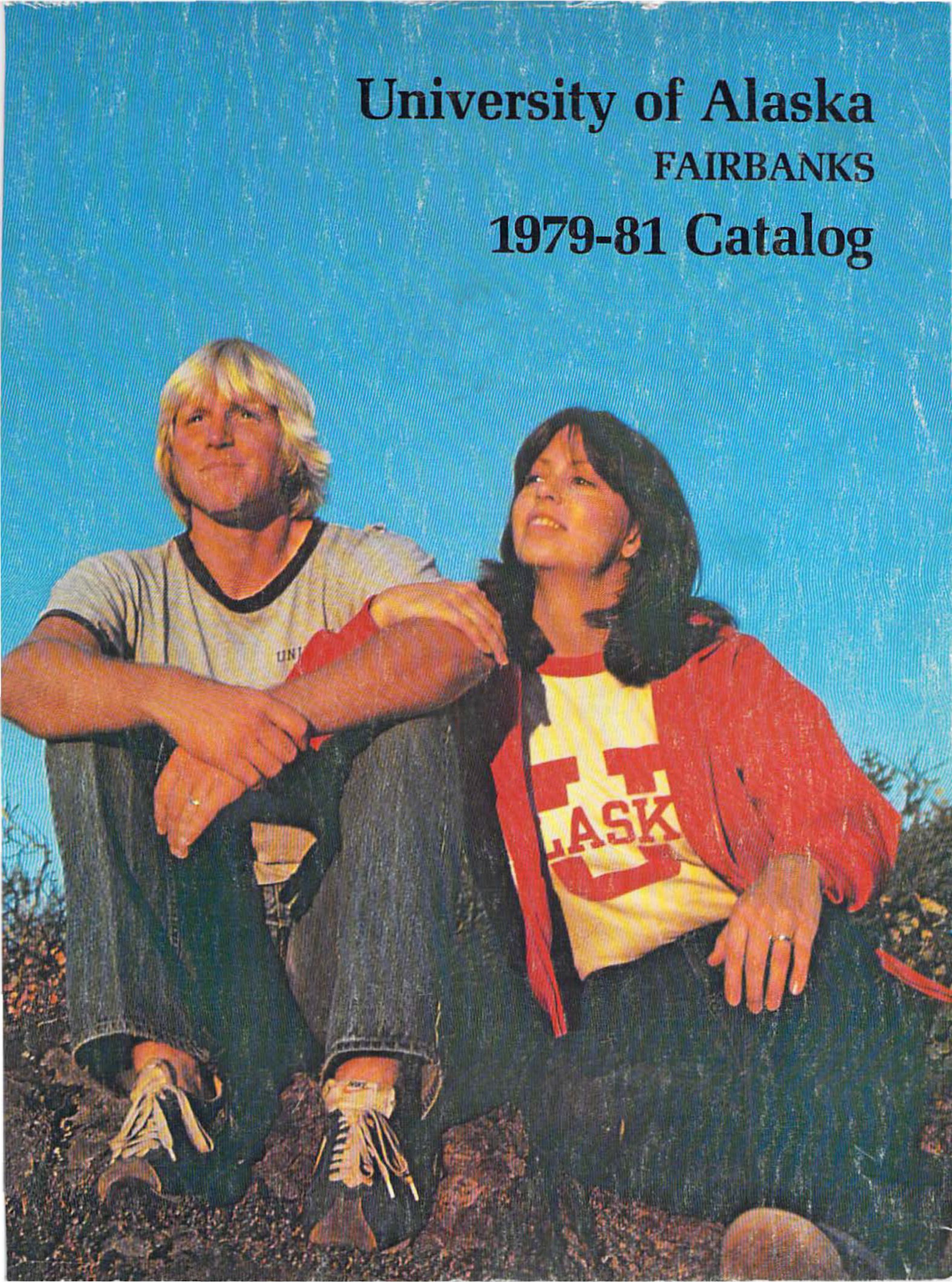
University of Alaska

FAIRBANKS

1979-81 Catalog



University of Alaska

FAIRBANKS



1979-81 Catalog

NOTICE

This catalog and its contents shall not be construed as a contract between the University of Alaska, Fairbanks and prospective and enrolled students. The catalog is merely a vehicle of information. Although every effort is made to insure its correctness, regulations of the University and its program requirements change from time to time during the period any student is attending the University of Alaska, Fairbanks.

Accordingly if regulations or program requirements of the University in any way conflict with information contained in this catalog, the current regulations and program requirements govern. The University reserves the right to initiate changes in any of its regulations or program requirements affecting operation of the University and its program requirements; such changes shall become effective upon whatever time periods are required by applicable statutes, University regulations or program requirements.

Sources of Information

University of Alaska, Fairbanks

Mailing Address	University of Alaska Fairbanks, Alaska 99701
General Information	Chancellor
Public Relations, News Service	Director, Public Affairs
Admissions and Residence Hall Applications	Director of Admissions and Records
Scholarships, Loans, Part-Time Employment	Head, Financial Aid
Extracurricular Activities	Head, Student Activities and Organizations
Student Housing	Head, Student Housing
Graduate Study	Chancellor
Tanana Valley Community College	President, Tanana Valley Community College
Summer Sessions	Coordinator of Summer Sessions
Workshop on Alaska **Evening Classes and Correspondence Study** **Short Courses, Conferences** **Mining Extension Programs** **Native Art Programs**	Dean, Continuing Education and Summer Sessions
Alumni Association	Director, Alumni Relations
Cooperative Extension Service	Director, Cooperative Extension Service
Foreign Students	International Student Advisor

The University of Alaska, Fairbanks, is a major unit of the University of Alaska statewide system of higher education. Under the direction of the Board of Regents, the University of Alaska serves the people of America's largest state through urban centers at Fairbanks, Anchorage, and Juneau, and community colleges at Anchorage, Bethel, Fairbanks, Juneau, Kenai-Soldotna, Ketchikan, Kodiak, Kotzebue, Nome, Palmer, Sitka, and Valdez. Information about the programs of each unit in the system may be obtained from that unit.

It is the policy of the University of Alaska to provide equal educational and employment opportunities and to provide services and benefits to all students and employees without regard to race, color, religion, national origin, sex, age, physical handicap, or veteran status. The University of Alaska does not discriminate on the basis of handicap in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. The designated coordinator for University compliance with Section 504 of the Rehabilitation Act of 1973 is available from the Chancellor's Office. This policy is in accordance with the laws enforced by the Department of Health, Education and Welfare, and the Department of Labor, including Presidential Executive Order 11246, as amended; Title VI and VII of the 1964 Civil Rights Act; Title IX of the Education Amendment of 1972; Title 41, parts 60-1, 60-2, 60-3, and 60-50; Sections 799A and 845 of the Public Health Service Act, where applicable; Sections 503 and 504 of the Rehabilitation Act; Veteran's Readjustment Assistance Act of 1974; and Alaska Statute 18.80.220. Inquiries regarding application of these and other regulations should be directed to either the Statewide Equal Employment/Affirmative Action Officer of the University of Alaska or to the Office of Civil Rights, Department of Health, Education, and Welfare, Washington, D.C.



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1979-80 Academic Calendar

University of Alaska, Fairbanks

1979 Fall Semester

Registration materials and advisors available to students, ACT and Placement testing	Tues., Sept. 4
New Student Convocation	Tues., Sept. 4
Registration	Wed., Sept. 5
First day of instruction	Thurs., Sept. 6
Last day of late registration	Wed., Sept. 12
Fifth and sixth week progress reports	Oct. 8-19
Last day for student-initiated withdrawals	Thurs., Oct. 25
Last day to apply for fall semester graduation	Thurs., Nov. 15
Thanksgiving holiday	Thurs. and Fri., Nov. 22 and 23
Study day (no classes)	Fri., Dec. 14
Last day of instruction/examinations	Wed., Dec. 19
Grades on file with Director of Admissions and Records	Wed., Dec. 26

1980 Spring Semester

Registration materials and advisors available to students, ACT and Placement testing	Tues., Wed., Thurs., Jan. 15, 16, 17
New Student Convocation	Wed., Jan. 16
Registration	Fri., Jan. 18
First day of instruction	Mon., Jan. 21
Last day of late registration	Mon., Jan. 28
Last day to apply for spring semester graduation	Fri., Feb. 15
Fifth and sixth week progress reports	Feb. 18-29
Last day for student-initiated withdrawals	Mon., Mar. 10
Spring recess	Mar. 31-Apr. 4
All Campus Day	Fri., Apr. 25
Last day of instruction/examinations	Thurs., May 8
Commencement	Sun., May 11
Grades on file with Director of Admissions and Records	Thurs., May 15

1980-81 Academic Calendar

University of Alaska, Fairbanks

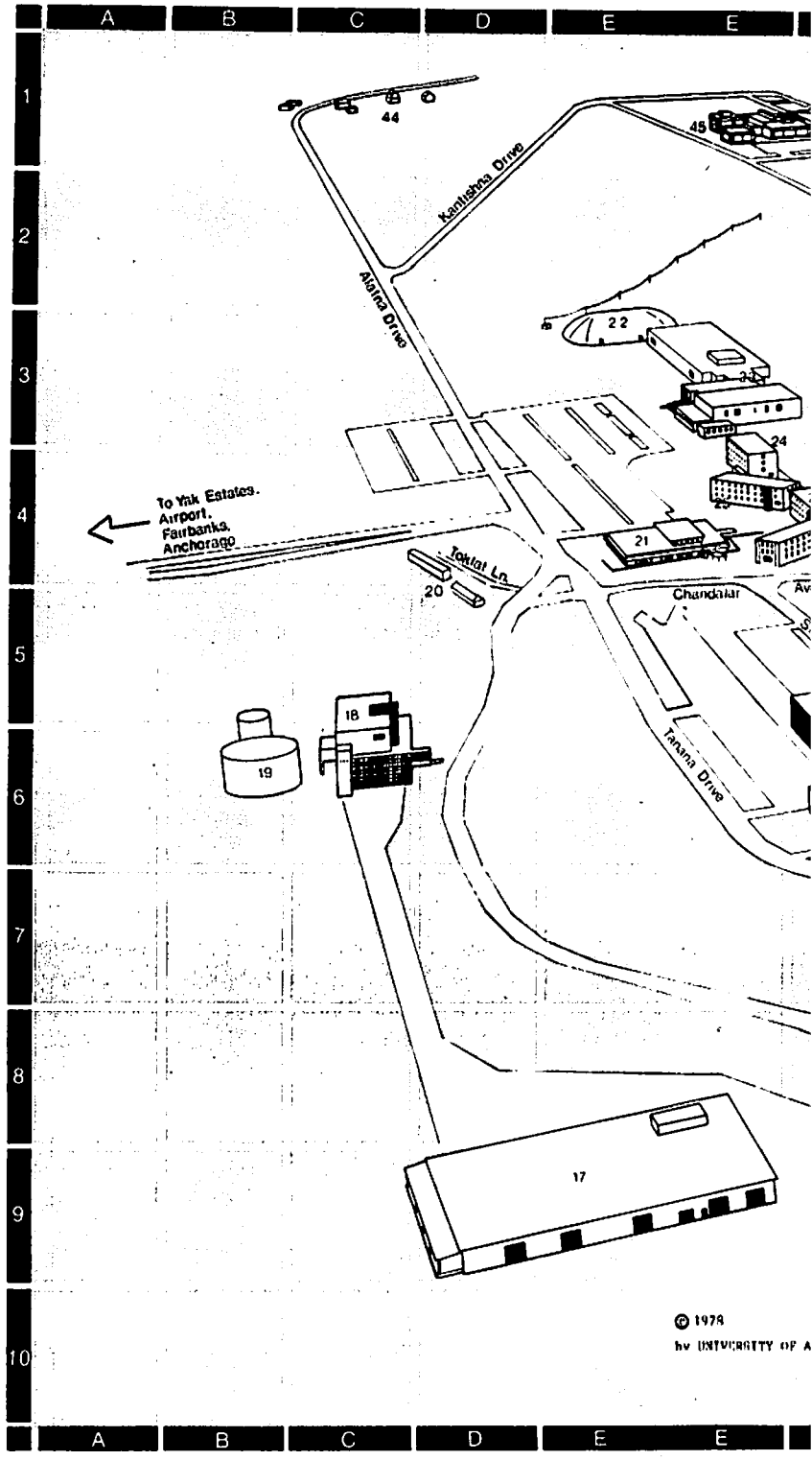
1980 Fall Semester

Registration materials and advisors available to students, ACT and Placement testing	Tues., Sept. 2
New Student Convocation	Tues., Sept. 2
Registration	Wed., Sept. 3
First day of instruction	Thurs., Sept.4
Last day of late registration	Wed., Sept. 10
Fifth and sixth week progress reports	Oct. 6-17
Last day for student-initiated withdrawals	Thurs., Oct. 23
Last day to apply for fall semester graduation	Fri., Nov. 14
Thanksgiving holiday	Thurs. and Fri., Nov. 27 and 28
Study day (no classes)	Fri., Dec. 12
Last day of instruction/examinations	Wed., Dec. 17
Grades on file with Director of Admissions and Records	Tues., Dec. 23

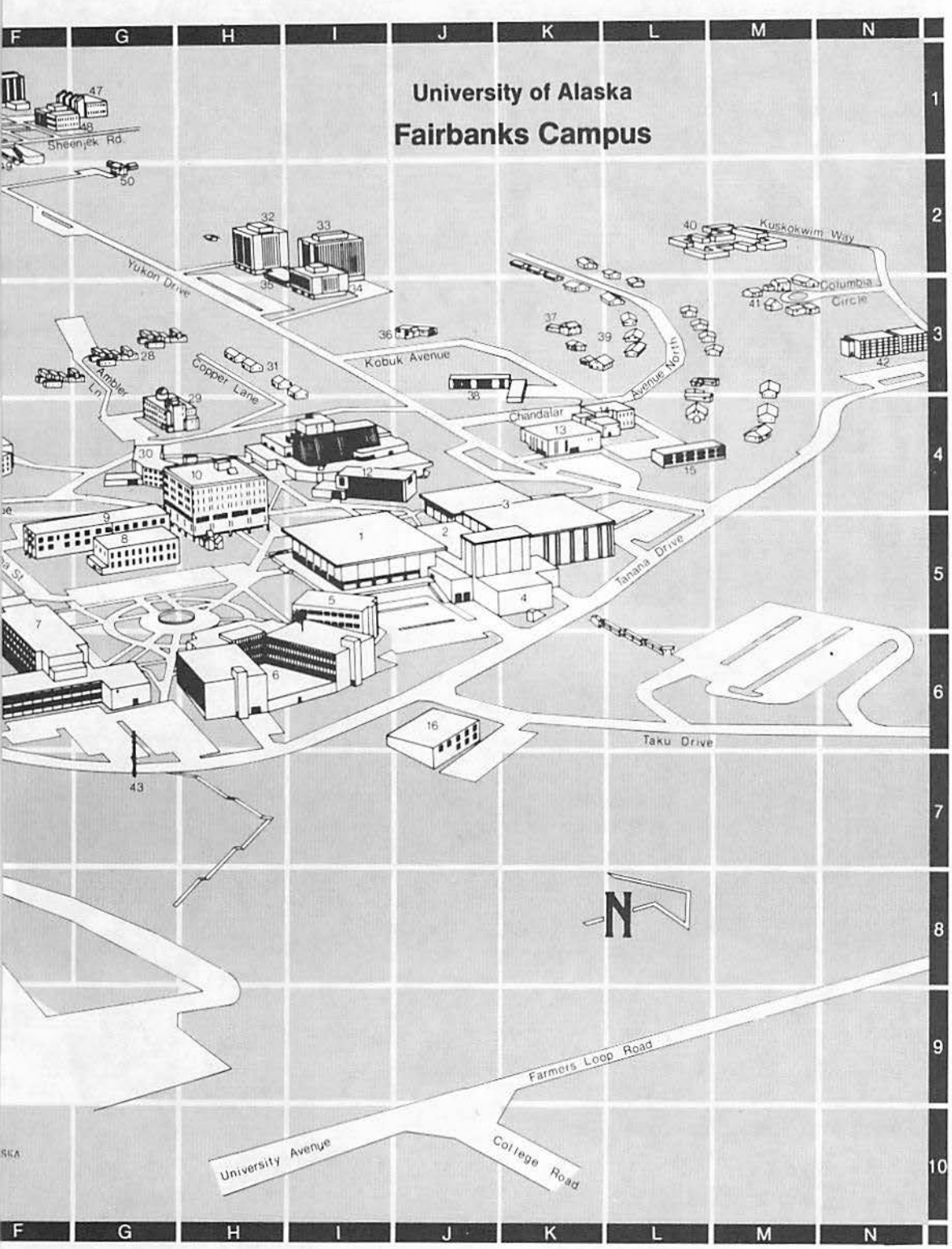
1981 Spring Semester

Registration materials and advisors available to students, ACT and Placement testing	Tues., Wed., Thurs., Jan. 13, 14, 15
New Student Convocation	Wed., Jan. 14
Registration	Fri., Jan. 16
First day of instruction	Mon., Jan. 19
Last day of late registration	Mon., Jan. 26
Last day to apply for spring semester graduation	Mon., Feb. 16
Fifth and sixth week progress reports	Feb. 12-23
Last day for student-initiated withdrawals	Mon., Mar. 9
Spring recess	Mar. 30-Apr. 3
All Campus Day	Fri., Apr. 24
Last day of instruction/examinations	Thurs., May 7
Commencement	Sun., May 10
Grades on file with Director of Admissions and Records	Thurs., May 14

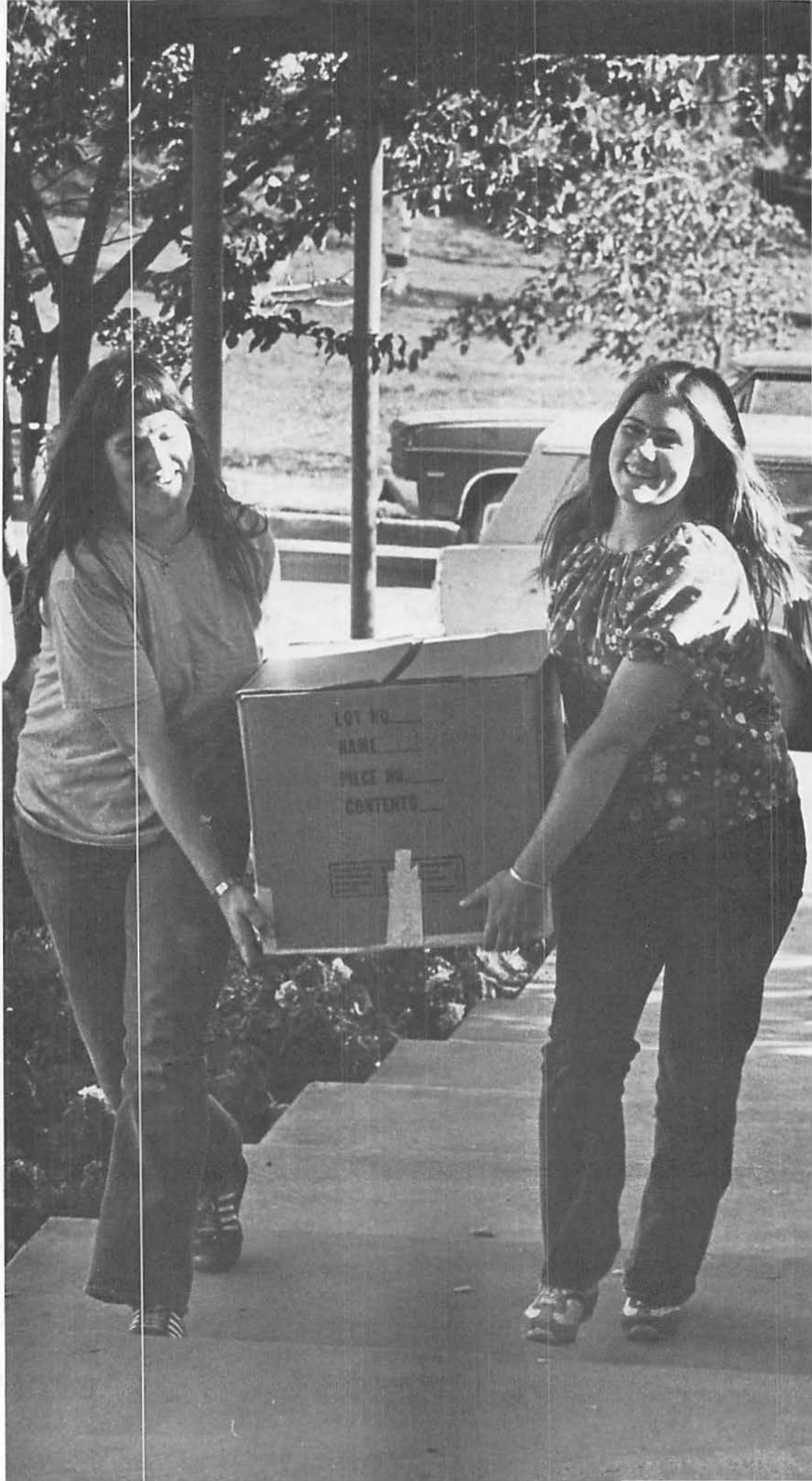
1 **Elmer E. Rasmuson Library** (I5)
2 **Regents Great Hall** (J5)
3 **Fine Arts Complex** (K5) – College of Arts and Sciences, KUAC radio and television
4 **Fine Arts Theater** (J5)
5 **Brooks Building** (I5) – classrooms, laboratories, School of Mineral Industry
6 **Duckering Building** (H6) – classrooms, laboratories, School of Engineering, State Minerals Laboratory
7 **Bunnell Building** (F6) – classrooms, laboratories, statewide administrative offices, Admissions and Records, Personnel Services, Institutional Studies, Facilities Planning and Construction, Business Office, Computer Center, News Service, Schaible Hall, Graphic Services, Alumni Office
8 **University Museum** (G5) – Northern Native peoples, natural and Alaska history, research collections, exhibits; open to the public
9 **Eielson Building** (G5) – classrooms, laboratories, Cooperative Extension Service, School of Summer Sessions and Continuing Education, Media Services, Musk Ox Project
10 **Gruening Building** (H4) – classrooms, offices, laboratories; University of Alaska at Fairbanks Chancellor's Office, Center for Northern Educational Research, Institute of Social and Economic Research, Student Affairs Office (Dean of Students, Career Planning and Placement, Financial Aid, International Student Advisor, Native Studies, Residence Education and Programs, Student Orientation Services, Upward Bound), Purchasing Office, Accounting Services, School of Management, School of Education
11 **Wood Center** (I4) – student government (ASUA) and student activities offices, games, lounges, meeting facilities, food service, pub
12 **Constitution Hall** (I4) – Bookstore, Post Office, Barbershop, KMPS (campus radio), Tanana Valley Community College, Credit Union, United Campus Ministry
13 **Health, Safety, and Security Building** (K4)
14 **Fire Station** (K4)
15 **Walsh Hall** (L4) – married student apartments
16 **U.S. Forest Service** (J6)
17 **Services Building** (D9) – maintenance facilities, Alaska Division of Geological and Geophysical Survey
18 **Atkinson Building** (C5) – central heating and power plant
19 **Water tank** (B5)
20 **Rural Laboratory School** (C4)
21 **University Commons** (E4) – dining facilities for residence hall occupants
22 **Beluga** ("white whale") (E2) – air-supported dome for ice hockey, skating, tennis
23 **Patty Gymnasium** (E3) – Department of Physical Education offices and facilities, including gymnasium, swimming pool, and rifle range; hockey rink; Reserve Officers Training Corps (ROTC)
24 **Lathrop Hall** (F3) – residence hall
25 **Stevens Hall** (F4) – residence hall
26 **Nerland Hall** (F4) – residence hall
27 **McIntosh Hall** (F4) – residence hall



28 **Modular Units** (G3) – graduate student housing
29 **Chapman Building** (H4) – herbarium, classrooms, offices
30 **Wickersham Hall** (G4) – residence hall
31 **Faculty housing** (H3)
32 **Moore Hall** (H2) – residence hall
33 **Bartlett Hall** (I2) – residence hall
34 **Skarland Hall** (I3) – residence hall
35 **Hess Dining Commons** (H2)
36 **President's residence** (J3)
37 **Chancellor's residence** (K3)
38 **Faculty housing** (J3)



39 Faculty housing (K3)
40 New Married Student Housing (L2)
41 Faculty housing (M3)
42 Harwood Hall (M3) – married student housing
43 Totem pole (G7)
44 Agricultural Experiment Station (C1)
45 Arctic Environmental Research Laboratory (E1)
46 Elvey Building (F1) – Geophysical Institute, School of Environmental Sciences
47 O'Neill Building (G1) – Agricultural Experiment Station, School of Agriculture and Land Resources, Forest Soils Laboratory, Mineral Industry Research Laboratory, U.S. Geological Survey, U.S. Bureau of Mines, Alaska Division of Geological and Geophysical Survey, Institute of Marine Science
48 Irving Building (G1) – classrooms, laboratories, College of Environmental Sciences, Institute of Arctic Biology, Alaska Cooperative Wildlife Research Unit
49 New Museum (F1) – (to open 1980)
50 College Magnetic and Seismological Observatory (G1)


LOT NO.
NAME
PIECE NO.
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General Information

History

The University dates from May 4, 1915, when the Hon. James Wickersham, delegate to Congress from Alaska, laid the cornerstone on land set aside by Congress on March 4 for the support of a land-grant college. The Territorial Legislature, by its acts of May 3, 1917, accepted the land grant and created a corporation, "The Alaska Agricultural College and School of Mines," defining its duties and providing for a Board of Trustees consisting of eight members.

