sections; 130A-Certif SMAW (1F); 130B-Certif SMAW (2F); 130C-Certif SMAW (3F); 130D-Certif SMAW (4F). Presented in competency-based manner.

1-3 Credits As Demand Warrants Gas Tungsten Arc Welding (GTAW)

Use of tungsten and argon gas for aluminum and stainless steel gas welding (formerly called Heliarc). A maximum of three credits are awarded for successful completion of any of the four sections; 150A-Certif GMAW Alum (1F):150B-Certif GMAW Alum (2F);150C-Certif GMAW Alum (3F);150D- Certif GMAW ALum (4F). Presented in competency-based manner.

1-3 Credits As Demand Warrants Gas Metal Arc Weld Alum (GMAW)

Prepare student to work on microwire processes. A maximum of three credits awarded for successful completion of any of the four sections; 160A-Certif GMAW M.Steel (1F); 160B-Certif GMAW M. Steel (2F); 160C-Certif GMAW M. Steel (3F); 160D-Certif GMAW M. Steel (4F). Presented in competency-based

3 Credits Fall Gas Tungsten Arc and Gas Metal Arc Welding (1.5+5.5)

Entry-level gas tungsten are welding concentrating on aluminum. Materials will be welded in all positions. Gas metal arc welding focuses on ferrous and nonferrous metals welded in all positions. Attendance at first two class meetings is mandatory. Materials fee: \$250.00

As Demand Warrants WMT 261 3 Credits Aviation Welding (2+2)

Tungsten inert gas and oxyacetylene are used to weld Moly steel aircraft structural parts. Basic aircraft joints and sheet metal joints are welded. Recommended as a review for licensed Aircraft and Power mechanics as well as those contemplating an A & P license.

### Wildlife

1 Credit Spring Survey of Wildlife Science (1+0)

Major aspects of wildlife biology and management, research of local wildlife biologists and programs of management agencies. (Prerquisite: Completion of a course emphasizing the biology of non-human organisms.)

3 Credits Wildlife Management Principles (2+3)

Application of ecological principles to the study and management of wildlife populations and their habitat. Management of game and non-game species considered. Computer exercises explore population dynamics, habitat use and exploitation strategies. (Prerequisite: BIOL 271, previous microcomputer experience desirable.)

3 Credits Wildlife Management Techniques (2+3)

Study of procedures used by wildlife biologists and managers to collect, analyze, and disseminate information. Topics include using wildlife literature and scientific writing; behavioral sampling; nomenclature, identification, and sexing and aging of wildlife; census methods; habitat evaluation and manipulation; biotelemetry; home range; food habits and modeling; and necropsy procedures, animal condition, and wildlife diseases. Term paper required. Laboratory fee: \$30.00. (Prerequisites: WLF 201 or equivalent, BIOL 271.)

Fall, Spring 1-3 Credits Wildlife Internships

Practical experience in wildlife management in public or private agencies. Projects are approved by faculty member and supervised by professional agency staff. May not be substituted for courses required for major. (Prerequisite: Permission of instructor.)

WLF 305 Alternate Spring 3 Credits Wildlife Diseases (2+3)

Basic concepts of parasitic, infectious, environmental, and nutritional diseases. Specific study of Alaskan wildlife diseases. Basic necropsy technique and chemical immobilization. Laboratory fee: \$30.00. (Prerequisites: BIOL 105, 106 or equivalent and permission of instructor. Recommended: BIOL 310 and 317. Next offered: 1995-96.)

WLF 410 3 Credits

Wildlife Populations and Their Management (2+3)

The characteristics and ecology of wildlife populations and the knowledge necessary for their wise management. Measures of abundance, dispersal, fecundity and mortality, population modeling, competition and predation, and the management of rare species and their habitats, Laboratory fee: \$30.00, (Prerequisites: BIOL 271, introductory statistics course and WLF 303 or BIOL 471.)

4 Credits Alternate Fall Waterfowl and Wetlands Ecology and Management (3+3)

Ecology of waterfowl and associated wetland habitats. Management of populations, including harvest and manipulation of habitats. Distribution, abundance, taxonomy and identification of North American waterfowl. Laboratory fee: \$30.00. (Prerequisite: BIOL 271, 426, and WLF 201 or permission of instructor. Next offered: 1995-96.) Was WLF 420

3 Creits WLF 431 Wildlife Policy and Administration (3+0) (Same as NRM 431)

Study of laws and agencies shaping wildlife management in North America. History and current status of major policy issues. Organization of and funding sources for state and federal programs in wildlife conservation. (Prerequisite: A 3 credit course in wildlife management principles or permission of instructor.)
WLF 460 3 Credits WAS 360 F

WLF 460 Nutrition and Physiological Ecology of Wildlife (3+0) (Same as WLF 660)

Concepts and techniques used by wildlife biologists to understand relationships between wild animals and their habitats. Techniques for constructing energy and nutrient budgets of wild animals and applications of these budgets to population level processes and habitat management. (Prerequisites: BIOL 310, 271, WLF 201.)

3 Credits Fall Research Design (3+0) (Same as BIOL 602)

WLF 603 3 Credits Alternate Fall Biotelemetry (2+3)

**As Demand Warrants** WLF 611 Credits Arr. Credits Arr. Wildlife Field Trip

Alternate Spring WLF 614 2 Credits Grazing Ecology (2+0) (Same as BIOL 614)

WLF 615 2 Credits Alternate Fall Advanced Topics in Wildlife Management (2+0)

3 Credits Alternate Spring Vertebrate Population Dynamics (2+3)

WLF 625 4 Credits **Alternate Spring** Analysis of Vertebrate Population (3+3) (Same as FISH 625)

Fall Nutrition and Physiological Ecology of Wildlife (3+3) (Same as WLF 460)

Alternate Fall WLF 680 3 Credits Data Analysis in Biology (2+3) (Same as BIOL 680 and STAT 680)

1 Credit Fall, Spring Graduate Seminar (0+0+1)

### Women's Studies

WMS 201 3 Credits Introduction to Women's Studies (3+0) Fall

An interdisciplinary introduction to the field of women's studies, exploring its development, subject matter, and methodology. Readings of studies which have become classic examples of the importance of gender in research in many disciplines is examined. (Prerequisite: Sophomore standing.)

WMS 202 3 Credits Alternate Spring

History of Women in America (3+0) s

(Same as HIST 202)

A chronological approach to the history of women in America. Introduction to major issues of concern to historians of women, as well as different approaches utilized in analysis of women's past; consideration of multi-racial backgrounds of American women. (Next offered: 1995-96.)

WMS 303 3 Credits Alternate Spring

Gender in a Cross-Cultural Perspective (3+0) s

(Same as ANTH 303)

Gender as both cultural construction and social relationship is examined through readings in comparative ethnographies portraying gender roles in a broad variety of societies, from hunter-gatherer to industrial. New theoretical and methodological approaches in anthropology for exploring and understanding women's experiences in their cultural variety are presented. Materials fee: \$5.00. (Next offered: 1995-96.)

**WMS 308** 3 Credits Alternate Spring

Language and Gender (3+0) s

(Same as ANTH 308)

Examination of relationships between language and gender, drawing on both ethnographic and linguistic sources. Topics include power, socialization and sexism. Materials fee: \$5.00.

3 Credits WMS 331

Alternate Spring

Women's Voices in Japanese Literature (3+0) h

(Same as JPN 331)

A close reading of selected novels, short stories, poems, and diaries by Japanese women from the tenth century to the present which reveal the personal, social, aesthetic and intellectual concerns of women in different periods of Japanese history. Focus on the changing role of women in Japanese society, the role of women writers as social critics, and cross-cultural differences and similarities in women's issues. (Prerequisites: ENGL 211X or 213X, ENGL/FL 200X; HIST 121, 122 or 331 recommended. Next offered: 1995-96.)

WMS 333 3 Credits Spring

Women's Literature (3+0) h

(Same as ENGL 333)

Reading, discussing and analyzing literary works dealing with the social, cultural and political implications of patriarchal structures and traditions from the perspective of feminist theory and criticism. Focus may be on a particular theme, period, or genre, but readings will include both primary and secondary texts. (Prerequisite: ENGL 111X; ENGL 211X recommended.)

WMS 335 3 Credits

Women, Crime and Justice

(Same as JUST 335)

Interaction of women with the American justice system focusing on women as victims, offenders and working professionals in justice agencies. Materials fee: \$10.00. (Prerequisites: JUST 110 and junior standing.)

WMS 351 3 Credits Alternate Years

Gender and Communication (3+0) s

(Same as COMM 351)

Basic socialization differences exist in the communication practices of women and men in every culture, resulting in differing cultural constructions of male and female gender. Those differences are addressed in the interpersonal, organizational, and cultural contexts. Exploration of cultural female/male dichotomy as well as individual similarities. (Prerequisite: Any lower division communication course or permission of the instructor. Next offered: 1995-96.)

WMS 360O 3 Credits

Alternate Spring

Psychology of Women Across Cultures (3+0) s

(Same as PSY 360)

Major theories, research and empirical data which describes the psychology of women as a discrete field, philosophical values of feminism and history of women's roles in society. The impact of culture on women interpersonally and intrapsychically examined across cultures. (Prerequisite: PSY 101 or permission of instructor. Next offered: 1995-96.)

WMS 375 3 Credits As Demand Warrants

Women and Development (3+0) s

(Same as RD 375)

The effect of modernization and development processes on the role of women in a variety of Third World and tribal world contexts as well as the increasingly important "new" role women play in these complex processes.

3 Credits

Women, Minorities and the Media (3+0) s

(Same as JB 380)

Examination of how women and minorities are portrayed in the mass media, the employment of women and minorities in the media, as well as how accurately the media reflects our society demographically. Presented from a feminist, multiculturalist perspective using a broad feminist analysis encompassing issues of gender as well as class, race, age, and sexual orientation. (Prerequisite: Junior standing.)

WMS 410 3 Credits Alternate Spring

Women in Music History (3+0) h

(Same as MUS 410)

Lives and works of female musicians, composers, and performers will be traced from the earliest days of the ancient and mythological through the medieval, Baroque Classical, and Romantic periods with special emphasis on composers of the 20th century. (Prerequisite: Junior standing or permission of instructor. Next offered: 1995-96.)

WMS 424 3 Credits Alternate Spring

Topics in Women's History (3+0) s

(Same as HIST 424)

An in-depth seminar on a specific topic of current interest. Topics may change and may cover the history of European or American women from the 18th century to the present. (Prerequisites: A lower division history course and junior standing or permission of instructor. Next offered: 1995-96.)

3 Credits Gender and Education (3+0) Alternate Spring

(Same as ED 440 and ED 640) Educational practices and processes and their relation to the changing situation of women in society. Examination of schools as sites of pervasive gender socialization and discrimination as well as offering new possibilities for liberation. Topics include social construction of gender; patterns of access and achievements; gender as an organizing principle in schools and classrooms; and feminist agendas and strategies for change. (Prerequisite: SOC 101 or ED 201 or permission of instructor. Next offered: 1995-96.)

# Register

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Chancy Croft (1995-2003)

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176 Behrends Avenue, Juneau, AK 99801 Joseph R. Henri (1991-1999)

9921 Near Point Drive, Anchorage, AK 99507

Michael P. Kelly (1991-1999)

P.O. Box 71249, Fairbanks, AK 99707 Scott A. Otterbacher (1993-1995)

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879 Vide Way, Fairbanks, AK 99712 Lew M. Williams Jr. (1991-1999)

755 Grant Street, Ketchikan, AK 99901

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University Relations and Institutional Advancement, Karen L. Cedzo, Associate Vice Chancellor

ASUAF, Joe Hayes, President 1994-95 Faculty Senate, Eric Heyne, President Staff Council, Marie Scholle, 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:

ACE Alaska Cooperative Extension

**AFES** Agricultural and Forestry Experiment Station

ANHRDP Alaska Native Human Resource Development Program

ARSC Arctic Region Supercomputing Center

ATHREC Athletics and Recreation BB Bristol Bay Campus

C&SE Conferences and Special Events

Chukchi Campus CC

**CGCASR** Center for Global Change and Arctic System Research

CLA College of Liberal Arts CNS College of Natural Sciences CRA College of Rural Alaska

Fishery Industrial Technology Center FITC GI Geophysical Institute

GRAD Graduate School IAB Institute of Arctic Biology IAC Interior-Aleutians Campus **IMS** Institute of Marine Science INE Institute of Northern Engineering

JC Juneau Center KUC Kuskokwim Campus LIB Elmer Rasmuson Library Marine Advisory Program MAP

NURC West Coast National Undersea Research Center

NWC Northwest Campus

PDL Petroleum Development Laboratory

**PICO** Polar Ice Coring Office PROV Office of the Provost

SALRM School of Agriculture and Land Resources Management

School of Engineering SOE SOED School of Education

SFOS School of Fisheries and Ocean Sciences SG Alaska Sea Grant College Program SME School of Mineral Engineering SOM School of Management STUSVC Student Services

Tanana Valley Campus TVC UAM University of Alaska Museum

URIA University Relations and Institutional Advancement VCAS Vice Chancellor for Administrative Services

Abrahams, Sherry — 1964 — Associate Professor of Library Science (1975), LIB. Bowling Green State University '58, B.A.; University of Illinois '59, M.S.L.S.

Abramowicz, Kenneth F. - 1994 - Assistant Professor of Accounting and Information Systems (1994), SOM. University of Tulsa '82, B.S.B.B.A.; '83, M.S.; University of Missouri-Columbia '91, Ph.D.; C.P.A.

Adamczak, Carol — 1993 — Project Manager (1993), VCAS.

Adams, Gail — 1990 — Assistant Student Activities Coordinator (1990), STUSVC. University of Alaska Fairbanks '90, B.B.A.

Adams II, Joe S. - 1991 - Director, Risk Management Department (1991), VCAS. Ohio University '68, B.S.I.T.; Embry-Riddle Aero University '76, B.S.A.S.; '80, M.B.A.

Adeodu, Rachel — 1993 — Instructor of Education (1993), KUC/CRA. Ahmadu Bello University, Zaria, Nigeria '79, B.A.; University of Glasgow, Scotland '83,

Akasofu, Syun-Ichi — 1958 — Director, Geophysical Institute (1986); and Professor of Geophysics (1964), GI. Tohoku University '53, B.S.; '57, M.S.; University of Alaska '61, Ph.D.

Albrecht, C. Earl — 1979 — Affiliate Professor of Medical Science (1979), CNS. Moravian College, Pennsylvania '26, B.A.; Moravian Theological Seminary '28, B.D.; Jefferson Medical College '32, M.D.

Alexander, Barbara — 1977 — Associate Professor of Humanities (1985), CLA; University of Zurich '75, Ph.D.

Alexander, Vera — 1962 — Dean, School of Fisheries and Ocean Sciences (1989); and Professor of Marine Science (1974), SFOS/IMS. University of Wisconsin '55, B.A.; '62, M.S.; University of Alaska '65, Ph.D.

Alexie, Oscar — 1983 — Instructor of Yup'ik Eskimo (1993), KUC/CRA.

Allan, James J. — 1988 — Project Manager (1988), VCAS. University of Michigan, Bach. of Architecture

Allen, Jane B. — 1989 — Instructor of Mathematics and Instructor of Developmental Mathematics (1994), KUC/CRA. Indiana University '72, B.A.; '75, M.S.

Alton, Tom — 1989 — Editor, Alaska Native Language Center (1989), CLA. University of Alaska Fairbanks '74, B.A.; University of Montana '83, M.A.

Amason, Alvin — 1992 — Assistant Professor of Art (1992), CLA. Central Washington University '74, M.A.; Arizona State University '76, M.F.A.

Anderson, Betty — 1985 — Instructor of Biology, Independent Learning Program, (1985), CRA. University of Arizona, Tucson '76, B.S.; '78, B.S.; University of Alaska Fairbanks '83, M.S.

Anderson, Candice M.—1971—Coordinator (1986), VCAS. Western Washington State University '70, B.A.

Anderson, James H.—1970—Library Assistant II, BioSciences Library (1993) and Senior Research Associate (1976), IAB. University of Washington '64, B.S.; Michigan State University '70, Ph.D.; Brigham Young University '93, M.L.I.S.

Anderson, Lydia M. — 1974 — Assistant Director, Wood Center Student Activities (1992), STUSVC. Cuesta College, A.A.

Anderson, Patricia A. — 1992 — Associate Director, Center for Global Change (1992), CGCASR, University of Iowa '73, B.S.; Dalhousie University '76, M.A.; New York University '82, Ph.D.

Andresen, Patricia A. — 1967 — Director, Honors Program (1990), CLA. University of Illinois '55, B.S.; University of Missouri '58, M.A.; University of California at Santa Barbara '76, Ph.D.

Andrew, Elleen — 1990 — Instructor, Community Health Aid Program (1989), KUC/CRA, MEDEX Northwest, University of Washington '87, Physician Assistant. Andrews, Gerald — 1994 — Instructor of Diesel/Heavy Equipment (1994), TVC/CRA, '80, Mechanic Journeyman; '92 Master Mechanic I.V.O.E.

Andrews, Susan B. — 1989 — Associate Professor of General Studies and Associate Professor of Journalism and Broadcasting (1994), CC/CRA. Smith College '81, B.A.; University of Oregon '83, M.A.

Anelon Jr., Greg — 1989 — Coordinator of Adult Basic Education (1990), KUC/ CRA. University of Alaska '87, B.A.; '90, M.Ed.

Angaiak, Andrew P. — 1978 — Director, Upward Bound Program (1982), STUSVC. Washington State University '76, B.A.; University of Washington '78, M.S.W.

Antohin, Anatoly — 1989 — Associate Professor of Theatre (1989), CLA. Institute of Cinematography, U.S.S.R. '75, M.F.A.

Antonius, Otto — 1992 — Research Associate (1992), GI. Diploma (Germany) '83; Bochum '87, Ph.D.

Armbruster, W. Scott — 1980 — Professor of Botany (1992), CNS, IAB. University of California, Santa Barbara '72, B.A.; University of California, Davis '77, M.S.; '81, Ph.D.

Armstrong, Linda M. - 1992 - HRS Coordinator (1992), VCAS.

Arps, Peggy J. — 1989 — Research Associate of Biochemistry (1993), IAB. Cornell University, B.A.; Johns Hopkins University, M.S.; '83, Ph.D.

Arundale, Robert — 1979 — Associate Professor of Communication (1985), CLA. Rensselaer Polytechnic Institute '63, B.S.; '64, M.S.; Michigan State University '71, Ph.D.

Arundale, Wendy H. — 1979 — Senior Research Associate (1979), IAB. Brown University '67, A.B.; Michigan State University '72, M.A.; '76, Ph.D.

Arvey, Martha M. — 1988 — Visiting Assistant Professor of Library Science (1989), LIB. Scripps College '63, B.A.; University of California, Los Angeles '64, M.L.S.

Aspnes, John D. — 1978 — Professor of Electrical Engineering (1981), and Head, Department of Electrical Engineering (1983), SOE. University of Wisconsin '65, M.S.; Montana State University '76, Ph.D.; P.E.

Ayagarak, Nancy — 1989 — Instructor of Developmental English (1989), KUC/CRA. University of Washington, B.A.; Western Oregon State '83, M.S.

Bachner, Nancy - 1974 - Conference Coordinator (1981), C&SE.

Bader, Harry R. — 1990 — Assistant Professor of Natural Resource Policy (1990), SALRM. Washington State University '85, B.A.; Drake Law School '86, C.L.E.; Harvard Law School '88, J.D.

Balley, Regina L. — 1990 — Coordinator (1990), PROV. SUC Geneseo '73, B.S.;
Troy State University '81, M.S.

Baker, Ellsha R. — 1989 — Associate Professor of Engineering and Science Management (1990), SOE. Clemson University '70, B.S.; '72, M.S.; '75, Ph.D.

Baker, Grant C. — 1988 — Assistant Professor of Mechanical Engineering (1990), SOE, University of Washington '78, B.S.; University of Alaska Fairbanks '83, M.S.; '87, Ph.D.

Bandopadhyay, Sukumar — 1982 — Professor of Mining Engineering and Head, Department of Mining and Geological Engineering (1992), SME. Banaras Hindu University, India '70, B.Sc.; '75, M. Tech.; Pennsylvania State University '79, M.S.; '82, Ph.D.

Barber, Willard E. — 1976 — Associate Professor of Fisheries (1988), SFOS, Arizona State University '65, B.A.; '68, M.S.; Michigan State University '70, Ph.D. Bargar, Harold E. (Ed) — 1990 — Project Engineer-Mechanical (1990), VCAS, University of Nebraska '77, B.S.M.E.; P.E.

Barker, Robin E. — 1990 — Clinical Practice/Instructor of Education (1990), SOED. Tufts University '73, B.S.

Barnes, Brian M. — 1986 — Associate Professor of Zoophysiology (1991), IAB. CNS. University of California, Riverside '77, B.S.; University of Washington '83, Ph.D.

Barnes, Sophie — 1983 — Instructor of Yup'ik Eskimo (1993); Adjunct Faculty and Research Associate (1989), KUC/CRA. Kuskokwim Community College '78, A.A.; University of Alaska Fairbanks '83, B.Ed.

Barnhardt, Carol A. — 1988 — Assistant Professor of Education (1994), SOED. North Dakota State University '65, B.S.; University of Alaska Fairbanks '81, M.A.; University of British Columbia '94, Ph.D.

Barnhardt, Raymond J.—1970—Professor of Cross-Cultural Education and Rural Development (1980), SOED. North Dakota State University '65, B.S.; Johns Hopkins University '67, M.Ed.; University of Oregon '70, Ph.D.

Barr, Kate - 1974 - Human Resource Manager (1994), GL

Barrick, Kenneth A. — 1985 — Associate Professor of Geography (1992) and Department Head (1994), CLA. Shippenburg University of Pennsylvania '74, B.A.; '78 M.S.; Southern Illinois University-Carbondale '82, M.S.; '83, Ph.D.

Barry, Ronald — 1991 — Assistant Professor of Statistics (1991), CLA. University of Alaska Fairbanks '85, B.S.; '87, M.S.; University of California, Irvine '91, Ph.D.
 Bartlett, DorisAnn — 1982 — Instructor of English (1985), CLA, Middlebury

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 and Information Systems (1979), SOM. Rhodes College '67, B.A.; Emory University '69, M.B.A.; State of Georgia '73, C.P.A.; State of Alaska '78, C.P.A.

Basham, Charlotte S. — 1983 — Associate Professor of Anthropology, Cross-Cultural Communication and Linguistics, CLA. Arizona State University '67, B.A.; San Jose State University '77, M.A.; University of Michigan '86, Ph.D.

Basham, Lynn — 1986 — Instructor of Cross Cultural Communication (1988), CLA. San Jose State University '66, B.A.; '76, M.A.

Batten, Alan R. — 1976 — Research Associate (1976), UAM. Colorado State University, Fort Collins '66, B.S.; University of Alaska Fairbanks '77, M.S.

Bauer, Timothy — 1980 — Business Manager (1992), VCAS. Central Michigan University '69, B.S.; University of Alaska Fairbanks '85, M.B.A.; CPA; CIA.

Baxter, Brenda - 1974 - Coordinator (1983), SFOS/SG.

Beberg, Paul J. — 1990 — Cross Country Running Coach (1990), ATHREC. University of New Mexico '86, B.U.S.

Becker, Milissa — 1994 — Bartlett Hall Director (1994), STUSVC. Mankato State University '92, B.S.; Kansas State University '94, M.S.

Beget, James E. — 1984 — Assocate Professor of Geology (1991), CNS. Columbia University '74, B.S.; University of Washington '77, M.S.; '81, Ph.D.

Behr-Andres, Christina B. — 1994 — Assistant Professor of Environmental Engineering (1994), SOE. University of Michigan '84, B.S.; New Mexico Institute of Mining and Technology '88, M.S.; Michigan Technological University '92, Ph.D.

Benesch, Walter J. — 1963 — Professor of Philosophy (1973); and Head, Department of Philosophy/Humanities, CLA, University of Denver '55, B.A.; University of Montana '56, M.A.; Leopold Franzens Universitat, Innsbruck '63, Dr. Phil.

Benevento, John — 1979 — Supervisor, Electronics Shop (1979), GI. Massachusetts Institute of Technology '63, A.E.

Benner, Richard L. — 1991 — Assistant Professor of Chemistry (1991), CNS, GI. State University of New York '81, B.S.; Washington State University '84, M.S.; University of Denver '91, Ph.D.