The College opened for instruction on September 18, 1922, with a faculty and student body each numbering six and the Hon. Charles E. Bunnell as President. Growing to an enrollment of 150 and a faculty of 18, the College became the University of Alaska by act of the Territorial Legislature on July 1, 1935; the Board of Trustees became the Board of Regents. During World War II, academic activities continued on a reduced scale, with the U.S. Army utilizing a large portion of the campus for housing and other activities.

Following World War II, enrollment expanded rapidly, a pattern that has generally continued to the present day. The University offered its first summer session in 1947. The creation by the Board of Regents of the Tanana Valley Community College, in 1974, with emphasis on vocational-technical and community service offerings, added a new dimension to life at the Fairbanks campus. The construction of the Trans-Alaska pipeline resulted in somewhat decreased enrollments, but, since pipeline completion, increasing numbers of students have enrolled for academic work at the Fairbanks campus.

Today, the university's statewide system includes major urban centers at Fairbanks, Anchorage and Juneau, and community colleges at Anchorage, Bethel, Fairbanks, Juneau, Kenai-Soldotna, Ketchikan, Kodiak, Kotzebue, Nome, Palmer, Sitka and Valdez.

University of Alaska, Fairbanks

The Fairbanks campus was the first unit in the university system. Facilities have expanded greatly since instruction began in 1922 with a faculty of six and an equal number of students. The most rapid growth has taken place in the years that have followed World War II. Annual enrollment climbed to some 3,000 by the early 1970s, and was further increased with the establishment in 1974 of the Tanana Valley Community College. Academic programs have increased in number and scope to keep pace with the growth in enrollment. The popular summer sessions were permanently established by the early 1950s.

The Fairbanks campus remains the university's only residential campus, and is the administrative seat of the statewide university system. On the 2,250-acre campus are two lakes, 35 miles of ski trails, and an arboretum. Recreational opportunities include an active intramural sports program, an eight-lane bowling alley, a pub, and a wide variety of student clubs and organizations. The University fields intercollegiate athletic teams in men's and women's basketball, men's and women's cross-country skiing, and co-ed riflery.

The concert hall and theater are among the finest in the Pacific Northwest; the Rasmuson Library, in addition to its regular holdings, specializes in collections related to Alaska and the Arctic regions, and also serves as a depository for U.S. Government and State of Alaska publications. The University Museum, to be moved to new, expanded facilities in 1980, boasts a large collection of cataloged specimens of natural and cultural history materials from Alaska and the North.

Academically, the University of Alaska, Fairbanks, is organized into two colleges – Arts and Sciences and Environmental Sciences, five professional schools – Agricultural and Land Resources Management, Education, Engineering, Management and Mineral Industry, and the School of Summer Sessions and Continuing Education. Extension centers offer educational opportunities throughout the vast area of the state north of the Alaska Range.

The Fairbanks campus is also the university's principal research center. The Geophysical Institute, first of the university's noted research institutes, opened in 1949; in more recent years it has been joined by the Institute of Agricultural Sciences, the Institute of Arctic Biology, the Institute of Marine Science, the Center for Northern Educational Research, the Institute of Social and Economic Research, the Institute of Water Resources and other research organizations. A number of state and federal agencies also maintain offices and laboratories on the Fairbanks campus. Many faculty members hold joint appointments with institutes and academic colleges, and, in cooperation with research institutes, most colleges and schools offer advanced programs of study.

Accreditation

The university is accredited as an institution of higher learning by the Northwest Association of Secondary and Higher Schools; belongs to the Association of State Universities and Land-Grant Colleges, and the National Commission of Accrediting; and has institutional membership in the American Council of Education, the American Association of Colleges for Teacher Education, and the Western Interstate Commission for Higher Education.

The four-year curricula in mining engineering, geological engineering, civil engineering, and electrical engineering are accredited by the Engineers' Council for Professional Development. The council represents the principal engineering societies and examining boards of the United States and Canada.

The Music Department of the University of Alaska, Fairbanks, is an associate member of the National Association of Schools of Music, the national accrediting organization.

The Chemistry Department's four-year curricula is accredited by the American Chemical Society.

The School of Education's teacher programs are approved by the State Board of Educators and lead to certification.

The University of Alaska Museum is accredited by the American Association of Museums. In conjunction with surveys by national professional societies, and/or the National Association of Systematic Collections, the herbarium has achieved the status of "National Resource Collection;" the bird collection is ranked, nationally, in "Category I" (largest of three size categories); and the mammal collection is recognized as one of 32 mammal collections in the United States meeting the requirements for a national repository.

The university is approved by the Federal Office of Vocational Education for teacher-training in vocational home economics. It also is on the approved list of colleges and universities of the American Association of University Women.

Transportation to the University

The City of Fairbanks is served by air, rail, and highway. Major airlines providing flights to Fairbanks are Alaska and Wien. The Alaska Railroad provides passenger and freight service between Fairbanks and Anchorage and other points south. The city may be reached by bus or private automobile from Anchorage and southcentral Alaska, and it is the northern terminus of the Alaska Highway, which provides a direct overland link with the 48 contiguous states.

Fairbanks may also be reached by a sea-land route. Vessels of the State Marine Highway System carry passengers and automobiles from Seattle, Wash., and Vancouver and Prince Rupert, B.C., to Haines, at the north of Alaska's "panhandle," which is linked to Fairbanks by highway.

The University of Alaska's Fairbanks campus is some four miles west-northwest of the Fairbanks central business district. A bus line offers service between the campus, downtown, and surrounding areas.

Student Rights Under Title IX

Title IX of the Education Amendments of 1972 was enacted to ensure that complete equality of education is afforded to all students, both male and female. This means that in every program, policy, and practice at the University of Alaska, Fairbanks, there will be no discrimination on the basis of sex. Included in the areas covered by this law are: admissions, financial aid, counseling, health services, student activities and programs, and access to all course offerings, to name a few.

The Fairbanks campus Title IX coordinator is located in room 106 of the Bunnell Building. All concerns and/or allegations that relate to Title IX to be directed to the Fairbanks campus Title IX coordinator.

Enrollment History and Summary

Fall Enrollment — Fairbanks Campus

1922	15	1942	157	1962	1,159
1927	83	1947	323	1967	1,773
1932	121	1952	296	1972	3,158
1937	220	1957	590	1977	2,949

Enrollment Summary, 1978-79 First Semester

	Men	*Women*	*Total*
Freshmen	501	471	972
Sophomores	202	175	377
Juniors	204	144	348
Seniors	214	120	334
Graduate Students	200	105	305
Without Class Standing	417	515	932
Totals	1,738	1,530	3,268

Enrollment Distribution, 1978-79 First Semester

Student's Permanent Residence	*Men*	*Women*	*Total*
Alaska	1,294	1,328	2,622
Other States and U.S. Territories and Possessions	407	192	599
Foreign Countries	37	10	47
Totals	1,738	1,530	3,268



Courses and Programs

Area of Study	Courses Available	Associate Degree	Bachelor's Degree	Graduate Degree
Accounting	•	•	•	
Agriculture and Land Resources	•		(See Natural Resources Mgt.)	
Air Traffic Control	(See Aviation Tech.)	•		
Airframe and Powerplant		•		
Alaska Native Languages	•			
Anthropology	•		•	•
Applied Physics	(See Physics)		•	
Applied Statistics	•			
Art	•		•	
Aviation Technology	•			
Biology	•		•	•
Broadcasting	•			
Business Administration	•	•	•	•
Business Education			•	
Chemical Science	(See Chem.)	•		
Chemistry	•		•	•
Civil Engineering	•		•	•
Computer Information Systems	(See B.A.)	•		
Computer Science	•			
Counseling	•	(See Paraprofessional Counseling)		
Early Childhood Development	•	•		
Earth Science			•	
Economics	•		•	
Education	•		•	•
Electrical Engineering	•		•	•
Electronics Technology	•	•		
Engineering and Science Management	•			•
English	•		•	•
Environmental Quality Engineering and Environmental Quality Science	•			•
Eskimo	•		•	
Family Living Management	(See Living Skills)	•		
Fire Science Technology	•	•		
Fisheries Biology	(See Wildlife and Fisheries)		•	•
Food Service Technology	•	•		
Foreign Languages	•		•	
French	•			
General Science			•	•
Geography	•		•	
Geography and Regional Development			•	
Geological Engineering	(See Mineral Engr.)		•	
Geology/Geophysics	(See Geosciences)		•	•
Geosciences	•			
German	•			
History	•		•	
Humanities	•		•	

Area of Study	Courses Available	Associate Degree	Bachelor's Degree	Graduate Degree
Japanese	•			
Journalism	•		•	
Justice	•	•	•	
Liberal Arts		•		
Living Skills	•			
Library Science	•	•		
Linguistics	•		•	
Marine Sciences	(See Oceanography)			
Mathematics	•		•	•
Mechanical Engineering	•		•	
*Medical Technology				
Medical Science	•			
Metallurgy	(See Mineral Engr.)			
Military Science	•			
Mineral and Petroleum Technology	•	•		
Mineral Preparation Engineering	(See Mineral Engr.)			•
Mining Engineering	•		•	•
Music	•		•	•
Natural Resources Management	(See Agric. and Land Res.)		•	•
Northern Studies			•	
Oceanography	•			•
Ocean Engineering	•			•
Office Administration			•	
Office Occupations	•	•		
Paraprofessional Counseling	(See Couns.)	•		
Petroleum	(See Mineral Engr.)			
Philosophy	•		•	
Physical Education	•		•	
Physics	•		•	•
Police Administration	(See Justice)			
Political Science	•		•	
Professional Piloting	(See Aviation Tech.)		•	
Psychology	•		•	
Russian	•			
Russian Studies	(See Russian)		•	
Science		•		
Sociology	•		•	
Space Physics and Atmospheric Sciences	(See Geosciences)			•
Spanish	•			
Speech Communications	•		•	
Theater	•		•	
Wildlife Fisheries	•			
Wildlife Management	(See Wildlife and Fisheries)		•	•
Zoophysiology				• **

The University of Alaska reserves the right to discontinue temporarily or permanently programs and/or courses listed in this catalog.

*Cooperative program.
**Interdisciplinary program.

Admissions

Admission Requirements for Freshmen

High School Graduates — Baccalaureate Programs

To qualify for admission as a freshman in a baccalaureate program a person must have a high school grade point average of 2.00 (C) or higher. An applicant whose high school grades averaged less than C may be considered for probationary admission to the university in a baccalaureate degree program if his/her performance on the ACT test demonstrates that he/she has the capacity to undertake college academic work successfully. The ACT test is administered at testing centers throughout the country in October, December, February, April, and July of each year. Arrangements for taking the ACT test may be made through high school principals or guidance officers or by writing to the American College Testing Program, P.O. Box 168, Iowa City, Iowa 52240.



Non-High School Graduates — Baccalaureate Programs

A mature student, at least 21 years of age, residing in Alaska, who has not graduated from high school or been awarded a high school diploma on the basis of GED or military tests, and who has not completed any previous college level work may be admitted. Such a student will become a baccalaureate degree candidate after completion of not fewer than 30 collegiate semester hours of credit with at least a C average (2.00).

High School Graduates — Community College Programs

Any person who has earned a high school diploma or its equivalent, or who is 18 years of age or older is eligible for admission to the community college. A specific grade point average in previous high school or college work is not required.

Admission Requirements for Transfer Students

Transfer students must have a minimum grade point average of 2.00 (C) in all previous college work in order to be eligible for admission to a baccalaureate program.

A transfer student with fewer than 30 acceptable credits is required to take the test prepared by the American College Testing Program prior to registration. Information concerning ACT testing centers and dates may be obtained from most high schools throughout the nation and from the American College Testing Program, Post Office Box 168, Iowa City, Iowa 52240. (*See also* "Transfer of Credit," page 60.)

After acceptance, a transfer student is responsible for having catalogs of colleges previously attended sent to the Director of Admissions and Records at least two months prior to the expected date of enrollment.

Admission Requirements for Students with Baccalaureate Degrees

Non-Degree Programs — An applicant who holds a bachelor's degree but who has not defined his/her graduate program or declared the subject in which he/she wishes to pursue his/her studies toward a higher degree may be admitted as a student without class standing if space permits. Students in this category include:

1. Those who plan to take "interest courses."
2. Those completing work for a teaching certificate.

High School Entrance Credits

The specific high school credits suggested for entrance as a freshman, without deficiency, into any of the academic colleges or schools of the University of Alaska, Fairbanks, are given in this table:

	High School Credits					
University Academic Colleges or School	**English**	**Mathematics**	*** Foreign Lang.**	**U.S. History**	**Natural or Social Science**	**Academic and Elective**
College of Arts and Sciences	3	Algebra-1 Geom.-1	2	1	2	5
Anthropology	3	2	2	1	4	5
Geography	3	2	0	1	4	5
Psychology and Sociology	3	Algebra-1 Geom/Trig-1	0	1	Physics or Chemistry-1 Biology-1 Psych. or Sociology or Natural Science-½	5
School of Agriculture and Land Resources	3	'Algebra-2 Geom.-1 Trig.-½	°	1	Physics or Chemistry-1 Biology or Elective-1	7
School of Education	3	**2	0	1	2	7
School of Engineering	3	Algebra-2 Geom.-1 Trig.-½	0	1	Physics or Chemistry-1	7½
School of Management						
Business	3	2	°	1	2	7
Economics	3	2	2	1	2	5
School of Mineral Industry	3	Algebra-2	0	1	Physics or Chemistry-1	7½
College of Environmental Sciences	3	'Algebra-2 Geom.-1 Trig.-½	°	1	Physics or Chemistry-1 Biology or Elective-1	7

*Students who offer two units of a high school foreign language will normally enroll in a second year language. See Placement Testing, page 61.

**Plane Geometry required of Education students who intend to select teaching majors and/or minors in mathematics, chemistry, and/or physics.

'One year of algebra and one year of geometry will be acceptable for students in Agriculture and Biological Sciences not wishing to continue with advanced studies – graduate work, medicine, etc.

°Two years of French, German, or Russian language highly recommended. *See* specific degree programs.

3. Those completing a second undergraduate major and/or a second bachelor's degree.
4. Those strengthening their preparation in order to be admitted to graduate study.
5. Transient students expecting to be at the university only briefly.
6. Students awaiting action on applications for graduate status.

Admission to Graduate Study

Graduate study seeks to prepare the student for creative work – for all work that extends the bounds of knowledge, that cherishes and transmits knowledge, and that applies knowledge for the benefit of man. It seeks to give the student deeper insights and better understandings of fundamental principles. The graduate program is shaped to the needs of the individual student and is developed in terms of his/her experience, academic background, and aspirations. Earning an advanced degree entails more than the satisfactory completion of specified courses; that student must show promise and performance in productive scholarship.

Graduate programs of the Fairbanks Campus are supervised by the Office of the Chancellor, which formulates policies to guide and govern graduate studies.

In general, a student may be admitted to graduate status if he/she has a bachelor's degree from an accredited institution with at least a B average in his/her major and if his/her major is deemed suitable for continuation of studies in the field of his/her 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, will be

included in the calculation of the grade point average. Program heads in fields of interest will determine the adequacy of the student's preparation and whether or not departmental facilities are sufficient for the student's aims.

Admission to graduate study does not imply admission to candidacy for a degree. A student must not assume that he/she will be admitted to graduate study merely because he/she has been permitted to take graduate courses. Any program has the option of refusing to recommend a student for candidacy for a degree.

As soon as the student is accepted, a faculty advisory committee will be set up to assist the student in planning and carrying out his/her program. (See Degree Requirements – Graduate, page 65.)

Master's Degrees

As will be seen under program listings, master's degrees are offered in the areas of anthropology, arctic engineering, biology, botany, business administration, chemistry, civil engineering, environmental quality engineering, education, electrical engineering, engineering management, English, fisheries biology, geophysics, mathematics, mechanical engineering, mining engineering, mineral preparation engineering, oceanography, physics, science management, solid earth sciences, solar terrestrial and upper atmospheric sciences, wildlife management, and zoology. Students wishing to enroll for graduate study in any of these fields should obtain an application form from the Office of the Director of Admissions and Records and follow the application procedures for graduate students.

In addition, programs leading to master's degrees may be arranged on request in certain aspects of other areas; for example, cross cultural studies, land resource management, linguistics, etc. Students interested in pursuing studies in one of these or any other discipline not listed should write directly to the Office of Graduate Studies.

Several cross-discipline master's degrees are offered through cooperating departments. For example, the Master of Arts in Teaching is offered with emphasis in the following disciplines: biology, chemistry, elementary education, English, geology, history, mathematics, music, and physics; the Master of Science in general science is offered in mathematics, physics, chemistry, biology, and geology. Students interested in obtaining more information about these degrees and their requirements should also write to the Office of Graduate Studies.

Doctor of Philosophy Degree

No restrictions are placed on the disciplines that may be studied by students seeking doctoral degrees. There are well established programs in certain areas of physics, geophysics and geology, while students are commonly accepted in oceanography, zoophysiology, zoology and wildlife management.

Prospective candidates in these or other subject areas should write to the Office of Graduate Studies, outlining in some detail their previous training and interests for future study. Each application is reviewed by a committee for admissions both in the light of the applicant's qualifications and the faculty and facilities available on the campus relevant to the field of projected study.

External Degree Program

The University of Alaska offers an external degree program at the graduate level leading to the M.S. and Ph.D. degrees. At the present time the program is restricted to advanced study in geophysics, geology, and a few closely related fields that have a high content of geoscience, e.g., geochemistry, certain branches of engineering, and some aspects of environmental science. The external degree program of the University of Alaska is partially supported by the Directorate for Science Education, National Science Foundation, Washington, D.C.

There is no residence requirement for candidates in the external degree program. The primary purpose of the program is to open a new avenue to continuing education in science, beyond the baccalaureate degree, for all who have the ability, have access to the requisite facilities, and who are willing to achieve the high standards of the advanced degrees. Candidates can complete the requirements for an advanced degree while remaining in full-time employment, so long as they have adequate opportunity for research, the necessary facilities and resources, the endorsement of their employer, and the will to persist. Men and women may apply from government organizations, military agencies, research institutes, industrial laboratories, etc.

For further information about the external degree program, including application procedures, typical study programs, scale of fees, etc., interested persons should write to:

The Coordinator of Graduate Studies
Geophysical Institute
Division of Geosciences
University of Alaska,
Fairbanks, Alaska 99701, U.S.A.

WAMI Medical Education Program

Alaska WAMI students are registered concurrently at the University of Alaska and the University of Washington School of Medicine. Admission as a freshman medical student at the University of Washington School of Medicine is a prerequisite. Alaskan students may obtain their premedical training at the University of Alaska or any college/university. During the last year of premedical training, application for admission to the University of Washington School of Medicine is accomplished as follows:

1. Student must take the Medical College Admissions Test.
2. Student must complete the American Medical College Application Service forms indicating the University of Washington School of Medicine/ University of Alaska WAMI Medical Education Program.

For further information about the WAMI Medical Education Program contact:

WAMI Program Office
University of Alaska,
Fairbanks, Alaska 99701, U.S.A.

Admission Requirements for Others

Special Students – A person who is at least 21 years of age may be admitted without filing transcripts of high school or college work completed. Such a student is limited to enrollment in two classes and no more than six credits per semester. A special student is subject to the academic regulations of the university, but is not considered a degree candidate until regular admission requirements are met and transcripts filed.

Auditors – An auditor is a student who enrolls for informational instruction only. He/she does not receive academic credit, does not have laboratory privileges, and

may not submit papers for correction and grading. An auditor must apply for admission, register formally on the designated registration dates, obtain approval of class instructors, and pay the required fees.

Foreign students – In addition to meeting regular admission requirements, a foreign student must be able to speak, read, and write the English language well enough to do college-level work successfully. Therefore, all applicants from countries where English is not the native language must present a satisfactory score on the Test of English as a Foreign Language (TOEFL). No other English language test can be used, nor may any other proof of English competency be substituted, such as English credits from other schools. In addition, when preparing the I-20 form that is necessary to obtain an F-1 (student) visa (a J-visa may be more appropriate for graduate students), the university must certify to the Immigration and Naturalization Service (INS) that the prospective student has been accepted for full-time enrollment and has sufficient funds to meet estimated expenses for one academic year. Therefore, a foreign student must sign a statement that he/she has sufficient funds to pay all of his/her expenses while attending the University of Alaska as well as the amount needed to pay his/her transportation costs from his/her home to Alaska and return. It is vital that the student has enough money to pay for his/her return home in the event of an emergency or at the termination of his/her enrollment. The minimum cost for attending the University of Alaska, Fairbanks, for one school year is $4,000. This amount covers all university fees, board and room, and a reasonable estimate of personal expenses, but does not include transportation costs.

High School Students – Qualified high school students of advanced standing and ability are permitted to enroll in one or two University of Alaska courses while attending high school. To qualify for admission while attending high school, a high school student must present the written recommendation of his/her high school counselor or principal, the written approval of his/her parents, and an official transcript indicating a satisfactory grade average in his/her high school work. High school seniors with grade point averages of 2.5 or higher may register for two college courses for a maximum of 6 credits. High school seniors with grade point averages of 2.0 to 2.5 may register for one college course per semester. Juniors with grade point averages of 2.75 or higher may register for one college course per semester. High school students of less than junior standing are not eligible to enroll in college courses.

For enrollment at the Tanana Valley Community College, a high school student under 18 years of age must present written consent from his/her parents and high school counselor to the appropriate community college official for approval for admission. A high school student of senior standing with an overall grade point average of 2.5 or higher may enroll in 6 credits. High school students of junior standing may enroll in community interest classes; however, college credit will not be offered to students less than 16 years of age.

Applying for Admission

When to Apply

It is recommended that seniors in high school make application for admission during the first semester of their senior year, if they plan to enroll at the university during the next fall semester. Transfer and graduate students should make application at least four months prior to the beginning of the semester in which they plan to enroll at the University of Alaska. Applications for admission should be submitted not later than August 1 for the fall semester and December 1 for the spring semester. Applications received after these dates will be processed if time permits and space is available.

How to Apply – Read Carefully

Application forms may be obtained from the Office of the Director of Admissions and Records. Applications for admission will be considered only when the following credentials have been received by the Office of the Director of Admissions and Records:

1. Application for Admission – A $10 application fee must accompany the completed Application for Admission form.

2. Scholastic Records – An applicant is required to have complete official transcripts of all high school and college credits sent to the University of Alaska in support of his/her application. An official high school transcript or a secondary school record form completed by the high school where the applicant finished his/her high school work should be mailed to the university from the high school. A high school transcript is not required of a graduate applicant or a transfer applicant who has completed more than one full year of college work elsewhere. An official transcript from each college or university attended must be sent to the Director of Admissions and Records. The applicant is responsible for requesting that these transcripts be sent to the university but transcripts will not be accepted unless they are sent to the Director of Admissions and Records directly from the other college or university attended.

3. ACT Test – Results from the tests prepared by the American College Testing Program (ACT) are required for all entering freshmen and those transfer students with fewer than 30 semester hours of transferable credit. Test results must be on file with the Office of the Director of Admissions and Records before final acceptance and approval for registration is granted. It is the responsibility of the student to have the test results sent to this office.

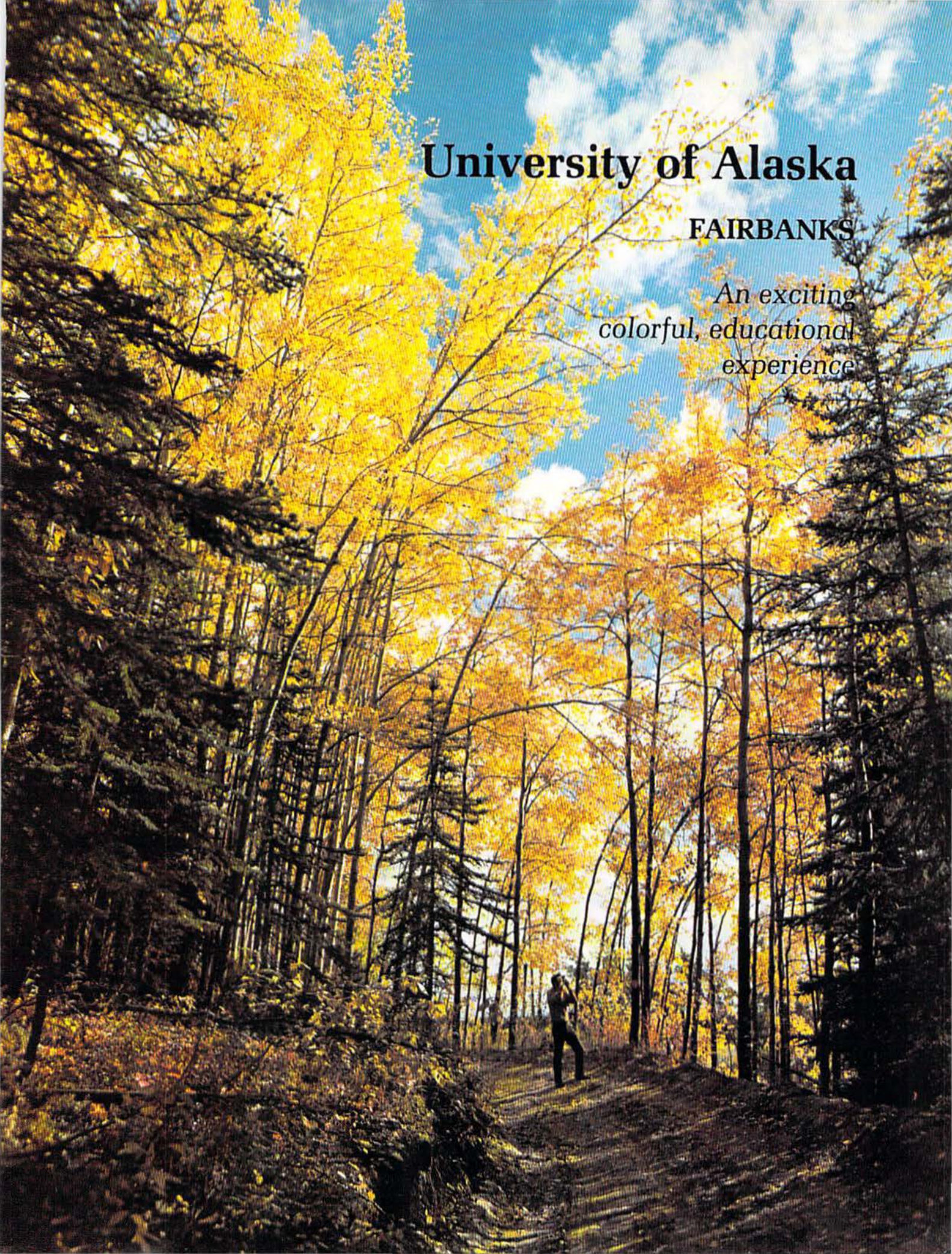
4. Letters of Recommendation (graduate applicants only) – At least three letters of recommendation are required from people capable of describing the applicant's character and his/her ability to undertake graduate study and research. The letters should be forwarded to the Director of Admissions and Records.

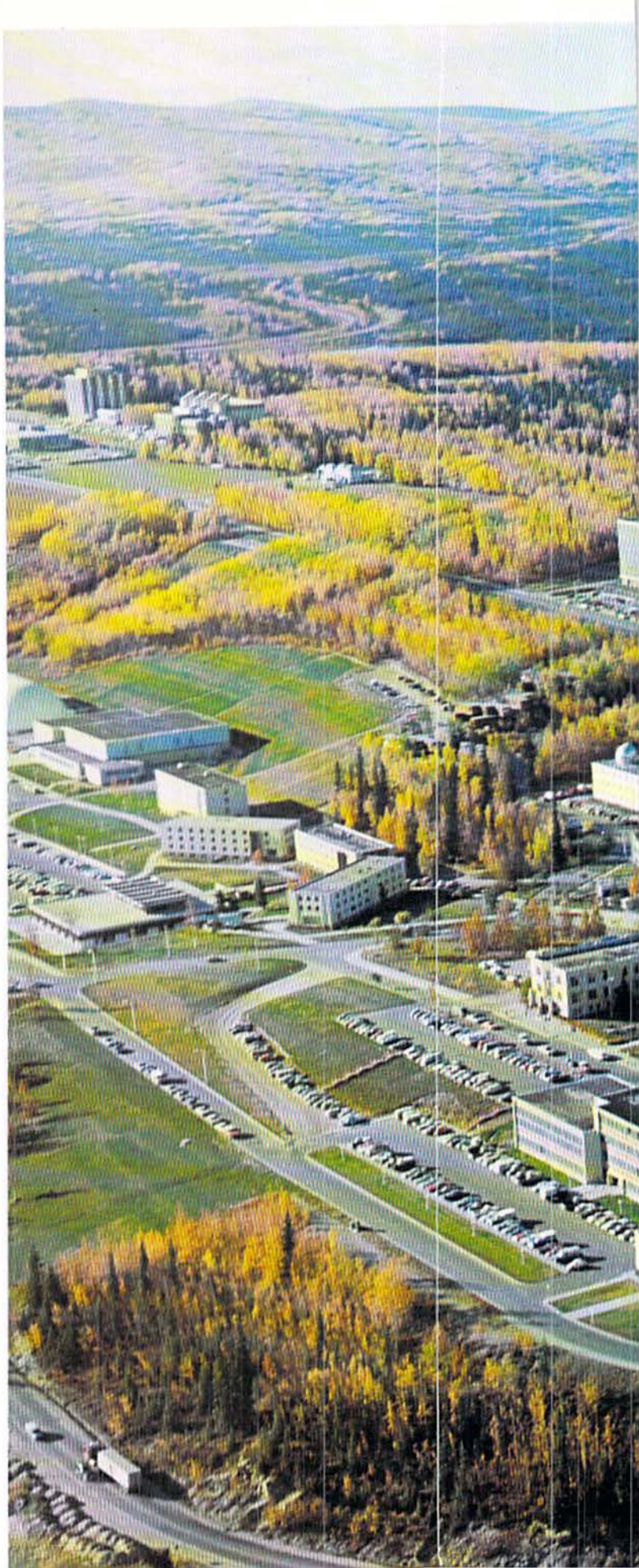
Conditional and Final Acceptance

After the required credentials are received, reviewed and processed, a statement of acceptance will be mailed to the qualified applicant. The statement of acceptance will contain the conditions under which the applicant has been admitted.

A qualified applicant can be accepted for admission while currently enrolled in his/her last semester of high school or at another college. However, the acceptance may be conditional upon receipt of ACT scores, an official transcript indicating satisfactory completion of the work in progress at the time of acceptance and, in the case of a high school senior or graduate applicant, completion of graduation requirements.

Final acceptance to the university for the purpose of earning scholastic credit becomes complete only when all credentials have been received and accepted by the Director of Admissions and Records.


University of Alaska
FAIRBANKS
An exciting
colorful, educational
experience



The 2,250-acre campus is situated about 3 miles from downtown Fairbanks.

Preceding page: September brings brilliant fall colors to the area around the campus.





Canoeing is a popular recreational activity of many students.

A student walks toward one of the resident halls on a late fall day.







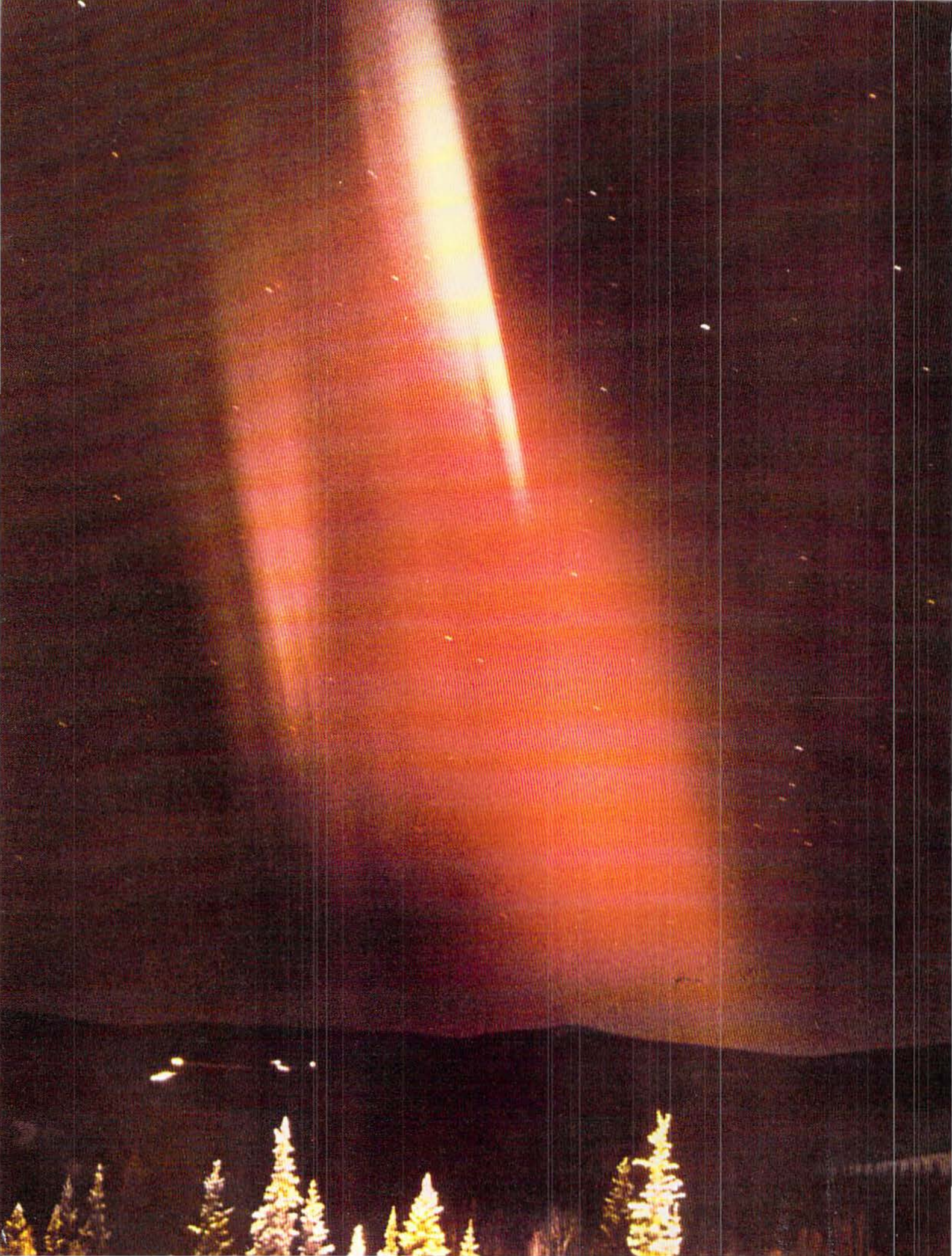
A scene from "The Fantastics," one of many productions sponsored by the Department of Speech and Drama.



The Elmer E. Rasmuson library, background, is housed in the Fine Arts Complex.

Next page: The northern lights are visible on many nights during the school year. The red aurora shown here is less common than the green.

All photographs in this section courtesy of the Fairbanks Daily News-Miner.





Fees

Summary of Semester Charges

Consolidated Fee and Graduate Credit Charge

Students enrolling in 7 credits or less will pay $20 per credit for undergraduate courses and $30 per credit for graduate courses.

Students enrolling in 8 or more credits will pay the consolidated fee of $160 plus an additional $10 for each graduate credit included in the total to a maximum of $240.

Total Credits (Undergraduate and/or Graduate)	Graduate Credits Included in the Total	Consolidated Fee	Graduate Credit Charge	Total Fees
8 or more	0	$160	$ 0	$160
8 or more	1	160	10	170
8 or more	2	160	20	180
8 or more	3	160	30	190
8 or more	4	160	40	200
8 or more	5	160	50	210
8 or more	6	160	60	220
8 or more	7	160	70	230
8 or more	8 or more	160	80	240

NOTE: *Courses which require the use of special materials, supplies, or services may have a material use fee in addition to the normal credit-hour charge.*

Nonresident Tuition

In addition to the consolidated fee and graduate credit charges, students who do not meet residency requirements will pay nonresident tuition according to the following schedule:

Total Credits	Nonresident Tuition
1-6	$ 0
7	50
8	100
9	150
10	200
11	250
12 or more	300

Residence Hall Rents and Meal Tickets

Double room	$280.00
Double room rented as a single	360.00
Single room	315.00
Meal ticket	Approximately 670.00

Married Student Apartments

Apartment rents vary according to size and location from $175.00 (smallest efficiency) to $330.00 (largest 3-bedroom).

Other Fees

Campus Activity Fee	$36.00
Health Center Fee	20.00
Student Health Insurance, approximately	40.00
Application Fee (remit with application)	10.00
Late Registration Fee:	
First instructional day	5.00
Each succeeding instructional day	2.00
Drop/Add Fee (after 3rd day of instruction)	2.00
Credit-by-examination fee	15.00 per exam

All fees are approved by the Board of Regents, University of Alaska. The university reserves the right to change or add to its fees at any time. Fee assessments are subject to audit and correction, and any such adjustments will be made within forty days following the close of late registration. Students will be notified by mail of any adjustments.

Additional Expenses

Extra funds in less predictable amounts will be needed to meet personal and social expenses and the cost of such items as textbooks, meals needed before meal tickets become effective, bus fare, athletic equipment, musical instruments, and specialized classroom supplies which certain students may need.

Residency

Alaskan residents as well as students from Hawaii, the Yukon Territory, and the Northwest Territories are exempt from a nonresident tuition fee. For purposes of nonresident tuition a resident is any person who has been physically present in Alaska for one year (excepting only vacations or other absence for temporary purposes with *intent* to return) and who declares intention to remain in Alaska indefinitely. However, any person who, within one year, has declared himself to be a resident of another state, voted in another state, or done any act inconsistent with Alaska residence shall be deemed a nonresident for purposes of nonresident tuition. An unemancipated person under the age of 18 who has a parent or guardian who qualified as an Alaska resident, as defined above, shall be deemed a resident, and otherwise such unemancipated person under the age of 18 shall be deemed a nonresident for purposes of nonresident tuition.

Campus Activity Fee

Students carrying seven or more semester credit hours or the equivalent, or living in a residence hall, shall be charged a campus activity fee totaling $36.00 per semester. This fee is not refundable.

In the case of married-student couples, each individual must pay the activity fee appropriate to his or her credit-hour load.

Each student will receive an identification card entitling him/her to privileges in the following programs, as noted:

Recreation-Athletics Program – Those paying the $36.00 fee are entitled to the use of the Patty Building recreational facilities, including the pool and adjacent air structure, and are admitted to university-sponsored athletic events on campus. This program is administered by the head of the Department of Health, Physical Education, and Recreation. The campus recreation program and the intramural sports program receive $4.50 of the $36.00 fee. (Part-time students and dependents of full-time students may voluntarily purchase a Recreation-Athletics Activity Card, entitling them to these privileges, for $5.00 a semester.)

Associated Students Program – Those paying the $36.00 fee are entitled to participation in all student-managed social, educational, and governmental activities, including receipt of student paper, movies, student flying program, KMPS (student-run radio station), scheduled social events, student elections, and administration of student government. The $36.00 fee provides $16.50 for this program.

William Ransom Wood Campus Center – All students carrying seven or more semester credit hours or the equivalent shall be charged a fee of $15.00 a semester to be applied toward the repayment of the construction loan for the building. This amount is included in the $36.00 fee.

Room and Board

Contracts for room and board are for one semester. An application for housing becomes a binding contract on August 1 for fall semester and on December 15 for spring semester. Contracts for fall semester are automatically renewed for spring semester on December 15 unless the Housing Office receives a notice of intent to vacate. Room rental covers all lounge, recreation room, storage, laundry room, and telephone privileges. Toll calls may not be made from floor phones in residence halls, nor should incoming toll calls be accepted.



Room Deposit – The completed application for housing, with a $50.00 reservation damage deposit, must be returned to the Housing Office, University of Alaska, Fairbanks, Alaska 99701. If you decide not to attend the University of Alaska, and a written statement is received by the Housing Office, the policy in regard to refunds will be as follows:

Fall Semester – Cancellations received prior to August 1: $40.00 will be refunded. Cancellations received on or after August 1: $25.00 will be refunded if not attending the university; no refund will be made if attending the university or if cancellation is received after the last day of late registration.

Spring Semester – Cancellations received prior to December 15: $40.00 will be refunded. Cancellations received on or after December 15: $25.00 will be refunded if not attending the university; no refund will be made if attending the university or if cancellation is received after the last day of late registration.

Refund of Room Deposit – If all provisions of the contract have been complied with and no charges for damages have been assessed, the $50.00 deposit will be refunded at the end of the school year. If moving off campus after fall semester, notice of intent to vacate must be given to the Housing Office on or before December 15 in order to be eligible for a full refund.

The deposit may be used to pay outstanding hall dues and/or charges for repair or replacement of furniture or fixtures for which the student is responsible. Charges for loss or damage of equipment or for defacement of any area in community use, such as lounges, recreation rooms, corridors, or bathrooms, may be assessed equally against the residents of the area and deducted from the amount on deposit. In addition, the deposit may be used to pay other outstanding university bills or charges. Any balance remaining in the deposit after all charges have been paid will be refunded after the close of the contract period. If the resident elects to reapply for room in the residence hall for

the following year, the deposit will not be refunded, but will be transferred to the renewal application.

Room Rent – Room rent, along with all other fees, is due in full at the time of registration (see Payment of Fees). Room charges are currently $280.00 for a double, $315.00 for a single, and $360.00 for a double room-single occupancy, per semester. These fees are subject to change.

Meal Ticket – When registering, each resident is required to buy a meal ticket for cafeteria meals. Meal tickets become effective at the evening meal of the first day of upper-class registration for each semester. Refunds are granted only with approval of the Dean of Students for such reasons as formal withdrawal, absence on university activities, or hospital confinement. The unused portion less a service charge equal to five days' meals will be refunded. No refunds will be given if a student withdraws during the last two weeks of the semester.

Semester meal tickets do not include vacation periods. Limited food service, on a cash basis, is available during vacation periods, except on official university holidays.

Waiver of the requirement to purchase a meal ticket is granted only under specific guidelines. If an exception is granted by the Dean of Students the amount waived is less than the full per-semester charge. An assessment is made for costs involved in providing, operating, and maintaining the food facility, whether a meal ticket is purchased or not. The amount of this assessment if approximately $1.00 per day.

Student Health Service Fee

All students registered for 12 or more credit hours or living in university housing must purchase student health insurance upon registration. Those students who can provide evidence that the student health insurance duplicates other health insurance to which they subscribe may apply to the Dean of Students for a waiver. This application must be processed within two weeks after the end of the registration period.

The amount of the insurance fee will be quoted at registration. The fee covers participation in a medical plan that covers accidents and sickness.

The Student Health Program is administered by the Health Center under the direction of the Dean of Students and the Head of Student Health and Counseling. Hospital and medical treatment for extensive illness and injuries are provided in nearby Fairbanks, under limits of coverage set forth in the student health insurance plan. Each student will be supplied with a brochure outlining the insurance coverage.

A married student may secure additional insurance coverage for spouse and children if desired. Rates for such coverage will be quoted at registration time. This additional coverage is for the insurance plan only and does not include services at the Health Center.

In addition to the insurance plan, all students enrolled for 9 credits or more must pay a $20.00 health center fee. This fee covers normal health center charges during the semester, including physician, laboratory, and counseling services.

Miscellaneous Fees

Admission Application Fee – Fee of $10.00 shall be paid at the time an application for admission is submitted.

Late Registration Fee – Students registering later than the day designated for that purpose shall pay a late registration fee of $5.00 for the first working day, plus $2.00 for each succeeding working day to a maximum of $25.00. This fee is refundable only in the event that all classes for which the student registered are cancelled.

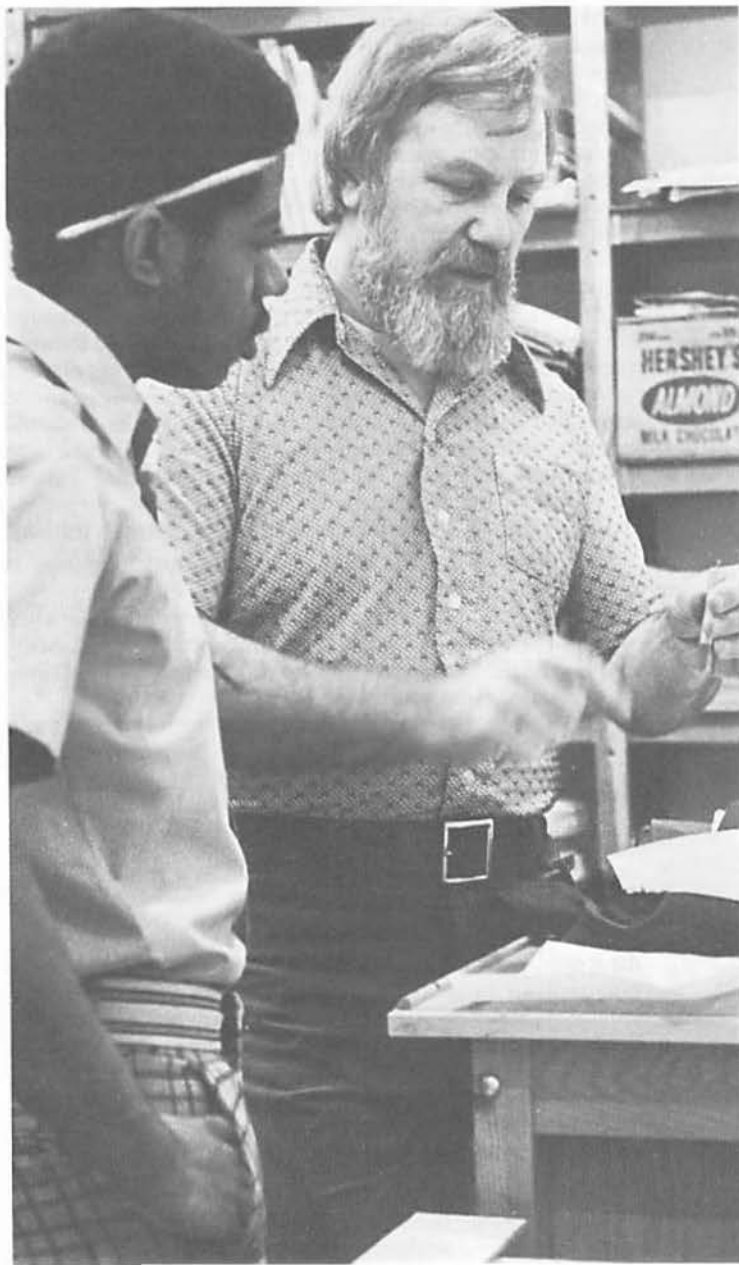
Examination Fee – A fee of $15.00 shall be charged for each credit by examination. For more than three credits, additional charge of $1.00 per credit hour shall be charged.