Bennett, F. Lawrence — 1968 — Professor of Engineering Management (1974); and Department Head (1983), SOE. Rensselaer Polytechnic Institute '61, B.C.E.; Cornell University '63, M.S.; '66, Ph.D.; P.E.; L.S.

Benson, Jennifer — 1994 — Women's Basketball Coach (1994), ATHREC. University of Alaska Fairbanks '88, B.S.; University of Iowa '92, M.A.

Berman, Gerald S.—1980—Professor of Sociology and Social Work; and Director, Social Work Program (1992), CLA. University of Michigan '56, B.A.; Case Western Reserve University '63, M.S.W.; '70, Ph.D.

Berry, Kathryn A. — 1991 — Public Information Officer (1991), GI. Wittenberg University '80, B.A.; Indiana University '83, M.S.

Bigjim, Fred — 1988 — Instructor of Alaska Native Politics, Independent Learning Program (1988), CRA. University of Alaska Fairbanks '72, B.A.; Harvard University '73, M.Ed.

Billington, Margaret M. — 1970 — Coordinator (1989), SFOS. University of California, Berkeley '66, B.A.; University of Alaska Fairbanks '81, M.S.

Bird, Roy K. — 1984 — Professor of English (1991), CLA. Brigham Young University '72, B.A.; '74 M.A.; William Marsh Rice University '82, Ph.D.

Birklid, Cathy A. — 1979 — Fiscal Officer (1993), ACE. University of Alaska '77, A.A.; '77, B.A.

Bischak, Diane — 1991 — Assistant Professor of Business Administration (1992), SOM. University of Michigan '79, B.A.; '83, M.S.; '88, Ph.D.

Bishop, Suzanne Stolpe — 1990 — Public Information Officer (1990), URIA. Lewis and Clark College '82, B.S.

Biswas, Nirendra N.—1971—Professor of Geophysics (1983), CNS. Geophysical Institute, Indian Institute of Technology, India '55, B.Sc.Hons.; '57, M. Tech; University of California, Los Angeles '71, Ph.D.

Black, Lydia T. — 1984 — Professor of Anthropology (1984), CLA. Northeastern University '69, B.S.; Brandeis University '71, M.A.; University of Massachusetts, Amherst '73, Ph.D.

Blake, John — 1988 — Associate Professor of Veterinary Science (1994), CNS, IAB. University of Saskatchewan '87, M.S.; '80, D.V.M.; '87, M.V.Sc.

Blalock, Susan Elizabeth — 1986 — Assistant Professor of English (1989) and Director, Writing Center (1986), CLA. Louisiana State University '68, B.A.; New York University '70, M.A.; University of Texas '83, Ph.D.

Blurton, David M. — 1989 — Assistant Professor of Justice (1992), CLA. Humboldt State University, California '75, B.S.; University of Montana '85, J.D.

Borchert, Mary Ann — 1971 — Director, Graduate Student Services (1994). 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 — Professor of Wildlife Ecology (1994), CNS, IAB. Humboldt State University '70, B.S.; '76, M.S.; University of Michigan '85, Ph.D. Box, Mark A. — 1990 — Associate Professor of English (1993), CLA. Northern Illinois University '74, B.A.; '78, M.A.; University College, Oxford University '85, Ph.D.

Boyce, John — 1988 — Assistant Professor of Economics (1988) and Director, Economics Graduate Program (1994), SOM. Montana State University '82, B.A.; University of California, Davis '90, Ph.D.

Boyer, Bert B. — 1992 — Assistant Professor of Molecular Biology (1992), CNS, IAB. Texas Tech University '82, B.A.; Louisiana State University Medical Center '88, Ph.D.

Braddock, Joan Forshaung — 1990 — Assistant Professor of Biology (1990), CNS, IAB, INE. University of Alaska Fairbanks '77, B.S.; '83, M.S. '89, Ph.D.

Bradley, Claudette — 1989 — Assistant Professor of Education (1989), SOED. University of Connecticut '64, B.A.; '67, M.S.; Harvard Graduate School of Education '87, Ed.D.

Brashear, James — 1992 — Assistant Professor of Art (1992), CLA. Indiana University of Pennsylvania '87, B.F.A.; Louisiana State University '90, M.F.A.

Brekke, Kay Marie — 1993 — Assistant Professor of ESL (1993), KUC/CRA. University of California (Turlock) '67, B.A.; University of North Dakota '73, B.S.; Montana State University '84, M.A.; Boston University '88, Ed.D.

Brigham, Jerry C. — 1989 — Interim General Manager, KUAC-FM/TV (1995), Associate Professor of Broadcasting (1989), CLA; and Instructor of Journalism/Broadcasting, Independent Learning Program (1989), CRA. University of Oklahoma '66, B.F.A.; '71, M.F.A.

Brody, Arthur W. — 1967 — Professor of Art (1984) and Department Head (1993), CLA. Harvey Mudd College '65, B.S.; Claremont Graduate School '67, M.F.A.

Brown, Cindy — 1990 — Assistant Director, Alaska Teacher Placement (1990), STUSVC, Southwest Missouri State University '76, B.S.; University of Missouri '81, M.Ed.

Brown, Jin—1993—Assistant Professor of Communication (1993), CLA. Washburn University '73, B.A.; University of Oklahoma '77, M.A.; '90, Ph.D.

Brown, Neal — 1966 — Research Assistant Professor of Geophysics (1993), CNS. Washington State University '61, B.S.; University of Alaska '66, M.S.

Brown, Steve W. — 1992 — Research Associate (1992). University of Alaska Fairbanks '87, B.S.

Brown, Timothy — 1991 — Head Women's Volleyball Coach (1991), ATHREC. Indiana University Purdue University of Indianapolis '81, B.S.

Browne, Dauna B. — 1989 — Coordinator and Associate Professor of Guidance and Counseling (1989), and Department Head, CLA. University of North Dakota, Ellendale '64, B.S.; University of Northern Colorado '67, M.A.Ed.; '70, Ed.D.

Bruder, John A. — 1991 — Instructor of Mathematics (1991), BBC/CRA. University of Colorado '75, B.A.; University of Montana '91, M.A.

Bryant, John P. — 1985 — Professor of Plant Ecology (1992), IAB, CNS. Colorado State University '66, B.A.; University of Calgary '68, M.S.; University of Alaska Fairbanks '84, Ph.D.

Bublitz, Christopher G. — 1981 — Program Coordinator (1981), SFOS/FITC. Bowling Green State University '75, B.S.; University of Alaska '81, M.S.

Bundschuh, Paul A. — 1989 — ASF VAX System Manager (1990), GI. University of Notre Dame '87, B.S.E.E.

Burchfield, Jennifer E. — 1987 — Fiscal Officer (1992), PICO. University of Alaska Fairbanks '90, B.B.A.

Burchill, Stephanie. — 1993 — Sports Information Director (1993), ATHREC. University of Maine '91, B.A.

Burgess, George B. — 1988 — Deputy Director, Planning and Project Services (1993), VCAS. Pennsylvania State University '70, B.S.; University of Alaska Fairbanks '83, M.S.

Burns, Cooper G. — 1990 — Assistant Professor of English (1990), CLA. Yale University '83, B.A.; University of Texas '86, M.A.; '89, Ph.D.

Burns, Sylvia — 1994 — Visiting Assistant Professor of Library Science (1994), LIB. De Paul University '66, B.A.; Brigham Young University '90, M.L.I.S.

Burton, Baxter D. — 1991 — Assistant Director (1991), PICO. University of Wyoming '75, B.S.C.E.; National University, M.B.A.; University of Wyoming '91, J.D.

Bush, Anita M. — 1990 — Affiliate Assistant Professor of Psychology (1993), CLA; and Instructor of Psychology and Sociology, Independent Learning Program (1990), CRA. University of the State of New York '81, A.S.; '89, B.S.; University of Alaska Fairbanks '93, Ph.D.

Butcher, Barbara — 1980 — Associate Professor of Extension, Home Economics (1987), ACE. Indiana University '63, B.S.; '70, M.S.

Butler-Hopkins, Kathleen M. — 1979 — Professor of Music (1990), CLA. Trinity College of Music, London, England '71, F.T.C.L.; The Juilliard School '75, B.M.; '76, M.M.; Yale University School of Music '78, M.M.A.; '82 D.M.A.

Button, Don K. — 1964 — Professor of Marine Science and Biochemistry (1973), SFOS/IMS, CNS. Wisconsin State College '55, B.S.; University of Wisconsin '61, M.S.; '64, Ph.D.

Buttrey, Lisa — 1993 — Assistant Professor of Chemistry (1993), CNS. State University of New York at Buffalo '86, B.S.; '92, Ph.D.

Bye, Deborah K. — 1993 — Assistant Professor of English and Developmental Studies (1994), KUC/CRA. Northern Arizona University '73, B.S., '76, M.A.

Byers, Kurt M. — 1988 — Communications Manager/Editor (1988), SFOS/SG. University of Michigan '85, B.S.

Byrne, Jonathan — 1987 — Instructor of English (1987), CC/CRA. University of Minnesota '83, B.A.

Caldwell, Patt — 1985 — Instructor of Education and Clinical Experience Coordinator (1990), SOED. Winthrop College '64, B.S.; Memphis State University '70, M.Ed.

Calkins, Harry — 1988 — Visiting Instructor of Art (1988), CLA. San Jose State College '65, B.A.; '67, M.A.

Callahan, Thomas J. — 1988 — Master, R/V Alpha Helix (1988), SFOS/IMS, Loras College '65, B.A.

Campagna, Michele — 1991 — Student Advocate (1993), CLA. New York University '90, B.A.

Candler, Rudolph J. — 1974 — Supervisor Soil and Plant Analysis Laboratory (1988), SALRM. Colorado State University '67, B.S.; '74, M.S.; '87, Ph.D.

Cangello-Overturf, Mary Beth — 1990 — Manager, University Technology Center (1994), VCAS. University of California '86, B.S.

Carling, Donald E. — 1981 — Professor of Horticulture (1991), SALRM. St. Cloud State '67, B.A.; University of Missouri-Columbia '69, M.S.; '75, Ph.D.

Carlson, Robert F. — 1965 — Acting Head, Department of Civil Engineering (1991); and Professor of Civil Engineering (1974), SOE. University of Wisconsin '61, B.S.; '63, M.S.; '67, Ph.D.; P.E.

Carter, Sandra — 1987 — Academic Adviser (1993), ATHREC. University of Alaska Fairbanks '93, B.A.

Castellini, J. Margaret — 1989 — Research Associate (1989), SFOS/IMS. Mount Allison University '81, B.Sc.; University of British Columbia '85, M.Sc.

Castellini, Michael A. — 1989 — Associate Professor of Marine Science (1993), SFOS/IMS. University of California, San Diego '75, B.A.; Scripps Institution of Oceanography '81, Ph.D.

Caulfield, Richard A. — 1985 — Assistant Professor of Rural Development (1992); and Department Head (1993), CRA. University of California, Berkeley '73, B.S.; '73, B.A.; University of Alaska Fairbanks '85, M.Ed.; University of East Anglia (United Kingdom) '93, Ph.D.

Cedzo, Karen L. — 1979 — Associate Vice Chancellor for University Relations and Institutional Advancement (1990) and Instructor, Department of Journalism and Broadcasting (1991), CLA. University of Wisconsin '73, B.A.; '75, M.A.

Chadwick, Jerah — 1982 — Assistant Professor of General and Developmental Studies (1991), IAC/CRA. Lake Forest College '78, B.A.; University of Alaska Fairbanks '88, M.F.A.

Chamberlain, Steve — 1987 — Assistant Professor of English (1990), KUC/CRA. 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.

Chapman, Carolyn — 1990 — Employment Coordinator (1992), VCAS

Charette, Phillip J. — 1991 — Advisor/Counselor, Rural Student Services (1991), STUSVC. University of Alaska Fairbanks '90, B.Ed.; '90, B.A.

Charlie, Phillip — 1992 — Housing Officer (1992), KUC/CRA. Anchorage Community College '85, A.A.S.

Charlton, Issac — 1989 — Instructor of Accounting and Information Systems, Independent Learning Center (1989), CRA. Eastern Illinois University '64, B.S.; Indiana University '71, M.S.

Chen, Gang — 1993 — Assistant Professor (1993), SME. Shandong Mining Institute '77, B.S.; Coloardo School of Mines '84, M.S.; Virginia Polytechnic Institute of State University '89, Ph.D.

Childress, William — 1983 — Property and Materials Manager (1989), VCAS. University of Alaska Anchorage '83, B.A.

Chin, Wanda W. — 1979 — Coordinator of Exhibits, UAM. University of California, Los Angeles '74, B.A.

Choudhury, Gour S. — 1990 — Assistant Professor of Seafood Engineering (1990), SFOS/FITC. University of Gauhati (India) '73, B.S.; University of Mysore (India) '76, M.S.; University of Alberta '87, Ph.D.

Chowdhury, Ataur R.—1991—Assistant Professor of Physics (1991), CNS. Dacca University '75, B.S; M.S.; Clark University '85, Ph.D.

Christensen, Douglas — 1988 — Associate Professor of Geophysics (1993), CNS, GI. University of Utah '77, B.S.; University of Michigan '79, M.S.; '87, Ph.D.

Chukwu, Godwin A. — 1990 — Associate Professor of Petroleum Engineering (1990), Department Head (1993), SME; and Instructor of Petroleum Science, Independent Learning Program (1990), CRA. University of Southwestern Louisiana '79, B.S.; '80, M.S.; University of Oklahoma '89, Ph.D.

Clark, Claudia C. — 1989 — Assistant Professor of Journalism/Broadcasting (1989), Affiliate Producer/Director, KUAC-TV (1991), CLA; and Instructor of Journalism/Broadcasting, Independent Learning Program (1991), CRA. Montana State University '83, B.S.; '88 M.Ed.

Clausen, Richard — 1982 — Instructor of Mathematics, CLA. University of Alaska '75, B.S.; University of Oregon '77, M.S.

Clausen, Thomas — 1975 — Instructor of Chemistry (1991), CNS. University of Alaska Fairbanks '75, B.S.; Michigan State University '80, Ph.D.

Cloud, Patricia L. — 1991 — Instructor of Education (1992), SOED. Colorado State University '74, B.F.A.; Bemidji State University '83, B.S.; University of Alaska Fairbanks '90, M.Ed.

Coetzee, Nicolaas F. — 1982 — Adjunct Associate Professor of Civil Engineering (1987), SOE. University of Natal, Durban, S. Africa '72, B.S.; University of California, Berkeley '75, M.S.; '79, Ph.D.

Cole, Terrence M. — 1988 — Associate Professor of History (1991), CLA. University of Alaska '76, B.A.; '78, M.A.; University of Washington '83, Ph.D.

Colligan-Taylor, Karen — 1984 — Associate Professor of Japanese (1986), CLA. University of California, Berkeley '71, B.A.; '75, M.A.; Stanford University '85, Ph.D.

Collins, James M.—1991—Assistant Professor of Business Administration (1991), SOM. Illinios State University at Normal '72, B.S.; University of Texas at Austin '86, M.B.A.; '91, Ph.D.

Collins, Raymond L. — 1987 — Coordinator, McGrath Center (1987), IAC/CRA. University of Alaska Fairbanks '74, B.S.

Condran, Ursula Mariani — 1986 — Manager, Museum Store (1988), UAM. University of California, Berkeley '92, B.A.

Connor, Helen — 1991 — Office Manager, Purchasing (1993), VCAS.

Connor, William — 1983 — Director, Center for Health and Counseling (1989), STUSVC; and Assistant Professor of Psychology, (1983), CRA. 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.

Cook, Harry F. — 1992 — Assistant Professor of Aviation Technology (1992), TVC/CRA. New Jersey Institute of Technology '71, B.S.C.E.; Ball State University '81, M.A.; University of Alaska Fairbanks '92, A.A.S.

Cook, Joseph A. — 1990 — Assistant Professor of Biology and Curator of Mammalogy (1990), UAM. Western New Mexico University '80, B.S.; University of New Mexico '82, M.S.; '90, Ph.D.

Cooney, R. Theodore — 1970 — Professor of Marine Science (1994), SFOS/IMS. University of Washington '64, B.S.; '67, M.S.; '71, Ph.D.

Cooper, Charles L. — 1990 — Assistant Professor of Mathematics (1990), CLA. University of Oklahoma '76, B.S.; '82, M.A.; '90, Ph.D.

Copeland, Audrey — 1989 — Instructor of History, Independent Learning Program (1989), CRA. University of Michigan '64, B.A.

Copus, Gary — 1980 — Associate Professor of Justice (1974), CLA. Georgia Institute of Technology '67, B.S.; Sam Houston State University '68, M.S.; University of Missouri '72, Ph.D.

Corbett, Dorothy S. — 1993 — Director, User Services (1993), ARSC. University of Chicago '74, A.B.; University of Illinois '77, M.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.

Corti, Lillian — 1992 — Assistant Professor of English (1992), CLA. Brooklyn College '74, B.A.; Graduate School of the City University of New York '80, M.A.; '84, Ph.D.

Cote, James W. — 1992 — Assistant Professor of Electrical Engineering (1992), SOE. University of Michigan '82, B.S.E.; University of Southern California '87, M.S.E.E.; University of Washington '92, Ph.D.; P.E.

Coughenower, D. Douglas — 1982 — Marine Extension Agent (1982); and Associate Professor of Fisheries (1988), SFOS/MAP. Oregon State University '63, B.S.; '72, M.S.; '74, M.S.

Coutant, Basil W. — 1990 — Assistant Professor of Mathematics (1990), CLA. Ohio University '83, B.S.; '84, M.S.; '90, Ph.D.

Coutant, Sherry — 1990 — Instructor of Linguistics, Independent Learning Program (1990), CRA. Ohio University '83, B.Ed.; '86, M.A.

Coyle, Kenneth O. — 1971 — Research Associate (1988), SFOS/IMS. University of Washington '72, B.S.; University of Alaska '74, M.S.

Crandell, Patricia A. — 1991 — Research Associate (1991), SFOS/JC. University of California, Davis '83, B.S.; '90, Ph.D.

Crapo, Charles A. — 1983 — Associate Professor of Seafood Technology (1994), SFOS/FITC, MAP. Oregon State University '74, B.S.; '83, M.S.

Craven, John D. — 1991 — Professor of Physics (1991), CNS. University of Iowa '63, B.A.; '64, M.S.; '69, Ph.D.

Crawford, Alta — 1991 — Employment Development Coordinator (1992), VCAS. Western Oregon State College '76, B.A.

Crawford, Dennis L. — 1989 — Associate Professor of Extension 4-H (1989) and State 4-H Program Leader (1989), ACE. Linfield College '55, B.A.; Colgate Rochester Divinity School '58, M.Div.; Oregon State University '67, M.Ed.; '76, Ph.D.

Creed, John — 1987 — Associate Professor of General Studies and Journalism and Broadcasting (1994), CC/CRA. University of Massachusetts, Amherst '75, B.A.; University of Oregon '83, M.A.

Criddle, Keith R. — 1989 — Associate Professor of Economics (1993), 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.

Cridge-Dempsey, Kimberly — 1994 — Coordinator, Graduate Student Services (1994), GRAD. University of Wisconsin-La Crosse '88, B.S.

Crowder, R. Kelth — 1983 — Associate Professor of Geology (1990), CNS. Radford University '78, B.S; University of Arkansas '80, M.S.; University of Iowa '83, Ph.D.

Curda, Linda — 1982 — Assistant Professor of Community Health (1993), KUC/CRA. University of Maryland '71, B.S.N.; Johns Hopkins University '77, M.P.H. & C.N.M.

Curry, Edith I. - 1991 - Assistant Fire Chief, Fire Prevention (1991), VCAS.

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. Cysewski, Stephen D. — 1991 — Assistant Professor of Computer Applications

Cysewski, Stephen D. — 1991 — Assistant Professor of Computer Applications (1991), TVC/CRA. Western Washington State University '67, B.A.; Alaska Pacific University '87, M.L.A.

Damron, Debra P. — 1991 — Public Information Officer (1991), URIA. University of Alaska Fairbanks '82, B.A.

Darnell-McGee, Sara — 1991 — Instructor, CLA. University of Alaska Fairbanks '88, B.A.; '91, M.A.

Daro, Hazel Ewing — 1977 — Assistant to the Director, University of Alaska Museum (1986), UAM. University of Alaska Fairbanks '72, A.O.A.

Das, Deben K. — 1984 — Professor of Mechanical Engineering (1993), SOE. Sambalpur University '72, B.S.; Brown University '74, Sc.M.; University of Rhode Island '83, Ph.D.; P.E.

Davis II, C.W. — 1990 — Facilities Engineer, VCAS. University of Alaska Fairbanks '75, B.S.C.E.

Davis, Frank — 1981 — Assistant Professor of Culinary Arts (1994), TVC/CRA. Tanana Valley Community College '79, A.A.S., C.E.C., C.C.E.

Davis, Pamela M. — 1990 — Campaign Manager (1990). University of Georgia '78, R.S.

Dawson, Francis N. — 1991 — Assistant Professor of History (1991), NWC/CRA. West Virginia University '67, B.A.; '72, M.A.; '85, Ph.D.

Dean, Kenneson G. — 1977 — Research Assistant Professor, (1991) GI. Northern Arizona University '72, B.S.; University of Alaska '79, M.S.

Dearborn, Ronald K. — 1985 — Director, Alaska Sea Grant College Program (1985), SFOS/SG. University of Maine '65, B.S.; University of Massachusetts '75, M.S.: P.E.

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 S. — 1958 — Science Policy Chair, Poker Flat Research Range (1993), GI; and Professor of Physics, Emeritus. University of Alaska '68, Ph.D.

DeLaca, Ted — 1992 — Director, Office of Arctic Research (1993), OAR. University of California, Davis '69, B.S.; '76, Ph.D.

Delana, Brett S. — 1975 — Senior Project Engineer (1986), GI. Oregon Tate University '71, B.S.E.E.; University of Alaska '73, M.S.

Delucchi, Gena M. — 1991 — Assistant Professor (1991), ACE. University of California, Davis '78, B.S.; University of Alaska Fairbanks '83, M.S.

Demers, Philip J. — 1991 — Executive Officer (1994), SOED. Wayland Baptist University '90, B.S.; University of La Verne '92, M.A.

Dershin, Carrie — 1994 — Wickersham Hall Director (1994), STUSVC. College of Wooster '91, B.A.; '93, 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, IAB. University of Liege, Belgium '75, B.S.; '80, Ph.D.

Dexter, Charles N. — 1985 — Associate Professor of Applied Business (1990), TVC/CRA. University of Alaska Fairbanks '77, B.A.; '83, M.B.A.

DiCecco, Bruno — 1981 — Professor of Music (1991), CLA. Yale University School of Music, '57, B.M.; '58, M.M.

Dickerson, Larry E. — 1992 — Community Development Specialist (1992), ACE. William Jewell College '69, B.A.; University of Missouri '86, M.S.

Dickey, Terry P. — 1973 — Coordinator of Education and Public Service, UAM. (1976). University of Tulsa '66, B.A.; University of Alaska '87, M.Ed.

Dickson, Helen — 1988 — Distant Delivery Coordinator (1988), NWC/CRA. B.Ed.

Diehl, Carol S. — 1982 — Staff Counselor, Center for Health & Counseling, STUSVC; and Assistant Professor of Counseling (1982), CRA. Juniata College '71, B.A.; West Virginia University '75, M.A.; '81, Ed.D.

Dieter, Emma R. — 1962 — Assistant Director for Coastal and Marine Operations (1982), SFOS/IMS. DePaul University '59, B.S.; University of Rhode Island '88, M.M.A.

Dieterich, Robert A. — 1967 — Faculty Associate (Emeritus) (1989), Professor of Veterinary Science (1967), IAB. University of California '61, B.S.; '63, D.V.M.

Dinges, Norman G. — 1990 — Associate Professor of Psychology (1990), CLA. Fort Hays State University '63, B.S.; '65, M.S.; Colorado State University '70, Ph.D.

Diseth, Scott S. — 1990 — Program Director/Station Manager, KUAC-FM (1990), CLA. Fort Steilacoom Community College '71, A.A.

Dix, Nancy — 1978 — Admissions Counselor (1992), STUSVC. University of Alaska Fairbanks '82, B.S.; '86, M.Ed.

Doberpuhl, Dave — 1991 — Project Manager (1991), VCAS. University of Alaska Fairbanks, B.S.M.E., M.S.

Dofing, Stephen M. — 1989 — Associate Professor of Agronomy (1993), SALRM. Kansas State University '78, B.S.; University of Nebraska '80, M.S.; '83, Ph.D.

Doudna, David A. — 1989 — Project Manager (1990), SFOS/IMS. South Dakota State University '81, B.S.

Douglas, Jim — 1984 — Professor of Extension, Resource Development and Youth Agent (1994), ACE. University of Nevada Reno '70, B.S.; '74, M.S.

Doyle, John P. — 1967 — Professor of Fisheries (1981), SFOS/MAP. University of Washington '59,B.S.

Drew, James V. — 1976 — Dean, School of Agriculture and Land Resources Management; Director, Agricultural and Forestry Experiment Station; and Professor of Agronomy (1976). Rutgers University '52, B.S.; '57, Ph.D.

Drew, Kelly L. — 1991 — Research Assistant Professor (1993), IAB. University of Alaska Fairbanks '81. B.S.; Albany Medical College '87, Ph.D.

Dubbs, Patrick J. — 1968 — Associate Professor of Education (1982), CRA. University of Notre Dame '60, B.A.; Michigan State University '75, Ph.D.

Ducharme, Jo Ann — 1992 — Director, Rural Student Services (1992), STUSVC, University of Alaska '77, B.Ed.; '82, M.Ed.

Duerr, Ruth — 1992 — GeoData Center Manager (1992), Gl. University of North Dakota '77, B.S.; University of Arizona '80, M.S.

Duffy, Lawrence K. — 1986 — Professor of Chemistry and Biochemistry (1992), CNS, IAB, Fordham University '69, B.S.; University of Alaska '71, M.S.; '77, Ph.D. Dupras, Joseph A. — 1979 — Professor of English (1990), CLA. University of Maryland '68, B.A.; State University of New York at Binghamton '70, M.A.; '75, Ph.D.

Dupras, Rheba — 1981 — Assistant Professor of Library Science (1981), LIB. Marietta College '73, B.A.; State University of New York at Binghamton '75, M.A.; University of Kentucky '79, M.S.L.S.

Dyen, Fred — 1981 — Associate Professor of Airframe and Powerplant/Aviation Technology, TVC/CRA. Northrop University '76, Certificate; University of Santa Clara '70, B.A.; University of Alaska '86, M.S.

Ebbesson, Sven O.E. — 1985 — Professor of Marine Science and Neuroscience (1985), SFOS/IMS. Southwestern College '57, B.S.; University of Maryland '64, Ph.D.

Echelmeyer, Keith A. — 1984 — Associate Professor of Geophysics (1991), GI, CNS. University of Colorado '76, B.S.; California Institute of Technology '79, M.S.; '83, Ph.D.

Edwards, Mary Elizabeth — 1989 — Associate Professor of Geology (1989), CNS. University College of Wales '76, B.S.; University of Oxford '77, M.S.; Cambridge University '81, Ph.D.

Eichelberger, John C. — 1991 — Professor of Volcanology (1991), CNS, GI. Massachusetts Institute of Technology '70, B.S.; M.S.; '74, Ph.D.

Elder, Sarah M. — 1973 — Assistant Professor of Cinematography and Co-director of Alaska Native Heritage Film Center (1983), Sarah Laurence College '69, B.A.; Brandeis University '85, M.F.A.;

Ellanna, Linda J. — 1985 — Associate Professor of Anthropology (1987), CLA. University of Washington '66, B.A.; University of Wyoming '72, M.A.; University of Connecticut '83, Ph.D.

Ensign, Elaine C. — 1978 — Instructor of Mathematics (1981), CLA. Indiana University '53, B.A.; University of Wisconsin '55, M.S.

Epperson, Lenora — 1993 — Office Manager, Residence Life (1993), STUSVC.

Erickson, Karen — 1991 — Assistant Professor of Political Science (1991), CLA.
Stanford University '58, B.A.; Harvard University '63, M.A.; '76, Ph.D.

Ernst, Wendy — 1990 — Assistant Professor of Sculpture (1990), CLA. University of Minnesota '85, B.F.A.; The Ohio State University '90, M.F.A.

Eslinger, David L. — 1992 — Assistant Professor (1992), SFOS/IMS. Florida State University '81, B.S.; '86, M.S.; '90, Ph.D.

Esop, Jakub — Assistant Professor of Culinary Arts (1990), TVC/CRA. Master Chef Degree of Marianske Lazne, Czechoslovakia '66

Estes, Steven A. — 1975 — Project Engineer, (1987) GI. University of Hawaii '72, B.S.E.E.; '74, B.S.; University of Alaska '78, M.S.

Evans, Melinda F. — 1986 — Physician, Center for Health and Counseling, (1986), STUSVC. Colorado College '73, B.A.; University of Washington '82, M.D., '86, A.B.I.M.; '90, M.P.H.

Fagen, Robert M. — 1982 — Associate Professor of Biometrics (1982), SFOS/JC. Massachusetts Institute of Technology '67, B.S.; University of Michigan '68, M.S.; Harvard University '74, Ph.D.

Failoni, Daniel D. — 1975 — Affiliate Assistant Professor of Medical Science (1975), CNS. Western Reserve University '61, The Ohio State University '65, M.D., M.S.

Falk, Marvin W. — 1975 — Associate Professor of Library Science (1976), LIB. University of Minnesota '65, B.A.; University of Massachusetts '66, M.A.; University of Iowa '76, Ph.D.

Feist, Dale D. — 1971 — Professor of Zoophysiology (1983), IAB, CNS, University of Cincinnati '60, A.B.; University of California, Berkeley '69, Ph.D.

Filyushkin, Victor V. — 1993 — Research Associate (1993), Gl. Moscow Institute of Physics and Technology '78, M.S.; MIPHT and I.V. Kurchatov Institute of Atomic Energy '82, Ph.D.

Finch, Sheila — 1970 — Supervisor, Word Processing Center (1988), GL

Finney, Bruce P. — 1970 — Assistant Professor of Marine Science (1990), SFOS/ IMS. University of Minnesota '79, B.S.; Oregon State University '87, Ph.D.

Fisher, Sharon — 1992 — Contract Specialist (1993), ACE. Bellevue Community College '91, A.A.S.

Florian, Dale A. — 1979 — Director, Police Department (1979), VCAS. Santa Rosa Junior College '72, A.A.; F.B.I. National Academy '74; University of Nevada, Las Vegas '79, B.A.

Florian, Eileen M. - 1980 - Manager, Bookstore (1987), STUSVC.

Flynn, Mitch — 1980 — Fire Captain (1981), VCAS, Tanana Valley Community College, A.A.S.

Foley, Donald J.M. — 1991 — Director, Residence Life (1991), STUSVC. University of the Pacific '80, B.A.; Oregon State University '84, M.Ed.

Follmann, Erich H. — 1976 — Associate Professor of Zoology (1989), CNS, IAB. Loyola University, Chicago '65, B.S.; Southern Illinois University '68, M.A.; '73, Ph.D.

Foster, Nora Rakestraw — 1981 — Coordinator, Aquatic Collection (1981), UAM. University of Alaska Fairbanks '69, B.S.; '79, M.S.

Fox, John D. — 1973 — Associate Professor of Land Resources (1993), SALRM. Trinity College '68, B.S.; University of Washington '70, M.S.; '76, Ph.D.

Fox, John F. — 1977 — Assistant Professor of Biometrics (1977), CNS, IAB. Johns Hopkins University '67, A.B.; University of Chicago '70, M.S.; '74, Ph.D.

Franks, Kyle — 1982 — Instructor of Education, Independent Learning Program (1982), CRA. Texas Midwestern University '55, B.Mus.; University of Alaska '64, M.Ed.; Walden University '82, Ph.D.

Fraser II, Warren G. — 1970 — Manager, Printing Services (1990), VCAS.

Freeman, Jeanne — 1992 — Director, Personnel Services '92, VCAS. University of Alaska Fairbanks '91, B.A.

French, John S. — 1980 — Professor of Seafood Biochemistry (1992); and Director of Fishery Industry Technology Center (1991), SFOS/FITC. Oberlin College '71, A.B.; University of Michigan '79, Ph.D.

Gabrielli, Ralph B. — 1987 — Executive Dean, College of Rural Alaska (1992); and Associate Professor of Education (1987). State University of New York '65, B.A.; '66, M.S.; Syracuse University '71, Ph.D.

Gaffney, Michael J. — 1974 — Associate Professor of Alaska Native Studies and Department Head (1979), CLA. San Francisco State College '63, B.A.; University of California at Los Angeles '68, M.A.; '73, Ph.D.

Gangloff, Roland A. — 1987 — Associate Professor of Geology and Curator of Earth Science (1987), CNS, UAM. University of California, Berkeley '61, B.S.; '63, M.S.; '75, Ph.D.

Garland, D. Sarah — 1992 — Developmental Studies Coordinator (1992), TVC/CRA. Mount Holyoke College '85, B.A.; University of Alaska Fairbanks '88, M.S. Garnett, Lillian M. — 1990 — Linguist for Gwich'in Athabaskan (1990), CLA.

Garza, Dolly A. — 1983 — Marine Extension Agent and Associate Professor of Fisheries (1993), SFOS/MAP. University of Alaska '80, B.S.; University of Washington; 83, M.S.

Gasbarro, Anthony F. — 1973 — Associate Professor of Forestry Extension (1986), ACE. Colorado State University '62, B.S.; University of Alaska '79, M.S.

Gatterdam, Ronald W. — 1982 — Professor of Computer Science and Mathematics (1982), CLA. California Institute of Technology '61, B.S.; University of Southern California '65, M.A.; University of California, Irvine '70, Ph.D.

Gavlak, Raymond G. — 1989 — Associate Professor of Agronomy Extension (1989), ACE. California State Polytechnic University '76, B.S.; Montana State University '82, M.S.; '85, Ph.D.

Geagel, Russell H. — 1988 — Site Manager, Kasitsna Bay Laboratory (1988), SFOS/IMS.

Geist, Charles R. — 1974 — Professor of Psychology (1984); Director, Psychology Program (1993), CLA; and Instructor of Psychology, Independent Learning Program (1974), CRA. University of San Diego '68, B.S.; University of Montana '73, M.A.; '75, Ph.D.

George, Thomas H. — 1973 — Applications Specialist, (1973), GI. Oregon State University '73, B.S.; University of Alaska '85, M.S.

Gerlach, S. Craig — 1988 — Assistant Professor of Anthropology (1992), CLA. University of Oklahoma '75, B.A.; '77, M.A.; Brown University '89, Ph.D.

Getz, Martin — 1982 — Instructor of Mathematics (1982), CLA. University of South Dakota '68, B.A.; University of Alaska Fairbanks '72, M.S.

Gharrett, Anthony J. — 1976 — Professor of Fisheries (1989), SFOS/JC. California Institute of Technology '67, B.S.; Oregon State University '73, M.S.; '75, Ph.D.

Gibbens, Tracey — 1992 — Assistant Professor of Music (1992), CLA. University of Northern Iowa '77, B.M.E.; University of Iowa '89, M.A.

Gibson, Daniel D. — 1970 — Curatorial Assistant of Ornithology (1985), UAM.
Gieck, Robert E. — 1985 — Research Associate (1986), INE. University of Alaska Fairbanks '82, B.S.; '86, M.S.

Gilbert, Dana — 1993 — Moore Hall Director (1993), STUSVC, Texas Tech '90, B.A.; '92, M.A.

Gilmore, Perry — 1985 — Associate Professor of Education (1987) SOED. Temple University '66, B.S.; '76, M.S.; University of Pennsylvania '82, Ph.D.

Gimbel, John G. — 1987 — Professor of Mathematics (1993), CLA. Andrews University '77, B.S.; Western Michigan University '84, Ph.D.

Gislason, Gary A. — 1970 — Professor of Mathematics (1984), CLA; and Instructor of Mathematics, Independent Learning Program (1970), CRA. University of Alaska '66, B.S.; University of Oregon '68, M.S.; '70, Ph.D.

Gladden, James N. — 1985 — Associate Professor of Political Science/Justice (1991) and Head, Department of Political Science/Justice (1992), CLA. Indiana University-Bloomington '72, B.A.; University of Houston, Texas '77, M.A. Indiana University-Bloomington '84, Ph.D.

Gleason, Thomas A. — 1990 — Accountant, Grant and Contract Services (1990), VCAS. University of Alaska Fairbanks, B.B.A.; C.P.A.

Goering, Douglas J. — 1989 — Assistant Professor of Mechanical Engineering (1989), SOE. University of Washington '81, B.S.; University of Alaska Fairbanks '84, M.S.; University of California, Berkeley '89, Ph.D.

Goering, Gregory E. — 1990 — Associate Professor of Economics (1994), SOM. University of Alaska '84, B.A.; '86, M.S.; Purdue University '88, M.S.; '90, Ph.D.

Goering, John J. — 1962 — Professor of Marine Science (1968) and Associate Director of IMS (1989), SFOS/IMS. Bethel College '56, B.S.; University of Wisconsin '60, M.S.; '62, Ph.D.

Gold, Carol — 1980 — Professor of History (1994), CLA. Antioch College '64, B.A.; University of Wisconsin '67, M.A.; '75, Ph.D.

Gorman, Robert F. — 1991 — Assistant Professor (1991), ACE. University of Massachusetts '67, A.A.; University of Arkansas '74, B.S.A.; Washington State University '77, M.S.

Graham, Jeffrey S. — 1989 — Affiliate Assistant Professor of Agronomy (1989), SALRM. University of Montana '79, B.S.; '83, M.S.; Oregon State University '89, Ph.D.

Grahek, Bart T. — 1991 — Buyer (1992), VCAS. University of Alaska Fairbanks '88, B.B.A.; '91, M.B.A.

Grahek II, Michael E. — 1989 — Purchasing Agent (1991), VCAS. University of Alaska Fairbanks '83, B.B.A.

Gray, Andrew K. — 1990 — Research Associate (1990), SFOS/JC. Washington State University '88, B.S.; '90, M.S.

Greco, Connie M. — 1981 — Fiscal Officer, Physical Plant (1989), VCAS.

Greenberg, Joshua A. — 1990 — Assistant Professor of Resource Economics (1990), SALRM. University of Connecticut '82, B.A.; University of Alaska Fairbanks '84, M.A.; Washington State University '90, Ph.D.

Greene, Barbara E. — 1990 — Visiting Assistant Professor of Extension, Nutrition (1990), ACE. Florida Southern College '57, B.S.; Florida State University '62, M.S.; '66, Ph.D.; University of Alaska Fairbanks '88, M.S.

Greenlund, Mary Anne N. — 1991 — Associate Professor (1991), ACE. Oregon State University '55, B.S.; Southern Oregon State College '82, M.S.

Gregory, Gayle — 1984 — Graduation Manager (1988), STUSVC. University of Alaska Fairbanks '80, B.B.A.

Grikurova, Alla — 1991 — Instructor of Russian (1992), CLA. St. Petersburg State University '79, M.A.

Gross, Joseph J. — 1992 — Assistant Professor of General Studies (1992), CC/CRA. Idaho State University '68, B.A.; University of Rochester '71, M.A.; '74, Ph.D.

Grove, Robert A. — 1989 — Operations Manager (1991), Gl. Chico State University '69, B.A.

Guevera, Cindy — 1989 — Purchasing Agent (1989), VCAS. University of Alaska Fairbanks, B.B.A.

Guthridge, George — 1990 — Associate Professor of English and General Studies (1994), BBC/CRA. Portland State University '70, B.A.; University of Montana '72, M.F.A.

Guthrie, R. Dale — 1963 — Professor of Zoology (1970), Associate Faculty of Anthropology (1987), CNS, IAB. University of Illinois '58, B.S.; '59, M.S.; University of Chicago '63, Ph.D.

Hageman, Jeanne K. — 1992 — Assistant Professor of French (1992). CLA. University of Wisconsin Madison '81, B.A.; '83, M.B.A.; '86, M.A.; '91, Ph.D.

Haldorson, Lewis J. — 1980 — Associate Professor of Fisheries (1984), SFOS/JC. University of Minnesota '63, B.A.; University of California, Santa Barbara '73, M.A.; '78, Ph.D. Hales, David A. — 1972 — Professor of Library Science (1988) and Head, Alaska and Polar Regions (1989), LIB. Brigham Young University '66, B.S.; Drexel University '68, M.L.S.; University of Pennsylvania '72, M.A.

Hall, Hollis D. — 1992 — Director, Alaska Cooperative Extension and Professor of Extension (1992), ACE. South Dakota State University '56, B.S.; '64, M.S.; Oklahoma State University '69, Ph.D.

Hallinan, Thomas J. — 1965 — Professor of Geophysics (1991), GI, CNS. Cornell University '64, B.S.E.E.; University of Alaska '69, M.S.; '76, Ph.D.

Hallsten, DeAnne — 1981 — Associate Professor of Career Counseling, TVC/CRA. Occidental College '60, B.A.; University of Oklahoma '75, M.A.

Haney-Martinez, Barbara — 1991 — Assistant Professor of Economics (1991), SOM. Eastern Illinois University '81, B.A.; '83, M.A.; University of Notre Dame '89, Ph.D.

Hanks, Catherine L. — 1992 — Research Assistant Professor of Geology (1994), CNS. Rice University '78, B.S.; University of Washington '81, M.S.; University of Alaska Fairbanks '91, Ph.D.

Hannigan, Michael — 1987 — Associate Professor of Social Work (1994), NWC/CRA. University of Connecticut '73, B.A.; West Virginia University '77, A.C.S.W., L.C.S.W.

Hannon, Robert P. — 1983 — Producer/Reporter, KUAC-FM (1992), CLA. California State University, Hayward '81, B.A.

Hansen, Kathleen L. - 1988 - Library Technician II (1988), NWC/CRA.

Hansen, Roger A. — 1994 — State Seismologist and Professor of Geophysics (1994), GI, CNS. University of California, Berkeley '75, B.S.; '77, M.S.; '81, Ph.D. Hanson, Kathy — 1987 — Regional Adult Basic Education Director (1988), KUC/CRA. Drury College '72, B.A.

Harbaugh, John P. — 1988 — Associate Professor of Music (1994), CLA. University of Northern Iowa '75, B.A.; North Texas State University '77, M.M.E.

Harmon, Kevin "Kip" — 1988 — Associate Athletic Director (1993), ATHREC. Southern Illinois University at Edwardsville '83, B.S.; Newport University '93, Ph.D.

Harrell, Anna Kathleen — 1989 — Director, Student Support Services (1989), CLA. University of Colorado '74, B.S.; University of LaVerne '88, M.P.A.

Harrington, Heather — 1991 — Adjunct Instructor of Civil Engineering (1991), SOE. Ft. Steilacoon Community College '81, A.A.S.; University of Alaska Fairbanks '84, B.S.C.E.; '86, M.S.C.E.

Harrison, Anne K. — 1993 — Advanced Nurse Practitioner, Center for Health and Counseling (1993), STUSVC. California State College at Los Angeles '70, B.S.; Harbor - University of California, Los Angeles '87, Advanced Nurse Practitioner Certificate.

Harrison, William D. — 1972 — Professor of Physics (1982), GI, CNS. Mt. Allison University '58, B.Sc.; University of London '60, B.Sc. (Special); California Institute of Technology '66, Ph.D.

Harter, Charles — 1991 — Assistant Professor of Accounting and Information Systems (1991), SOM. University of Nebraska-Lincoln '81, B.S.; University of Wyoming '85, M.S.; University of Nebraska-Lincoln '91, Ph.D.

Hartman, Charles W. — 1967 — Special Projects (1978), ACE/SALRM. Rutgers University '64, B.A.; University of Alaska '67, B.S.

Hatzignatiou, Dimitrios G. — 1990 — Assistant Professor (1990), SME. National Technical University of Athens, Greece '82; University of Alaska Fairbanks '86, M.S.; University of Tulsa '90, Ph.D.

Haubenstock, Norma — 1982 — Research Technician (1982), INE. Humboldt State University '80, B.S.

Hawkins, Joseph G. — 1987 — Associate Professor (1994), SOE. University of Alaska '82, B.S.; Stanford University '84, M.S.; '88, Ph.D.

Hazel, Kelly L. — 1992 — Instructor of Psychology (1992), CLA. University of Michigan-Flint '82, B.S.; Michigan State University '87, M.A. Michigan State University '94, Ph.D.

Hébert, Michele — 1990 — Land Resources Agent, Fairbanks District (1993), ACE. Louisiana State University '76, B.S.; University of Alaska Fairbanks '84, M.S.

Hedahl, Gorden O. — 1993 — Dean, College of Liberal Arts and Professor of Theatre (1993), CLA. University of North Dakota '68, B.S.; '72, M.A.; University of Minnesota '80, Ph.D.

Heflinger, David L. — 1988 — Electrical Engineer (1988), VCAS. Massachusetts Institute of Technology '70, B.S.E.E., P.E.

Hegdal, Ian A. — 1986 — Telecommunications Engineer (1988), VCAS. University of Alaska Fairbanks '78, B.S.E.E.

Helfferich, Merritt R. — 1966 — Associate Director for Administration, (1988), GL University of Alaska '66, B.A.; Harvard University '90, M.P.A.

Helm, Dot — 1980 — Research Associate Professor of Veg. Ecology (1992), AFES (Palmer Research Center). University of Delaware '69, B.S.; University of Michigan '70, M.S.; Colorado State University '77, M.S.; '81, Ph.D.

Henrichs, Susan M. — 1982 — Professor of Marine Science (1994) and Head, Graduate Program in Marine Sciences and Limnology (1992), SFOS/IMS. University of Washington '75, B.S.; Woods Hole Oceanographic Institution — Massachusetts Institute of Technology Joint Program '80, Ph.D.

Herkert, Mark — 1991 — McIntosh Hall Director (1991), STUSVC. Notre Dame '86, B.A.; Columbia University '90, M.S.W.

Herlugson, Mary Lou — 1983 — Research Associate, Animal Science (1983). New Mexico Institute of Mining and Technology '74, B.S. Herreld, Walt — 1994 — Visiting Assistant Professor of Library Science (1994), LIB. University of Alaska '82, B.M.; University of Connecticut '87, M.A.; University of Iowa '90, M.A.

Herrmann, Mark L. — 1990 — Associate Professor of Economics (1994), SOM. University of California, Davis '82, B.S.; '85, M.S.; Washington State University '90, Ph.D.

Heyne, Eric — 1986 — Associate Professor of English (1993), CLA. University of Washington '78, B.A.; Ohio State University '82, M.A.; '84, Ph.D.

Higgins, Kelly — 1994 — Director, Athletics and Campus Recreation (1994), ATHREC. University of South Dakota '81, B.S.; University of Nebraska '85, M.A.; Temple University '94, Ph.D.

Highsmith, Raymond C. — 1983 — Professor of Marine Science (1992), SFOS/IMS. University of Iowa '72, B.A.; University of Washington '79, Ph.D.

Hills, Susan — 1994 — Research Associate (1994), SFOS/IMS. University of Washington '73, B.S.; '82, M.S.; University of Maine, Orono '92, Ph.D.

Himelbloom, Brian H. — 1987 — Associate Professor of Seafood Microbiology (1994), SFOS/FITC. Northern Illinois University '78, B.S.; Louisiana State University '80, M.S.; North Carolina State University '85, Ph.D.

Hinzman, Larry — 1990 — Assistant Professor of Water Resources (1991), INE. South Dakota State University '79, B.S.; Purdue University '81, M.S.; University of Alaska Fairbanks '90, Ph.D.

Hoch, Betty J. — 1973 — Director, Budget and Cost Records (1984), VCAS.

Hoch, Edward L. — 1991 — Design Engineer (1991), GI. University of Alaska Fairbanks '88, B.S.; '91, M.S.

Hoffman, Beverly — 1992 — Student Activities Coordinator (1992), KUC/CRA.
Hoffman, David B. — 1985 — Professor of Business Administration (1985), SOM.
Gannon University '68, B.B.A.; University of Alaska '72, M.B.A.; Kent State University '76, D.B.A.

Holloway, Patricia S. — 1984 — Associate Professor of Horticulture (1989), SALRM. Millersville University '73, B.A.; Washington State University '76, M.S.; University of Minnesota '82, Ph.D.