Late Placement and Guidance Test Fee – A charge of $5.00 shall be made for a placement and guidance test taken at a time other than the scheduled time.

Graduate Extended Registration Fee – Graduate students extending registration from previous semester must pay the graduate extended registration fee of $30.00 (see page 61 for details).

Program Plan Fee – The Office of the Director of Admissions and Records will provide without charge one plan for a schedule of courses leading to a degree. A second program plan will be provided for a fee of $5.00.

Music Course Fees – All music fees shall be waived for students enrolled for seven or more credit hours and taking a major in music, as certified by the department head. Fees for class lessons (including Functional Piano) $15.00. Fees



for private lessons: $65.00. Practice room rental: $7.50.

Drop/Add Fee – A charge of $2.00 is made for each course added or dropped after the third day of classes following the scheduled registration date. When the change in courses is faculty-initiated or due to the rescheduling or cancellation of a course by the university, no charge will be made. If the drop/add alters the status of the student from part-time to full-time or vice versa, an appropriate adjustment in registration fees will be made subject to the refund restrictions noted below under "Refunds – General University Tuition and Fees."

Parking Fee – A fee is charged for on-campus automobile parking. Parking-fee information will be available at the place of registration or from the Office of Safety and Security. Income from parking fees is used to provide parking-maintenance, electricity, and security, and for the construction of new parking lots.

Material Use Fees – In addition to the normal credit-hour fee, a material use fee may be charged for certain courses which require the use of special materials, supplies or services.

Payment of Fees

At the announced time of registration each student is expected to pay all charges due for the entire semester. This includes tuition and fees, room rent, meal tickets, student activity fees, health fee, and deposits. In addition, any charges unpaid at the end of previous semesters are due and payable prior to reenrollment at the university.

Students who have difficulty in meeting these charges have the alternative of requesting a deferred payment plan. The Office of Financial Aid accepts such applications. Requests for the deferred payment plan should be made in writing prior to registration process. Applications submitted on the date of enrollment will be processed on a time-available basis and students run the risk of delayed registration and resulting late fees as well as closed classes.

When fees are to be paid by other persons or agencies after the registration process is completed, students should coordinate the fee payment arrangements in advance with either the financial aid office or the business office. Failure to do so may delay the registration process.

Provisions for the deferred payment plan are as follows:

1. Fifty percent or one-half of the *total* charges must be paid at registration time.
2. The balance is due in two equal monthly payments. These are due thirty days and sixty days following the date of registration as announced by the Director of Admissions and Records.
3. A processing fee of $2.00 for the initial contract and $2.00 per payment is added to the amount of the contract.
4. Delinquent payments are subject to an additional $2.00 charge.

Financial Obligations

The university reserves the right to withhold transcripts, diplomas, or final grade reports from students who have not paid all financial obligations to the institution. If a student is delinquent in payment of any amount due the university, registration for succeeding semesters may be withheld.

Registration of any student may be cancelled at any time for failure to meet installment contract payments or financial obligations. The registration process is not completed until all fees and charges due the university have been paid.

Refunds – General University Tuition and Fees

A student who is withdrawing from courses or canceling enrollment must complete an official withdrawal and turn it in at the Office of the Director of Admissions and Records. Refunds will be made according to the following schedule:

Full or partial refund of undergraduate and graduate credit hour fees, and nonresident tuition will be made under the following circumstances.

1. In the event that courses for which the student is registered are cancelled by the university, the above charges will be refunded in full.
2. If the student formally withdraws from a course, refunds will be made according to the following schedule as determined by the date of the formal withdrawal action.
   (a) Full refund – withdrawal prior to first day of instruction for the semester.
   (b) 90 percent refund – withdrawal on or after the first day of instruction but prior to the eighth calendar day thereafter.
   (c) 50 percent refund – withdrawal on or after the eighth calendar day of the semester but prior to the fifteenth calendar day.
   (d) No refund – withdrawal on or after the fifteenth calendar day of the semester.

For the purposes of this paragraph, "first day of instruction for the semester" is as stated in the official university calendar and is not necessarily the first meeting date of any individual course. Weekends are included in counting days for the partial refund periods. Therefore, if the first day of instruction is the first day of a month, the 90 percent refund period would include the first through the seventh of the month. The 50 percent period would include the eighth through the fourteenth. There would be no refund for withdrawals on or after the fifteenth of the month.

3. Claim for a refund must be made in writing to the business office at the time of withdrawal. The certified date of withdrawal, as indicated on the official withdrawal slip, will determine the student's eligibility for a refund. Applications for refund may be refused unless they are made during the semester or term in which they apply.
4. Students whose registration is canceled as a result of disciplinary action forfeit all rights to a refund of any portion of their tuition and fees.
5. Vocational/technical course fees shall be subject to this refund schedule.
6. Health service, campus activity, laboratory, materials, and miscellaneous fees shall not be subject to refund.
7. In case the operations of the University of Alaska are adversely affected by war, riot, act of God, 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 the university, the university's liability shall be limited to (at most) a refund of tuition and fees paid.

Financial Aid

The University of Alaska recognizes that some students and their families are not able to finance a college education entirely from their income and assets. The Office of Student Financial Aid exists to provide counseling and financial aid to students in need of assistance.

The student's family is expected to contribute as much as possible toward the cost of his/her education and the aid recipient is expected to adhere to a modest budget. All students are, therefore, encouraged to seek general financial counseling and help in the personal management of money.

Eligibility for Aid

Most aid is based upon need as determined by a careful analysis of the applicant's budget and resources. The University of Alaska utilizes the College Scholarship Service needs analysis system and requires that the student complete a Financial Aid Form (FAF).

The financial need of a *dependent* student is calculated on the basis of the student's and the parents' resources.

The financial need of an *independent* student is calculated on the basis of the student's financial resources.

For the purposes of student financial aid, a student is considered to be *independent* from parents if (s)he meets all of the following criteria:

For the calendar year prior to the academic year for which (s)he is applying for aid, and for the year(s) for which (s)he is applying, a student cannot have or plan to have

1. been claimed by his/her parents as a dependent on their income tax return,
2. received financial support in excess of $600 annually from parents,
3. lived with his/her parents for any period exceeding two weeks.

Applicants are required to complete the following forms:

1. **University of Alaska financial aid application.**
2. **Financial Aid Form (FAF)** – Completed FAF's should be submitted to the College Scholarship Service; Box 380, Berkeley, CA 94701. The University of Alaska-Fairbanks CSS code number is 4866. NOTE: *All undergraduate* applicants are required to apply for a Basic Grant. This can be done by simply checking "yes" in the Basic Grant box of the FAF. The Basic Grant applicant will receive a Student Eligibility Report (SER) four to six weeks after applying. The SER (all 3 copies) should then be mailed to the Financial Aid Office at the University of Alaska-Fairbanks.
3. **Financial Aid Transcript forms** – For transfer students only.

All three forms can be obtained by contacting the Financial Aid Office. Financial Aid Forms (FAF) should also be available at high schools.

To receive financial aid, students must be making *satisfactory progress* toward their educational objective. The University of Alaska Financial Aid Office defines satisfactory progress as follows:

1. *Full-time undergraduate students* must complete at least 12 credits with a 2.0 grade point average each semester.
2. *Full-time graduate students* must complete at least 9 credits with a 3.0 grade point average each semester.
3. *Part-time students* must complete all courses they have registered for with at least a 2.0 grade point average for undergraduate students and at least a 3.0 grade point average for graduate students.

If a student fails to satisfactorily complete a semester, (s)he is not eligible to receive financial assistance from the



University of Alaska-Fairbanks until (s)he satisfactorily completes one semester as at least a half-time student.

Financial Aid Deadlines

Financial Aid application forms will be available in January.

All applications which are complete by May 1* will receive first consideration. Applications which become complete after May 1 will be processed as long as funds are available.

*An application is complete when the Financial Aid Office has received all of the following forms:

1. UA financial aid application.
2. Financial Aid Form (FAF).
3. Financial Aid Transcripts (for transfer students only).
4. Notification of applicants' acceptance by the Admissions Office (for new students only).
5. Basic Grant Student Eligibility Report (SER) all three copies. (For undergraduate students only.)

Definitions

Full-time student – Undergraduate student enrolled for a minimum of 12 credits or a graduate student enrolled for a minimum of 9 credits during a semester.

Graduate student – Person who has received a bachelor's degree and is pursuing an advanced (Master's or Doctorate) degree.

Half-time student – Undergraduate student enrolled for at least 6 credits but less than 12 credits or a graduate student enrolled for at least 5 credits but less than 9 credits during a semester.

Parents – For financial aid purposes, "parents" is usually defined to be the student's mother and/or father. If some person other than a parent (or spouse) provides or will provide more than one-half of the student's support that person is considered to be the "parent." In no case would a spouse be considered the student's "parent."

Post-baccalaureate student – Person who has received a bachelor's degree and is pursuing an associate or bachelor's degree in another field of study.

Undergraduate student – Person who has not yet received a bachelor's degree and is pursuing an associate or bachelor's degree.

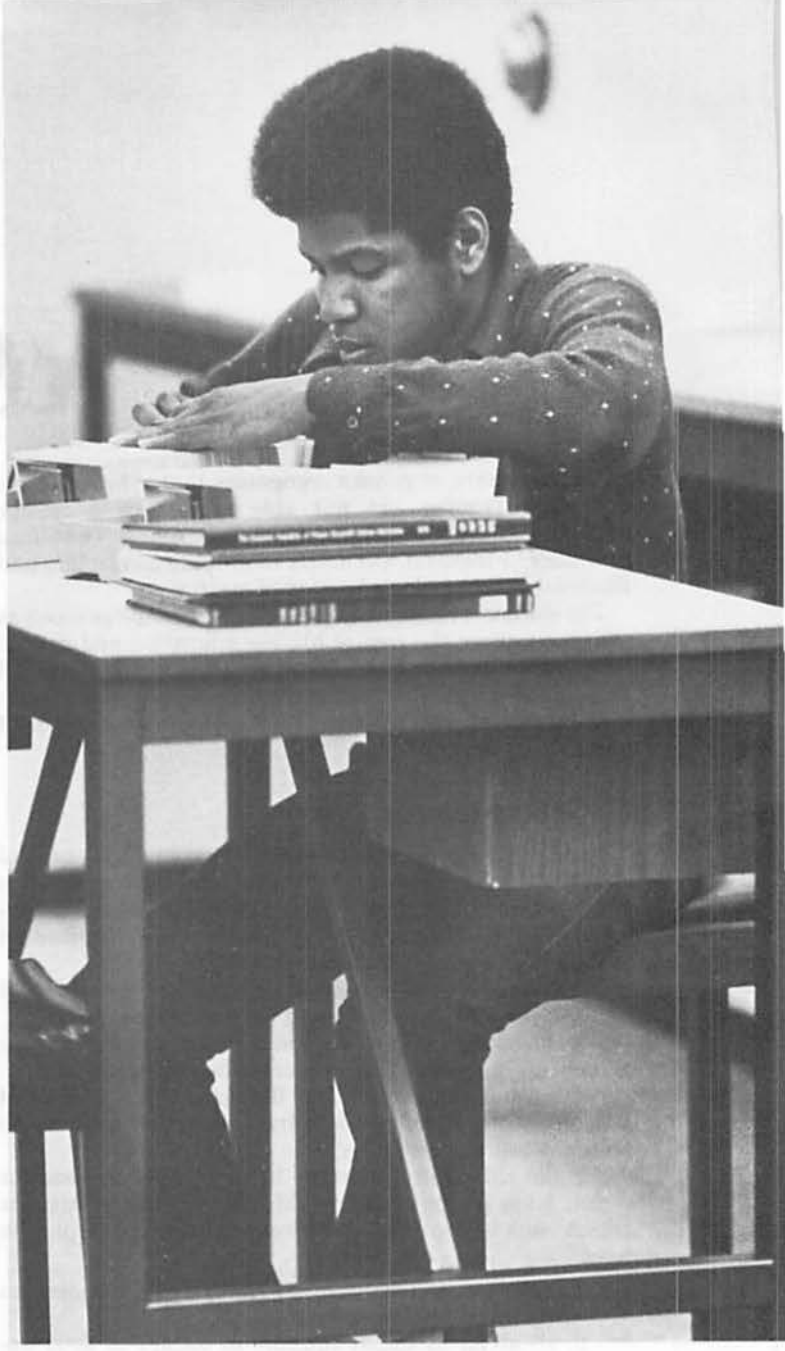
Financial Aid Programs

Three types of financial aid are available at the University of Alaska: grants and scholarships, loans, and part-time employment.

1. GRANTS AND SCHOLARSHIPS

Grants and scholarships need not be repaid. Scholarship awards are based upon academic achievement as well as financial need and are available to undergraduate students only.

Basic Educational Opportunity grants may range from $50 to $1,600 per year and are based on the applicant's educational costs and family's financial situation. All undergraduate financial aid applicants are required to apply for a Basic Grant. Students may apply for Basic Grants by indicating "yes" in the Basic Grant box of the FAF. Forms are available at high schools and financial aid offices.



All Basic Grant applicants will be mailed a Student Eligibility Report (SER) from the Basic Grant processing center in Iowa City. *Eligible applicants must submit all three copies of the SER to the Financial Aid Office before funds can be released.*

A student may normally receive Basic Grants for a maximum of 4 years.

The **Supplemental Educational Opportunity Grant (SEOG) Program** is for undergraduate students of exceptional financial need who, without the grant, would be unable to continue their education. SEOG recipients must attend on at least a half-time basis.

SEOG's range between $200 and $1,500 per year. SEOG's may not exceed half the amount needed to meet a student's financial costs and must be matched at least dollar for dollar with other institution-controlled financial assistance programs. Normally, an SEOG may be received for up to four years and the total that may be awarded is $4,000.

University Scholarships are based primarily on financial need but academic competence is also considered. Applicant must be a recent Alaska high school graduate or

must have completed at least 1 year as a full-time student in good standing at the University of Alaska. Applicant must enroll as a full-time student to receive a scholarship. UA Scholarship awards range from $200 to $800 per academic year.

Bureau of Indian Affairs Grants-in-Aid are available to Native American students with financial need. Information may be obtained from financial aid offices, high schools, and the local BIA Area Office.

Law Enforcement Education Program Grants provide assistance to full-time law enforcement personnel enrolled at the University of Alaska. Students under this program may receive funds in the amount of fees. Application should be made one month prior to registration.

Talent Grants are available in limited numbers to students of extremely high capabilities and potential in the performing arts and athletics. Application should be made to the head of the department from which the student wishes a talent grant. Grant recipients will be selected in April so it is important to apply early.

THE GLENMEDE FOUNDATION provides a number of grants to full-time music majors who are majoring in an orchestral stringed instrument. The University-Fairbanks Symphony Association and the University-Fairbanks Symphony Guild provide a number of $500.00 scholarships for full-time students in any discipline who are enrolled at the University of Alaska, Fairbanks, and participate in the University-Fairbanks Symphony during the entire academic year. Symphony scholarships are based upon demonstrated talent, and the needs of the Orchestra. Information about these scholarships is available from the Head of the Department of Music, University of Alaska, Fairbanks.

Fee and Tuition Waivers are available to students with demonstrated abilities in numerous fields of study. Application should be made to the head of the department in which the applicant wishes to study. Recipients will be selected in April so it is important to apply early.

2. LOANS

University of Alaska loan programs allow students to borrow money to finance their education. All loans must be repaid at a later date. Loan interest rates range from 3% to 7%.

The **National Direct Student Loan (NDSL) Program** is for students who are enrolled at least half-time.

Students may borrow up to a total of: (a) $2,500 for enrollment in a vocational program or for completion of the first two years of a program leading to a bachelor's degree; (b) $5,000 for undergraduate students who have already completed 2 years of study toward a bachelor's degree. (This total includes any amount borrowed under NDSL for the first 2 years of study); (c) $10,000 for graduate study. (This total includes any amount borrowed under NDSL for undergraduate study.)

Repayment begins 9 months after graduation or termination of at least half-time enrollment. During the repayment period 3% interest accrues on the unpaid balance of the loan principal. Borrowers may take up to 10 years to repay but must make minimum $90 quarterly payments.

No payments are required for up to 3 years while serving in the Armed Forces, Peace Corps, or VISTA.

This loan program has cancellation provisions for borrowers who go into certain fields of teaching or specified military duty.

University Loans are short-term loans for enrolled students and are made to cover educational expenses such as room, board, fees and books. Students who have completed at least one semester as a full-time student in good standing may apply for a maximum of $500 per academic year. Interest rate is 4% per annum. Loans must be repaid by December 1 for students who terminate studies at the UA at the end of the Fall semester; by April 15 for students leaving at the end of the Spring semester; or by September 1 for students who will be returning to the UA for the following Fall semester.

The University Loan Fund represents the pooled resources of several separate loan funds given to the university over a period of many years:

Anchorage Women's Club (1926)
American Military Engineering Revolving Loan Fund
Lawrence C. Phipps (1930)
Fairbanks High School Alumni (1932)
First National Bank (1945)
Phi Tau Gamma (1953)
Palmer Community (1953)
Glenn Carrington (1953)
Larry Doheny (1953)
Pioneer Women of Alaska (1954)
Women's Auxiliary No. 4, Pioneers of Alaska (1957)
Dave M. Dishaw (1958)
Rotary Club of Fairbanks (1963)
James E. Nankervis Memorial (1961)
Herman Turner Memorial (1961)
Marianne Casson Memorial Fund (1965)
Ketchikan Communication Committee (1966)
Southern California Alumni (1963)
Arthur A. and Anne Shonbeck Memorial (1964)
Anchorage Soil Conservation Subdistrict No. 4 (1966)
Ann Meeks Memorial Fund (1967)
Anchorage High School (1956)
Anchorage High School PTA (1959)
Sheils-Timson (1936)
Leopold F. Schmidt (1938)
Palmer Associated Students (1941)
Frank Slaven (1944)
Mr. and Mrs. Walter G. Culver (1959)
Verne E. Roberts Memorial (1960)
James Stanley Rodebaugh Memorial (1960)
Terris Moore (1971)
Lt. Gen. Glenn R. Birchard Memorial Fund (1967)
Lt. Donald R. Robinson Memorial Fund (1968)
Patrick Anderson Memorial Fund (1969)

The **Clarence J. Rhode Memorial Scholarship Loan Fund** was initiated by the Territorial Sportsmen, Inc., of Juneau. Junior, senior and graduate students in wildlife management are eligible for loans generally limited to $500 and administered on terms similar to those of the University Loan Fund. The head of the Department of Wildlife and Fisheries administers these funds.

The **Stefano Loan Fund** was established by Mr. Ralph R. Stefano, consulting engineer in Fairbanks, for the purpose of furthering instruction in mechanical engineering.

The **Society of American Military Engineers Revolving Loan Fund** enables students in engineering, science, and mathematics to borrow money to continue their education under terms similar to those of the University Loan Fund. Application is made through the Financial Aid Office.

The **Alaska Miners Association Loan Fund** is available to sophomore, junior, and senior students in the School of

Mineral Industry. Under terms similar to the University Loan Fund, students may borrow up to $500 per year to a maximum of $1,000 and repay after graduation at 4 percent interest. Applications are made through the University Loan Committee with final approval by the Dean of the School of Mineral Industry.

The **Ralph P. Cernak Memorial Loan Fund** is available to junior and senior students in the School of Mineral Industry, with preference to Geology and Geological Engineering majors. Under terms similar to the University Loan Fund, students may borrow up to $200 and loans are repayable one year after graduation at 4 percent interest. Applications are made through the Office of the Dean of the School of Mineral Industry.

The **C. E. Fritts Memorial Loan Fund** is generally restricted to junior and senior students in geology or geological engineering to meet geological field camp expenses. A maximum of $300 may be borrowed to be repaid one year after graduation at 4 percent simple interest. The loan is interest free if repaid within one year of the receipt of the loan. Applications are made through the Department of Geology.

The **Alumni Association Loan Fund**, established in 1971, provides short-term interest-free loans of up to $500 to full-time students.

The **Volney R. Stanard Memorial Loan Fund** was established by Sharon Stanard to assist student members of the Department of Safety and Security. The amounts and repayment conditions of the loans are determined by the Safety and Security Loan Committee with the approval of the financial aid office.

Alaska Student Loans are restricted to applicants who have been Alaska residents for at least 2 years immediately prior to applying. Undergraduates may borrow up to $3,000 per year and graduates up to $5,000. Application is made directly to Juneau and no Financial Aid Form (FAF) is required. Write the Division of Student Financial Aid; Alaska Postsecondary Commission; Pouch F; Juneau, AK 99811 for further information and for application forms. Application forms are also available at Alaska high schools and Alaska postsecondary schools.

The **Guaranteed Student Loan Program** enables a student to borrow directly from a bank, credit union, savings and loan association, or other participating lender who is willing to make the educational loan. The loan is guaranteed by a State or private nonprofit agency or insured by the Federal Government.

Students who are enrolled or have been accepted for enrollment at least half-time are eligible to apply.

The maximum an undergraduate may borrow is $2,500 a year. A graduate or professional student may borrow up to



For further information and forms contact:

FINANCIAL AID OFFICE
UNIVERSITY OF ALASKA-FAIRBANKS
5TH FLOOR, GRUENING BUILDING
FAIRBANKS, ALASKA 99701

$5,000 per year. The total amount a student may borrow for undergraduate or vocational study is $7,500. The total is $15,000 for graduate or professional study, including loans made at the undergraduate level.

Interest cannot be more than 7%.

Most students are eligible for Federal Interest Benefits. If a student qualifies for these benefits, the Federal Government will pay the interest for him/her until repayment begins. If the student's adjusted family income is less than $25,000, (s)he automatically qualifies for the interest subsidy. If the student's adjusted family income is $25,000 or more and (s)he wishes to apply for the interest subsidy on a loan of any amount, (s)he must submit to the lender a recommendation from the school, based on an analysis of need (results of the FAF).

The loan must be repaid. Payments normally begin between 9 and 12 months after graduation or termination of at least half-time enrollment and the borrower may be allowed to take up to 10 years to repay the loan. The amount of the payments depends upon the size of the debt and ability to pay; but in most cases at least $360 a year is required unless circumstances as agreed upon by the lending institution warrant a lesser amount.

Repayment may be deferred for up to 3 years for service in the Armed Forces, Peace Corps or full-time volunteer programs conducted by ACTION (which includes VISTA, University Year for ACTION, ACTION Cooperative Volunteer Programs, Volunteers in Justice, and Program for Local Service). In addition, deferment is available during full-time study at an eligible institution, or for study under a graduate fellowship program. A single deferment for a period of not more than one year is also provided for students who are unable to find full-time employment.

Information and application forms are available from schools, lenders, State Guarantee Agencies, and Regional Offices of the U.S. Office of Education.