Holmes, Caralyn — 1990 — Instructor of Justice (1990), CLA. University of Alaska Fairbanks '85, B.A.; Rutgers '86, M.A.

Holzmueller, Michael — 1979 — Deputy Fire Chief (1981), VCAS; and Coordinator, Fire Science Program (1989), TVC/CRA. Tanana Valley Community College '80, A.A.S.; University of Alaska Fairbanks '77, B.S.

Hopkins, John R. — 1979 — Associate Professor of Music (1993), CLA. Beth College '69, B.A.; University of Iowa '76, M.A.; '82 D.M.A.

Hornbuckle, Tamara M. — 1983 — Financial Aid Adviser (1991), STUSVC. University of Alaska Fairbanks '86, A.A.; B.B.A.

Howard, Elizabeth A. — 1979 — Teaching Aide (1980), KUC/CRA.

Huang, Scott L. — 1981 — Professor of Geological Engineering (1991), SME. Cheng-Kung University, Taiwan, '74, B.S.; University of Kentucky, '78, M.S.; University of Missouri, Rolla, '81, Ph.D.

Hubalik, Nick E. — 1989 — Assistant Professor of Physical Education (1990), CLA.
St. Joseph's College '74, B.S.; Arizona State University '82, M.S.; '87, Ph.D.

Hughes, Nicholas F. — 1981 — Research Associate (1992), IAB. Oxford University '84, B.A.; '90, M.A.; University of Alaska Fairbanks '91, Ph.D.

Hulsey, J. Leroy — 1987 — Associate Professor of Civil Engineering (1987), SOE. Missouri School of Mines and Metallurgy '65, B.S.; University of Missouri-Rolla '66, M.S.; '76, Ph.D.

Hunter, James — 1991 — Analyst/Programmer (1991), LIB.

Husby, Fredric M. — 1975 — Professor of Animal Science (1991), SALRM. Washington State University '66, B.S.; '69, M.S.; '73, Ph.D.

Illingworth, Ronald D. — 1980 — Assistant Professor of Developmental Studies and Coordinator, Nenana Center (1991), IAC/CRA. Iowa State University '64, B.S.; University of Nebraska-Omaha '80, M.A.; Appalachian State University '91, Ed.S. Ittner, Dwight R. — 1975 — Librarian (1975), LIB. Fort Hays Kansas State College '65, B.S.; '67, M.S.; University of Arizona '71, M.L.S.

Jackson, Scott A. — 1991 — Logistics Manager (1991), PICO. Weber State University '86, B.S.W.

Jacobs, Joel — 1994 — Area Coordinator, Residence Life (1994), STUSVC, University of Wisconsin-Platteville '87, B.A.; University of South Dakota '89, M.A. Jacobson, Steven A. — 1974 — Associate Professor of Yup'ik Eskimo (1984), CLA, University of California, Berkeley '66, B.A.; '71, M.A.

Jaffe, Daniel A. — 1987 — Associate Professor of Chemistry (1993), CNS, GI. Massachusetts Institute of Technology '78, B.S.; University of Washington '83, M.S.; '87, Ph.D.

James, Jean Wadland — 1988 — Executive Officer, Institute of Arctic Biology (1988), IAB. Bowling Green State University '65, B.S.; University of Washington, Seattle '72, M.H.A.

Jarrell, Gordon H. — 1984 — Research Associate, Mammal Collection Manager (1991), UAM. Antioch College '73, B.A.; University of Alaska Fairbanks '79, M.S.; '89, Ph.D.

Jeffries, Martin O. — 1985 — Research Associate Professor (1990), Gl. University of Sheffield, England '79, B.A.; University of Manchester, England '81, M.S.; University of Calgary, Alberta, Canada '85, Ph.D.

Jennings, Michael — 1992 — Assistant Professor of Education (1994), SOED. University of Alaska Fairbanks '86, B.A.; '87, M.Ed.; University of British Columbia '94, Ph.D.

Jennings, Patrick L. — 1991 — Instructor of General Studies (1991), CC/CRA. Western Michigan University '86, B.S.; Central Michigan University '90, M.A. Jewett, Stephen C. — 1974 — Research Associate (1980), SFOS/IMS. John Brown University '71, B.A.; University of Alaska '77, M.S.

Jiang, Tsang-Ming — 1988 — Associate Professor of Computer Science (1993), CLA. National Taiwan University '82, B.S.; '84, M.S.; University of Illinois '88, Ph.D.

Johansen, Nils I. — 1971 — Professor of Geological Engineering (1994) and Head, Applied Mining Technology Program (1991), SME. Purdue University '66, B.S.C.E.; '67, M.S.C.E.; '71, Ph.D., P.E.

John, Theresa — 1993 — Visiting Assistant Professor of Alaska Native Studies and Director, Tuma Theatre (1993), CLA. University of Alaska Fairbanks '83, B.S.; '92, M.Ed.

Johnson, Clara — 1983 — Director, Interior-Aleutians Campus (1991), CRA. University of Alaska Fairbanks '68, B.A.; Portland State University '73, M.S.W.

Johnson, Connie Jo — 1989 — Instructor of Health, Independent Learning Program (1989), CRA. Dakota Wesleyan University '80, BA; Washington State University '81, M.S.

Johnson, Daniel A. — 1989 — Director, Rural Alaska Health Education Center (1990), CRA. Minneapolis Community College '79, A.A.S; Saint Olaf College '71 B.A.; '76, B.A.

Johnson, James — 1974 — Professor of Music (1983), CLA. University of Arizona '70, B.M.; '72, M.M.; '76, D.M.A.; Westminster Choir College '86, M.Ch. Mus.

Johnson, Jay R. — 1992 — Research Associate (1992), GI. University of Colorado '87, B.A.; Massachusetts Institute of Technology '92, Ph.D.

Johnson, Lawrence A. — 1988 — Program Manager (1989), INE. Brown University '69, Sc.B.; Harvard University '73, M.S.

Johnson, Lynn R. — 1987 — Director, Chukchi Campus (1988), Associate Professor of Social Sciences (1987), CC/CRA. Western Michigan University '71, B.S.; '77, M.A.

Johnson, Mark A. — 1989 — Assistant Professor of Marine Science (1991), SFOS/ IMS. University of Miami '77, B.S; Texas A&M University '81 M.S.; '87, Ph.D.

Johnson, Ronald A. — 1976 — Professor of Mechanical and Environmental Quality Engineering (1985), and Head, Department of Mechanical Engineering (1987), SOE. Brown University '65, Sc.B.; Cornell University '66, M.S.; '69, Ph.D.; P.E.

Johnson, Terry L. — 1991 — Assistant Professor of Fisheries and Marine Extension Agent (1991), SFOS/MAP. University of Washington '74, B.A.; '84, M.S.

Johnson, Thomas A. — 1985 — Contract Manager (1985), VCAS.

Jonaltis, Aldona — 1993 — Director, University of Alaska Museum and Professor of Anthropology (1993), UAM/CLA. State University of New York at Stony Brook '69, B.A.; Columbia University '73, M.A.; '76, M.Phil.; '77, Ph.D.

Jones, Dorothy — 1974 — Assistant to the Chancellor for Equal Opportunity (1993); and Associate Professor of Computer Applications, TVC/CRA. Prairie View A&M College '68, B.S.; University of Alaska '77, M.Ed.

Jones, Karen L. — 1980 — Senior Associate Athletic Director (1993), ATHREC. State University of New York, Brockport '65, B.S.; Ithaca College '75, M.S.

Jones, Matthew E. - 1992 - Analyst Programmer (1992), LIB.

Jorge, Ethel — 1986 — Instructor of Spanish (1990), CLA; and Instructor of Foreign Language, Independent Learning Program (1990), CRA. Universidad de la Republica, '86, Licenciado en Historia.

Joseph, Jacob — 1991 — Assistant Professor of Human Resource Management (1991), SOM. University of Calgary '84, B.B.A.; University of Iowa '86, M.B.A.; '91, Ph.D.

Jozwiak, Eric — 1976 — Director of Housing (1985), STUSVC. University of Alaska Fairbanks '75, B.S.; '77, M.Ed.

Jubenville, Alan — 1979 — Professor of Resource Management (1988), SALRM. North Carolina State College '62, B.S.; West Virginia University '64, M.S.; University of Montana '70, Ph.D.

Juday, Glenn Patrick — 1978 — Associate Professor of Plant Ecology (1992), SALRM. Purdue University '72, B.S.; Oregon State University '76, Ph.D.

Justice, Carol Hsieh — 1985 — Budget Analyst (1986), VCAS. Mills College '80, B.A.

Kairaiuak, Rose — 1991 — Advisor/Counselor, Rural Student Services (1991), STUSVC. University of Alaska Fairbanks '91, B.B.A.

Kalvee, Debbie H.E. — 1992 — Assistant Professor of Library Science (1992) and Head, Bibliographic Access Management Department (1994), LIB. University of Calgary '83, B.A.; Dalhousie University '89, M.L.I.S.

Kamath, Vidyadhar A. — 1983 — Professor of Petroleum Engineering (1994); and Director of Petroleum Development Lab (1993), SME. University of Bombay '80, B.S.; University of Pittsburgh '82, M.S.; '83, Ph.D.

Kamerling, Leonard J. — 1980 — Research Associate and Co-director of Alaska Native Heritage Film Center (1989), UAM. Franconia College '65, A.A.

Kan, Joseph R. — 1972 — Professor of Geophysics (1981), GI, CNS; and Director, Graduate School (1994), GRAD. Cheng-Kung University '61, B.S.; Washington State University '66, M.S.; University of California, San Diego '69, Ph.D.

Kane, Douglas L. — 1971 — Professor of Water Resources and Civil Engineering (1986) and Director of Water Research Center, INE. University of Wisconsin '66, B.S.C.E.; '68, M.S.C.E.; University of Minnesota '75, Ph.D., P.E.

Kaplan, Lawrence D. — 1974 — Associate Professor of Linguistics (1984), CLA. University of California, Berkeley '72, B.A.; University of California, San Diego '74, M.A.; '79, Ph.D.

Karl, James M. — 1973 — Professor of Linguistics (1982), CLA. University of California, Los Angeles '66, B.A.; Reed College '69, M.A.T.; University of New Mexico '73, Ph.D.

Karlsson, Meriam — 1988 — Associate Professor of Horticulture (1992), SALRM. Swedish University of Agricultural Sciences '79, B.S.; Michigan State University '84, M.S.; '87, Ph.D.

Kawagley, Oscar — 1987 — Assistant Professor of Education and Field Coordinator (1987), SOED. University of Alaska Fairbanks '58, B.Ed.; '68, M.Ed.; '87, Ed.S.; University of British Columbia '93, Ph.D.

Kawasaki, Koji — 1980 — Associate Professor of Geophysics, (1991), GI, CNS. University of California, Berkeley '60, B.A.; University of Alaska '67, M.S.; '71, Ph.D.

Keating, John P. — 1994 — Provost (1994). Gonzaga University '61, B.A.; '62, M.A.; University of Santa Clara '69 M.Th.; Ohio State University '71, M.S.; '72, Ph.D.

Keating, Pamela J. — 1994 — Director, School of Education (1994), SOED. San Francisco College for Women '69, B.A.; University of Washington '76, M.Ed.; '81, Ph.D.

Keele, Vicki — 1991 — Coordinator, Career Focus (1994), KUC/CRA. Alaska Pacific University '83, B.A.

Kelth, Kristen — 1988 — Assistant Professor of Economics (1988), SOM. University of Montana '81, B.A.; Ohio State University '84, M.A.; '89, Ph.D.

Keller, John W. — 1979 — Professor of Chemistry and Biochemistry (1991), CNS. Ohio State University '68, B.S.; University of Wisconsin '76, Ph.D.

Keller, Sue — 1983 — Editor, (1989), SFOS/SG. Ohio State University '67, B.S.; University of Wisconsin '78, M.S.

Kelley, John J. — 1971 — Director, Polar Ice Coring Office (1989) and Professor of Marine Science (1993), SFOS/IMS. Pennsylvania State University '58, B.S.; University of Nagoya, Japan '74, Ph.D.

Kelly, Brendan P. — 1982 — Research Associate (1982), SFOS/IMS. University of California, Santa Cruz '75, B.A.; University of Alaska '79, M.S.

Kelly, Terry — 1987 — Director of Purchasing (1988), VCAS. University of Alaska Fairbanks '74, B.B.A.

Kendrick, Charles T. — 1990 — Associate Professor of Computer Science (1990), CLA. Seattle Pacific University '68, B.S.; Washington State University '71, Ph.D.

Kent, Larry K. — 1990 — Communications Engineer (1990), GI. University of Alaska '86, B.S.E.E.

Keskinen, Mary J. — 1984 — Associate Professor of Geology (1991), CNS. Smith College '73, B.A.; Stanford University '79, Ph.D.

Kessel, Brina — 1951 — Professor of Zoology (1959) and Curator of Ornithology Collection (1972), UAM. Cornell University '47, B.S.; University of Wisconsin '49, M.S.; Cornell University '51, Ph.D.

Keyes, W. Ronald — 1972 — Director, Wood Center and Student Activities (1985), STUSVC. Oregon College of Education '66, B.S.; Oregon State University '69, M.S.

Khataniar, Santanu — 1991 — Assistant Professor of Petroleum Engineering (1991), SME. Indian School of Mines '83, B. Tech.; University of Texas '85, M.S.; '91, Ph.D.

Kielland, Knut — 1990 — Research Associate (1990), IAB. University of Alaska Fairbanks '82, B.S.; '90, Ph.D.

Kienle, Juergen — 1965 — Professor of Geophysics (1983), GI, CNS. Swiss Federal Institute of Technology E.T.H., '64, Diploma; University of Alaska '69, Ph.D.

Kim, Madeleine — 1988 — Affiliate Professor of Philosophy (1988), CLA. University of Vienna, Austria '69, Ph.D.

Kinney, Thomas C. — 1983 — Associate Professor of Civil Engineering (1983), SOE. University of Washington '65, B.S.C.E.; '66, M.S.C.E.; University of Illinois '79, Ph.D.

Kirk, K. Leslie — 1989 — Instructor of Geography, Independent Learning Program (1989), CRA. University of Utah, B.S.; M.S.

Kirts, Carla A. — 1981 — Associate Professor of Agricultural Education (1991), SALRM. Virginia Polytechnic Institute and State University '76, B.S.; '77, M.S.; University of Missouri-Columbia '81, Ph.D.

Klein, David R. — 1962 — Professor of Wildlife Management (1969), IAB. University of Connecticut '51, B.S.; University of Alaska '53, M.S.; University of British Columbia '63, Ph.D.

Kleinfeld, Judith S. — 1969 — Professor of Psychology (1978), CLA. Wellesley College '66, B.A.; Harvard University '67, Ed.M.; '69, Ed.D.

Kleven, Bonnie — 1983 — Buyer (1988), VCAS.

Kline, Bridget G. — 1987 — Student Services Coordinator (1987), KUC/CRA. College of Great Falls '70, B.S.

Knabe, Mary Jo - 1990 - Manager of Museum Store (1992), UAM.

Knavel, Brenda S. — 1979 — Instructor of Library Science (1992), LIB. Shippensburg State College '76, B.S.; Western Michigan University '78, M.S.L.

Knight, Charles W. — 1978 — Associate Professor of Agronomy (1994), SALRM. Kansas State University '70, B.S.; '71, M.S.; University of Alaska Fairbanks '88, Ph.D.

Knoke, Peter J. — 1988 — Associate Professor of Computer Science (1988), CLA. Dartmouth College '55, B.A.; '56, M.S.E.E.; Syracuse University '68, Ph.D.; P.E. Knox Jr., Jo — 1987 — Manager of Academic Computing (1990), LIB.

Kollodge, Kathleen A. — 1975 — Editorial Specialist (1979), ACE. University of Minnesota '70, B.A.

Kopacz, Eva Yost — 1992 — Assistant Professor of Social Work (1992), CLA. Goshen College, Indiana '72, B.A.; Western Michigan University '74, M.S.W., LCSW, BCD, ACSW

Korsmo, Fae — Visiting Assistant Professor of Political Science/Justice (1992), CLA. University of Washington, Seattle '80, B.A.; George Washington University '84, M.A.; University of New Mexico, Albuquerque '92, Ph.D.

Kowalik, Zygmunt — 1981 — Professor of Marine Science (1989), SFOS/IMS. Moscow University '61, M.S.; Institute of Water Engineering, Polish Academy of Sciences, Gdansk '65, Ph.D.

Kowalsky, James Edward — 1986 — Director, Rural Alaska Honors Institute (1986), CLA. University of Wisconsin, Madison '57, B.M. '63, M.M.

Kozycki, Lawrence V. - 1982 - Machine Shop Supervisor (1982), Gl.

Kramer, Donald E. — Director, Marine Advisory Program, Professor of Fisheries (1984), Seafood Technology Specialist (1980), SFOS/MAP. Ohio State University '60, B.S.; University of California, Davis '62, M.A.; '67, Ph.D.

Krause, William R. — 1989 — Hazardous Materials Supervisor (1993), VCAS. Westmar College '73, B.S.

Krauss, Michael E. — 1960 — Director, Alaska Native Language Center; Head, Alaska Native Language Program; and Professor of Linguistics (1968), CLA. University of Chicago '53, B.A.; Western Reserve University '54, B.A.; Columbia University '55, M.A.; University of Paris '56, Certificat d'Etudes Superieures; Harvard University '59, Ph.D. Baccalaureatus Philologiae Islandicae, Haskoli Islands, '60.

Krejci, Rudolph W. — 1960 — Professor of Philosophy (1969), CLA. Leopold Franzens Universitat, Innsbruck '59, Dr. Phil.

Krieg, Barbara - 1986 - Fiscal Officer (1992), ARSC.

Krieg, Kenneth — 1981 — Professor of Animal Science Extension (1993), ACE. University of Missouri '64, B.S.; '65, M.S.

Kuehn, Kelsy L. — 1990 — Athletic Trainer (1990), ATHREC. University of Alaska Fairbanks '83, B.S.; United States Sports Academy '84, M.S.

Kuhn, Nancy K.—1994—International Student/Scholar Advisor (1994), STUSVC. University of Alaska Fairbanks '89, B.A.; '94 M.A.

Kuhns, Chuck — 1978 — Captain, Fire Department (1981), VCAS. University of Alaska '80. A.A.S.

Kuykendall, Jo — 1988 — Associate Professor of Early Childhood Development (1991), TVC/CRA. Oregon State University '64, B.S.; University of Southern California '86, Ed.D.

Kwachka, Patricia — 1979 — Associate Professor of Anthropology/Cross-Cultural Communications and Alaska Native Studies (1987), CLA. University of Florida, Gainsville '64, B.A.; '70, M.A.; '82, Ph.D.

LaBerge, MaryEllen — 1988 — Director, Alaska Teacher Placement (1990), STUSVC. University of Alberta '69, B.P.E.

LaFollette, Catherine M. — 1990 — Fiscal Officer (1990), SFOS. University of Wyoming '75, B.S.; '85, M.S.

Lake, Gretchen L. — 1970 — Assistant Professor of Library Science (1985); Archivist (1993), LIB; and Instructor of History, Independent Learning Program (1985), CRA. University of Alaska Fairbanks '74, B.A.; Western Washington University' 78, Certificate in Archives and Records Management; '78, M.A.; University of Michigan '79, A.M.L.S.

Lamb, Lonny — 1965 — Superintendent of Custodial Services, VCAS.

Lambert, John P. — 1982 — Professor of Mathematics (1990), CLA. University of Cincinnati '64, B.S.; University of New Mexico '68, M.A.; Claremont Graduate School '82, Ph.D.

Lamont, Sam — 1990 — Field Operations Manager (1992), PICO. University of Oregon '78, B.A.; University of Alaska Fairbanks '86, M.A.T.

Lamoreaux, Dennis W. - 1980 - Superintendent (1989), VCAS. A.A.

Lando, Barbara M. — 1969 — State Director, Alaska Elderhostel (1990), CLA. Georgian Court College '62, B.A.; Rutgers University '64, M.S.; '69, Ph.D.

Lando, Clifton A. — 1969 — Associate Professor of Mathematics (1973), and Associate Dean (1988), CLA. Lehigh University '62, B.A.; Rutgers University '64, M.S.; '69, Ph.D.

LaPerriere, Jacqueline D.—1972 — Associate Professor of Fisheries and Assistant Leader, Alaska Cooperative Fishery Research Unit (1985), IAB; and Associate Professor of Water Resources (1985), CNS, IAB. University of Massachusetts '64, B.S.; Iowa State University '71, M.S.; '81, Ph.D.

LaRoe, Daniel J. — 1986 — Analyst/Programmer (1987), LIB. Anchorage Community College '84, A.A.

Lasarow Tozzi, Betsy — 1994 — Assistant Professor of Allied Health (1994), TVC/CRA. Stanford University '77, B.S.; University of California, Los Angeles '80, M.S. Laurion, David — 1985 — Hockey Coach (1993), ATHREC. Notre Dame '82, B.B.A.

Laursen, Gary A. — 1976 — Adjunct Associate Professor of Mycology (1980).
CNS. Western Washington State University '65, B.A.; University of Montana '70, M.S.; Virginia Polytechnic Institute and State University '75, Ph.D.

Lawal, Akanni S. — 1993 — Associate Professor of Petroleum Engineering (1994), SME/PDL. University of Ife (Nigeria) '74, B.S.; University of Texas '81, M.S.; '85, Ph.D.

Lay, J. Stephen — 1989 — CIT Manager (1992), ACE/AFES. Trinity University '69, B.A.; Ohio State University '88, M.A.

Layer, Paul W. — 1989 — Associate Professor of Geophysics (1994), CNS, GI. Michigan State University '81, B.S.; Stanford University '84, M.S.; '86, Ph.D.

Layral, Sheri L. — 1980 — Coordinator, Governance Office (1990). University of Alaska Fairbanks '80, B.S.; '88, M.Ed.

L'Ecuyer, Rosalie — 1990 — Instructor of English, Independent Learning Program (1990), CRA. Regis College, B.A.; Georgetown University, M.A.

Leaphart, Geraldine M. — 1977 — Financial Aid Advisor (1988), STUSVC. Tanana Valley College '87, A.A.S.

Lecomte, Serge — 1979 — Associate Professor of Russian (1986) and Head, Department of Foreign Languages and Literatures (1994), CLA. University of Alabama '70, B.A.; Vanderbilt University '71, M.A.; '74, Ph.D.

Lee, Jonah H. — 1984 — Professor of Mechanical Engineering (1994), SOE. Chung Yuan College '73, B.S.; South Dakota School of Mines and Technology '79, M.S.; Iowa State University '83, Ph.D.

Lee, Lou-Chuang — 1978 — Professor of Physics (1986), GI, CNS. National Taiwan University '69, B.S.; California Institute of Technology '72, M.S.; '75, Ph.D.

Lee, Zuh-Yao — 1991 — Computer System Engineer (1991), GI. Air Force Academy '70, B.S.; Tamkang University '77, M.B.A.; University of Southern California '83, M.S.E.E.

Leer, Jeffry A. — 1976 — Assistant Professor, Alaska Native Language Center (1991), CLA. Evergreen State College '76, B.A.; University of Chicago '89, M.A.; '91, Ph.D.

Lehman, Lisa M. — 1988 — Assistant Professor of Library Science (1991), LIB. University of Michigan '73, B.A.; '74, M.L.S.

Lelpzig, John S. — 1982 — Associate Professor of Communication (1988), CLA. Western Michigan University '69, B.A.; University of South Florida '74, M.A.; Kent State University '80, Ph.D.

Leitgeb, Kathleen — 1990 — Coordinator, UAF Elderhostel (1990), CLA. University of Alaska Fairbanks '74, B.A.

Levison, James — 1982 — Acting Business Manager, Agricultural and Forestry Experiment Station and Alaska Cooperative Extension (1994). University of Alaska Fairbanks '79, B.S.

Lewis, Carol E. — 1973 — Professor of Resource Management (1993), SALRM. University of Florida '62, B.S.; '64, M.S.; Georgetown University '71, Ph.D.; University of Alaska '76, M.B.A.

Li, Shusun — 1990 — Research Assistant Professor of Geophysics (1990), GI. Peking University '66, B.A.; University of California, Santa Barbara '82, M.A.; '85, Ph.D.

Lilly, Elizabeth — 1989 — Research Technician (1989), INE. Texas A&M University '84, B.S.