Emergency Loans are available to all regularly enrolled full-time students whose financial need is modest and temporary. Students may borrow up to $100 maximum to be repaid within 30 days. A $2 service charge is assessed for each loan.

3. EMPLOYMENT

On-Campus and Off-Campus Jobs are listed in limited numbers at the Personnel Services Office, 110 Bunnell Building. The Career Planning and Placement Office, 5th floor, Gruening Building, also maintains a list of off-campus job openings. Students interested may inquire at these offices for information but must apply for the positions themselves.

College Work-Study jobs are available to students who demonstrate need by completing applications and financial statements. Under this program students may work up to 20 hours per week during the school term and 40 hours per week during vacation periods. Most of the work opportunities are on campus and can be related to a student's educational or vocational interest.

Deferred Fees and Installment Contracts

See Fees section of this catalog.



Student Affairs

General Responsibilities

The university provides services to assist students in making their educational careers more profitable and meaningful. While the principal function of the university is to foster the intellectual growth of the student, it is recognized that the social, moral, physical, and spiritual development of the individual also is of prime importance. Mindful of its obligation to assist the total development of the student, the university continues to encourage individualization in the educational process.

Student services include: (a) orientation activities to assist new students in adjusting to the privileges and responsibilities of membership in the university community; (b) academic counseling and vocational testing; (c) counseling with students relative to their personal problems; (d) financial assistance by means of scholarships, loans, and part-time jobs; (e) support of student organizations, activities, and interest groups; (f) special services, advising, and tutorial assistance programs for students in need of these services; and (g) a full service health center available for medical and health education services.

Orientation to Higher Education

The achievement of academic success is rarely an easy goal to attain. Students who take full advantage of orientation programs are often better able to accomplish academic and personal goals in harmony with the requirements and expectations of the University of Alaska.

Orientation materials and sessions are designed to assist each student in adjusting to higher education, and provide essential information. They are generally scheduled just prior to registration and may extend well into an academic term.

Special Student Services

In response to the needs of students from rural areas of Alaska and students whose cultural background differs from that of the majority of the campus student body, the university has developed a program of special services. The primary concern of the program is in helping the student make the transition from a small-school environment to the complexities of university life. The program is intercultural in nature in that services are offered to students from all cultural backgrounds. The program is especially responsive to the needs of the Alaska Native student.

A Student Services Center offers a place for the student to seek counseling, information, tutoring, and help on many aspects of university life.

Student Behavioral Standards

Education at the university is conceived as training for citizenship as well as for personal self-improvement and development. Each citizen has responsibility to respect the rights of others and to abide by the laws and boundaries which govern all citizens. Membership in a university community affords special status and prestige, and often carries with it even greater amounts of responsibility. Students are representatives of the university community both on and off campus, just as are faculty and staff members.

Generally, university regulations are designed to help each student work efficiently in courses and to assist in the development of high standards of character and citizenship. They are not designed to ignore individuality, but rather to encourage the exercise of self-discipline, which is imposed by a sense of social responsibility. These regulations, in most instances, have been developed jointly by staff and students. The university prescribes to principles of due process and fair hearings as specified in the *Joint Statement on Rights and Freedoms of Students*. Students are encouraged to familiarize themselves with this document which can be found in the Dean of Students' office.

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

A student may be dismissed for cause by the president of the university after appropriate review.

Residence Hall Housing

Because the physical environment of the student during his college years is an important part of his educational experience, the university provides supervised residences on the campus.

Each residence hall is staffed with a resident advisor and several student advisors. These key people in the residential living environment help create and sustain productive and creative experiences through which students realize a maximum amount of educational, social, and cultural values. The resident advisor is responsible for administration, programming, and counseling within a residence hall. The student advisors are full-time students who are selected to work with the resident advisor in planning and administering a program of social, recreational, and governmental activities. All staff members have had experience in group living and group activities.

Student rooms have either fixed or movable furniture. Each student has his own bed, desk, chair, mirror, and bureau and closet space. **The university does not provide bedding (sheets, pillow slip, blankets), nor does the university provide towels or face cloths. University regulations prohibit animals in residence halls.**

Each hall includes a public lounge for entertaining, relaxing, and recreation. Regular custodial service is provided in common areas such as corridors, lounges, and bathrooms. Laundry facilities are conveniently located in each residence hall.

Only a limited number of electric outlets for automobiles are available. All motor vehicles garaged, stored, or used on campus one or more times a week must be registered and bear a university decal. Applications for decals are taken at the Safety and Security Office.

Students bringing guns into the residence halls are required to store them in a central weapons room under staff supervision. There is absolutely no exception to this policy. Firearms and explosives are not permitted in residence hall rooms.

All single students under 21 years of age are required to live in a university residence hall during their first year on campus unless; (a) they live at home or (b) they have special permission from the Dean of Students in accordance with university policy. Graduate students and upperclassmen are given preference over new students in the assignment of single rooms. Hall reservations are made on a first come, first served basis provided application and deposit requirements are complete. Specific room assignments will be received upon a student's arrival at the hall.

The university reserves the right to reassign individuals to different rooms, halls, apartments, and dining halls at any time in the event such reassignments are determined to be necessary.

Residence hall students are permitted to remain on campus during the Christmas vacation.

Food Service

Each resident is required to buy a meal ticket for cafeteria meals. Meals are not served during University vacation periods. Full payment for a semester's meal ticket is required at registration time.

All residents are required to contract for their meals both semesters at the university commons. Breakfast, lunch, and dinner are served daily throughout the school year.

In order to provide students with meals of high quality at minimum cost, it is essential that the staff be able to plan its food purchases and preparations for relatively constant numbers. Therefore it is not possible to provide special diets or to give refunds for meals missed, except as approved by the Dean of Students in cases of prolonged illness, university-sponsored activities where meals are not provided, or other unavoidable absence. Students who are exempted by the university physician from purchase of a meal ticket are required to pay that portion of the meal charge which is applied to housing system debt service.

More information regarding food service may be obtained by contacting the Office of the Dean of Students.

Residence Halls

The Student Housing Office is located in the main lounge complex which joins the Moore, Bartlett, and Skarland residence halls. During the academic year the office is open from 8:00 a.m. to 5:00 p.m. During the registration period at the beginning of each semester the office is open extended hours.

Andrew Nerland Hall houses 94 graduate students in double and single rooms on its four floors. First occupied in 1953, Nerland Hall is named for a pioneer Fairbanks merchant, long-time member of the Board of Regents, and president of the Board from 1935 until his death in 1956.

John E. McIntosh Hall, completed in 1956, has double and single rooms for 93 men. This four-story building is named for a former president of the Board of Regents.

Wickersham Hall, completed in 1957, is a three-story residence for 96 women. It has single rooms and suites with four women sharing each suite, which consists of two sleeping rooms, a study, and a lavatory. This hall is named for the late Judge and Mrs. James Wickersham. Judge Wickersham introduced into Congress the bill that created the University of Alaska, and Mrs. Wickersham served on the Board of Regents.

Morton Stevens Hall, completed in the fall of 1958, is a four-story coeducational unit with accommodations for 62 men and 31 women in double and single rooms. This hall is named for Morton Stevens, who was president of the Board of Regents from 1921 until 1932.

Austin E. Lathrop Hall, a coeducational unit completed in 1962, houses 106 men in double rooms on four floors and 32 women on the fifth floor. The building is named for a prominent Fairbanks businessman whose interests throughout Alaska were many and varied. Mr. Lathrop served as a member and later as vice president of the Board of Regents during the period from 1932 until his death in 1950.

Ivar Skarland Hall, completed in the fall of 1964, provides double and single room accommodations for 138 students. The study-bedrooms are located around a central core area containing lounge, sewing rooms, ironing rooms, TV lounge, and shower facilities. The hall is named for Ivar Skarland, long-time professor of anthropology at the university.

Terris Moore Hall, a coeducational unit completed in 1966 and named for the second president of the university, is an eight-story building containing both single and double rooms. Capacity of the building is 322 students. Facilities in Moore Hall are similar to those of its companion halls — Skarland and Bartlett. These three units comprise a living center for men and women on the hill to the west of the president's residence, overlooking the Tanana Valley.

E. L. Bartlett Hall is a high-rise residence hall opened to occupancy during the fall of 1969. Bartlett Hall is the central building in the student housing complex that includes Moore Hall and Skarland Hall. The hall was named for E. L. "Bob" Bartlett, who served for 24 continuous years as the Alaskan delegate to Congress and as U.S. Senator.

Graduate Student Housing

Recognizing the special needs of older single students, each year the Housing Office provides areas restricted to graduate students and those 25 or more years of age. Unless they request otherwise, graduate and other mature students will be assigned to these areas.

Family Housing

Married student housing is provided in several areas. **The Modular Units** consist of 31 efficiency units completed in the fall of 1970. The units are located on the south slope behind Lathrop and Stevens halls facing the Alaska Range. All units are furnished except for personal items such as dishes, utensils, and bedding. The Modular Units are reserved for married couples without children.

Walsh Hall, completed in 1959, has accommodations for couples without children arranged in 13 furnished apartments consisting of living room-kitchen, bedroom, and bath. The building is named for the late Michael Walsh of Nome, who was a long-time member of the Board of Regents.

Harwood Hall, completed in the spring of 1964, was named for the late Boyd Harwood, former member of the Board of Regents. The building houses an additional 36 married student couples without children in efficiency and one-bedroom apartments. All apartments are furnished except for personal items such as dishes, utensils, and bedding.

A new married student living complex, consisting of 72 apartments, opened in the fall of 1972. All apartments are carpeted and furnished, with individual parking. Located on the north edge of the campus, 56 two- and three-bedroom apartments are each equipped with washer-dryer, while common laundry facilities serving four apartments each are provided for the one-bedroom units.

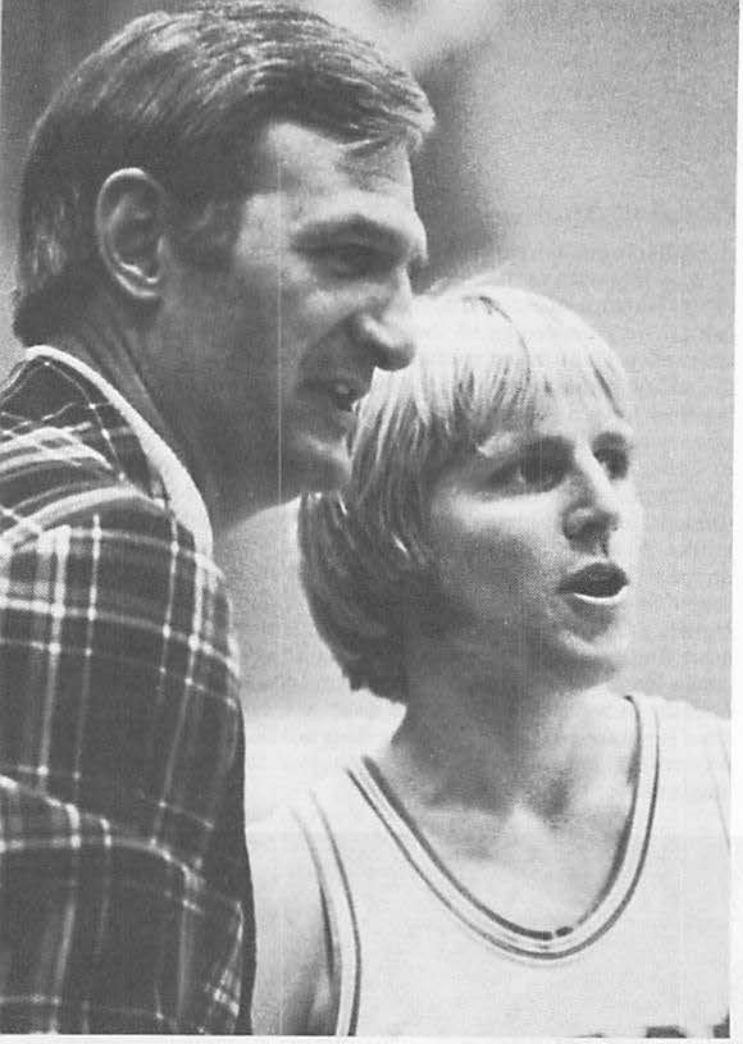
Because storage space is extremely limited, extra or major personal furniture items will overcrowd an apartment. Pets are **NOT** allowed in any married student unit.

Housing Application Procedures

Applications for student residence-hall will be mailed to all students with notification of acceptance from the Office of the Director of Admissions and Records. Student rooms cannot be reserved until the student is accepted by the university. Continuing students may receive rooms during the spring semester for the following fall semester providing they have not been disqualified for scholastic or disciplinary reasons by the university. After being accepted and in order to secure residence-hall housing, the student should complete the housing-board contract and mail it immediately to Housing Office, University of Alaska, Fairbanks, Alaska 99701 with a $50 reservation and damage deposit. Confirmation for residence-hall housing is assured when the student receives written notification from the Housing Office. Specific room assignments will be made after August 15. Spring semester assignments are made as space becomes available. The contract for single student housing in residence halls is for room and board. The contract for married student housing does not include board. A recent tine test or chest x-ray is required for residents of single student housing.

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The housing-board contract is in effect from the date of signing to the end of each semester, subject to terms indicated in the application and the university calendar. Students are expected to pay for the entire semester during registration; however, installment payments may be arranged through the Student Financial Aid Office.

Contracts are voided only if a student does not attend the university full time, cancels his contract prior to August 15, or is released from the contract because of marriage, health reasons, or other emergencies as deemed appropriate by the dean of students.

Room rental permits use of all lounge, recreation room, storage room, laundry room, and local telephone privileges. Students may remain in the residence halls during the Christmas holidays.

Applications for family housing will be mailed upon request by the Housing Office, University of Alaska, Fairbanks, Alaska 99701. Eligibility for family housing includes admission to the university, intent to register at the university for 12 or more credits per semester, and legal marriage. A reservation deposit of $25 is due with the application. An additional $50 damage deposit is required upon assignment.

Center for Health and Counseling

Once health was viewed as merely the absence of physical illness and it was seen as the responsibility of health professionals. Now health is viewed as a positive growing condition of the total person and people take more responsibility for their own health. Once people were divided into parts to be understood – i.e., physical, emotional, intellectual, and social. Now we are becoming increasingly aware that the division of people into parts tends to obscure our highly unified nature and hides the understanding that growth or change within any area brings about change for the whole person.

Preventive, educational, diagnostic, and remedial medical and psychological services are offered by the center staff, i.e. –

Medical Services – Outpatient service is provided by full-time registered nurse practitioners and a physician. The primary care benefits that you receive by paying the health fee include all routine office care or outpatient services including family planning, routine physical examinations, and immunizations.

Diagnostic services including laboratory procedures are available at the college medical laboratory located at the health center. The health fee does not cover the PAP test or some other routine examinations or the cost of medications, but these are available on a fee-for-service basis. X-ray services are not available on campus, but are available at any of the medical care facilities in Fairbanks.

Personal Counseling – Counseling is a process that allows individuals to explore their own personal feelings, doubts, and problems without being judged, evaluated, or pressured. Just as studying is growth and not an admission of ignorance, counseling is growth and not a sign of weakness. The counseling staff believes in the idea that one does not need to be sick in order to get better. Counseling occurs with individuals, with couples, with families, or within small groups of concerned students. These counseling interactions are kept confidential.

Special Groups – The center periodically offers special groups for students with similar needs, such as: a group to develop study skills, a group to reduce anxiety, a group for overweight people, an assertiveness group, a pre-marriage workshop. Students are encouraged to suggest areas of concern where special groups may be helpful.

Student Orientation Services

In response to the needs of students from rural areas of Alaska and students whose cultural background is different from that of the majority of the campus student body, the University has developed a program called Student Orientation Services. The primary concern of this program is helping the student make the transition from a small-school and rural environment to the complexities of university life. The program is intercultural in nature in that services are offered to students from all cultural backgrounds. The program is especially responsive to the needs of the Alaska Native student. The initial planning and development of the program was guided by an advisory board of seven Native university students; however, the makeup of the board changes each year as more students take an interest in the activities of Student Orientation Services.

The Student Orientation Services staff offers a place for the student to seek counseling, information, tutoring, and help on many aspects of university life. The program offers help and advice to the student during registration in the fall and spring semesters. Entering freshmen may choose to use SOS staff members for academic advisement until a time when they have found an academic area of special interest to them. A lounge is open for students and faculty in which they may relax and visit.

Special core courses have been developed in such areas as English, mathematics, and study skills which will aid the student in developing the academic skills necessary for success at the university.

Awards

Listed below are awards which have been established for students who demonstrate outstanding achievement in various fields and activities. Information concerning awards may be obtained from the Office of Student Affairs, from the Department of Military Science, or from the Department of Health, Physical Education and Recreation.

American Institute of Mining and Metallurgical Engineers, Alaska Section
American Society of Civil Engineers, Fairbanks Sub-Section of the Alaska Section
Athletic Letters and Awards
Marion Frances Boswell Memorial Award
Chemistry Department Outstanding Freshman
Druska Carr Schaible Memorial Award
Fairbanks Garden Club Conservation Award
Fairbanks Weavers Guild
George M. McLaughlin Memorial
Archie W. Shiels Prize
Sigma Xi Club, University of Alaska
General James Steese Prize
Rex Thomas Memorial Award
Joel Wiegert Award

Cocurricular Activities

In coordination with the Associated Students of the University of Alaska (A.S.U.A.), the student self-governing body, the Office of Student Affairs promotes and provides staff guidance for the development of a wide range of balanced and contemporary cocurricular activities. A.S.U.A. specifically sponsors the newspaper *Polar Star*, KMPS radio station, and numerous recreational, social, educational, and service activities. Additionally, many groups representing recreational, religious, departmental, social, and special interests are available for student involvement.

The university recognizes the importance of a proper balance between curricular and cocurricular activities.

Eligibility requirements for organizations and cocurricular departmental activities may be established by the organization or department. Copies of these regulations shall be kept on file with the Office of Student Activities.

Athletics and Recreation

Students may participate in supervised programs of intramural sports and intercollegiate athletics, or in unsupervised, open recreational and fitness activities in the Patty Building and adjacent facilities. The Patty Building has multipurpose areas which allow participation (but not always at the same time) in badminton, basketball, calisthenics, dance, gymnastics, handball, jogging, judo, karate, paddleball, racquetball, sauna, swimming, tennis, volleyball, weight lifting, and universal-gym weight training. The air-supported structure called the Beluga (white whale) allows for tennis (four courts) in the summer and ice skating and ice hockey in the winter. University trails are available for cross-country running and skiing. A ski hill with rope tow is used for winter downhill skiing.

In the intramural sports program, men and women students (and faculty, too) from the different living groups participate in more than twenty different team and individual competitions each year.

The University of Alaska, Fairbanks, sponsors intercollegiate athletic teams – the "Nanooks" – for men and women in basketball, cross-country skiing, and rifle. Students may try out for these teams by contacting the appropriate coach.



Career Planning and Placement

Career Planning and Placement offers the student and alumni a variety of services. Ideally upon entry to the university each student should continue the ongoing process of developing life style and career goals. In cooperation with faculty and advisors, the staff in Career Planning and Placement works with any interested student to insure a well-planned academic program, developed so as to maximize successful attainment of the student's life and career goals. The Career Planning and Placement staff offers counseling assistance, provides a variety of career information, and assists the student in finding summer jobs, and in some cases academic internships, which help toward employment after graduation.

Students are encouraged to start a placement file during the latter part of their academic programs. For some, use of a placement file is of immediate importance. For others, need for such a file may not arise until some years after graduation. Each year many employers visit the campus to recruit students and alumni. The Career Planning and Placement office coordinates this activity. Many employers place job openings with Career Planning and Placement and an attempt is made to match the needs of the employer with those of the students and alumni making use of the center.

Alumni Services

The statewide Office of Alumni Services is located in the Bunnell Building on the Fairbanks campus. All graduates of the University of Alaska and all former students who have taken courses for credit at any of the university's locations, who are no longer attending, and whose classes have graduated, are eligible to belong to the University of Alaska Alumni Association. There are no dues, but members are asked to contribute to the Alumni Fund each year.

The *Alaska Alumnus*, a quarterly magazine containing news of alumni and of university developments of interest to alumni, is published by the alumni office and sent to all alumni association members. Alumni are encouraged to file their credentials with the career planning and placement offices that are located in each region.



Campus Facilities

Campus Buildings

The **Bunnell Memorial Building**, dedicated to the late Charles E. Bunnell, first president of the University, contains general administrative offices, classrooms, laboratories, a large lecture hall, and the Computer Center.

The **Brooks Memorial Mines Building** provides space for classrooms, laboratories, offices of the School of Mineral Industry, and some offices of the Mineral Industry Research Laboratory. The four-story structure is dedicated to the late Dr. Alfred H. Brooks, Chief Alaskan Geologist of the U.S. Geological Survey from 1903 to 1924.

The **Laurence Irving Building**, completed in the winter of 1966, provides offices, research facilities and laboratories for upper-division classes of the Life Sciences Unit of the College of Environmental Sciences. It also houses the Institute of Arctic Biology and the Alaska Cooperative Wildlife Research Unit.

The **Eielson Memorial Building** contains general classrooms, laboratories, the offices of the School of Summer Sessions and Continuing Education and the Cooperative Extension Service, and the library's Department of Media Services.

The **William E. Duckering Building** houses offices, classrooms and laboratories of the School of Engineering; Mathematics, Physics, TVCC Electronic Technology; the Institute of Water Resources; and laboratories of the State Division of Highways.

The **Ernest N. Patty Building**, dedicated to the late Ernest N. Patty, third president of the University, includes a gymnasium, swimming pool, rifle range, classrooms and office facilities for the Department of Health, Physical Education and Recreation and the Department of Military Science. The Beluga, an air-supported dome, houses the hockey rink in winter and tennis courts in summer.

The **Museum** exhibits thousands of catalogued specimens of natural and cultural history materials from Alaska and the North. These are part of extensive collections used in teaching, research, and public service.

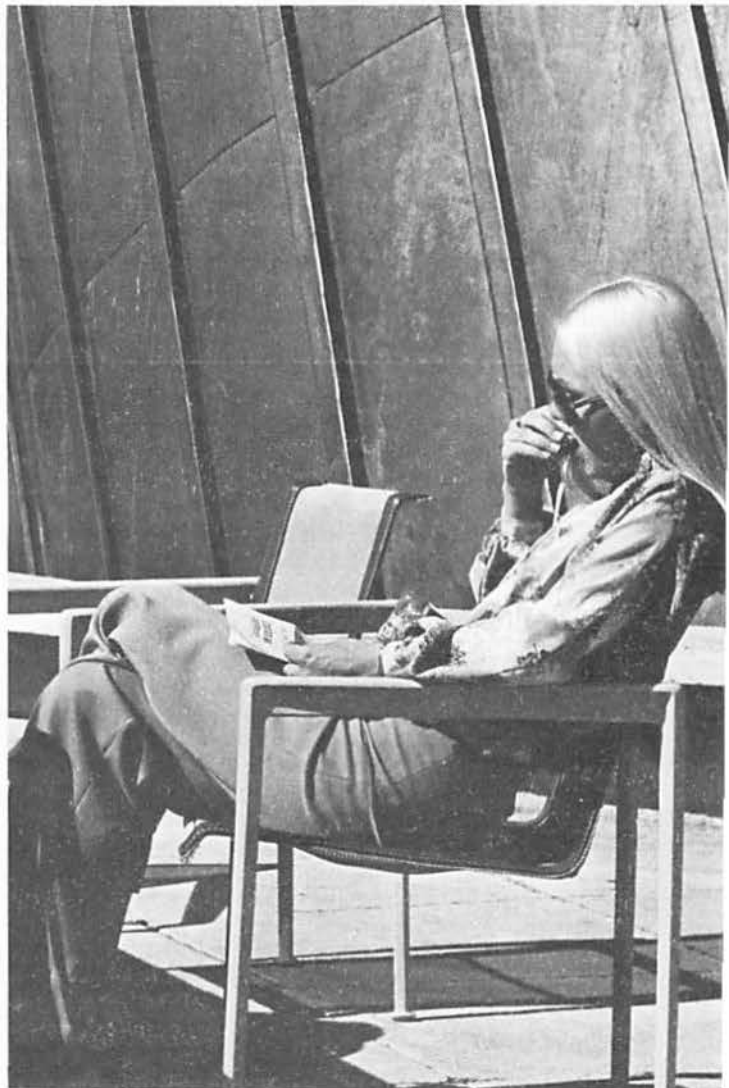
The **Sydney Chapman Building**, former home of the Geophysical Institute, contains the herbarium, classrooms, TVCC Aviation, Sea Grant, and offices.