Lin, Chuen-Sen — 1990 — Assistant Professor of Mechanical Engineering (1990), SOE. National Taiwan University of Oceanic Science '72, B.S.; University of Hawaii '78, M.S.; University of Minnesota '88, Ph.D.

Lin, Hsing Kuang — 1986 — Associate Professor of Hydrometallurgy (1992), SME. National Cheng Kung University '74, B.S.; University of Alaska Fairbanks '80, M.S.; University of Utah '85, Ph.D.

Lincoln, Tamara P.K. — 1976 — Associate Professor of Library Science (1986) and Affiliate Professor of Russian, LIB. University of Illinois '61, B.F.A.; '64, M.A.; Northern Illinois University '76, M.L.S.

Lindahl, Mary — 1986 — Associate Professor of Business Administration (1987); and Director, M.B.A. Program (1991), SOM. Augustana College '72, B.A.; University of Illinois at Urbana-Champaign '74, M.S.; '75, Ph.D.

Lindgren, Pat — 1989 — Purchasing Agent (1989), VCAS.

Lingle, Craig S.—1990— Research Associate Professor (1990), GI. University of Washington '67, B.S.; University of Maine at Orono '78, M.S.; University of Wisconsin at Madison '83, Ph.D.

Linsalata, Mark — 1990 — Assistant Professor of Journalism and Broadcasting (1990), CLA. Antioch College '73, B.A.; Columbia University '76, M.S.

Lipka, Jerry M. — 1981 — Associate Professor of Education (1988), SOED. City College, New York '66, B.B.A.; '69, M.B.A.; University of Massachusetts, Amherst '80, Ed.D.

Lister, Ruth — 1991 — Director, Tanana Valley Campus (1994), CRA. McGill University '64, B.S.C.; University of Toronto '65, M.A.; Cornell University '74, Ph.D.

Logan, Robert — 1986 — Associate Professor of Economics (1987) and Head, Department of Economics (1992), SOM. University of Iowa '80, B.S.; '86, Ph.D.

Lokken, Donald A. — 1970 — Associate Professor of Chemistry (1975), CNS. University of Wisconsin '63, B.A.; Iowa State University '70, Ph.D.

London, Bridget — 1989 — Instructor of Education, Independent Learning Program (1989), CRA, Seattle University '81, B.Ed.

Long, Kristine A. — 1977 — Associate Professor (1993), Home Economics Program Leader (1993), ACE. California Polytechnic State University '72, B.S.; '75, M.S.; Virginia Tech '91, Ph.D.

Long, Vern - 1987 - Fire Chief, Fire Department (1987), VCAS. A.A.S.

Lou, Yu-Qing — 1989 — Research Assistant Professor (1989), GI. Northern Jiao-Tong University '82, B.E.; Harvard university '83, M.A.; '87, Ph.D.

Lu, Cary M. — 1966 — Director, Grant and Contract Services/Accounting and Business Operations (1980), VCAS, Chung Chi College '61, B.A.; University of Alaska '64, B.B.A.; '69, M.B.A.

Lu, Jian John — 1993 — Assistant Professor of Civil Engineering (1993), SOE. Beijing University of Science and Technology '82, B.S.; Tongji University '84, M.S.; University of Texas at Austin '90, Ph.D.

Luick, Bret R. — 1992 — Acting EFNEP Coordinator (1994), ACE; and Research Associate in Nutrition (1993), IAB. University of Alaska Fairbanks '79, B.S.; University of California Davis '85, M.S.; Oregon State University '91, Ph.D.

Lull, Janis — 1986 — Professor of English (1994), CLA. University of Oregon '67, B.A.; University of Minnesota '82, M.A.; '83, Ph.D.

Luna, Mark W. — 1991 — Assistant Professor of Military Science (1991), CLA. Wichita State University '80, B.S.

Luong, Huan — 1978 — Research Associate (1987), INE. City College of San Francisco '74, A.S. University of Alaska Fairbanks '76, B.S.

Lynch, Amanda H. — 1993 — Assistant Professor of Atmospheric Sciences (1993), CNS, GI. Monash University '86, B.Sc.; Melbourne University '93, Ph.D.

CNS, Gl. Monash University '86, B.Sc.; Melbourne University '93, Ph.D. Lynch, Donald F. — 1970 — Professor of Geography (1975), CLA. Yale College

'52, B.A.; Yale University '65, Ph.D.
Machida, Richard — 1984 — Telecommunications/Network Manager (1990), LIB.
California State Polytechnic University-Pomona '80, B.S.

MacLean Jr., Stephen F. — 1971 — Professor of Zoology (1980), IAB/CNS. University of California, Santa Barbara, '64, B.A.; University of California, Berkeley '60, Ph. D.

Madonna, James A. — 1973 — Professor of Mining Extension (1993), SME. Victor Valley Junior College '69, A.S.; Humboldt State College '71, A.B.; University of Alaska '73, M.S.

Maginnis, Tara — 1990 — Assistant Professor/Costumer (1991), CLA. San Francisco State University '81, B.A.; California State University Fresno '85, M.A.; University of Georgia '91,Ph.D.

Malvich, Regena — 1988 — Coordinator, Computer Laboratory (1988), KUC/CRA. Manfredi, Reneé — 1994 — Assistant Professor of English (1994), CLA. University of Pittsburgh '86, B.A.; Indiana University '91, M.F.A.

Mangusso, Mary Childers — 1966 — Instructor of History, Independent Learning Program (1989), CRA. University of New Mexico '63, B.A.; '66, M.A.; Texas Tech University '78, Ph.D.

Mark, Chester — 1990 — Assistant Professor of Community Health (1990), KUC/ CRA. San Franciso State University '84, B.S.; Stanford University '83, P.A.

Marshall, Dianne L. — 1987 — Instructor of Accounting and Information Systems (1989), SOM. University of Alaska Fairbanks '82, B.B.A.; '83, A.A.; '86, M.B.A.

Martin, Joyce — 1991 — Instructor (1991), KUC/CRA. Adams State College, B.A.; M.A.

Martin, Wanda — 1984 — Director, Advising Center (1987). Portland State University '68, B.S.; '69, M.S.T.; Oregon State University '76, Ed.D.

Martinez, Raymond L. — 1990 — Launch Officer, Poker Flat Research Range (1990), GL

Martz, Cecilia — 1983 — Assistant Professor of Alaska Native Studies (1974), KUC/CRA. University of Alaska Fairbanks '72, B.Ed.; '80, M.Ed.

Mason Jr., Gordon J. — 1990 — Visiting Assistant Professor of General Studies (1993), NWC/CRA. University of Notre Dame '74, B.A.; Iowa State University '89, M.A.

Mason, Charles W. — 1990 — Assistant Professor of Photojournalism (1990), CLA. Washington and Lee University '84, B.S.; Illinois State University '88, M.S.

Mathisen, Ole A. — 1982 — Professor of Fisheries (1982), SFOS/JC. University of Oslo '45, Cand. real.; University of Washington '55, Ph.D.

Maxwell, Howard — 1990 — Instructor of Anthropology, Independent Learning Program (1990), CRA. University of Minnesota, B.A.; University of Alaska Fairbanks, M.A.

Maxwell, Jeri — 1989 — Pub Manager (1992), STUSVC. University of Alaska Fairbanks '89, B.A.

Mayer, Charles E. — 1989 — Associate Professor of Electrical Engineering (1993), SOE. University of Texas at Austin '78, B.S.E.E.; '81, M.S.E.; '83, Ph.D.

Mayes, Brigitte R. - 1966 - Records Manager (1984), STUSVC.

McBeath, Gerald A. — 1976 — Professor of Political Science (1980), CLA. University of Chicago '63, B.A.; '64, M.A.; University of California, Berkeley '70, Ph.D.

McBeath, Jenifer H. — 1977 — Professor of Plant Pathology Biotechnology (1992), SALRM. (1980). National Taiwan University '68, B.S.; University of California, Davis '70, M.S.; Rutgers University '74, Ph.D.

McFadden, Terry — 1974 — Professor of Mechanical and Arctic Engineering (1992), SOE. Brigham Young University '60, B.E.S.M.E.; Stanford University '65, M.S.M.E.; University of Alaska '74, Ph.D., P.E.

McGowan, Michael G. — 1990 — Assistant Professor of Fire Science (1990), TVC/CRA. University of Alaska Fairbanks '75, B.S.; '82, A.A.S.; '89, A.A.S.; State of Alaska '82, Master Fire Training Instructor Certificate.

McGrane, Thomas F. — 1991 — Supervisor for Information Systems and Special Projects, KUAC-FM/TV (1994), CLA. University of Idaho '75, B.S.

McHenry, Susan I — 1972 — Adviser/Counselor, Rural Student Services (1972), STUSVC. University of Alaska '70, B.A.; '76, M.Ed.

McInnis, Susan E. — 1986 — Producer, KUAC-FM (1990), CLA. University of Alaska Fairbanks '76, B.A.

McIntosh, Douglas J. — 1976 — Research Associate (1976), SFOS/IMS. University of California, Berkeley \*61, B.S.

McKay, Robert — 1991 — Postdoctoral Felllow (1991), SFOS/IMS.

McKendrick, Jay D. — 1972 — Professor of Agronomy (1989), SALRM (Palmer Research Center). University of Idaho '63, B.S.; '66, M.S.; Kansas State University '71, Ph.D.

McKibben, Bruce — 1981 — Project Engineer (1984), GI. Oregon State University '81, B.S.C.E.

McLean, Deborah L. — 1992 — Instructor (1992), BB/CRA. St. Petersburg Jr. College '77, A.S.; University of South Florida '79, B.A.; Oklahoma State University '89, M.S.; Memphis State University '92, Ed.D.

McMahan, V. Janene - 1992 - Program Development Coordinator (1993), VCAS. University of Alaska '90, B.S.; '92, M.B.A.

McMillan, Chip - 1994 - Assistant Professor of Education (1994), SOED. University of Colorado '76, B.A.; '80, M.S.; '86, M.S.; '89, Ph.D.

McNair-Grove, Sarah - 1990 - Instructor of Mathematics, Independent Learning Program (1990), CRA. Carnegie-Mellon University '77, B.S.; University of Alaska Fairbanks, M.S.

McNutt, Joni G. - 1986 - Manager, Wood Center Pub (1986), STUSVC. University of Alaska Fairbanks '87, B.A.

McNutt, Stephen R. — 1991 — Research Professor of Volcano Seismology (1991), GI. Wesleyan University '77, B.A.; Columbia University '82, M.A.; '84, M. Phil.; '85, Ph.D.

McPherson, Roger — 1989 — Instructor of History, Independent Learning Program (1989), CRA. San Francisco State College, B.A.; University of Alaska Fairbanks, M.Ed.

McRoy, C. Peter - 1967 - Professor of Marine Science (1979), SFOS/IMS. Michigan State University '63, B.S.; University of Washington '66, M.S.; University of Alaska '70, Ph.D.

McWayne, Barry J. - 1970 - Coordinator of Fine Arts (1991), UAM.

McWherter, Pamela - 1994 - Assistant Professor of Communication (1994), CLA. Southwest Missouri State '81, B.A.; '88, M.A.; Southern Illinois University '93, Ph.D.

Mellor, Morna — 1970 — Supervisor, GI Computing Services (1987), GI. West Chester State College '70, B.S.

Mendelowitz, Kade — 1992 — Lighting Designer, Technical Director and Head, Department of Theater (1992), CLA. State University of New York, New Paltz '88, B.F.A.; Temple University '91, M.F.A.

Mendenhall, Nancy - 1988 - Campus Director, Northwest Campus and Instructor of General Studies (1988), NWC/CRA. University of Washington '61, B.A.; Western Washington University '69, M.A.

Mercy, Deborah A. — 1986 — Instructional Media Specialist (1986), SFOS/MAP. University of Washington '76, B.F.A.

Metcalf, Robert G. — 1991 — Admissions Clerk (1991), NWC/CRA. Washington and Lee University '76, B.A.

Metty, Kara R. — 1985 — Development Director, KUAC (1992), CLA. University of Alaska Fairbanks '84, B.A.

Metz, Paul A. — 1975 — Associate Professor of Geological Engineering, (1990), SME. Michigan Tech University '68, B.S.; University of Alaska '72, M.B.A.; '75, M.S.; University of London '91, Ph.D.

Michaelson, Gary J. - 1975 - Research Associate in Agronomy (1983), AFES (Palmer Research Center). University of Arizona '75, B.S.; Iowa State University '81,

Mihalik, Ann — 1993 — Supervisor, Accounts Payable (1993), VCAS. North Seattle

Community College '85, A.A.S. Miller, L. Keith — 1960 — Senior Research Associate (1987), IAB. University of Nevada '55, B.S.; '57, M.S.; University of Alaska '66, Ph.D.

Miller, Ronald E. - 1994 - Hazardous Materials Coordinator (1994), VCAS.

Miller, Susan — 1990 — Coordinator, Office of Certification and Advising (1992), SOED. University of Tennessee, Martin '75, B.S.; Memphis State University '87, M.S.

Million, Richard P. — 1980 — Computer Systems Manager (1980), Gl. Columbia University '61, B.S.E.E.; Whitman College '61, B.A.

Milner, Alexander McKean — 1993 — Research Associate Professor (1993), CNS. University of Aston '73, B.S.; University of London '75, M.S.; '83, Ph.D.

Milner, Laura M. - 1986 - Associate Professor of Business Administration (1993), SOM. University of Georgia '75, B.A.; Kansas State University '81, M.S.; '85. Ph.D.

Agent (1983), ACE. College of Great Falls Montana '58, B.A.; Whitworth College '75, M.A.

Mitchell, G. Allen - 1987 - Associate Dean, School of Agriculture and Land Resources Management; and Associate Director, Agricultural and Forestry Experiment Station (1987), SALRM. University of California, Riverside '71, B.S.; '73, M.S.; '77, Ph.D.

Mitchell, Susan — 1991 — Editor (1991), SOED. University of Hawaii '82, B.A.; University of Alaska Fairbanks '92 M.A.

Moen, Larry T. - 1990 - Contract Manager (1990), VCAS.

Moessner, Victoria J. — 1981 — Associate Professor of German (1987), CLA. Indiana University, '59, A.B.; University of Michigan, '63, M.A.; '71, Ph.D.; '81, A.M.L.S.

Mohatt, Gerald V. — 1983 — Professor of Psychology (1983); and Director, Community Psychology Program (1993), CLA. St. Louis University '66, B.A.; '68, M.S.; Harvard University '78, Ed.D.

Moore, Michael R. - 1991 - Assistant Professor of Vocational Education (1991), NWC/CRA. University of Baltimore '78, B.S.; Northern Arizona University '89, M.B.A.; '91, M.Ed.

Morack, John L. - 1968 - Professor of Physics (1978), CNS. Union College '61, B.S.; Oregon State University '68, Ph.D.

Morgan, John — 1976 — Professor of English (1984) and Head, Department of English (1988), CLA. Harvard University '65, A.B.; University of Iowa '67, M.F.A.

Morgan, Joli — 1976 — Professor of Applied Business (1994), KUC/CRA. University of the State of New York '81, B.S.; Clarkson University '82, M.B.A.

Morgan, Lael - 1988 - Associate Professor of Photojournalism (1994), Head, Department of Journalism and Broadcasting (1994), CLA; and Instructor of Journalism/Broadcasting, Independent Learning Program (1990), CRA. Boston University '59; '87 M.S.

Morisky, Reed - 1992 - Contract Manager (1992), VCAS.

Morrison, Joy F. — 1990 — Assistant Professor of Mass Communications (1990), CLA. New Mexico State University '83, B.S.; '85, M.S.; University of Iowa '91,

Morrow, Phyllis — 1987 — Associate Professor of Anthropology, Cross-Cultural Communications and Women's Studies (1993), CLA. Harvard-Radcliffe '72, B.A.; Cornell University '76, M.A.; '87, Ph.D.

Mortenson, Barry - 1994 - Assistant Professor of Airframe and Powerplant (1994), TVC/CRA. A.A.S.; I.A.; D.M.E.

Morton, Jeanette - 1987 - Associate Professor of Applied Business (1994), NWC/ CRA. Arizona State University '71, B.S.; Central Michigan University '76, M.S.

Mosley, Larry - 1988 - Purchasing Agent (1989), VCAS. University of Alaska, B.S.

Mould, Amy D. - 1989 - Buyer (1991), VCAS. North Idaho College '86, A.S. Muehling, Eric - 1993 - Information Officer (1993), ARSC. Kent State University '74, B.S.; Ohio University '87, M.A.

Mueller, George S. - 1981 - Research Analyst (1990), INE. Golden State University '78, B.S.; University of Alaska Fairbanks '88, M.S.

Mull, Charles G. (Gil) - 1984 - Affiliate Assistant Professor of Geology (1984), CNS. University of Colorado '57, B.A.; '60, M.S.

Mulligan, George A. — 1985 — Associate Professor of Electrical Engineering (1985), SOE. Manhattan College '65, B.E.E.; Rensselaer Polytechnic Institute '67, Master of Engineering; '80, Doctor of Engineering; P.E.

Munly, Walter C. - 1990 - Research Associate (1990), SME. Portland State University '80, B.S.; Pennsylvania State University '84, M.S.

Mural, Alice A. — 1994 — Advanced Nurse Practitioner, Center for Health and Counseling (1994), STUSVC. Ohio State University '69, B.S.; University of California Davis '77, Family Nurse Practitioner Certificate.

Murphy, Alice — 1991 — Accountant (1991), VCAS. University of Alaska Fairbanks '84, M.B.A.; Fordham University '72, M.S.; Marymount Manhattan College '68, B.S.; C.P.A.

Murphy, Edward C. — 1983 — Acting Dean, Graduate School (1993); and Professor of Zoology (1992), CNS, IAB. University of California, Berkeley '70, B.A.; University of Alaska Fairbanks '74, M.S.; University of Kansas '77, Ph.D.

Murphy, Kathleen - 1989 - Counselor (1989), KUC/CRA. University of Wisconsin '78, B.S.; '88, M.S.E.

Murrell, William Gregory — 1983 — Assistant Professor of Education and Field Coordinator, Cross-Cultural Education Development Program (1983), CRA, Virginia Commonwealth University '72, B.A.; University of New Mexico '74, M.A.;

Musgrave, David L. — 1988 — Assistant Professor of Marine Science (1988), SFOS/IMS. California Institute of Technology '74, B.S.; University of Alaska '78, M.S.; '83, Ph.D.

Nageak, James — 1987 — Assistant Professor of Inupiaq Eskimo (1991), CLA. University of Alaska Fairbanks '73, B.A.; University of Dubuque Theological Seminary '76, M.Div.

Naidu, A. Sathy - 1969 - Professor of Marine Science (1986), SFOS/IMS. Andhra University '59, B.S.; '60, M.S.; '68, Ph.D.

Nakazawa, Anthony - 1981 - Associate Professor of Extension Economics (1987), ACE; and Instructor of Economics, Independent Learning Program (1990), CRA. University of Hawaii '71, B.A.; University of California, Santa Barbara '74, M.A.; University of California, Berkeley '76, M.S.; '79, Ph.D.

Nance, Kara L. - 1993 - Assistant Professor of Computer Science (1993), CLA. University of Alaska '84, A.A.; '85, B.T.; University of Oklahoma '86, M.S.; '91,

Naske, Claus-M. — 1965 — Professor of History (1981) and Head, Department of History (1986), CLA. University of Alaska '61, A.B.; University of Michigan '64, M.A.; Washington State University '70, Ph.D.

Nebert, David L. - 1969 - Research Associate (1971) and Assistant Director for Research and Administration (1990), SFOS/IMS. Portland State University '65, B.S.; University of Alaska '72, M.S.

Nelson, Frank — 1990 — Adjunct Assistant Professor of Psychology (1990), CRA. California State University, Northridge '69, B.A.; University of Southern California '73, M.A.; '75, Ph.D.; California School of Professional Psychology '83, Ph.D.

Nelson, Michael G. - 1989 - Associate Professor of Mining Engineering, (1992), SME; and Instructor of Mining Engineering, Independent Learning Program (1990), CRA. University of Utah, '75, B.S.; '83, M.S.; West Virginia University, '89, Ph.D.

Nestor, Ralph W. - 1974 - Associate Professor and Head, Travel Industry Management Program (1974), SOM. Cornell University '61, B.A.; '66, B.S.; '70,

Newberry, Rainier J. — 1982 — Professor of Geology (1992), CNS. Massachusetts Institute of Technology '75, B.S. Chemistry, B.S. Geology; Stanford University, '78, M.S.; '80, Ph.D.

Newton, Pat — 1992 — OMT Lab Facilitator (1992), NWC/CRA. Mount Holyoke '72, B.A.; Portland State University '75, M.Ed.

Nicholson, Pam - 1989 - Purchasing Agent (1990), VCAS.

Nickell, Stephen R. — 1993 — Assistant Professor of Military Science (1993), CLA. Northeast Missouri State University '78, B.S.

Niebauer, H. Joseph — 1976 — Professor of Marine Science (1982), SFOS/IMS. University of Wisconsin, Madison '67, B.S.; '76, Ph.D.

Nielsen, Hans C. S. — 1967 — Professor of Geophysics (1982), GI, CNS. Royal Technical University of Denmark '65, M.S.

Noble, Diane M.—1994 — Visiting Assistant Professor of Education (1994), SOED. St. Cloud State University '68, B.S.; University of Alaska Fairbanks '82, M.Ed.; University of Southern California '86, Ed.D.

Noordhoff, Karen J. — 1986 — Assistant Professor of Education (1993), SOED. Northwestern University '69, B.S.; National College of Education '77, M.Ed.; Michigan State University '93, Ph.D.

Norcross, Brenda L. — 1989 — Assistant Professor of Marine Science (1989), SFOS/IMS, MacMurray College '71, A.B.; St. Louis University '76, M.S.; College of William and Mary '83, Ph.D.

Norcross, David W. — 1984 — Assistant Professor of Community Health (1984), KUC/CRA. University of New Mexico '79, A.S.; Chapman College '84, B.A.

Norris, Rebecca — 1975 — Admissions Manager (1988), STUSVC. Marylhurst College '70, B.A.; University of Alaska Fairbanks '75, A.A.

Norris, Roger A. — Assistant Professor of Education (1992), SOED. University of Indiana '69, B.S.; University of Idaho '75, M.S.; '77, Ph.D.

Norris-Tull, Delena I. — 1994 — Project Assistant (1994), SOED. University of Texas '72, B.S.; Michigan State University '75, M.S.; University of Texas '90, Ph.D. Nye, Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), Christopher J. — 1987 — Affiliate Assistant Professor

Nye, Christopher J. — 1987 — Affiliate Assistant Professor of Geology (1987), CNS. University of Alaska '76, B.S.; '78, M.S.; University of California, Santa Cruz '83, Ph.D.

Nye, Marcia — 1985 — Assistant Director, Alaska Teacher Placement (1993), STUSVC. Idaho State University '70, B.A.

Oba, Salchi Travis — 1990 — Admissions Counselor (1990), STUSVC. Eastern Oregon State College '85, B.S.

Oden, James Michael — 1989 — Safety/Training Officer (1989), VCAS. Tarrant County Junior College '78, A.A.S.

Ogbe, David O. — 1984 — Associate Professor of Petroleum Engineering (1990), SME. Louisiana State University '76, B.S.; '78, M.S.; Stanford University '84, Ph.D.

Ogunsola, Olayinka I. — 1991 — Research Assistant Professor of Coal Technology (1991), SME. Filton Technical College '76, Diploma; The University of Leeds '79, B.Sc.; Pennsylvania State University '83, Ph.D.

Okleasik, Thomas — 1992 — Business Manager (1992), NWC/CRA. California Lutheran University '91, B.S.

Oleson, Barbara A. — 1985 — Employee Relations Representative (1988), NWC/CRA, University of Alaska Fairbanks '89, A.A.

Olmsted, Coert D. — 1975 — Scientific Consultant (1992), GI, ARSC. Harvard '64, B.A.; University of Alaska Fairbanks '88, Ph.D.

Olsen, Ruth — 1994 — Recreation Program Coordinator/Intramurals Director (1994), ATHREC. University of Wisconsin-LaCrosse '89, B.S.; Oregon State University '92, M.S.

Olson, B.G. — 1988 — Instructor of Applied Business, Journalism and Broadcasting, Justice, Independent Learning Program (1988), CRA. University of Wichita '51, B.A.; University of Alaska Fairbanks '66, M.A.; Florida International University '74, IRA

Olson, John V. — 1979 — Professor of Physics (1989), GI, CNS. University of California, Los Angeles '62, B.A.; '63, M.S.; '70, Ph.D.