Constitution Hall was completed in 1955 and was the university student union building. It was the site of the convention of territorial delegates which drafted the constitution for the state of Alaska. This building presently provides facilities for a variety of student services and the University Bookstore. The office of the Tanana Valley Community College is located on the ground level. The basement level accommodates the post office and barbershop. KMPS, the student operated AM radio station, is on the top (2nd) floor.

The **William Ransom Wood Center** is the University of Alaska's answer to cabin fever. The bright, spacious building is both colorful and comfortable. The bold, massive architecture complements modern Alaska and, at the same time, recalls her frontier ruggedness.

Facilities and services of Wood Center are designed to meet the varied out-of-class needs of the campus community – whether recreational, cultural, leisure, personal, or facilitative. Food service, meeting rooms, and lounge and exhibit areas, in addition to providing their specific functions, also lend themselves to additional special programming.

Service-oriented functions of Wood Center include campus information, facility scheduling, lost and found, sundry sales, and campus switchboard. Showers, laundry facilities, and rental lockers are available for use by university students and faculty. Darkrooms, a reloading room,



and a general-purpose workroom provide students with areas for developing specific skills. The games area is equipped with foosball, pocket and carom billiards, snooker, bumper pool, table tennis, and bowling lanes. The area is regularly used for tournaments, classes, and open play.

A.S.U.A., the *Polar Star*, and Wood Center administrative offices, located on the mall level, make up the hub of student activities on campus.

The **University Commons** provides food preparation, dining, and lounge facilities for students living in residence halls. Although most meals are served cafeteria style, table service for as many as 570 people is provided for special occasions.

The **Ernest Gruening Building**, new in 1972, houses the Office of the Chancellor, the Vice Chancellor for Research, the School of Education, the School of Management, the Institute of Social and Economic Research, the Center for Northern Educational Research, the Student Affairs Office, Student Orientation Services (SOS), the Financial Aid office, the Career Planning and Placement office, and classrooms, laboratories, and offices.

The **Elvey Building** houses the Geophysical Institute, formerly located in the Sydney Chapman Building. It contains facilities for research in arctic and subarctic natural phenomena as well as graduate instruction in geophysics. The impressive eight-story structure is located on the west ridge of the campus, overlooking the Tanana Valley and the Alaska Range. The building bears the name of the late Christian T. Elvey, Director of the Geophysical Institute.

The **Fine Arts and Humanities Complex** provides some of the finest facilities in the country for the fine arts and humanities curriculum. The offices of the College of Arts and Sciences are housed in the complex. Features of the building are a 480-seat theater, a 1,072-seat concert hall, vast art studios, and full-sized FM radio and educational television studios.

The **William A. O'Neill Building**, opened in 1973, houses offices and laboratories for research programs of the Institute of Agricultural Sciences, Institute of Marine Sciences, the Forest Soils Laboratory, part of the Mineral Industry Research Laboratory, the U.S. Geological Survey, the U.S. Bureau of Mines, and the State Division of Geological and Geophysical Surveys.

The **Ben J. Atkinson Building** houses the central heating and electric generating facilities for the campus.

The **Health, Safety, and Security Building**, completed in 1973, houses the Student Health Service and the Department of Safety and Security. It adjoins the campus Fire Department building.

On-campus residential facilities for students are described in the Student Affairs section of this catalog.

Elmer E. Rasmuson Library

The University of Alaska library, named for Elmer E. Rasmuson, moved into the five-level, 10.6 million-dollar library, fine arts, and humanities complex in the fall of 1969. The library collection consists of more than a half million volumes with additional holdings of periodicals, serial titles, government documents, microfilm, microcards, microfiche, maps, phonorecords, and cassettes. Book holdings are available on open stacks for the use of patrons during the extensive hours the library is open. A separate reserve study area is open until 2:00 a.m. when classes are in session. Since students and faculty enjoy the open-stack arrangement and the wide circulation of books, they cooperate with the necessary security check of materials leaving the library. The checkpoint system is now in operation. Its purpose is to protect the collection against unauthorized removals, thereby providing better library service for all users.

Materials are classified according to the Library of Congress system. Current acquisitions are received immediately following publication on the Blackwell North American Approval Plan for college libraries.

One of the outstanding features of the facility is the abundance of study areas and lounges. The seating capacity of 1,000 includes individual study carrels for one-third of the student body as well as closed graduate student carrels and research studies for use by faculty members. The graduate carrels and faculty studies are available upon application to the Reserve Room clerk.

The main book collection is housed on the fourth and fifth levels. Books in Library of Congress classification A through N and oversize are located on the fifth level, P through Z on the fourth. Graduate carrels, seminar rooms, individual study carrels, and smoking rooms are located on each of these levels. Rooms for using personal typewriters also are available.

The main floor of the library is on level three and contains the circulation and information desks, the card catalog, the separate reserve book room, the reference area with indexes to periodicals and newspapers, telephone directories, a current collection of college and university catalogs, a student lounge area, and study tables and carrels for student use. The Reader Services department and other library administrative offices are on level three. A special collection of books on Alaska and the polar regions, known as the Skinner Collection, is housed on this level. The bibliography, juvenile, and rare book collections are also located on level three.

Noncirculating collections which are housed on level two include current periodicals, bound periodicals, newspapers, and periodicals in microform. Other microform collections include the Human Relations Area Files (HRAF) and the Educational Research Information Center (ERIC). Microfilm readers and coin-operated self service photocopy machines are available. A computer printout of all serial and periodical titles held by the library gives call numbers of locating journals, and a serials record file lists complete holdings for each title. Current and back issues of local, national, and foreign newspapers are available including the complete run of *The New York Times*. Two lounges add to the comfort of patrons.

Level one houses the documents collection, the University archives and manuscripts collection, the map room, and the microfilm service center of Records Management. The documents collection constitutes approximately one-fourth of the total library collection. It contains publications of the U.S. government, for which the library is a selective depository. There materials are arranged by the Superintendent of Documents classification.

The map room is located in the documents area. Available for use are subject area maps of the countries of the world, an extensive collection of Alaskan maps, U.S. Geological Survey maps of Alaska, and a special collection of rare maps.

The University archives and manuscript collection includes University records and special collections such as the Gruening, Bartlett, Rivers, and Dimond papers, records of the Russian American Company 1802-1869, writings of pioneers, and other original Alaskan material.

Interlibrary loan service is made available to students and faculty through the Reader Services department of the library. The library's membership in the Pacific Northwest Bibliographic Center and Telex communication direct from the library to PNBC make the resources of the large

university libraries in the nation available to the University of Alaska.

The library's Department of Media Services is divided into five areas: (1) photographic services, including cinematography; (2) graphic services; (3) video services and studio; (4) 16 mm film library; and (5) equipment services.

The department also provides many special services, such as transparency making, laminating, equipment consulting, audio transfer, and the like. The Media Services department is located in the Eielson Building and is organized as a support function to the academic program. Assistance with instructional design and systems is an important and growing function of Media Services.

The Bio-Medical library on the West Ridge campus became a part of the university library in 1973. The Bio-Medical library has approximately 20,000 books, but the greater part of its collection consists of periodical literature. Journal titles cover the fields of medical research, biology, and the environment as it relates to cold-regions research. The circulation policies are the same as those of the Elmer E. Rasmuson Library.

Computer Network

The University of Alaska Computer Network (UACN) provides statewide distributed computing resources for all members of the university community. The computer network is independent of any specific research, administrative, or educational department.

The UACN is a statewide computer network based on large Honeywell Level 66 dual processors, located on the Fairbanks campus. User services are provided through "nodes" at the Anchorage, West Ridge, Fairbanks, and Juneau campuses. Additional access points for time-sharing services are available at the Kodiak and Kenai campuses, with plans for additional access points at other campuses. Batch, remote batch, and extensive time-sharing services are available on the network computer. The network spans, by microwave and satellite, an area fourteen hundred by eleven hundred miles.



Policy for the UACN is recommended by a Computer Policy Council and assistance is provided by a Computer Advisory Committee with representation from university students, faculty, and staff. The computer resources are managed in accordance with the Dartmouth philosophy of "library" type free access for members of the university community; rapid turnaround with a heavy emphasis on time-sharing; and a broad range of available applications languages and programs.

Two unique aspects of the University of Alaska Computer Network are the extreme distances spanned by the network and the fact that all users are treated equally. All users access the system through minicomputer driven "nodes," therefore assuring physically equal facilities. Remote node users are not charged extra for communication and all users are assigned equal priority on the system.

Machines

Honeywell Level 66 – Dual processors. 1.5 million character memory with 1.5 billion characters of fast disk storage and 6 tape drives. Five 9-track ASCII/EBCDIC tape drives are 800/1600 BPI and one tape is 7 track 200/550/800 BPI. HIS 707 and 606 minicomputers serve as "nodes" in providing more than 140 time-sharing ports, 6 printers, 5 card readers, and tape facilities at the West Ridge, Anchorage, Fairbanks, and Juneau campuses.

Unit Record Equipment – 029 keypunches, many time-sharing terminals, plotters.

Software – FORTRAN, COBOL, BASIC, ALGOL, IDS II, PL/1, Data Query, APL, Data Basic, JOVIAL, ABACUS, MDQS, Interactive Graphics (Calcomp, TeK, West Point), GPSS, CSMP, BMD, Simscript, SPSS, FAMULUS, IMSL, Pert Time/Cost, Civl Engr. Package, Time Series Forecasting, Dartmouth T/S Library, Text Editing, LP 6000, QED, ROFF, Dynamo, Snobol, B. Selgen, GMAP, ORNL, SCEPTER, ECAP, Mail, Mini and micro computer simulators and cross assemblers. Over 500 Explain files are available on line for user documentation.

User Services – Each node provides consulting services, access to documentation, seminars and classes and acts as a "one stop" source for all user help.

Public Broadcast Services

KUAC operates an FM stereo radio station (104.7 mHz) and a full-color television station on Channel 9.

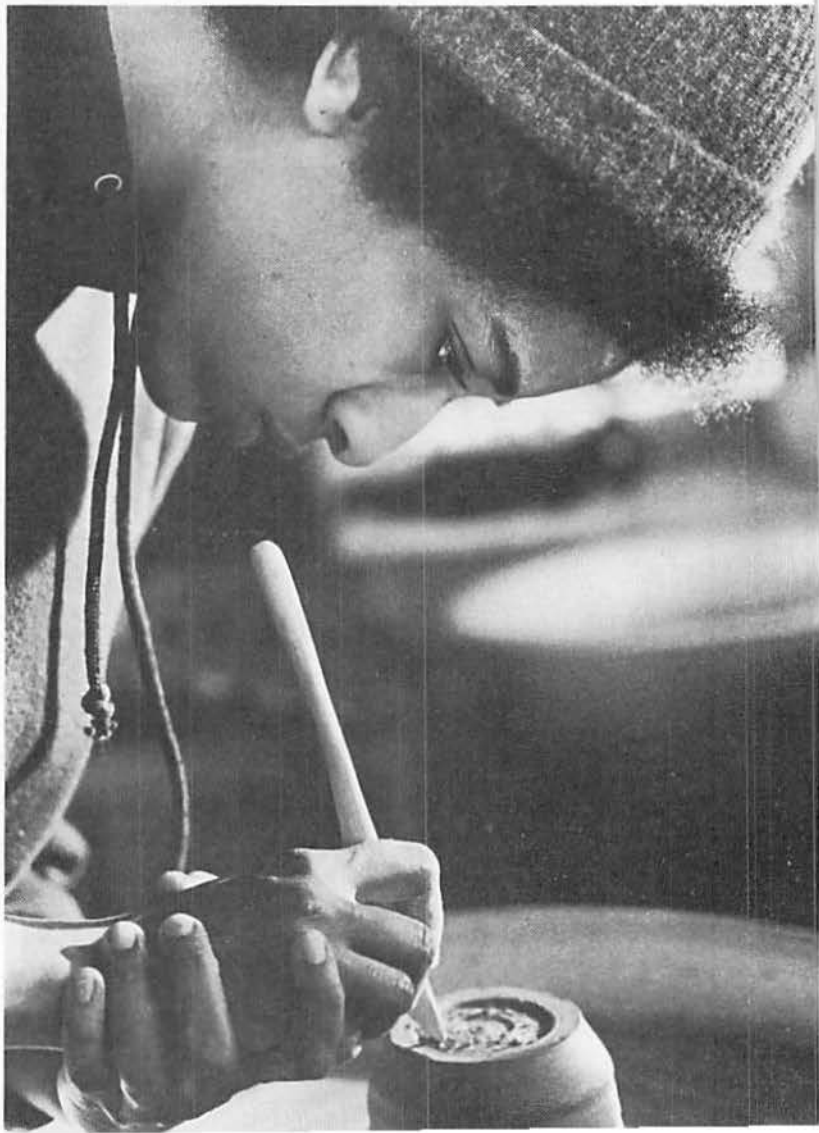
KUAC-FM was the first educational radio station in Alaska. It serves the university and the greater Fairbanks area as a public service. The station was established in 1962, and now broadcasts seven days a week, year-round, with 10,500 watts of power in stereo. It is a member of NPR – National Public Radio.

In addition to its program service, KUAC also provides valuable experience for students in the Department of Journalism and Broadcasting and for non-majors who also are interested in broadcasting.

KUAC-TV was the state's first public television station. The station serves the community with an alternative to commercial television fare. It is a member of PBS – the Public Broadcasting Service.

KUAC produces television and radio programs for statewide use on other broadcasting stations as well as satellite, cable, and cassette distribution. Production services are available at standard rates to all noncommercial entities.


HEATING





Academic Organization

The academic programs of the University of Alaska, Fairbanks, are administered by two colleges, a division of professional schools, and a community college. The goals of these are outlined here, with listings of the degrees they offer. Instructional personnel listed are those of the 1978-79 academic year.

College of Arts and Sciences

Paul Sanford Salter, *Dean*

The mission of the College of Arts and Sciences is to educate students to the point where they are capable of recognizing the possibilities and limits of the human intellect; to bring the students to an intellectual point where the student desires to, and is capable of, educating him or her self. The college is dedicated to teach methods of conceptualisation, explanation, and substantiation. The college, although composed of a variety of disciplines, has as its instructional principle the advancement of knowledge and the search for truth and beauty.

Undergraduate Degrees – Associate of Arts with degree majors in justice, science and liberal arts. Associate of Applied Science, chemical science, Bachelor of Fine Arts in art, Bachelor of Arts in art, Yupik Eskimo, Inupiaq Eskimo, chemistry, English, geography, history, physical education, humanities, journalism, foreign languages, linguistics, mathematics, music, northern studies, philosophy, physics, justice, political science, psychology, Russian studies, sociology, speech, and theater. Bachelor of Music, Bachelor of Science in chemistry, general science, geography, physical education, mathematics, physics, psychology and sociology.

Graduate Degrees – Master of Arts in English, Master of Arts in Teaching, in chemistry, English, mathematics, music, and physics. Master of Fine Arts in creative writing. Master of Science in chemistry, general science, mathematics, and physics.

Doctor of Philosophy in physics.

Department of Art

Department Head and Professor: Ronald Senungetuk
Professor: L. Stanley Zielinski
Associate Professors: Terence T. Choy, Glen C. Simpson
Assistant Professors: Arthur William Brody, Barbara Alexander

Alaska Native Language Program

Chairman and Professor: Michael E. Krauss
Instructors: Steven Jacobson, Edna Maclean

Department of Chemistry

Department Head and Associate Professor: Paul B. Reichardt
Professors: L. Claron Hoskins, G. Warren Smith
Associate Professors: Charles Genaux, Donald Lokken
Assistant Professor: Richard Stolzberg

Cross Cultural Communications Program

Chairman and Instructor: Linda Wiggins
Associate Professor: Russell Currier

Department of English

Department Head and Assistant Professor: Frank Buske
Professors: John W. Bernet, I. June Duncan
Associate Professor: Russell Tabbert
Assistant Professors: Mary Baron, Norma Bowkett, John Morgan, Ann San Chez, Patricia Sheehan, David Stark, Cynthia Walker

Department of Geography

Department Head and Associate Professor: Roger W. Pearson
Professors: Donald F. Lynch, Paul S. Salter

Department of Health, Physical Education, and Campus Recreation

Department Head and Professor: John Gilmore
Associate Professors: Allen R. Svenningson, Theresa H. Tomczak
Assistant Professors: Nancy E. Frith, William L. Smith
Instructor: George Roderick

Department of History

Department Head and Associate Professor: Peter Cornwall
Professor: William Hunt
Associate Professors: Clause Naske, John Whitehead

Department of Journalism and Broadcasting

Department Head and Professor: Jimmy Bedford
Professor: B. G. Olson
Associate Professor: Don Upham
Assistant Professors: Dean M. Gottehrer, George M. Winford
Lecturers: Nancy Harris, Myron Tisdel, Juanita Tucker

Department of Linguistics and Foreign Languages

Department Head and Associate Professor: Jang Koo
Professors: Wolf Hollerbach, Louis L. Renner
Associate Professor: Joseph Brenckle

Department of Mathematics and Computer Science

Department Head and Professor: Thomas Head
Professors: Robert W. Brown, John O. Distad, Phillip A. Van Veldhuizen
Associate Professors: Patricia Andresen, Ed Gauss, Gary Gislason, Barbara Lando, Clifton Lando
Assistant Professors: Robert J. Pizcenza, Susan Royer, Robert Sullivan, John F. Wilkinson

Department of Military Science

Department Head and Professor: Charles Smelcer, Lt. Col.
Assistant Professors: Gordon F. Atchison, Maj.; Nicholas Leopoldus, Maj.
Instructors: John Domigan, SSG; John Henke, SGM

Department of Music

Department Head and Professor: Charles W. Davis
Associate Professors: Theodore De Corso, James Johnson, Thomas Johnston, Duane J. Mikow, Gordon B. Wright
Assistant Professors: Melvin Honea, Rose Marie Johnson, David Stech, Suzanne Summerville

Department of Philosophy
Department Head and Professor: Walter J. Benesch
Professor: Rudolph W. Krejci

Department of Physics
Department Head and Professor: J. Roger Sheridan
Professor: John L. Morack
Associate Professor: John S. Murray

Department of Political Science
Department Head and Professor: R. London Smith
Associate Professors: Gerald Garrett, Andrea Helms, Gerald McBeath
Assistant Professor: Kendall Stockholm

Department of Psychology and Sociology
Department Head and Associate Professor: Nagabhushana Rao
Professor: Sarkis Atamian
Associate Professors: Theodore L. Drahn, Richard G. Possenti
Assistant Professors: Charles R. Geist, Lawrence A. Gooding, James L. Gray

Department of Speech and Drama
Department Head and Associate Professor: Walter G. Ensign, Jr.
Professor: Lee H. Salisbury
Assistant Professor: Ray Fenton, Carolyn Hale, Jayna Orchard
Instructor: Douglas Nancarrow

College of Environmental Sciences

Juan G. Roederer, *Dean*

The College of Environmental Sciences embraces three major Divisions: Geosciences, Life Sciences and Marine Sciences. These include programs in a variety of disciplines relating to the earth, atmosphere, oceans, biosphere and even extending into space science. At the undergraduate level, there are majors in geology (with four options), biological sciences, wildlife, fisheries and anthropology. Work at the master's level is also offered in these areas. Graduate programs only are offered in space physics, atmospheric sciences, marine sciences and ocean engineering. The College also includes a health science program; the WAMI Program cooperates with three other States to provide medical training to Alaska students. Graduate programs take advantage of the outstanding research facilities relating to northern problems: the Geophysical Institute, the Institute of Marine Science, the Institute of Arctic Biology, the Alaska Cooperative Park Studies Unit, the Alaska Cooperative Wildlife Research Unit, the Alaska Cooperative Freshwater Fisheries Research Unit, the Biome Center and the Alaska Sea Grant Program.

Undergraduate Degrees – Bachelor of Sciences in anthropology, geology with options in general geology, economic geology, geophysics and petroleum geology, biological sciences, fisheries biology (research and management options), wildlife management, Bachelor of Arts in anthropology.

Graduate Degrees – Master of Sciences in geology, geophysics, oceanography (biological, physical, geological, chemical), ocean engineering, marine biology, botany, biology, zoology, wildlife management, fisheries biology, space physics, atmospheric sciences. Master of Arts in anthropology, teaching, biology. Ph.D. in space physics, atmospheric sciences, geophysics, geology, oceanography (biological, geological, chemical, physical) and a variety of interdisciplinary degrees in biological sciences, wildlife and fisheries.

Division of Geosciences
Director and Professor of Physics: Juan G. Roederer

Space Physics and Atmospheric Sciences Program
Program Head and Associate Professor of Geophysics: Joseph R. Kan
Professors: Syun-Ichi Akasofu, Howard F. Bates, Albert E. Belon, T. Neil Davis, Richard R. Heacock, Robert D. Hunsucker, Robert P. Merritt, John L. Morack, Takeshi Ohtake, R. Parthasarathy, Manfred H. Rees, Thomas D. Roberts, Gerald J. Romick, Roger J. Sheridan, Daniel W. Swift, Gunter E. Weller, Tunis Wentink, Jr., Eugene M. Wescott, Charles R. Wilson
Associate Professors: Charles S. Deehr, Vladimir Degen, K.O.L.F. Jayaweera, Hans C.S. Nielsen, Glenn E. Shaw, Gulamabas G. Sivjee, Gerd D. Wendler
Assistant Professors: Sue Ann Bowling, Neal B. Brown, Thomas J. Hallinan
Affiliate Faculty: Murray J. Baron, Bernard Haurwitz

Geology and Geophysics Program
Program Head and Professor of Geophysics: David B. Stone
Professors: Richard C. Allison, Carl S. Benson, Daniel B. Hawkins, Don M. Triplehorn
Associate Professors: Nirendra N. Biswas, Larry D. Gedney, William D. Harrison, Juergen Kienle, Brian J. Matthews, Thomas E. Osterkamp, James C. Rogers, William M. Sackinger, Thomas E. Smith, Donald L. Turner
Assistant Professors: P. Jan Cannon, Paula V. Krebs, Myron W. Payne, Hans Pulpan, Lewis H. Shapiro, William J. Stringer
Adjunct Faculty: Wyatt G. Gilbert, Richard Reger, Milton A. Wiltse

Geophysical Institute
Director: Juan G. Roederer

Division of Life Sciences
Director and Professor of Animal Science: John Bligh

Anthropology Program
Program Head and Associate Professor of Anthropology: G. Richard Scott
Professor: Frederick A. Milan
Associate Professors: Jean Aigner, Wm. Roger Powers, Anne D. Shinkwin

Biological Sciences Program
Program Head and Associate Professor of Zoology: Stephen F. MacLean, Jr.
Professors: John Bligh, Patrick W. Flanagan, R. Dale Gutherie, Jack R. Luick, Peter R. Morrison, David F. Murray, L. Gerard Swartz, George C. West
Associate Professors: Hans W. Behrisch, F. Stuart Chapin, Dale D. Feist, Kenneth J. Kokjer, Keith Miller, Ronald L. Smith
Assistant Professors: Arnoldus S. Blix, Carol F. Feist, Mark W. Oswood, Gerald F. Shields
Adjunct Faculty: Robert Elsner, Francis H. Fay, Howard Feder, Brina Kessel, Paula Krebs
Affiliate Faculty: Charles T. Genaux, Albert W. Johnson, David W. Norton, Lawrence S. Underwood, Keith Van Cleve.

WAMI Medical Education Program
WAMI Director and Associate Professor of Medical Science: Wayne W. Myers
Professors: James R. Crook, Robert A. Dieterich, Robert F. Kraus
Associate Professor: Betty A. Philip
Assistant Professors: Raymond P. Bailey, Helen A. Myers
Adjunct Faculty: Joseph Bloom, Lawrence Dunlap, David Grauman, Kenneth Kastella, Richard Reem, Darrell D. Williams, Aaron Wolf, Joseph Worrall, John Wreggit
Affiliate Faculty: Elizabeth Elsner

Wildlife and Fisheries Program

Program Head and Associate Professor of Biometrics: Samuel J. Harbo, Jr.
Professors: Frederick C. Dean, David R. Klein
Associate Professors: Robert G. White, James B. Reynolds
Assistant Professors: Willard E. Barber, John F. Fox, Philip S. Gipson, Peter G. Mickelson
Adjunct Faculty: R. Theodore Cooney, Robert B. Weeden
Affiliate Faculty: Raymond D. Cameron, John H. Clark, John W. Coady, Albert W. Franzmann, William C. Gasaway, Calvin Lensink, Robert E. LeResche

Institute of Arctic Biology

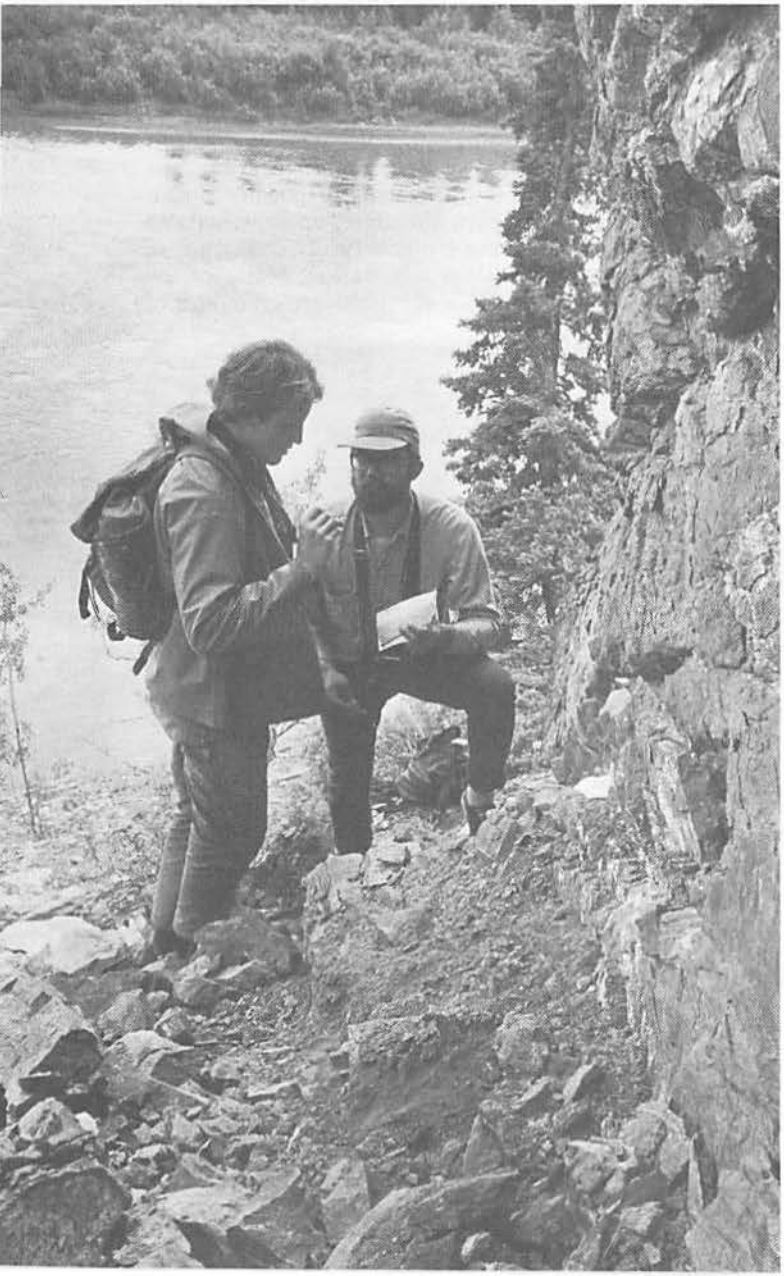
Director: John Bligh

Alaska Cooperative Fisheries Unit

Project Leader: James B. Reynolds

Alaska Cooperative Park Studies Unit

Project Leader, Biology and Resource Management: Frederick C. Dean
Project Leader, Anthropology and Historic Preservation: Zorro A. Bradley



Alaska Cooperative Wildlife Research Unit

Project Leader: David R. Klein
Assistant Project Leader: Philip S. Gipson

The Biome Center

Director: George C. West

Division of Marine Sciences

Director and Professor of Marine Sciences: J. Robert Moore

Marine Sciences and Ocean Engineering Program

Program Head and Professor of Marine Science: David C. Burrell
Professors: Vera Alexander, Robert J. Barsdate, Donald K. Button, Joseph M. Colonell, Robert Elsner, Howard H. Feder, John J. Goering, Richard A. Nevé, William S. Reeburgh
Associate Professors: R. Theodore Cooney, Francis H. Fay, C. Peter McRoy, J. Brian Matthews, Paul B. Reichardt, Thomas C. Royer, David G. Shaw
Assistant Professors: John J. Kelley, Sathy A. Naidu, H. Joseph Niebauer, Tsuneo Nishiyama

Institute of Marine Science

Director: J. Robert Moore

School of Agriculture and Land Resources Management

James V. Drew, *Dean*

The courses and programs within the natural resources management curriculum are developed in close cooperation between the School of Agriculture and Land Resources Management and other university units concerned with natural resources management. These include the Institute of Social and Economic Research, the Environmental Quality Engineering program, the Cooperative Extension Service, and the Rural Education program. The school includes the Agricultural Experiment Station, the Institute of Water Resources, the Forest Soils Laboratory, and the instructional and public service programs. Individual faculty throughout the university make significant contributions to the program, and important cooperative efforts come from agencies and organizations such as the Alaska Department of Fish and Game, Alaska Rural Development Council, Alaska Department of Natural Resources, Alaska Conservation Society, Alaska Association of Soil Conservation Subdistricts, Soil Conservation Service, Agricultural Research Service, Bureau of Land Management, U.S. Forest Service, and the U.S. Fish and Wildlife Service.

Undergraduate Degree – The natural resources management curriculum is designed to provide the student with a broad training in the various renewable resources and their related applied fields (agriculture, conservation, forestry, land use planning, outdoor recreation, and watershed management). All students receive the same fundamental education in the sciences related to natural resources management; yet there is sufficient flexibility for tailoring programs to individual interests and career opportunities in fields such as conservation education, resource communications, resource engineering, general resource management, or many of the various specific fields related to resource management.

Graduate Degree – The Master of Science degree is offered in natural resources management. All candidates will meet the general requirements for this degree and individual programs may emphasize one of the following

areas: forest management, soil management, parks and recreation, agriculture, watershed management, and land use planning.

Agricultural Experiment Station — Fairbanks

James V. Drew, *Dean of School, Director, AES, and Professor of Agronomy*
Donald H. Dinkel, *Professor of Plant Physiology*
Anthony F. Gasbarro, *Project Coordinator in Forestry and Resource Management*
Fredric M. Husby, *Assistant Professor of Animal Science*
Charles W. Knight, *Instructor of Agronomy*
Carol E. Lewis, *Assistant Professor of Resource Management*
Wayne C. Thomas, *Associate Professor of Economics*
Frank J. Wooding, *Associate Professor of Economics*
William G. Workman, *Assistant Professor of Economics*

Agricultural Experiment Station — Palmer

Lee D. Allen, *Associate Engineer*
Arthur L. Brundage, *Professor of Animal Science*
Wayne E. Burton, *Professor of Economics*
Jay D. McKendrick, *Assistant Professor of Agronomy*
William W. Mitchell, *Professor of Agronomy*
Sigmund H. Restad, *Assistant Director*
(Agricultural Research Service personnel with experiment station)
Barbara L. Leckwold, *Administrative Officer*
Charles H. Dearborn, *Research Horticulturist*
Leslie J. Klebesadel, *ARS Research Leader and Research Agronomist*
Winston M. Laughlin, *Research Soil Scientist*
Roscoe L. Taylor, *ARS Location Leader, Research Agronomist*
Richard H. Washburn, *Research Entomologist*

Instruction and Public Service

Bonita J. Neiland, *Director of Instruction and Public Service, and Professor of Botany and Land Resources*
John D. Fox, *Assistant Professor of Land Resources*
Robert B. Weeden, *Professor of Resource Management*

Forest Soils Laboratory

Keith Van Cleve, *Professor of Forestry*

School of Education

Charles K. Ray, *Dean*

The School of Education prepares teachers, administrators, and guidance counselors required for Alaska's early childhood, elementary, secondary, and postsecondary schools. Programs provide emphasis on concepts, cognitive skills, and process required by those who work effectively in a multicultural setting. The Center for Cross-Cultural Studies conducts research and development programs and provides a field-centered, cross-cultural approach to selected aspects of educational development in rural Alaska. The program offers a Bachelor of Education degree with emphases in elementary, secondary, and bilingual education. A Master of Education program in cross-cultural education is also offered on a limited basis.

Undergraduate Degrees — The school has programs that lead to the Bachelor of Education degree with emphases in early childhood education, elementary education, secondary education, and cross-cultural education.

Graduate Degrees — The master's degree in education is available with emphases in elementary education, secondary education, counseling and guidance, school administration, student personnel, vocational education, and cross-cultural education. The Master of Arts in Teaching degree is provided. A sixth-year, or Education Specialist, degree is also available with a specialization in school administration.

Professors: Joan B. Clutts, Arnold A. Griese, Dana C. Moore, Charles K. Ray
Associate Professors: Raymond J. Barnhardt, E. Dean Coon, Kathryn A. Hecht, James M. Orvik, William K. Pennebaker, Lillian P. Stinson, A. John L. Turner
Assistant Professors: Michael J. Gaffney, David J. Mangusso, Howard A. Van Ness
In Cross-Cultural Field Centers: Lynne Ammu, Patrick J. Dubbs, Stephen E. Grubis, Lawrence H. Rockhill, Susan M. Selbin, Lary A. Schafer
Instructors: Sarah M. Elder, Ronald K. Inouye, Wendy J. Redding

School of Engineering

Charles E. Behlke, P.E., *Dean*

Professional engineering embraces the wide range of cultural and technical subjects related to the planning, design and construction of works necessary for civilization. An engineer is an innovator, a builder, and a problem solver. The engineer turns scientific knowledge into goods and services useful to man and is responsible to society in the decisions he or she makes. The engineer is interested in creating, works with people, and is willing to work as a member of a professional team in a position of leadership. Engineers are concerned about people and how to provide all of us with a better standard of living.

In addition to providing the training necessary for entrance into the professional practice of engineering, an undergraduate degree in engineering provides an excellent background for those desiring to enter law, medical, or business school or graduate studies in engineering. The engineering programs at the University emphasize Northern problems and principles; therefore, engineering and technology graduates of the University of Alaska are in great demand in the Alaskan job market. Many of the leading professional engineers of Alaska are graduates of



the University of Alaska's engineering program.

Since engineering is based on the physical sciences of mathematics, chemistry, and physics, engineering students are introduced to the basic principles in these areas during their first two years of study. The third year of study is largely devoted to courses in the engineering sciences – extensions of the basic sciences forming the foundation for engineering analysis and design. In the senior year, students specialize within their disciplines and draw upon previous learning to focus their studies on creative design and analysis through simulated projects. Since engineers must be able to effectively communicate in written, oral, and graphic form and must be aware of their social responsibilities and roles in a modern society, courses in communication, humanities, and social sciences are taken throughout the four-year program.

Undergraduate Degrees – The School of Engineering, University of Alaska, includes the departments of civil engineering, mechanical engineering, and electrical engineering, and offers courses of study leading to the four-year Bachelor of Science Degree in civil, electrical, or mechanical engineering.

Graduate Degrees – The school also offers graduate-level programs in engineering management, environmental quality engineering, and arctic engineering, as well as in civil, electrical, and mechanical engineering, to students with baccalaureate degrees in engineering. Seminars and workshops are offered to practicing engineers and others.

Department of Civil Engineering

Department Head and Professor: John L. Burdick, P.E.
Professors: Robert F. Carlson, P.E.; William W. Mendenhall, P.E.; Elbert F. Rice, P.E.
Associate Professors: William E. Fuller, P.E.; Arvind Phukan, P.E.; Nils Johansen, P.E.
Assistant Professors: Kenneth H. Hobson, P.E.; Douglas L. Kane, P.E.
Affiliate Faculty: Terry McFadden, P.E.

Department of Electrical Engineering

Department Head and Associate Professor: Kenneth J. Kokjer, P.E.
Professors: Robert P. Merritt, P.E.; Thomas D. Roberts, P.E.
Associate Professors: John D. Aspnes, P.E.; Robert D. Hunsucker; James C. Rogers, P.E.; William M. Sackinger, P.E.

Department of Engineering Management

Department Head and Professor: F. Lawrence Bennett, P.E.
Professor: John M. Hilpert
Assistant Professor: Theodore G. Eschenbach

Department of Mechanical Engineering

Department Head and Associate Professor: John P. Zarling, P.E.
Professor: James B. Tiedemann, P.E.
Assistant Professor: William Nelson, P.E.

Environmental Quality Engineering Program

Department Head and Professor: John L. Burdick, P.E.
Associate Professors: Oscar Eugene Dickason, P.E.; Timothy Tilsworth, P.E.
Assistant Professor: Ronald A. Johnson

School of Management

William G. Phillips, *Dean*

The School of Management offers programs of study which, in addition to preparing students for effective citizenship, provide the foundation for professional careers in private or public, small or complex organizations. The undergraduate programs also provide the basis for graduate study leading to accelerated business or government careers, or for further training as a teacher or researcher in accounting, management, or economics. The graduate program is designed to provide management education for students with a wide variety of undergraduate degrees. The objectives of the school impose the obligation to prepare literate, articulate and liberally educated business specialists, knowledgeable in fundamental economic laws, accounting and information systems, and keenly sensitive to interpersonal relationships and the dignity of the individual. The school seeks to provide the technical knowledge of the management profession while also emphasizing an awareness of our society and its ethical, moral, and cultural values. All of these programs are designed to emphasize the problems and circumstances unique to Alaska, including treatment of start-up or venture management, international trade, regional economic development, regulation, financial institutions and markets, transportation, natural resource economics, hotel administration, and a comprehensive professional program in accounting.

Undergraduate Degrees – The school grants the following undergraduate degrees: Bachelor of Business Administration with majors in accounting, finance, management, marketing, and travel industry management; Bachelor of Arts degrees in economics, business education, and office administration; Associate of Arts degrees in accounting, computer information systems, business administration, and travel industry management.

Graduate Degrees – The school offers the Master of Business Administration degree.

Department of Accounting

Department Head and Associate Professor: Milton A. Fink
Assistant Professors: Thomas E. Bartlett, E. Thomas Robinson
Lecturer: Beverly Staley

Department of Business Administration

Department Head and Professor: Gerald E. Gleason
Professor: William G. Phillips
Associate Professors: Ralph W. Nestor, Howard L. Zach
Assistant Professors: Norman R. Boelts, David B. Hoffman
Lecturers: Jeffry Cook, James DeWitt

Department of Economics

Department Head and Professor: Richard J. Solie
Associate Professor: Wayne Thomas
Assistant Professors: J. Patrick O'Brien, Monica E. Thomas, William G. Workman
Instructor: Joseph M. Terry

School of Mineral Industry

Earl H. Beistline, *Dean*

Mineral materials have been basic to man's society throughout the time of recorded history. In the space age of the present and future they will continue to be of even greater importance to the high standard of living of the people of the nation, as well as to its economic strength. Within the field, excellent opportunities exist for challenging, stimulating, and satisfying careers.

The School of Mineral Industry is composed of three major units: the Department of Mineral Engineering, the Mining Extension Program, and the Mineral Industry Research Laboratory.

Department of Mineral Engineering

The department has statewide responsibility for academic instruction in the fields of geological engineering, mining engineering, and petroleum engineering. Overall the objectives of the department are to prepare students for their places as contributive citizens and for professional careers in the mineral industry.

Undergraduate Degrees – The Department has programs that lead to Bachelor of Science degrees in geological engineering and mining engineering. Courses in petroleum engineering are given to enrich offerings in engineering programs.

Graduate Degrees – Programs leading to a Master of Science degree are offered in mining engineering and mineral preparation engineering.

The professional degree Mining Engineering (E.M.) may be earned by engineering graduates of the school.

Mining Extension

The mining extension program has been designed to enrich the knowledge of mineral prospectors in their search for ore deposits and to make available educational opportunities to those people who have vocational interest in various specific subjects offered. Courses varying in length from 2 to 4 weeks are offered in various communities of the State. Courses include: Introductory Geography and Geology of Alaska; Basic Prospecting (including mineral identification); Identification of Rocks, Rock Forming Minerals and Colored Stones; Geochemical Prospecting; Geophysical Prospecting; Introduction to Environments of Ore Deposits; Introduction to Mineral Valuation; and Environmental, Pollution and Land Rehabilitation Concerns in the Mineral Industry.

Certificates are awarded for each course completed. In addition, continuing education units may be earned, and upon satisfactory completion of this program an appropriate mineral prospecting program diploma will be awarded.

Mineral Industry Research Laboratory

The 1963 Alaska State Legislature authorized the establishment of a mineral industry research program at the University of Alaska. The purpose of the laboratory is to conduct appropriate applied and basic research in various areas of the mineral industry that will add to basic knowledge and will aid in the further discovery, recovery and utilization of Alaska's mineral resources. Research is conducted in facilities of the school and coordinated with graduate student academic programs.

Department of Mineral Engineering

Department Head and Professor: Chris A. Lambert, P.E.
Professors: Earl H. Beistline, P.E.; Donald J. Cook, P.E.; Ernest N. Wolff, P.E.
Associate Professors: Nils I. Johansen, P.E.; J. F. M. Sims; Thomas E. Smith
Assistant Professors: P. Jan Cannon; Myron W. Payne, Hans Pulpan

Mineral Industry Research Laboratory

Director: Earl H. Beistline, P.E.
Associate Director and Geologist: Ernest N. Wolff, P.E.
Professor of Coal Technology: P. Dharma Rao
Professor of Mineral Beneficiation: Donald J. Cook, P.E.
Professor of Mining Engineering: Chris A. Lambert, P.E.
Associate Professors of Geological Engineering: Nils I. Johansen, P.E.; J. F. M. Sims
Associate Professor of Geology: Thomas E. Smith
Affiliate Professor of Mining Engineering: Bruce I. Thomas, P.E.
Assistant Economic Geologists: Paul A. Metz; Mark S. Robinson

Mining Extension

Professor of Mining Extension: Leo Mark Anthony
Assistant Professor of Mining Extension: James A. Madonna

Tanana Valley Community College

Glenn F. Massay, *Campus President*

Since its inception in September 1974, Tanana Valley Community College has brought to the people of Alaska, of Fairbanks and the surrounding Tanana Valley, a broad range of instructional programs that enhance personal lives as well as provide people with basic and improved job-related skills.

Organizationally, TVCC falls under the jurisdiction of the Chancellor for Community Colleges, Extension and Rural Education. Since both TVCC and UAF are located on the Fairbanks Campus, the two institutions cooperate on matters of policies and regulations (tuition, fees, grading system, degree requirements, etc.).

TVCC students also use the facilities (library, classrooms, gymnasium) and services (health center, housing, financial aid, co-curricular activities, recreation) of the University of Alaska, but TVCC maintains its own advising and counseling services to suit the particular needs of its students.

Vocational-Technical Career Education, an academic program, and community service courses are the three elements of TVCC's instructional endeavor.

The Associate of Arts and Associate of Applied Science degrees are offered in a variety of vocational-technical areas. Coordination with respect to maintaining standards for parallel associate degree programs which are applicable toward completion of a four-year degree is stressed in the curriculum offered by Tanana Valley Community College.

Courses coordinated through the community interest program cover various topics. Daily living skills, job-related information, craft and hobby skills, and special subjects form the basis for this "community" oriented curriculum.

The Noncredit Short Courses program provides the people of the Fairbanks area with learning opportunities in diverse areas for all ages. Community needs and interests of young children and senior citizens are taken into consideration in planning the self-support nature of this program which allows courses to be offered at a low fee.

Faculty for the community college is drawn from the university academic community, TVCC full-time instructors, and qualified personnel in the Fairbanks area with specialized instructional skills.

Administrative Services: Stephen Spengler
Academic and Counseling Services: Constance K. Smith
Community Service Courses: Michelle Bartlett
Registrar: Marsha Heckman

Vocational/Technical Education

Aviation: D. Bradford Reed, Bill Lex
Fire Science: Basil J. Sands
Office Occupations: Jolene Workman
Food Service: Richard Donnelly
Electronic Technology: Larry Hart
Mineral Petroleum Technology: Dois Dallas
Family Living Skills: Constance K. Smith
Electrical Technology: Larry Hart
Graphic Arts and Design: John Hurlbut
Early Childhood Development: Constance K. Smith
Library Technical Assistant: Terry Hubbard

School of Summer Sessions and Continuing Education

The School of Summer Sessions and Continuing Education offers a wide variety of academic and nonacademic programs to residents and visitors who wish to continue their education, both at the campus and nearby military bases, during the summer and throughout the regular academic year.

Summer Sessions

There is a basic pattern of three three-week educational sessions starting in June and ending the latter part of August. These are open to candidates for graduate or undergraduate degrees and to unclassified students wishing to take special classes or desiring intellectual enrichment without reference to degrees.



In addition to the regular sessions, numerous courses and workshops are made available throughout the summer period. Students choose from teacher-oriented coursework, cross-cultural education, arctic-oriented studies, special 1-2-3-credit-hour workshops, and wilderness and field experiences in addition to regular curricula. A maximum of four hours of credit may be earned during each of the three sessions.

A special feature of summer sessions is the popular Alaskana Workshop. The workshop is an intensive five-day course composed of lectures, demonstrations, and discussions presented by authorities in specific fields, such as anthropology, education, history, natural resources, and other Alaskan topics. One full day is devoted to a field trip. The workshop is to be offered once or twice during the summer sessions.

The summer sessions faculty is composed of members of the regular teaching staff, supplemented by outstanding visiting instructors.

For more information on summer sessions, write Sun Bear, Dept. C, School of Summer Sessions and Continuing Education, University of Alaska, Fairbanks, Alaska 99701.

Special Summer Activities

Special summer institutes are often funded by federal and state agencies and private foundations. Summer institutes in the teaching of languages, counseling and guidance, English, and the teaching of science and mathematics have been held. These institutes are usually open to both residents of Alaska and nonresidents.

Special workshops and institutes open to high school age students are also presented. These include the music camp and a youth leadership conference. Other programs of a continuing nature include the annual homemakers' short course.

An extensive recreation program is planned for summer sessions students by the Student Activities Office. Typical recreational activities include trips to Eskimo and Indian villages, goldpanning exhibitions, hiking, dances, movies, and a riverboat excursion.

Further information is available by writing to the Coordinator of Summer Sessions, University of Alaska, Fairbanks, Alaska 99701. A bulletin listing courses to be offered is available in the early spring of each year.

Military Extension

Academic credit courses are offered at military installations in Interior Alaska for both military and civilian personnel. Coursework is conducted at Eielson Air Force Base, Fort Wainwright, Fort Greely, and Murphy Dome. Information is available prior to each semester from the Department of Military Extension, School of Summer Sessions and Continuing Education, University of Alaska, Fairbanks, Alaska 99701.