Olson, Suzanne S. — 1985 — Medical Technologist (1985), STUSVC. University of Wisconsin, Eau Claire '73, B.S.

Olson, Timothy T. — 1982 — Producer, KUAC-TV (1988), CLA.

Ongtooguk, Paul — 1991 — Visiting Instructor of Education (1991), SOED. University of Washington '80, B.A.; Michigan State University '91, M.A.

Opper, Forrest — 1988 — Instructor of Developmental Mathematics, Independent Learning Program (1988), CRA, University of Alaska Fairbanks '74, B.A.

Osborne, Daniel L. — 1971 — Project Engineer (1989), GI.

Osterkamp, Joan — 1977 — Executive Officer, Institute of Marine Science (1980), and School of Fisheries and Ocean Sciences (1987), SFOS/IMS. Saint Louis University '64, B.S.; University of Alaska '77, M.B.A.

Osterkamp, Thomas — 1968 — Professor of Physics (1979), GI, CNS. Southern Illinois University '62, B.A.; Saint Louis University '64, M.S.; '68, Ph.D.

Oswood, Mark W. — 1977 — Professor of Aquatic Biology (1990), CNS, IAB. Washington State University '71, B.S.; University of Montana '76, Ph.D.

Otto, Antonius — 1992 — Research Associate Professor (1993), GI. Ruhr-Universitat Bochum '83, Diplom; '87, Ph.D.

Owens, Gregory — 1987 — Assistant Director of Student Support Services Project (1992) and Instructor of Mathematics (1987), CLA. University of Wisconsin '78, B.S.; University of Alaska Fairbanks '91, M.Ed.

Pace, Kelley R. — 1986 — Associate Professor of Business Administration (1990), SOM. College of Idaho '79, B.A.; University of Georgia '85, Ph.D.

Packee, Edmond C. — 1983 — Associate Professor of Forest Management (1990), SALRM. University of Montana '62, B.S.F.; Yale University '63, M.F.; University of Minnesota '76, Ph.D.

Padden, Gail — 1992 — Analyst Programmer (1992), LIB.

Panciera, Michael T. — 1988 — Assistant Professor of Agronomy (1988), SALRM. University of Guelph '77, B.S.; '79, M.S.; Penn State University '82, Ph.D.

Parks, Roger L. — 1992 — Instructor of Spanish (1992), CLA. University of New Mexico '77, B.A.; '88, Masters in Language Science.

Parrett, William H. — 1979 — Professor of Education (1989), SOED, Indiana University '72, B.S.; '73, M.S.; '79, Ph.D.

Pate, Sally — 1985 — Professor of Extension, Home Economics (1994), ACE. Concord College '55, B.S.; Central Washington University '74, M.Ed.

Patil, Shirish L. — 1987 — Instructor of Petroleum Engineering (1991), SME. University of Poona '81, B.S.; University of Pittsburgh '83, M.S.; University of Alaska Fairbanks '87, M.S.

Paul III, Augustus J. — 1971 — Associate Professor of Marine Science (1989), SFOS/IMS. University of Massachusetts, Amherst '69, B.S.; University of Alaska '73, M.S.; Hokkaido University '87, Ph.D.

Paust, Brian C. — 1979 — Associate Professor of Fisheries (1988), Marine Extension Agent (1979), SFOS/MAP. University of Washington '76, B.S.; University of Alaska '79, M.S.

Pearson, Roger W.— 1976— Professor of Geography (1991), CLA; and Instructor of Geography, Independent Learning Program (1976), CRA. Illinois State University '63, B.S.; University of Illinois '65, M.S.; '70, Ph.D.

Pender, John — 1989 — Assistant Professor of Physics (1989), CNS. Stanford University '89, Ph.D.

Pennington, Henry M. — 1975 — Assistant Professor of Fisheries (1983), Marine Extension Agent (1975), SFOS/MAP. Humboldt State University '73, B.S.; '85, M.S.

Perkins Jr., Maynard G. — 1987 — Assistant Professor of Mathematics/Science (1993), NWC/CRA. University of Alaska Fairbanks '67, B.S.; Colorado State University '72, M.Ed.; Appalachian State University '93, Ed.S.

Pessel, Garnet — 1987 — Instructor of Geology (1991), Affiliate Assistant Professor of Geology (1987), CNS. California Institute of Technology '60, B.S.; '60, M.S.

Pete, Mary C. — 1993 — Instructor of Rural Development (1993), KUC/CRA. University of Alaska Fairbanks '79, B.A.; University of Alaska Fairbanks '84, M.A. Peter, Carolyn — 1988 — Instructor of Education/Coordinator, Ft. Yukon Rural Center (1988), CRA. Kansas State University '62, B.S.; University of Alaska Fairbanks '88, M.Ed.

Petersen, John K. — 1985 — Laboratory Instructor of Physics (1985), CNS. Bemidji State University '82, B.S.; University of Alaska '85, M.S.

Peterson, Walt — 1983 — Instructor of Welding, TVC/CRA. Red Rocks Community College '79, Certificate

Pfisterer, William R. — 1980 — Teacher Education Office Coordinator, Instructor of Education (1982), SOED, University of Wisconsin '64, B.A.; University of Alaska '80, M.A.

Phillp, Betty Anne P. — 1965 — Associate Professor of Chemistry (1983), CNS. Agnes Scott College '52, B.A.; Yale University '54, M.S.; '60, Ph.D.

Philip, Kenelm W. — 1965 — Research Associate in Taxonomy (1975), IAB. Yale University '53, B.S.; '58, M.S.; '63, Ph.D.

Phillips, Jerry V. - 1981 - Fire Captain (1981), VCAS.

Phillips, III, John C. — 1988 — Director of Physical Plant (1988), VCAS. University of Kentucky '65, B.S.C.E.

Phillips, Olivia — 1988 — Assistant to Director of Risk Management (1992), VCAS.
Piacenza, Robert J. — 1977 — Professor of Mathematics (1988), CLA. University of Florida '67, B.S.; University of Miami '73, M.S.; '76, Ph.D.

Pierce, Richard A. — 1988 — Professor of History (1988), CLA. University of California, Berkeley '40, B.A.; '52, M.A.; '56, Ph.D.

Pierce, Ronald M. — 1991 — Range Manager, Poker Flat Research Range (1991). Gl. Troy State University '80, B.S.; Central Michigan University '85, M.A.

Pierson, Barbara J. — 1985 — Recruitment Coordinator (1988), SALRM. Montana State University '77, B.S.; '85, M.S.

Ping, Chien Lu — 1982 — Professor of Agronomy (1993), SALRM. Chumg Hsin University, Taiwan '65, B.Sc.; Washington State University '72, M.S.; '76, Ph.D.

Pinney, Peter — 1989 — Assistant Professor of English, Independent Learning Program (1993), CRA. University of Hawaii, B.A.; University of Alaska Fairbanks, M.F.A.

Pinto, Luis A. — 1993 — Postdoctoral Fellow (1993), SFOS/IMS. University of La Serena (Chile) '83, B.S.; Oregon State University '89, M.S.; '93, Ph.D.

Pippenger, Michael — 1991 — Assistant Professor of Economics (1991), SOM. Ball State University '81, B.S.; University of Chicago '85, M.A.; Purdue University '87, M.S.; '90, Ph.D.

Pitney, Randall — 1985 — Rifle Coach (1985), ATHREC. University of Alaska Fairbanks '72, B.S.

Platt, Robert M. — 1992 — Program Development Specialist (1992), VCAS. Pennsylvania State University '81, B.A.E.; University of Alaska '91, M.B.A.; P.E.

Plowman, Cheryl — 1976 — Accounts Receivable/Telephone Supervisor (1992), VCAS. Draughon Business College '76.

Plumley, F. Gerald — 1988 — Associate Professor of Marine Science (1988), SFOS/IMS, Mars Hill College '73, B.S.; Auburn University '77, M.S.; University of Georgia '83, Ph.D.

Polechla, Paul — 1991 — Assistant Professor of Biology and Wildlife (1991), KUC/ CRA. University of Arkansas '87, Ph.D.

Pollard, Marvin E. — 1985 — Assistant Professor of Library Science (1985), LIB. University of Wisconsin-Madison '70, B.A.; Rosary College '73, M.A.L.S.

Pomeroy, Douglas — 1990 — Adjunct Assistant Professor of Psychology and Guidance and Counseling (1990), CRA. Pepperdine University '75, A.A.; Chico State University '77, B.A.; Humbolt State University '80, M.A.; Oregon State University '86, Ph.D.

Porter, David O. — 1993 — Dean, School of Management (1993), SOM. University of Utah '63, B.S.; '65, M.A.; Syracuse University '70, Ph.D.

Porter, James — 1992 — Associate Professor of Rural Development (1992), CC/CRA. University of Rochester '69, A.B.; New York University '71, M.B.A.; Temple University '75, J.D.

Possenti, Richard G. — 1966 — Associate Professor of Psychology (1973), CLA; and Instructor of Psychology, Independent Learning Program (1966), CRA. St. Joseph College '51, B.S.; University of Alabama '55, M.A.

Powell, Theron — 1989 — Housing Officer (1989), KUC/CRA

Powers, W. Roger — 1971 — Professor of Anthropology (1991), CLA. Idaho State University '64, B.A.; University of Wisconsin '68, M.S.; '73, Ph.D.

Presler, Kristin K. — 1990 — Admissions Counselor (1992), STUSVC. University of Alaska Fairbanks '90, B.A.

Preston, Diane — 1989 — Coordinator, Services for Students with Disabilities (1991) and Counselor (1989), STUSVC. University of California, Santa Barbara '70, B.A.; University of Alaska Fairbanks '89, M.A.

Price, Channon P. — 1987 — Associate Professor of Physics (1987), CNS. California Institute of Technology '76, B.S.; University of California, Santa Barbara '81, Ph.D.

Proenza, Theresa B. — 1991 — Director, Small Business Development Center (1991), CRA/TVC. University of Georgia '82, B.S.; University of Alaska Fairbanks '91, M.B.A.

Proshutinsky, Andrey Yu. — 1992 — Visiting Research Associate Professor (1992), SFOS/IMS, Leningrad Hydrometeorological Institute '73, M.Sc.; Arctic and Antarctic Research Institute, Leningrad '80, Ph.D.

Proshutinsky, Tatiana — 1994 — Research Associate (1994), SFOS/IMS. Leningrad Hydrometeorological Institute '73, M.Sc.; '81, Ph.D.

Pullar, Gordon L. — 1992 — Director, Alaska Native Human Resource Development Program (1992), ANHRDP/CRA. Western Washington University '73, B.A.; University of Washington '83, M.P.A.; The Union Institute '93, Ph.D.

Pulpan, Hans — 1968 — Associate Professor of Geophysics (1980), GI, CNS. Montanistische Hochschule Loeben, Austria '61, Dipl. Eng.; University of Illinois '64, M.S.; '68, Ph.D.

Purser, Jerry — 1975 — Professor of Extension, Agriculture Resources Management (1992), ACE. North Carolina State University '64, B.S.; '69, M.S.

Quang, Pham X. — 1985 — Associate Professor of Statistics (1990), CLA. University of Saigon '61, B.S.; Western Washington University, Bellingham '71, M.S.; University of California, Berkeley '74, Ph.D.

Quarberg, Donald — 1979 — Professor of Extension, Agricultural Agent (1993), ACE. University of Wisconsin '72, B.S.; Texas A&M University '74, M.S.

Quinn II, Terrance J. — 1985 — Associate Professor of Population Dynamics (1985), SFOS/JC. University of Colorado '73, B.A.; University of Washington '77, M.S.; '80, Ph.D.

Raad, Lufti — 1988 — Professor of Civil Engineering (1994), SOE. American University of Beirut '71, B.E.; University of California, Berkeley '72, M.Sc.; '77, Ph.D.

RaLonde, Raymond L. — 1991 — Aquaculture Specialist and Associate Professor of Fisheries (1991), MAP/SFOS. Oregon State University '69, B.S.; '72, B.Ed.; University of Idaho '88, M.S.

Rao, Nagabhushana M.S. — 1970 — Professor of Sociology (1981), CLA and Instructor of Sociology, Independent Learning Program (1970), CRA. Chairman, Asian Studies (1974), University of Mysore '57, B.A. (Hon.); '58, M.A.; Washington State University '74, Ph.D.

Rasmussen, Linda B.—1986—Advanced Nurse Practitioner, Center for Health and Counseling (1986), STUSVC, Loyola University of Chicago '80, B.S.N.; Simmons College, Boston '84, M.S.

Rathbone, Debi — 1991 — Manager, Juneau Center (1991), SFOS/JC.

Rawson, Timothy — 1991 — International Student/Scholar Advisor (1991), STUSVC. Luther College '80, B.A.

Read, Colin L.—1989 — Associate Professor of Economics (1992), SOM. Capilano College '79, A.A.S.; Simon Fraser University '81, B.S.; School of Graduate Studies and Research, Queen's University '82, M.A.; '88 Ph.D.

Reger, Richard D. — 1975 — Affiliate Associate Professor of Geology (1984), CNS. University of Alaska Fairbanks '63, B.A.; '64, M.S.; Arizona State University '75, Ph.D.

Reichardt, Paul B. — 1972 — Dean, CNS (1991); and Professor of Chemistry (1981), CNS. Davidson College '65, B.S.; University of Wisconsin '69, Ph.D.

Reisinger, John W. - 1972 - Chief Engineer, KUAC-FM/TV (1980), CLA.

Renecker, Lyle A. — 1990 — Associate Professor of Animal Science (1993), SALRM. Wilfred Laurier University '74, B.S.; Laurentian University '83, M.S.; University of Alberta '89, Ph.D.

Rexstad, Eric — 1991 — Assistant Professor of Quantitative Wildlife Biology (1991), CNS, IAB. Luther College '79, B.A.; Utah State University '81, M.S.; Colorado State University '90, Ph.D.

Reynolds, James B. — 1978 — Associate Professor of Fisheries and Unit Leader, Alaska Cooperative Fish and Wildlife Research Unit (1978), IAB, SFOS. Utah State University '61, B.S.; Iowa State University '63, M.S.; '66, Ph.D.

Reynolds, Janice McKenna — 1988 — Professor of Sociology (1988), CLA. Central Michigan '64, B.S.; Ohio State University '67, M.A.; '69, Ph.D.

Riccio, Thomas P.—1988 — Assistant Professor of Theatre (1988), CLA. Cleveland State University '78, B.A.; Boston University '82, M.F.A.

Rice, Donald D. — 1983 — Systems Analyst (1989), GI. University of Alaska Fairbanks '88, B.S.

Rice, Eileen Lynn — 1988 — Fiscal Officer (1988), TVC/CRA. The Florida State University '71, B.S.; Babcock Graduate School of Management, Wake Forest University '83, M.B.A.

Rice, Michael L. — 1983 — Vice Chancellor for Administrative Services (1991) and Professor of Business Administration (1983), SOM. Florida State University, Tallahassee '71, B.S.; '72, M.B.A.; University of North Carolina, Chapel Hill '75, Ph.D.

Richards, Hugh — 1988 — Instructor of Economics, Independent Learning Program (1988), CRA. Oberlin College '67, B.S.; University of Washington '81, M.F.A.; University of Alaska Fairbanks '87, M.S.

Riley, Joe — 1984 — Producer/Reporter, KUAC-TV (1984), CLA. Furman University '78, B.A.

Riley, Julie — 1984 — Associate Professor of Extension, Horticulture (1992), ACE. University of Wisconsin-Madison '77, B.S.; '80, M.S.

Ritter, John T. — 1990 — Adjunct Research Associate, Alaska Native Language Center (1990), CLA. Michigan State University '66, B.S., B.A.

Roberts, Larry N. — 1987 — Coordinator of Tok Center (1987), CRA; Adjunct Assistant Professor of Human Services. Texas Christian University '71, B.A.; '77, M.Ed.

Roberts, Priscilla C. — 1991 — Staff Counselor (1991), STUSVC. University of California at Berkeley '77, B.A.; Sonoma State University '83, M.A.; the Wright Institute '87, Ph.D.

Robertson, Betsy R. — 1969 — Research Associate (1977), SFOS/IMS. Hartwick College '65, B.A.

Robinson, E. Thomas — 1974 — Associate Professor of Accounting and Information Systems (1979), SOM. University of Wisconsin '67, B.B.A.; '71, M.S.; C.P.A.; '82, C.M.A.

Robinson, Mitchell R. — 1989 — Graphics Programmer Analyst (1989), GI. University of Alaska Fairbanks '88, B.S.

Roby, Daniel D. — 1992 — Assistant Professor of Wildlife Ecology and Assistant Leader, Alaska Cooperative Fishery and Wildlife Research Unit (1992), IAB, CNS. Antioc College '74, B.A.; University of Alaska Fairbanks '78, M.S.; University of Pennsylvania '86, Ph.D.

Roderick, George T.—1977—Men's Basketball Coach (1985), ATHREC. Kilgore Junior College '65, A.A.; University of Denver '67, B.A.; '69, M.A.

Rohwer, Celia M. - 1975 - Systems Analyst (1990), GI.

Rosenberg, Jonathan — 1993 — Assistant Professor of Political Science (1993), CLA. Pennsylvania State University '80, B.A.; University of California, Los Angeles '81, M.A.; '92, Ph.D.

Roth, Mitchell — 1983 — Associate Professor of Computer Science (1983), CLA. Michigan State University '73, M.S.; University of Illinois '80, Ph.D.

Rounds, Phil - 1985 - Assistant Fire Chief (1986), VCAS.

Rowe, Charlotte A. — 1988 — Deputy State Seismologist, Alaska Earthquake Information Center (1991), GI. New Mexico Institute of Mining and Technology '81, B.S.; University of Alaska Fairbanks '88, M.S.

Rowell, Janice — 1989 — Research Associate (1989), IAB. University of Victoria, British Columbia '75, B.Sc.; University of Ottawa '80, M.Sc.; University of Saskatchewan Western College of Veterinary Medicine '90, Ph.D.

Royer, Susan B. — 1970 — Assistant Professor of Mathematics (1975), CLA. Salem State College '61, B.S.; Texas A&M University '66, M.S.; '69, M.S.

Royer, Thomas C. — 1969 — Professor of Marine Science (1981), SFOS/IMS. Albion College '63, B.A.; Texas A&M University '66, M.S.; '69, Ph.D.

Rozell, Ruiz Anne — 1976 — Associate Professor. Tanana Valley Community College '78, A.A.S.; South Arkansas University '70, B.S.E.; University of Alaska '78, B.T.

Ruess, Diane E. — 1989 — Assistant Professor of Library Science (1992) and Head, IMPACT (1991), LIB. University of North Dakota '75, B.S.; University of Washington '79, M.L.S.

Ruess, Roger W. — 1989 — Associate Professor of Botany (1994), CNS, IAB. University of California, Irvine '74, B.S.; University of North Dakota '80, Ph.D.

Ruff, Richard G. — 1985 — Director of Programming, KUAC-TV (1988), CLA. West Virginia University '73, B.A.; '79, B.S.; University of Alaska Fairbanks '94, M.B.A.

Runcorn, Keith Stanley — 1989 — Professor of Physics and Geophysics (Sydney Chapman Chair in Physical Sciences) (1989), CNS. Manchester '49, Ph.D.; Cambridge '63, Doctor of Science; '65 Fellow of the Royal Society.

Ruppert, James — 1988 — Associate Professor of English and Alaska Native Studies (1991), CLA. State University of New York '70, B.A.; Purdue University '72, M.A.; University of New Mexico '81, Ph.D.

Ryan, Deborah L. — 1993 — Assistant Director, Rural Alaska Health Education Center (1993), CRA. Harcum Jr. College '74, A.S.; Montclair State College '93, B.S. Sackinger, William M. — 1970 — Associate Professor of Geophysics and Electrical Engineering (1971), GI, CNS. University of Notre Dame '59, B.S.; Cornell University '61, M.S.; '69, Ph.D., P.E.

Saklad, Howard M. — 1982 — Programmer (1983), SFOS/IMS. Boston University '77, B.A.; '78, M.A.

Salzman, Mlchael — 1990 — Assistant Professor in Guidance and Counseling (1990), CLA. Brooklyn College '68, B.A.; University of Oregon '78, M.A.; University of Arizona '87, Ph.D.

Santoni, Larry — 1988 — Assistant Professor of Mathematics (1988), CLA. Oregon State University '72, B.S.; University of California San Diego '74, M.A.; University of Michigan '88, Ph.D.

Savinova, Amella A. — 1988 — Instructor of Education (1994), SOED. University of Alaska Fairbanks '79, B.A.; '81, M.A.T.

Schaeffer, Roswell L. — 1993 — Instructor of Rural Development (1993), CC/CRA.

Schall, Dennis G. — 1988 — Assistant Professor of Education (1988), SOED.

Kearney State College '69, B.S.; '72, M.S.; University of Nebraska '77, Ph.D.

Schamel, Douglas — 1975 — Instructor of Biology (1980), CNS. Allegheny College '71, B.S.; University of Alaska Fairbanks '74, M.S.

Schatz, Madeline — 1990 — Head, Department of Music (1994), Professor of Music and Music Director, Fairbanks Symphony Orchestra (1990), CLA. University of Southern California, B.M.; Indiana University, M.M.; University of Southern California, D.M.A.

Scheaffer, Donald — 1987 — Director of Financial Aid (1987), STUSVC. Cardinal Glennon College '62, B.S.; San Jose State University '78, M.P.A.

Schedler, Kathleen — 1984 — Director, Planning and Project Services (1991), VCAS, University of Alaska Fairbanks '77, B.S.M.E., P.E.

Schell, Donald M. — 1976 — Director, Institute of Marine Science (1994) and Professor of Marine Science and Water Resources (1989), INE, SFOS/IMS. Southeastern Massachusetts University '62, B.S.; University of Alaska '62, M.S.; '71, Ph.D.

Schichnes, Janet C. — 1994 — Instructor/Coordinator (1994), IAC/CRA. Rutgers University '70, B.A.; Harvard University '81, Ed.M.

Schimel, Joshua — 1989 — Assistant Professor of Biology (1988), CNS, IAB. Middlebury College '79, B.A.; University of California-Berkeley '87, Ph.D.

Schmierbach, Glenda — 1994 — Instructor of Adult Basic Education (1994), KUC/CRA. North Dakota State University '67, B.A.; University of Alaska Fairbanks '92, M.Ed.

Schnelder, William S. — 1980 — Associate Professor of Library Science (1987), LIB. Franklin and Marshall College '68, B.A.; Bryn Mawr College '76, Ph.D.

Scholle, Marie M. — 1988 — Safety/Training Officer (1990), VCAS. Tanana Valley Community College '82, A.A.S.; University of Alaska Fairbanks '90, B.A.

Schroeder, Radene — 1969 — Associate Professor of Office Management and Technology, TVC/CRA. University of North Dakota '67, B.S.; '69, M.S.

Schuldiner, Michael — 1980 — Professor of English (1990), CLA. Goddard College '69, B.A.; Kent State '79, Ph.D.

Schumaker, John D. — 1993 — Assistant Professor of Military Science (1993), CLA. U.S. Military Academy '85, B.S.

Schwaegerle, Kent E. — 1986 — Associate Professor of Botany (1986), CNS, IAB. Oberlin College '75, B.A.; Ohio State University '78, M.S.; University of Illinois '84, Ph.D.

Schwafel, Stanley R. — 1979 — Assistant Director, Poker Flat Research Range (1991), Gl. Solano College '72, A.A.

Schweltzer, Peter P. — 1991 — Assistant Professor of Anthropology (1992), CLA. Vienna Institute of Social Anthropology '90, Ph.D.

Scorup, Peter C. — 1972 — Research Associate (1980), AFES (Palmer Research Center). Colorado State University '66, B.S.

Scott, G. Richard — 1973 — Professor of Anthropology (1986) and Department Head (1994), CLA. Arizona State University, Tempe '68, B.A.; '73, Ph.D.

Secrest, Ann — 1987 — Coordinator, Office of the Chancellor (1994). University of Alaska Fairbanks '89, B.A.; '94, M.B.A.

Sedinger, James Stone — 1985 — Professor of Wildlife Ecology (1994), CNS, IAB. University of Washington, '71, B.S.; University of California, Davis '83, Ph.D.

Seifert, Richard D. — 1973 — Associate Professor of Engineering Extension (1988), ACE. West Chester State College '70, B.A.; University of Alaska '73, M.S.

Selinger, Gary M. - 1979 - Collections Manager (1986), UAM. '79, B.A.

Sengupta, Mritunjoy — 1983 — Professor of Mining Engineering (1989), SME. Indian School of Mines '64, B.S.; Columbia University '71, M.S.; '73, M.S.; Colorado School of Mines '82, Ph.D.; P.E.

Sentman, Davis D. — 1991 — Associate Professor of Physics (1991), CNS, GI. University of Iowa '71, B.A.; '73, M.S.; '76, Ph.D.

Severin, Kenneth P. — 1990 — Research Associate (1990), CNS. California Institute of Technology '78, B.S.; University of California Davis '87, Ph.D.

Sexton, Renée L. — 1990 — Fiscal Officer (1994), SME. University of Alaska Fairbanks '85, B.B.A; '90, M.B.A.

Sfraga, Mike — 1986 — Coordinator for Student Affairs, Off Campus Sites (1989), STUSVC. University of Alaska Fairbanks '84, B.S.; Bowling Green State University '86, M.A.

Shanis, Daniel S. — 1984 — Program Development Specialist, ANHRDP (1984), CRA. University of Pennsylvania '69, B.A.; University of Northern Colorado '73, M.A.

Sharma, Ghanshyam D. — 1963 — Acting Director, Petroleum Development Laboratory (1992) and Professor of Petroleum Engineering (1984), SME; and Professor of Marine Science (1969), SFOS. Benares Hindu University '52, B.S.; Swiss Federal Institute of Technology '58, Diploma of Engineering Geology; University of Michigan '61, Ph.D. Shaw, David G. — 1973 — Professor of Marine Science and Chemistry (1984), SFOS/IMS, CNS. University of California, Los Angeles '67, B.S.; Harvard University '69, A.M.; '71, Ph.D.

Shaw, Glenn E. — 1971 — Professor of Geophysics (1981), GI, CNS. Montana State University '63, B.S.; University of Southern California '65, M.S.; University of Arizona '71, Ph.D.

Sherman, Todd — 1992 — Assistant Professor of Art (1992), CLA. University of Alaska Fairbanks '79, B.A.; Pratt University '85, M.F.A.

Shleh, Yeung-Nan — 1984 — Associate Professor of Economics (1986), SOM.
National Taiwan University-Taipei '66, B.A.; University of Rochester, New York '76, M.A.; Texas A&M University '80, Ph.D.

Shields, Gerald F. — 1975 — Professor of Zoology (1985), CNS, IAB. Carroll College '66, B.A.; Central Washington State College '70, M.S.; University of Toronto '74, Ph.D.

Shields, Patricia — 1987 — Fee Assessment and Cashier Supervisor (1992), VCAS. Carroll College '66, B.S.

Shirley, Thomas C. — 1982 — Associate Professor of Fisheries (1982) and Director, Fisheries Division-Juneau (1992), SFOS/JC. Texas A&I University '69, B.S.; '74, M.S.; Louisiana State University '82, Ph.D.

Shuler, Robert J. — 1987 — Associate Professor of Mathematics (1987), KUC/CRA. University of Texas '65, B.A.; University of Oregon '71, M.A.

Shumaker, Peggy — 1988 — Professor of English (1994), CLA. University of Arizona, Tucson '79, M.F.A.

Sillers, Sandra — 1990 — Assistant Director, Residence Life (1993), STUSVC. Missouri Valley College '89, B.S.

Simmons, Heldi — 1981 — Coordinator, Distance Education (1991), KUC/CRA. Bellevue Community College '79, A.A.

Simpson, Glen C. — 1969 — Professor of Art (1985), CLA. Rochester Institute of Technology '68, B.F.A.; '69, M.F.A.

Simpson-Sugar, Cyndee — 1988 — Instructional Coordinator (1991), KUC/CRA. University of the State of New York '92, B.A.

Sinha, Deepak — 1992 — Programmer Analyst (1992), SFOS/IMS. Indian School of Mines '79, B.Tech.; '88, M.Tech.; University of Alaska Fairbanks '92, M.S.; '92, M.S.

Sipe, Riki — 1991 — Director of Student Support Services (1992), CLA. Indiana University '72, B.A.; '78, M.S.

Skelton, Irvin — 1984 — Professor of Extension, and Land Resources Program Leader (1984), ACE. University of Wyoming '60, B.S.; Colorado State University '70, M.Ed.; '74, Ph.D.

Skelton, Marcele — 1985 — Instructor, Learning Assistance and Developmental Studies (1990), CRA/TVC. University of Nebraska '59, B.S.; University of Maryland '64, M.Ed.; New Mexico State University '80, Ed.S.

Slaughter, Charles W. — 1970 — Affiliate Professor of Water Resources (1976), INE. Washington State University '62, B.S.; Colorado State University '68, Ph.D.

Smiley, Scott T. — 1989 — Associate Professor of Biology (1994), IAB, CNS, University of California, Berkeley '79, B.A.; University of Washington, Seattle '84, M.S.; '86, Ph.D.

Smith, David M. — 1986 — Professor of Education (1986), SOED; Associate Faculty of Anthropology (1987). Nyack College '56, B.S.; Hartford Seminary Foundation '65, M.A.; Michigan State University '69, Ph.D.

Smith Jr., Donald D. — 1986 — Bilingual/Bicultural Manager (1987), NWC/CRA. Baptist College of Charleston '72, B.B.A.

Smith, Roger W. — 1984 — Professor of Physics (1984), GI,CNS. University of Exeter '63, B.S.; '67, Ph.D.

Smith, Ronald C. — 1991 — ADARE Program Coordinator (1991), STUSVC. University of Rochester '71, B.A.; Boston University '72, M.Ed.

Smith, Ronald L. — 1968 — Professor of Zoology (1984), CNS, SFOS/IMS. Occidental College '64, B.A.; University of Miami '67, M.S.; '68, Ph.D.

Smith, Steven L. — 1986 — Associate Director, Computing and Communications (1994), LIB. University of Iowa, B.A.; University of Hawaii, M.A.

Smith, Sue E. — 1994 — (1994), VCAS. University of Alaska Fairbanks '94, B.B.A. Smith, Thomas D. — 1987 — Acting Assistant Director for Coastal and Marine Operations (1989), SFOS/IMS. U.S. Coast Guard Academy '62, B.S.; American University '71, M.S.

Smith, Thomas E. — 1973 — Affiliate Professor of Mining Geology (1984), CNS. Stanford University '65, M.S.; University of Nevada '71, Ph.D.

Smoker, William W.— 1978 — Professor of Fisheries (1993), SFOS/JC. Carleton College '67, B.A.; Oregon State University '70, M.S.; '82, Ph.D.

Solle, Diana — 1990 — Affiliate Assistant Professor of Geology (1990), CNS. University of Alaska '79, B.S.; Virginia Polytechnic Institute and State University '88 Ph D

Sonafrank, G. H. Cole — 1979 — Systems Manager (1988), GI. University of Alaska Fairbanks '87, B.A.

Sonnier, Tonya L. — 1994 — Buyer (1994), VCAS. University of Alaska Fairbanks '93, B.B.A.

Soos, Frank — 1986 — Associate Professor of Creative Writing (1991), CLA. Davidson College '72, A.B.; University of Arkansas '81, M.F.A.

Sorensen, Fred E. — 1990 — Assistant Professor of Extension, Land Resources, 4-H & Youth (1990), ACE. University of California '74, B.A.; Moss Landing Marine Laboratories '84, M.S.

Sousa, Marsha — 1989 — Visiting Assistant Professor and Research Associate (1989), CNS, IAB. Colorado State University '74, B.S.; '82, Ph.D. Sparck, Lucy — 1987 — Associate Professor of Human Services (1987), KUC/CRA. Mary Manse College '67, B.A.; University of Utah '71, M.S.W.

Sparks, H. Charles — 1994 — Assistant Professor of Accounting and Information Systems (1994), SOM. University of Alaska Fairbanks '87, B.B.A.; University of Iowa '89, M.A.; C.P.A.

Sparrow, Stephen D. — 1981 — Professor of Agronomy (1993), SALRM. North Carolina State University '69, B.S.; Colorado State University '73, M.S.; University of Minnesota '81, Ph.D.

Speck, Robert C. — 1984 — Professor of Geological Engineering (1994), SME; Instructor of Geological Engineering, Independent Learning Program, CRA (1984). Franklin and Marshall College '68, A.B.; University of Missouri-Rolla '74, B.S.; '75, M.S.; '79, Ph.D.

Spell, B. David — 1978 — Associate Professor of Electrical Engineering (1992), SOE. University of Washington '74, B.S.E.E.; 81, M.S.E.E.; P.E.

Spencer, Robert E. — 1993 — Hazardous Materials Coordinator (1993), VCAS. University of Alaska '81, A.A.; Thomas A. Edison State College '91, A.S.; '93, B.S. Sponseller, Tim A. — 1993 — Contract Manager (1993), VCAS. B.S.C.E.

Springer, Alan M. — 1983 — Research Assistant Professor of Marine Science (1990), SFOS/IMS. Colorado College '69, B.A.; University of Alaska '74, M.S.; '88, Ph.D.

Stadem, Norman — 1992 — Visiting Instructor of Rural Development (1992), BB/CRA. Oregon State University '61, B.S.; University of California (Santa Barbara) '81, M.A.

Staley, Stephanie — 1991 — Lathrop Hall Director (1991), STUSVC. Southern Methodist University '89, B.A.

Stamnes, Knut — 1988 — Professor of Physics (1988), GI. University of Oslo '69, B.S.; '72, M.S.; University of Colorado '78, Ph.D.

Stanek, Sheryl A. — 1990 — Assistant Professor of Extension, Home Economics (1990), ACE. Washington State University '64, B.S.; University of Alaska Anchorage '88, M.E.

Stark, David A. — 1971 — Professor of English (1985), CLA. University of California, Los Angeles '65, B.A.; University of California, Irvine '69, M.F.A.

Stealey-Bouta, Katherine — 1990 — Instructor of English, Independent Learning Program (1990), CRA. Wake Forest University '83, B.A.

Stech, David A. — 1972 — Associate Professor of Music (1982), CLA. University of Minnesota '67, B.S.; Ohio State University '69, M.A.; Michigan State University '76, Ph.D.

Steiner, Richard G. — 1983 — Marine Extension Agent (1983), AssociateProfessor of Fisheries (1989), SFOS/MAP, University of Tennessee '74, B.A.; Oregon State University '79, M.S.

Stellini, Dominic — 1991 — Moore/Bartlett/Skarland Area Coordinator (1992), STUSVC. New York University '89, B.A.; '91, M.A.

Stephens, Dennis J. — 1978 — Associate Professor of Library Science (1984) and Department Head (1994), LIB. Portland State University '69, B.A.; University of Denver '75, M.A.

Stephens, Sidney — 1985 — Instructor of Education (1985), SOED. California State Polytechnic University '71, B.S.; University of Alaska '85, M.Ed.

Stern, Katherine — 1992 — Assistant Professor of English (1992), CLA. Barnard College '82, B.A.; Columbia University '83, M.A.; Jesus College, Cambridge University '85, B.A.; Princeton University '90, Ph.D.

Stickel, Tim — 1990 — Assistant Director of Residence Life for Residence Halls (1993), STUSVC. Northeast Missouri State University '88, B.A.; University of Alaska Fairbanks '93, M.B.A.

Stilkey, Neta - Business Manager, GI.

Stitt, Jan — 1985 — Graphic Artist (1985), URIA. Rocky Mountain School of Art '78, Certificate.

Stolzberg, Richard J. — 1978 — Professor of Chemistry (1993), CNS. Tufts University '69, B.S.; Massachusetts Institute of Technology '73, Ph.D.

Stone, David B. — 1966 — Professor of Geophysics (1977), GI, CNS. University of Keele '56, B.A.; University of Newcastle Upon Tyne '63, Ph.D.

Stormer, Jacquelyn K. — 1983 — Editorial Specialist (1986), URIA. University of Alaska Fairbanks '89, B.A.

Stortz, Peter J. — 1989 — Associate Professor of Extension, District 4-H Youth Agent (1994), ACE. University of Wisconsin, Stevens Point '76, B.S.; '78, M.S.

Strandberg, James S. — 1990 — Director, Poker Flat Research Range (1991), Gl. University of Alaska '70, B.S.; '83, M.S.; P.E.

Stratton, Russell E. — 1983 — Professor of English (1994), CLA. Princeton University '60, A.B.; University of Southern Mississippi '76, M.A.; '79, Ph.D.

Stricks, James L. — 1972 — Director, Center for Distance Education and Adjunct Instructor of Cross-Cultural Education (1989), CRA. Cornell University '71, B.A.; University of Alaska Fairbanks '74, M.A.T.

Stringer, William J. — 1965 — Associate Professor of Geophysics (1982), GI, CNS. New Mexico State University '62, B.S.; University of Alaska '71, Ph.D.

Styers, Jim - 1991 - Captain, Fire Department (1991), VCAS.

Succarleh, Mohamad F.—1991—Assistant Professor of Civil Engineering (1991), SOE. Louisiana Institute of Technology '83, B.S.; Clemson University '84, M.E.; Rensselaer Polytechnic Institute '90, Ph.D.

Sugal, Susan F. — 1978 — Science Director, Alaska Regional Marine Research Program (1993), SFOS/SG, and Postdoctoral Fellow (1986), SFOS/IMS. Oakland University '70, B.A.; University of Washington '75, M.S.; University of Alaska '85, Ph.D.

Summerville, Suzanne — 1978 — Professor of Music (1985), CLA, Randolph-Macon Woman's College '58, A.B.; Vienna Academy of Music '61, Diploma; University of Houston '68, M.M.; Freie Universitat Berlin '77, Dr. phil.

Sumpter, Gerene — 1989 — Coordinator, Community Education (1990), KUC/CRA. University of Alaska Fairbanks Kuskokwim Campus '94, A.A.

Swanson, Ruthann B. — 1988 — Associate Professor of Food Science (1993), SALRM. University of North Carolina-Greensboro '77, B.S.; University of Tennessee '81, M.S.; '86, Ph.D.

Swazo, Norman K. — 1994 — Assistant Professor of Philosophy and Humanities (1994), CLA. Princeton University '76, A.B.; University of Michigan '78, M.H.S.A.; University of Georgia '88, Ph.D.

Sweet, Larry R. — 1966 — Systems Engineer (1987), Gl. Washington State University '63, B.S.E.E.; University of Alaska Fairbanks '72, M.S.

Tannehill, Linda — 1993 — 4-H and Youth Development/Home Economics Agent-Kenai Peninsula (1993), ACE. Kansas State University '82, B.S.; '88, M.S.

Tansey, Richard — 1994 — Associate Professor of Marketing (1994), SOM. University of West Florida '71, B.A.; Florida State University '79, M.A.; University of Texas, Austin '81, Ph.D.; University of Houston '89, M.B.A.; '91, Ph.D.

Tape, Walter — 1982 — Associate Professor of Mathematics (1979), CLA. Princeton University '62, B.A.; University of Michigan '68, Ph.D.

Taylor, John N. — 1982 — Associate Professor of Business Administration (1982), SOM. U.S. Military Academy '60, B.S.; Air Force Institute of Technology '69, M.S.; George Washington University '75, D.B.A.; University of Utah '76, Post Doctoral

Testa, J. Ward — 1986 — Research Assistant Professor of Marine Science (1990), SFOS/IMS. University of Alaska '75, B.S.; University of Minnesota '82, M.S.; '86, Ph.D.

Thiagarajan, Harikumar — 1991 — Associate Professor of Business Administration (1994), SOM. Madras University, India '78, B.A.; XLRI, Jamshedpur, India '80, M.B.A.; University of Houston '87, Ph.D.

Thibodeau, Michael — 1988 — Instructor of Music, Independent Learning Program (1988), CRA.

Thomas, Dana L. — 1981 — Associate Professor of Statistics (1987), CLA. University of Alaska '74, B.S.; Oregon State University '78, M.S.; '82, Ph.D.

Thomas, Frances — 1989 — Instructor of Aviation Technology, Independent Learning Program (1989), CRA. University of Oregon '68, B.A.; University of Alaska Fairbanks '86, A.A.

Thompson, Mary Denise — 1992 — Instructor of Anthropology and Native Studies and Coordinator, Yukon-Koyukuk Center (1992), IAC/CRA. Brown University '83, A.B.; Stanford University '85, M.A.

Thompson, Steven K. — 1984 — Assistant Professor of Statistics (1984), CLA. University of California '70, A.B.; Oregon State University '76, M.S.; '82, Ph.D.

Thornsen, Ann E. — 1989 — News and Public Affairs Producer, KUAC-FM (1989), CLA. Indiana State University '82, B.S.

Tinsley, Pamela M. — 1990 — Executive Officer (1991), SOM. University of Alaska Fairbanks '90, B.B.A.

Tisdale, Shirley — 1985 — Assistant Professor of Extension, Home Economics (1985), ACE, South Dakota State University '58, B.S.; Michigan State University '68, M.A.

Titus, Jordan J. — 1992 — Assistant Professor of Education (1992), SOED. Acadia University, Novia Scotia '77, B.A.; University of Toronto '83, M.A.; '90, Ph.D.

Titus, Steve — 1992 — Senior Project Manager (1993), VCAS. University of Alaska Fairbanks '75, B.S.C.E.

Todd, Susan K. — 1990 — Visiting Assistant Professor of Land Planning (1990), SALRM. Bryn Mawr '75, B.A.; University of Michigan '79, M.A.

Toepper, Lorin — 1995 — Assistant Professor of Tourism (1995), SOM. University of Wisconsin '82, B.S.; '85, M.S.; University of Rhode Island '91, Ph.D.

Tremarello, Ann — 1957 — Director of Admissions and Records (1974), STUSVC. University of Alaska '57, B.B.A.

Trent, Robert H. — 1993 — Dean, School of Mineral Engineering and Professor of Mining Engineering (1993), SME. University of Utah '71, B.S.; '72, M.S.; Colorado School of Mines '80, Ph.D.; P.E.

Triplehorn, Don M. — 1969 — Professor of Geology (1977), CNS. Ohio Wesleyan University '56, B.A.; Indiana University '57, M.A.; University of Illinois '61, Ph.D. Triplehorn, Julia H. — 1979 — Associate Professor of Library Science (1985), GI library. Ohio Wesleyan University '57, B.A.; University of Illinois '60, M.S.L.S.

Trubacz, Joseph — 1990 — Executive Officer, School of Engineering and Institute of Northern Engineering (1990), SOE. University of New Hampshire '81, B.S.; New Hampshire College '83, M.B.A.

Tumeo, Mark A. — 1988 — Associate Professor of Civil Engineering and Environmental Engineering (1993), SOE. University of Notre Dame '81, B.S.; University of California, Davis '82, M.S.; '88, Ph.D.; P.E.

Turnbough, G. Kevin — 1989 — Coordinator, Upward Bound (1992), STUSVC. Southwest Missouri State University '77, B.S.

Tyler, Albert V. — 1991 — Associate Dean and Professor of Fisheries (1991) and Director, Rasmuson Fisheries Research Center (1994), SFOS/IMS. University of Pennsylvania '60, B.A.; University of Toronto '64, M.A.

Tytgat, Guy — 1981 — Geophysicist (1990), GI. University of Alaska Fairbanks '86,

Ulrich, John W. — 1991 — Visiting Instructor of Airframe and Powerplant (1991), TVC/CRA. North Central Michigan College '77, A.A.S.; Kirtland Community College '79, A.A.S.

Van Cleve, Keith - 1967 - Professor of Forestry-Soils (1976), SALRM. University of Washington '58, B.S.; University of California, Berkeley '60, M.S.; '67, Ph.D.

Van Dover, Cindy L. - 1994 - Science Director (1994), SFOS/NURC. Rutgers University '77, B.S.; University of California, Los Angeles '85, M.S.; Woods Hole Oceanographic Institution-Massachusetts Institute of Technology Joint Program '89,

Vandre, Wayne - 1977 - Professor of Extension, Horticulture/Pesticides (1994), ACE. University of Wisconsin '68, B.S.; '75, M.S.

Van Luchene, Donna — 1987 — Assistant Professor of Vocational Education (1990), NWC/CRA. Eastern Montana College '71, B.S.; Montana State University '78, M.S.; University of Alaska Anchorage '88, M.Ed.

Van Rhyn, Mark E. — 1981 — Assistant Director of Residence Life for Information Services (1993), STUSVC. University of California-Irvine '71, B.A.; University of Alaska Fairbanks '82, M.Ed.; '93, B.A.

Van Stone, Deborah — 1986 — Manager, University of Alaska Press (1987), UAP University of Alaska Fairbanks '86, B.B.A.

Van Tamelin, Peter G. — 1990 — Research Associate (1990), SFOS/JC, University of California, Santa Barbara '84, B.A.; Oregon State University '90, Ph.D.

Verbyla, David L. - 1993 - Assistant Professor of Geographic Information Systems (1993), SALRM. Rutgers University '79, B.S.; Michigan State University '82, M.S.; Utah State University '88, Ph.D.

Vicente, Sue — 1974 — Advanced Nurse Practitioner, Center for Health and Counseling (1981), STUSVC. Fort Lewis College '69, B.S.; Miami Valley Hospital School of Nursing '71, R.N.; A.N.P.

Vienneau Jr., Laurence E. - 1989 - Assistant Professor of Art (1991), CLA; Instructor of Art, Independent Learning Program (1990), CRA. Southeastern Massachusetts University '77, B.F.A.; Southern Illinois University '81, M.F.A.

Vrabec, Terry E. - 1991 - Supervisor/Sergeant (1991), VCAS. University of Alaska Fairbanks '85, B.A.

Wade, Charles S. - 1977 - Professor of Applied Business and Computer Applications (1994), KUC/CRA. Oregon State University '72, B.S.; University of Alaska Anchorage '83, M.B.A.

Wadlow, Joan K. — 1991 — Chancellor; and Professor of Political Science (1991). University of Nebraska '53, B.A.; Fletcher School of Law and Diplomacy '56, M.A.; University of Nebraska '63, Ph.D.

Waldman, Ken — 1990 — Assistant Professor of General Studies (1990), NWC/ CRA, Duke University '77, B.A.; University of Alaska Fairbanks '88, M.F.A.

Wales, Carl — 1993 — Project Director, Alaska SAR Facility (1994), GI. Michigan Institute of Tehcnology '76, B.S.M.E.; '76, B.S.O.E.; '82, M.S.

Walker, Cynthia L. — 1977 — Associate Professor of English (1982), CLA. Denison University '70, B.A.; Purdue University '72, M.A.; '74, Ph.D.

Walker, Gerald G. — 1987 — Assistant Professor of Electrical Engineering (1988), SOE. Colorado State University '77, B.S.E.E.; University of Southern California '79, M.S.E.E.; University of Alaska Fairbanks '88, Ph.D.

Wallace, Wesley K. — 1985 — Associate Professor of Geology (1991), CNS. Rice University '72, B.A.; University of Washington '76, M.S.; '81, Ph.D.

Walsh, Daniel E. — 1982 — Associate Professor of Mining Extension (1994), SME. University of Alaska '81, B.S.; '85, M.S.; P.E.

Walters, Laurel L. — 1988 — Senior Research Associate in Medical Entomology (1988), IAB. University of California Riverside '71, B.A.; '76, M.S.; University of California Davis '83, Ph.D.

Walworth, James — 1989 — Associate Professor of Soil Fertility (1993), SALRM. University of Wisconsin '76, B.S.; '80, M.S.; University of Georgia '85, Ph.D.

Warbelow, Arthur W. - 1990 - Assistant Professor of Accounting and Information Systems (1990), SOM. University of Alaska Fairbanks '85, M.B.A.; Harvard '91, Ph.D.

Ward, Charles B. - 1991 - Project Engineer (1991), VCAS. University of Alaska Fairbanks '86, B.S.

Washburn, Nita C. — 1979 — Coordinator (1991), VCAS. University of Alaska Fairbanks '69, A.O.A.

Watchman, Darlene — 1992 — Program Development Specialist (1992), ANHRDP/CRA. Western Washington University '75, B.A.; '82, M.P.A.; University of Puget Sound '85, M.B.A.

Waters, Kaye - 1990 - Instructor of Early Childhood Development, Independent Learning Program (1990), CRA.

Watkins, Brenton J. - 1980 - Professor of Geophysics (1991), GI, CNS. University of Adelaide '68, B.S.; La Trobe University '72, M.S.; University of Alaska '74,

Watson, Ben — 1994 — Assistant Professor of Automotive Technology (1994), TVC/CRA, University of Texas at Arlington '76, B.A.; Arizona Automotive Institute '72, Automotive Service Tech.

Weeks, Wilford F. — 1986 — Professor of Geophysics (1986), GI, CNS. University of Illinois '51, B.S.; '53, M.S.; University of Chicago '56, Ph.D.

Weflen, Arvid - Associate Professor of Airframe and Powerplant/Aviation Technology (1994), TVC/CRA. St. Cloud State College '71, B.S.

Weimar, Leonard C. - 1967 - Port Engineer (1980), SFOS/IMS.

Weimer, Daniel R. - 1989 - Research Associate Professor (1989), GI. University of Michigan '77, B.S.; '77, B.S.E.; University of Iowa '83, M.S.; '84, Ph.D.

Weingartner, Thomas J. - 1988 - Assistant Professor (1993), SFOS/IMS. Cornell University '74, B.S.; University of Alaska '80, M.S.; North Carolina State University '89, Ph.D.

Weller, Gunter E. - 1968 - Deputy Director, (1990), GI; Director, CGCASR; and Professor of Geophysics (1973), GI,CNS. University of Melbourne '62, B.S.; '64, M.S.: '67, Ph.D.

Wells, Deborah H. — 1990 — Director (1990), C&SE. College of Wooster '74, B.A.; College of Arts and Sciences at Plattsburgh '85, M.A.

Wells, W. Tom — 1984 — Associate Professor of Physical Education (1991) and Department Head (1985), CLA. University of Minnesota '71, B.S.; Indiana University sity '73, M.S.; '81, P.E.D.

Wendler, Gerd — 1966 — Professor of Geophysics (1982), GI, CNS. University of Innsbruck '64, D. Phil.

Wescott, Eugene — 1958 — Professor of Geophysics (1974), CNS,GI. University of California, Los Angeles '55, B.A.; University of Alaska '60, M.S.; '64, Ph.D.

West, C. Eugene — 1977 — Associate Professor of Library Science (1988), LIB. Dickinson State College '60, B.S.; University of Denver '70, M.S.; University of Alaska '78, M.A.

West, Sharon M. - 1973 - Professor of Library Science (1994) and Director of Libraries (1994), LIB. University of Southern Colorado '69, B.S.; University of Denver '70, M.A.

Whalen, Stephen C. — 1979 — Hazardous Materials Coordinator (1993), VCAS. University of Maine '74, B.S.; Montana State University '79, M.S.; University of Alaska Fairbanks '86, Ph.D.

Wheat, C. Geoffrey — 1994 — Regional Coordinator (1994), SFOS/NURC. University of New Hampshire '83, B.S.; University of Washington '86, M.S.; '90 Ph.D.

White, Blanche R. — 1992 — Assistant Professor of Community Health (1992), KUC/CRA. University of Colorado '67, B.S.N.; University of Hawaii '86, M.PH.

White, Nora L. - 1991 - Assistant Professor of Education (1991), SOED. Urbana University '82, B.A.; Ohio State University '89, M.A.; '92, Ph.D.

White, Robert Gordon - 1970 - Director, Institute of Arctic Biology (1993), IAB; and Professor of Zoophysiology and Nutrition (1981), CNS, IAB. University of Melbourne '62, B.Agr.S.; University of New England '68, M.Rur.S.; '73, Ph.D.

Whitehead, John S. — 1978 — Director, Honors Program (1995) and Professor of History (1984), CLA. Yale '67, B.A.; '69, M.A.; '71, Ph.D.; University of Cambridge '72, M.A.

Wichmann, Henry - 1986 - Professor of Accounting and Information Systems(1986), SOM. University of Denver '62, B.S.; Colorado State College '64, M.A.; University of Northern Colorado '72, Ph.D.

Wiese, Craig S. - 1977 - Business Management Specialist (1981), Professor of Marine Science (1993), MAP. Oregon State University '66, B.S.; '74, M.S.; '76, M.B.A.

Wilken, Sue - Assistant to the Director (1994), SOED. Oregon State University '68, B.S.; University of Alaska Fairbanks '89, M.Ed.

Willert, Ann T. - 1989 - Fiscal Officer (1989), KUC/CRA. University of Alaska Fairbanks Kuskokwim Campus '93, A.A.

Williams, David — 1979 — Director (1992), KUC/CRA. University of Wisconsin Green Bay '75, B.A.

Williams, Don — 1990 — Project Engineer, Physical Plant (1990), VCAS.

Williams, Frank L. — 1992 — Dean, School of Engineering and Professor of Civil and Mechanical Engineering (1992), SOE. Northwestern University '69, B.S.; Stanford University '71, M.S.; '73, Ph.D.

Williams, Sarah "Fran" — 1989 — Contract Specialist (1991), VCAS.

Wilm, Helga — 1968 — Assistant to the Director (1978), GL

Wilson, Barbara R. - 1991 - Assistant Professor of Social Work (1991), CLA, CC/ CRA University of Michigan '85, B.A.; '88, M.S.W., A.C.S.W.

Wilson, Karen M. - 1988 - Fiscal Analyst (1990), SME. University of Wisconsin Milwaukee '80, B.A.

Wintersteen, Theodora - 1978 - Associate Professor of Library Science and Librarian (1987), KUC/CRA. Wesleyan University '65, B.A.; Emporia State University '78, M.L.S.

Wood, Margaret K. — 1987 — Director of Bristol Bay Campus (1987), BBC/CRA. University of Washington '59, B.S.; University of Oregon '68, M.S.; '77, Ph.D.

Wolter, Jordan - 1993 - Assistant Hockey Coach (1993), AHTREC. St. Cloud State University '84, B.A.

Woodward, Kesler - 1982 - Associate Professor of Art (1988), CLA. Davidson College '73, B.A.; Idaho State University '77, M.F.A.

Worley, Gerald Michael - 1988 - Instructor of Political Science, Independent Learning Program (1988), CRA. Worley, Joan - 1990 - Assistant Professor of English (1990), CLA. Michigan State

University '72. B.A.; Ohio University '76, M.A.; '83, Ph.D.

Wynne, Kathleen M. — 1990 — Research Assistant Professor of Fisheries (1992), SFOS/MAP, University of Idaho '77, B.S.; '81, M.S.

Wyss, Max — 1991 — Wadati Professor of Seismology (1991), GI. Fed. Inst. Tech., '64, diploma; California Institute of Technology '67, M.S.; '70, Ph.D.

Yarle, John A. — 1978 — Associate Professor of Silviculture and Forest Soils (1991), SALRM. Forest Soils Laboratory (1978). West Virginia University '71, B.S.; University of Maine '74, M.S.; University of British Columbia '78, Ph.D.

Yauney, Jeffrey P. — 1980 — Workstation/LAN User Svcs Manager (1990), LIB. Herkimer County Community College '79, A.S.; University of Alaska Fairbanks '92, B.A.

Yee, Gary H. - 1991 - Assistant Director, Purchasing (1993), VCAS.

York, Alison — 1990 — Research Associate (1992), IAB. Smith College '81, A.B.; University of California Berkeley '90, Ph.D.

York, Ronald D. — 1990 — Assistant Manager (1990), ACE. Mississippi Gulf Coast College '83, A.A.

Zarling, John P. — 1976 — Associate Dean, Director of Institute of Northern Engineering (1987), Professor of Mechanical Engineering (1981), SOE, INE. Michigan Technological University '64, B.S.M.E.; '66, M.S.M.E.; '71 Ph.D.E.M., P.E.

Zeiler, Tracy L. — 1991 — Systems Engineer, Alaska SAR Facility (1991), GI. University of Virginia '83, B.S.M.E.; Rensselaer Polytechnic Institute '86, M.S.C.S.; P.E.

Zhanyana, Guo — 1991 — Research Associate (1991), SFOS/IMS.

### Emeriti

Allison, Richard C., Professor of Geology, Emeritus. University of Washington '57, B.S.; '59 M.S.; University of California '67, Ph.D. (1968-1987)

Bedford, Jimmy, Professor of Journalism, Emeritus. University of Missouri '50, A.M.; '51, B.J.; '52, M.A. (1965-1981) Deceased

Behlke, Charles M., Dean, School of Engineering, Professor of Civil Engineering, Emeritus. Washington State University '48 B.S.; '50, M.S. Stanford University '57, Ph.D.; P.E. (1950-1954, 1965-1980)

Beistline, Earl H., Dean, School of Mineral Industry, Professor of Mining, Emeritus. University of Alaska '39, B.Min. Engr.; '47, E.M.; '69, LL.D. (Hon.); P.E. (1946-1982)

Belon, Albert E., Professor of Physics, Emeritus. University of Alaska '52, B.S.; University of California, Los Angeles '54, M.A.; University of Alaska '84, D. Sc. (Hon.) (1956-1983)

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)

Biesiot, Peter G., Professor of Business Administration, Emeritus. University of Washington '42, B.A.; University of Nebraska '51, M.S.; Cornell University '58, M.B.A.; University of Southern California '66, D.B.A. (1980-1990)

Brundage, Arthur L., Professor of Animal Science, Emeritus. Cornell University '50, B.S.; University of Minnesota '52, M.S.; '55, Ph.D. (1968-1985)

Burdick, John L., Professor of Civil Engineering, Emeritus. Rensselaer Polytechnic Institute '47, B.S.C.E.; Massachusetts Institute of Technology '48, S.M.; P.E.; L.S. (1960-1983)

Carlson, Axel R., Professor of Extension, Emeritus. Michigan State University '53, B.S.; Pennsylvania State University '66, M.S. (1965-1980)

Cashen, William R., Professor of Mathematics and Marshal of the University, Emeritus. University of Alaska '37, B.S.; University of Washington '48, M.A. (1942-1974) Deceased

Choy, Terence Tin-Ho Professor of Art, Emeritus. San Francisco State College '65, B.A.; University of California, Berkeley '67, M.A.(1970-1990)

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)

Clutts, Joan B., Professor of Education, Emeritus. Colorado College '51, B.A.; University of Missouri '85, M.Ed.; '69, Ed.D. (1961-1984)

Cook, Donald, Professor of Mineral Beneficiation, Emeritus. University of Alaska '47, B.A.; '52, E.M.; Pennsylvania State University '58, M.S.; '60 Ph.D.; P.E.(1957-1979)

Cutler, Howard A., Chancellor and Regents' Professor of Economics, Emeritus. State University of Iowa '40, B.A.; '41, M.A.; Columbia University '51, Ph.D. (1962-1966, 1975-1983)

Dafoe, Don M., Executive Vice President, Emeritus. Valley City State College '37, B.A.; University of Idaho '48, M.S.; Stanford University '61, Ed.D. (1966-1976)

Darnell, Frank, Professor of Education, Emeritus. Colorado State University '51, B.S.; University of Alaska '62, M.Ed.; Wayne State University '70, Ed.D. (1966-1978)

Davis, Charles W., Professor of Music, Emeritus. State University of Iowa '37, B.A.; '48, M.A. (1963-1979) Deceased

Davis, T. Neil, Professor of Geophysics, Emeritus. University of Alaska '55, B.S.; California Institute of Technology '57, M.S.; University of Alaska '61, Ph.D. (1953-1982)

Deehr, Charles Sterling, Professor of Physics, Emeritus. Reed College '58, B.A.; University of Alaska '61, M.S.; '68, Ph.D. (1958-1988)

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)

Distad, Jack, Professor of Mathematics, Emeritus. Montana State University '53, B.S.; '55, M.S. (1955-1994)

Elsner, Robert, Professor of Marine Science, Emeritus. New York University '50, B.A.; University of Washington '55, M.S.; '59, Ph.D. (1973-1988)

Ensign Jr., Walter G., Professor of Theatre and Drama, Emeritus. University of Denver '66, B.A.; '67, M.A. (1969-1993)

Epps, Alan C., Professor of Natural Resources, Emeritus. Montana State University '66, B.S.; '69, M.S. (1969-1988)

Feder, Howard M., Professor of Marine Biology, Emeritus. University of California, Los Angeles '48, A.B.; '51, M.A.; Stanford University '56, Ph.D. (1970-1990)

Fink, Milton A., Professor of Accounting, Emeritus. University of Nebraska '58, B.S.; University of Denver '66, M.S.B.A.; Colorado '66, C.P.A., Alaska '69, C.P.A. (1968-1988)

Fohn-Hansen, Lydia, Associate Director of Cooperative Extension, Emeritus, Iowa State College '19, B.S.; '22, M.S.; University of Alaska '59, D.Hum. (1925-1936, 1940-1959) Deceased

Forbes, Robert B., Professor of Geology, Emeritus. University of Washington '50, B.S.; '59, Ph.D. (1959-1977)

Gilmore, John C., Professor of Physical Education, Emeritus. Stanford University '54, B.A.; '58, M.A.; '67. Ed.D. (1968-1984)

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)

Haneman Jr., Vincent S., Dean of the School of Engineering, Emeritus and Professor of Mechanical Engineering, Emeritus. Massachusetts Institute of Technology '47, B.S.; University of Michigan '50 M.S.E. (AE); '56 Ph.D. (AE). (1980-1991)

Harbo, Samuel J., Professor of Wildlife Management and Biometrics, Emeritus. University of Nebraska '51, B.S.; University of Alaska '58, M.S.; North Carolina State University, Raleigh '72, Ph.D. (1964-1986)

Hawkins, Daniel B., Professor of Geology and Chemistry, Emeritus. Montana State College '56, B.S.; '57, M.S.; Pennsylvania State University '61, Ph.D. (1967-1990)

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)

Hopkins, David M., Distinguished Professor of Quaternary Science, Emeritus. University of New Hampshire '42, B.S.; Harvard University '48, M.S.; '55, Ph.D. (1985-1994)

Hoskins, Leo Claron, Professor of Chemistry, Emeritus. Utah State University '62, B.S.; Massachusetts Institute of Technology '65, Ph.D. (1965-1994)

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

Jayaweera, Kolf O., Professor of Physics, Emeritus. University of Ceylon '60, B.Sc.; University of London '65, Ph.D. (1970-1991)

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

Klebesadel, Leslie J., Professor of Agronomy, Emeritus. University of Wisconsin '55, B.S.; '56, M.S.; '58, Ph.D. (1957-1988)

Koo, John H., Professor of Linguistics, Japanese and Korean, Emeritus. Tongkook University (Korea) '56, B.A.; '58, M.A.; University of Texas '65, M.A.; Indiana University '70, Ph.D. (1969-1994)

Lando, Barbara M., Professor of Mathematics and Computer Science, Emeritus. Georgian Court College '62, B.A.; Rutgers University '64, M.S.; '69, Ph.D. (1969-1990)

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)

McCarthy, Paul H., Professor of Library Science, Emeritus, and Director of Libraries, Emeritus. St. John Fisher College '62, B.A.; Syracuse University '64, M.L.S. (1964-1993)

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) Deceased

Miller, John M., Senior Applications Engineer, Emeritus. University of Alaska '60, B.S.; '68, M.S., P.E. (1958-1993)

Miller, Orlando W., Professor of History, Emeritus. Muhlenberg College '47, B.A.; Columbia University '48, M.A.; '66, Ph.D. (1957-1978) Deceased

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) Deceased

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)

Murray, David F., Professor of Botany and Curator, Emeritus. Middlebury College '59, A.B.; University of Alaska '61, M.S.; University of Colorado '66, Ph.D. (1969-1994)

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)

Oien, M. Burton, Professor of Accounting, Emeritus. University of North Dakota '65, B.S.B.A.; '66, M.S.; University of Oklahoma '76, Ph.D. (1980-1993)

O'Rourke, Patrick J., Chancellor, Emeritus, St. John's University '64, B.A.; Indiana State University '68, M.S.; University of Connecticut '77, Ph.D. (1970-1991)

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, Raghavalyengar, Professor of Physics, Emeritus. Annamalai University '50, B.S.; '52, M.S. (1958-1980)

Phillips, William G., Professor of Business and Finance, Emeritus. Waynesburg College '52, B.S.; American Graduate School of International Management '58, B.F.T.; University of Nebraska '67, M.A.; '70, Ph.D. (1975-1991)

Rae, Kenneth M., Vice President for Research and Professor of Marine Science, Emeritus. University College, London '35, B.Sc.; '58, Ph.D. (1961-1976) Deceased

Rao, Pemmasani Dharma, Professor of Coal Technology, Emeritus. Andhra University '52, B.Sc.; '54, M.Sc.; Pennsylvania State University '59, M.S.; '61, Ph.D. (1966-1994)

Ray, Charles K., Professor of Education, Emeritus. University of Colorado '51, B.A.; Columbia University '55, M.A.; '59, Ed.D. (1957-1992)

Rees, Manfred H., Professor of Geophysics, Emeritus. West Virginia University '48, B.S.E.E.; University of Colorado '56, M.S.; '58, Ph.D. (1958-1993)

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)

Roederer, Juan G., Professor of Physics, Emeritus. University of Buenos Aires '52, Ph.D. (1977-1993)

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)

Sandberg, Harlem D., Associate Professor of Extension Education, Emeritus. University of Minnesota '55, B.S.; Michigan State University '64, M.A.; '75, Ed.S. (1965-1984)

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 Handvaerks og Kunstindustriskole, Oslo, Norway '61, Diploma. (1961-1987)

Sharma, Ghanshyam D., Director of the Petroleum Development Laboratory, Emeritus and Professor of Petroleum Engineering, Emeritus. Benares Hindu University '52, B.S.; Swiss Federal Institute of Technology '58, Diploma of Engineering Geology; University of Michigan '61, Ph.D. (1963-1992)

Shelton, Harris W., Vice Chancellor for Student Affairs, Emeritus. University of South Florida '65, B.A.; '67, M.A.; Florida State University '71, Ph.D.

Sheridan, J.Roger, Professor of Physics, Emeritus. Reed College '55, B.A.; University of Washington '64, Ph.D. (1964-1987)

Shinkwin, Anne D, Professor of Anthropology, Emeritus. University of Connecticut '60, B.A.; Goerge Washington University '64, M.A.; University of Wisconsin '75, Ph.D. (1971-1991)

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)

Swift, Daniel W., Professor of Physics, Emeritus. Haverford College '57, B.A.; Massachusetts Institute of Technology '59, M.S. (1963-1994)

Taylor, Roscoe L., Professor of Agronomy, Emeritus. South Dakota State University '48, B.S.; Iowa State University '51, M.S. (1951-1988)

Thomas, Wayne C., Professor of Economics, Emeritus. California State Polytechnic College '65, B.S.; University of Nevada '67, M.S.; Washington State University '71, Ph.D. (1971-1990)

Tiedemann, James B., Professor of Mechanical Engineering, Emeritus. University of Wisconsin '45, B.S.; '49, M.S.; '55, Ph.D.; P.E. (1965-1986)

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)

Tilsworth, Timothy, Professor of Civil Engineering and Environmental Quality Engineering, Emeritus. University of Nebraska '66, B.S.C.E.; '67, M.S.C.E.; University of Kansas '70, Ph.D.; P.E. (1970-1994)

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) Deceased

Van Veldhuizen, Philip, Professor of Mathematics, Emeritus. Central College '52, B.A.; State University of Iowa '60, M.S. (1963-1988)

Weeden, Robert B., Professor of Resource Management, Emeritus. University of Massachusetts '53, B.S.; University of Maine '55, M.S.; University of British Columbia '59, Ph.D. (1967-1990)

Wells, Minnie, Professor of English, Emeritus. University of Missouri '25, B.S.; New York University '38, Ph.D. (1945-1971)

Williamson, Francis S. L., Director of the Institute of Arctic Biology, Emeritus, San Diego State University '50, B.S.; University of California, Berkeley '55, M.A.; Johns Hopkins University '68, D.Sc. (1986-1992)

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)

Wooding, Frank, Professor of Agronomy, Emeritus. University of Illinois '63, B.S.; Kansas State University '66, M.S.; '69, Ph.D. (1970-1993) Deceased

Wright, Gordon B., Professor of Music, Emeritus. College of Wooster '57, B.M.; University of Wisconsin '61, M.A. (1969-1989)

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Student Brenin Humphreys holds qiviut and the attention of a young musk ox at the UAF Large Animal Research Station.

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# University of Alaska Fairbanks

### **UAF BUILDINGS AND FACILITIES - MAIN CAMPUS**

Arctic Health Research Building 2	Early Childhood Lab School	34
Bartlett Hall 12	Eielson Building	38
Brooks Building 31	Elvey Building	
Bunnell Building 36	Faculty Housing	
Butrovich Building 4	Fine Arts Complex	
Chancellor's Residence 15	Fire Station	
Chapman Building 41	Gruening Building	39
College Magnetic and	Harwood Hall	21
Seismological Observatory 8	Health, Safety and Security	
Constitution Hall	Building	24
Copper Lane House 42	Hess Commons	14
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Duckering Building 32	IAB Greenhouse	
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	Lathrop Hail	
Koyukuk Drive	Library, Rasmuson	
	<b>7</b> €	

Lola Tilly Commons	47
McIntosh Hall	
Moore Hall	11
Museum	1
NANA House	20
Natural Sciences Bldg	3
Nerland Hall	49
O'Neill Building	6
Patty Athletic Center	52
Rainey's Cabin	
Recreation Center	
Regents' Great Hall	29
Signers' Hall	
Skarland Hall	
Stevens Hall	50
Stuart Hall	16
Student Apartment Complex	10
Theater, Salisbury Fine Arts	
U.S. Forest Service Building	

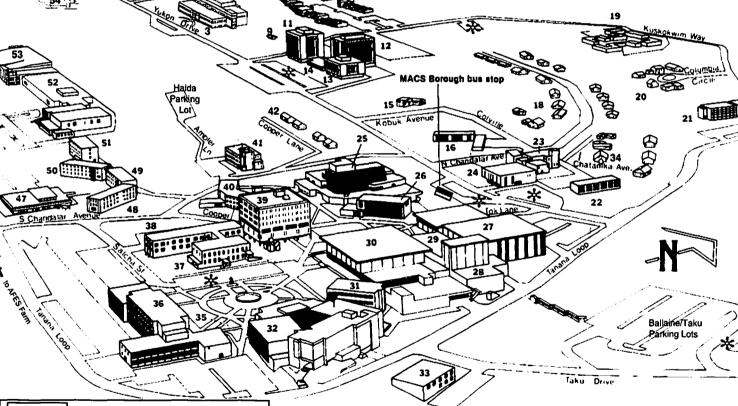
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★ These lots are available to visitors for parking. Visitors who will be on campus for more than one day should stop by the Police Department in the Health, Safety and Security building (24) and pick up a parking permit. Parking for handicapped is available and posted. Parking on campus roads and streets is prohibited unless otherwise posted.

Shuttle bus service during the academic year connects Lower Campus with West Ridge, Hutchison Career Center, the Administrative Services Center, old University Park School and the Downtown Center. Shuttle bus schedules can be obtained at Wood Center.



# University of Alaska Fairbanks Off-campus Fairbanks area sites Cobago Road Cobago Road Cushman Stroot Auport Way Auport Way Autority Cushman Stroot Autority Autority Autority Cushman Stroot Autority Autority Autority Cushman Stroot Autority Autority Autority Cushman Stroot Autority Autority Autority Autority Cushman Stroot Autority Autority

### Emergency phone locations (easily recognizable by the blue light)

Administrative Services Center (3295 College Road)- exterior

Arctic Health Research Building (2)- interior, front vestibule

Butrovich Building (4)- exterior, N side

Halda parking lot- past Chapman building overlooking Patty Center

Health, Safety and Security Building (24)- intercom on exterior

Hess Village Recreation Center (19)

Library, Rasmuson (30)- exterior, at SW corner

Moore-Bartlett-Skarland Complex (11,12,13,14)- exterior and interior at Hess Commons Museum (1)- exterior

Patty Parking Lot (52)- exterior, N of Tanana Loop

Stevens Hall (50)- exterior, at SW corner

Student Apartment Complex (10)- lot entrance

Taku Parking Lot- bottom of stairs

The 24-hour pay phones in Bunnell, Constitution Hall and the Library will immediately access 911 with no coins.

• August, 1994 University Relations, 474-7581