Continuing Studies

As part of its mission to provide continuing education-outreach programs, this unit of the school offers a variety of courses in response to community interest. Many of these courses use such media as television, newspaper, radio, etc. Through the year, a large number of secondary school teachers participate in Continuing Studies courses and workshops. The faculty for these programs include members of the regular teaching staff as well as outstanding visiting instructors.

To find out what is being offered or to express interest in a course, contact the Department of Continuing Studies, School of Summer Sessions and Continuing Education, University of Alaska, Fairbanks, Alaska 99701.

Conferences and Institutes

The Department of Conferences and Institutes was established by the University of Alaska in response to the growing and changing needs of the people of Alaska. As a part of its commitment to public service, the university assists governmental, educational, professional, business, and other groups in fulfilling their needs for continuing education through a vigorous program of conferences and institutes offered to students of all ages, before and after graduation, on or off the campus, with or without credit, formally and informally.

Conferences offered may originate from requests received from governmental, educational, professional, business, or special interest groups, or they may originate within the department from a recognition of special needs that can best be met through this channel. These short-term activities permit attendance by those whose crowded schedules prevent longer participation.

The Department of Conferences and Institutes offers a wide range of services through its professional faculty and staff from program planning, use of facilities, equipment and supplies, to registration services, final evaluation, and publication of proceedings.

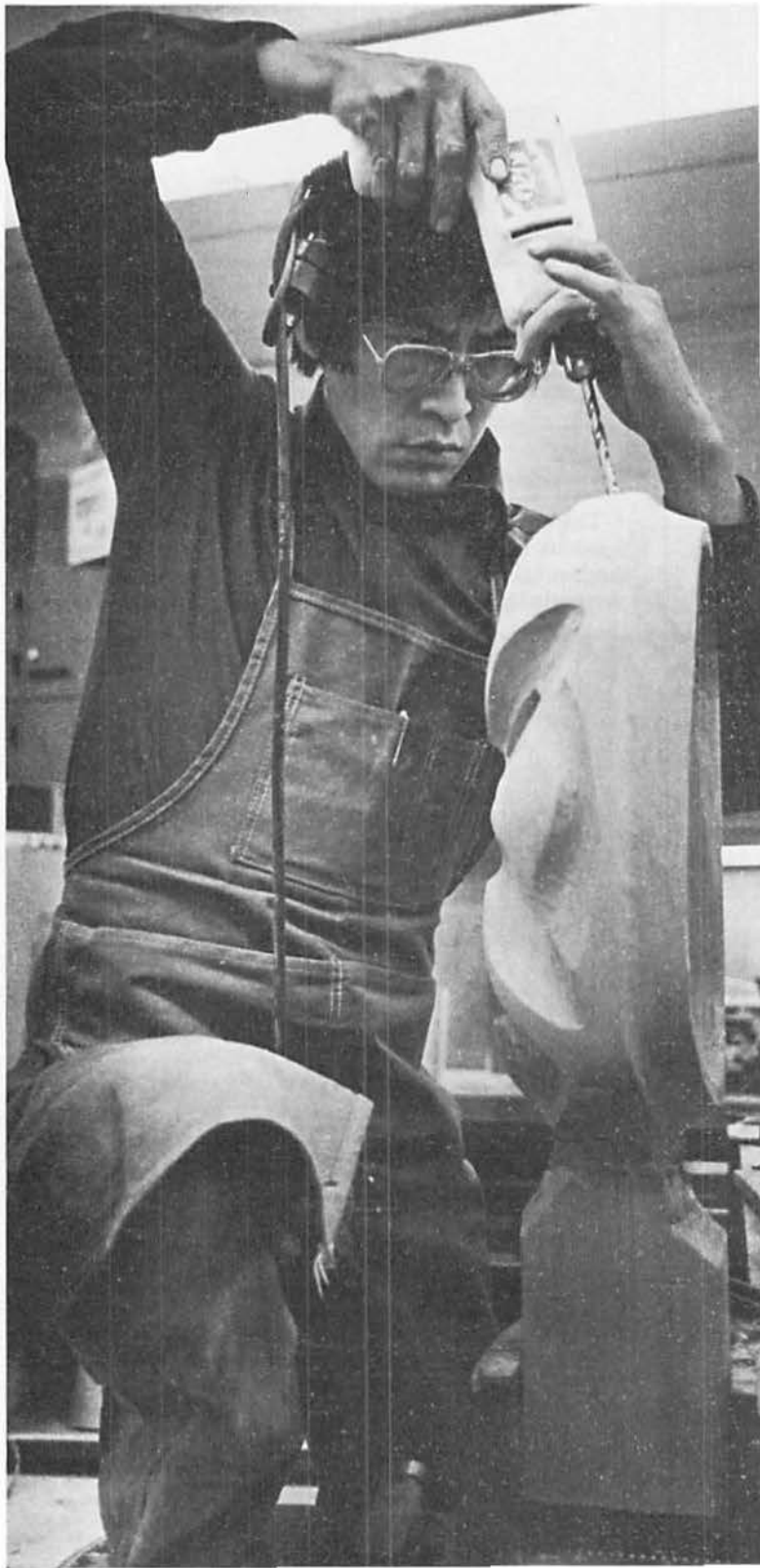
To arrange for a conference, institute, workshop, or seminar, contact the Department of Conferences and Institutes, School of Summer Sessions and Continuing Education, University of Alaska, Fairbanks, Alaska 99701.

Native Arts Center

The School of Summer Sessions and Continuing Education operates a resident center on campus at Fairbanks which offers a small select group of primarily Native artists a unique opportunity to emphasize the development of contemporary art by using the cultural heritages of Alaska as its resource. Students are given training in the use of such media as wood, soapstone, and silver. Instruction in basic business methods is also included in the program.

Increasingly, the center will support students whose aspirations include involvement in degree programs in addition to those traditionally admitted who lacked the formal education required for admittance to art schools to develop their talents.

For further information, contact the Native Arts Center, School of Summer Sessions and Continuing Education, University of Alaska, Fairbanks 99701.





Research

The research programs of the University of Alaska, Fairbanks, take advantage of the university's unique location in the subarctic of interior Alaska, with easy accessibility to the oceans from the Pacific to the Arctic, accessibility to glaciers and permafrost areas, and a location near the auroral zone, the region in which maximum effects are seen from the bombardment of the earth by charged particles from the sun.

In addition to research which is carried out in the academic departments, the university has several research institutes and associated activities on this campus.

Agricultural Experiment Station – The research of the Agricultural Experiment Station in Alaska is directed towards increasing the production of food and wood products, and wisely using the State's lands for agriculture, forestry and recreation. Specifically, the objectives are (i) to increase the efficiency of production systems for food and wood products, including energy conservation and the development of new lands; (ii) to improve processing, transportation and marketing of food and wood products in Alaska for markets in Alaska and for export; (iii) to improve resource inventories and develop land use-planning for agriculture and forestry that will enhance environmental quality and (iv) to develop resource management for improving the quality of life, including revegetation procedures, landscaping and home gardening, and outdoor recreation. Work towards these objectives is carried out in cooperation with the U.S. Department of Agriculture.

Research centers of the Agricultural Experiment Station (AES), including offices, laboratories and experimental farms, are located on the Fairbanks campus of the University of Alaska, at Palmer in the Matanuska Valley, and near Homer on the Kenai Peninsula. A plant-materials center, established cooperatively by the AES and the State's Department of Natural Resources, is located near Palmer. An agronomy research project is located near Delta Junction, and small-grain research is conducted at several remote locations in the State. Studies of the successive growth stages of indicator plants due to climate are in progress near a number of Alaskan villages. Research on revegetation is underway along the petroleum transportation corridor in northern Alaska. In addition, the Forest Soils Laboratory of the AES is conducting studies within various kinds of forests in interior Alaska in cooperation with Federal Scientists from the Institute of Northern Forestry, U.S. Forest Service.

The Fairbanks Research Center of AES has a research staff representing the disciplines of agronomy, animal science, botany, economics, forestry, horticulture, outdoor recreation and resource management. The Palmer Research Center has scientists in agronomy, animal science, agricultural engineering and agricultural economics. Scientists from the Agricultural Research Service, USDA, representing the disciplines of agronomy, entomology, horticulture and soil science are located at the Palmer Research Center and work cooperatively with the AES. Winter feeding trials and summer grazing trials with beef cattle are underway at the Homer Research Center.

Research programs underway at these various locations provide research opportunities for graduate students.

Alaska Cooperative Park Studies Unit – The objectives of the Alaska Cooperative Park Studies Unit are to conduct a general program of research and teaching relating to park, wildland, and cultural resource management. The University of Alaska and the National Park Service recognized mutual interest in developing greater understanding of man's cultural past and present life ways in relation to natural resources, ecology, and resource management of areas in the national park system, the State of Alaska, and similar regions elsewhere. There are two programs within the unit: Anthropology and Historic Preservation, and Biology and Resource Management. The unit is staffed by a university biologist, one or more National Park Service scientists, and a varying number of workers assigned to particular projects as need arises. A major objective of the unit is to promote an interest in park management problems, and to encourage faculty and students in existing university programs to conduct research in National Park Service areas to the extent that such research is compatible with the constraints associated with park management philosophy. Graduate work leading to both masters and doctoral degrees in regular university programs may be supported through the unit.

Alaska Cooperative Wildlife Research Unit – This unit is jointly sponsored and financed by the University of Alaska, the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, and the Wildlife Management Institute. The program of the unit involves financial support and guidance for graduate training in wildlife biology and management; research related to graduate training; extension education in wildlife conservation and management through lectures, workshops and conferences; and consulting services to State, Federal and other agencies and organizations.

Approximately 15 graduate students are supported through the unit program annually. Most research is conducted in the field using temporary camp facilities. Unit staff and graduate students cooperate closely with biologists of State and Federal agencies and with other faculty of the University.

Graduate work leading to advanced degrees may be performed at the unit in cooperation with relevant departments or programs.

Institute of Arctic Biology – Following the recommendation of a national committee of biologists, the institute

was established in 1963 for studies of life in the special climates of arctic and subarctic regions. Program areas include Animal Science (zoophysiology, zoochemistry, veterinary science), Plant Science (plant physiology, microbiology), Human Science (physical anthropology, human physiology, archaeology, socio-cultural anthropology) and ecology and systematics (biological monitoring, impact ecology, ecosystem structure and function, systematics). The staff of some 100 persons encompasses specialties ranging from biochemistry through zoology, physiological ecology to anthropology.

The Institute is located in the Laurence Irving building which provides a variety of technical and instrumental facilities and services. Special field sites include the 40-acre Experimental Biological Campus Reserve, the Cantwell Reindeer Station near Mt. McKinley National Park, a new reindeer facility at Nome, the Gambell station on St. Lawrence Island in the Bering Sea, the Homer and Halibut Cove shore stations on Kenai's Kachemak Bay, and the alpine tundra station at Eagle Summit.

As a part of the Division of Life Sciences, Institute faculty participate in the offering of courses and in graduate programs leading to both M.S. and Ph.D. degrees in a variety of subjects related to arctic biology and anthropology.

Arctic Environmental Information and Data Center – The 1971 session of the Alaska legislature, recognizing a need for a central source of Statewide environmental knowledge and data, authorized and established within the university system the Arctic Environmental Information and Data Center. The center, located in Anchorage, is striving to meet the needs of government, industry, the academic community, and the public by creating an information retrieval network for, and by furnishing analytical reports on, resource and environmental questions, issues and problems.

In its first year of operation, the center concentrated on the development of a system of referral and contact with all available sources of environmental knowledge on Alaska. Three components of this development program are: (1) a current awareness profile of ongoing research in Alaska; (2) a bibliography, i.e., abstract and data referral and retrieval system; and (3) an information network linking AEIDC with other centers of resource and environmental-science information on the North.

Paralleling the information system has been the building of an interdisciplinary resource and scientific professional staff to research, analyze, or synthesize environmental and resource knowledge in special-purpose efforts requested by State and Federal agencies, Native organizations, local government, and industry.

Biome Center – Established in 1970 as the Tundra Biome Center for administration of the arctic tundra ecosystem program of the International Biological Program, the Center coordinates much of the large-scale multidisciplinary ecosystem research in the arctic and subarctic environments in Alaska. Tundra sites have included the low-wet coastal tundra at Barrow, the drier coastal tundra at Prudhoe Bay, inland tundra at Meade River (part of the project on research on arctic tundra environments), an alpine site at Eagle Summit, and a comparative alpine station at Niwot Ridge in Colorado. Much of the North Slope work, especially at Prudhoe Bay, emphasizes base-line measurements of environmental parameters which can be utilized to assess future changes. Current emphasis is in extending results from coastal tundra to other tundra sites on the North Slope, especially in the aquatic ecosystem. The Center has established a field camp at Toolik Lake north of the Brooks Range on the pipeline haul road which supports among other projects, the program on arctic lakes. A five-year program is also underway in the interior taiga forest where a multidisciplinary team is studying the effects of fire on the structure and function of the permafrost-underlain black spruce ecosystem.

Geophysical Institute – The Institute was opened in 1949. It is now housed in the C. T. Elvey Building on the West Ridge of the Fairbanks campus. The present staff numbers approximately 150, including some 15 graduate students who are employed as research assistants. Financial support is obtained mainly from federal agencies. The research program deals with phenomena that can best be studied at high latitude or which present special problems in Alaska. Programs are established in upper atmospheric physics and chemistry, the aurora, the earth's magnetic field, radio communications, solar-terrestrial physics, meteorology, glaciology, seismology, volcanology, and several fields of geology and geochemistry. An important aspect of much of the work is the application of existing knowledge to polar problems – for example, improving radio communication services in the arctic, assessing the earthquake risk in Alaska, studying ice movements and stresses off the north coast as a basis for engineering design of shore facilities, developing alternative energy sources, reducing the effects of ice fog and air pollution, and providing advisory services to local government.

Research facilities include Ester Dome Observatory for auroral studies, the radio transmitter Sheep Creek Station, the Chena Valley Radio Facility, the Poker Flat Research Range, a potassium-argon geochronology laboratory, and an electron microscope laboratory. In addition to these local facilities, the Institute uses many field stations throughout Alaska, such as the Katmai station, the Augustine volcano station, the McCall Glacier station, the network of seismic sites and the meridian chain of optical and magnetic sites. The Institute's library and archives offer an excellent coverage of geophysics. Specialized technical shops provide services in electronics, machine work and carpentry, photography, drafting, data processing, and digital computing.

Institute of Marine Science – The Institute of Marine Science was established in 1960 by the Alaska State Legislature for the purposes of advancing oceanographic knowledge with emphasis on problems of high latitude seas, of training graduate students in modern oceanography and of providing both basic and applied marine research. Subsequent expansion has included research and training in ocean engineering and special problems in limnology. Further growth of research in the past five years now provides research opportunities in such distant waters as those of the Antarctic, the South Pacific and the tropics.

Present personnel roster of the Institute includes 25 faculty members, 41 graduate students, 10 associate scientists, and approximately 85 administrative, artificer, clerical and seagoing personnel. Financial support for the research projects and programs is obtained from Federal and State agencies, foundations, industrial groups and the State of Alaska. The research programs are varied and reflect both the interests of faculty and the needs of the State. Examples of such diversified marine research include circulation in the Gulf of Alaska, ocean engineering studies at the pipeline terminus at Valdez, the study of complex fishery oceanography systems, seagrass ecology, marine mammals, exploration for seafloor minerals, shellfish and finfish biology, sea ice cover, geochemistry of lakes, up-

welling, nutrient cycles, Recent and Pleistocene sedimentation, origin of the continental shelf off Alaska, and basic study in biological, physical and chemical oceanography.

Research facilities include modern research laboratories on the Fairbanks campus and at Seward. Ship operations and coastal laboratories are based at the Seward Marine Station, and satellite field stations are maintained at Izembeck Lagoon (Cold Bay), Valdez, Prudhoe Bay, Platinum, and a new site (Indian Point) near Petersburg. Cooperation with the Naval Arctic Research Laboratory at Point Barrow provides us with a research base for the Arctic Ocean. The Institute's research vessel *Acona* routinely operates in the Chukchi and Bering Seas, in Aleutian waters, and in the Pacific waters adjacent to Alaska. Auxiliary craft for local studies are also available and both submersibles and helicopters are made available when needed to conduct specialized research. Special facilities include a biological sorting center with over 100,000 comparative specimens, a marine sediment and core repository with over 10,000 samples and a special computer and data management facility for processing oceanographic data.

Financial assistance for graduate students is provided through research assistantships and stipend support coming from industry and foundation grants to the Institute.

Mineral Industry Research Laboratory – The 1963 Alaska State Legislature authorized a mineral industry research program at the university, resulting in the establishment of the Mineral Industry Research Laboratory within the School of Mineral Industry. The laboratory conducts basic and applied research in many phases of the mineral industry, mostly directed toward the development of Alaska's mineral resources. Many of the programs are coordinated with graduate academic study.

Work to date includes studies of beneficiation of Alaskan ores, geology and mineral deposits of the state, computer applications in exploration, feasibility studies for various Alaskan minerals and mineral deposits, transportation systems for minerals, geologic mapping of areas of economic interest, development of a data storage and retrieval system for mineral deposits, and studies of Alaska's coals, their petrography, distribution, characterization and beneficiation.

Naval Arctic Research Laboratory – The University operates the Naval Arctic Research Laboratory under contract with the U.S. Navy, Office of Naval Research. The laboratory was established in 1947. It provides facilities and logistic support for research in the Arctic and conducts resident research in animal behavior and physiology, oceanography, ice physics and chemistry, and bioacoustics.

The main laboratory, dedicated in 1968, consists of scientific laboratories, administrative offices, and living quarters. The laboratory also maintains an extensive animal research facility. In addition to the Barrow facilities, the laboratory maintains several field stations throughout Arctic Alaska and on the Arctic ice pack. Scientific field parties are supported by University vessels. An 85-foot vessel has recently been acquired to conduct and support oceanographic research in shallow coastal waters.

Inquiries should be made to the Director, Naval Arctic Research Laboratory, Barrow, Alaska 99723.

Center for Cross-Cultural Studies – Research and program development in education was initiated in 1971 by establishment of the Center for Northern Educational Research by resolution of the board of regents. In 1978 these educational research programs were combined with the



field-based instruction activities of the Cross-Cultural Education Development Program. This merger enables the new Center for Cross-Cultural Studies to provide comprehensive integrated University effort in addressing cross-cultural issues in Alaska. The Center has the following purposes:

1. The provision of pre-service and inservice programs preparing teachers suited to the unique multicultural educational conditions in Alaska.
2. The analysis of goals, policies, and programs of public education in cooperation with other agencies and associations.
3. The identification and design of Alaskan research projects appropriate to new educational concepts.
4. The development of formal and nonformal educational programs and demonstration projects and their field testing, including assistance to educational agencies in the implementation of newly developed programs.

A list of publications and films is available from the Center.

Alaska Sea Grant Program – Established in 1970, the Alaska Sea Grant Program represents a partnership between the National Sea Grant Program within the National Oceanic and Atmospheric Administration and the University of Alaska. Its purpose, as stated in the national charter, is to provide people with the knowledge and means of developing, utilizing and conserving the marine resources of the state and nation through a program of teaching, research and advisory activities.

The University of Alaska Sea Grant Program is headquartered in the Chapman Building on the Fairbanks campus and is administered within the College of Environmental Sciences. Because the program has strong components of public service and teaching, however, policy and guidance is vested in the Office of the President. Research projects and advisory services generally are carried out in cooperation with other institutes and units on the various college campuses throughout the state.

The program is directly involved in a broad range of applied research activities, dealing with Alaska's renewable marine resources and coastal environment. These include such areas as salmon ranching; development of shellfisheries such as crab, shrimp and clams; promotion of fisheries for under-utilized species, primarily bottomfish; utilization of wastes from seafood processing; fisheries management and marketing; and oceanography and coastal engineering.

Much of Sea Grant's effort is concentrated in information, advisory and educational services. The Communications Office on the Fairbanks campus issues a wide variety of publications, ranging from scientific research reports, to "how-to" manuals, to a periodical newsletter designed for the commercial fishing industry. Agents of the Marine Advisory Program, working through the University's Cooperative Extension Service, provide a personal link with marine industries and coastal communities through workshops, lectures, conferences and individual problem-solving. In addition, Sea Grant provides support for graduate and undergraduate studies at higher institutions within the state. Marine science curricula and teaching aids have been developed for primary and secondary schools.

Institute of Social and Economic Research – ISER was established in 1961 by the Alaska State Legislature for the purpose of conducting interdisciplinary policy and problem oriented research in the social sciences and related fields. Research interests include economic planning and development, utilization of natural resources, human ecology, educational needs and problems, governmental institutions, and political processes, community organization and development, communications, environmental policy, and the political, sociological, and psychological dimensions of culture change. While concentrating primarily on Alaska, ISER work and interests also extend to northern Canada, the North Pacific Basin (including Japan and Siberia), and the arctic circumpolar region, and a program of cooperative research with Soviet scholars is underway.

In addition to research directed toward socioeconomic problems, ISER carries out a broad-scale program of technical assistance to public and quasi-public agencies, collects and disseminates statistical data and other information on Alaska's population and economy, and otherwise serves the needs of the general public. The institute has a multidisciplinary professional staff; it also utilizes other university faculty and students, as well as professionals from other universities in its research and service activities.

ISER's publication series includes *The Alaska Review of Social and Economic Conditions, ISER Reports, Occasional Papers,* and *Research Notes.* Reports, books, and other publications are distributed directly by the institute, sold in bookstores, and made available nationally through the University of Washington Press. A list of ISER publications is available upon request.

Institute of Water Resources – The Institute of Water Resources was established in 1965 to carry on an integrated program of research in problems dealing with water resources in Alaska. Studies undertaken by the institute have encompassed many water resource areas, including waste treatment, arctic hydrology, water quality management, hydrogeochemistry, lake and river management, energy resources management, and general water planning and control. The current interests of the professional staff include: physical, chemical, and biological waste treatment in cold climates, the hydrology of arctic regions with special emphasis on techniques which are useful in regions where data is sparse, ground water hydrology in subarctic and arctic regions, cold regions limnology, the environmental effects of development on lakes and streams, solar and alternative energy systems, energy conservation, and the transport of atmospheric pollutants. The institute's laboratories and offices are available to interested graduate students who desire to work on problems dealing with the water resource environment. The present staff of 25 includes many graduate students who are completing their research programs in cooperation with the various academic colleges on the Fairbanks campus. The institute maintains a vigorous interest in graduate and undergraduate teaching; most of the professional staff hold joint appointments with one or more academic departments.





Cooperative Extension Service

The program is a cooperative educational service of the university and the U.S. Department of Agriculture. The broad purposes of the service are to provide informal education to residents of the state in their homes, at their businesses, and in their communities. District offices and field staff are located in Fairbanks, Palmer, Juneau, Homer, Anchorage, Nome, and Bethel. University extension specialists and district extension agents extend the results of research by the university and a broad range of research institutions to the public. Local people are helped to identify and solve problems and to apply the results of scientific research to the improvement of businesses, homes, and communities. Work with young people is conducted through the 4-H and Youth programs. Marine Advisory and Fisheries Extension programs are directed toward commercial fishermen, marine resource developers and users, and the more general marine environmental publics.

Audiences for extension programs include both rural and urban residents. Extension educators serve the consumer, as well as resource production, marketing, agribusiness, and marine audiences. Extension educators help citizens of the state to plan and to organize for broader economic and social development. Their teaching is carried out informally through television; radio; newspaper and newsletter media; publications; business, home and community visits; special interest meetings and short courses.

A local government program is directed toward assisting residents of rural communities to learn about the process of incorporation and helping them to achieve an understanding of the roles of elected officials and the local government process.

The extension service has received increased federal support in recent years to direct expanded educational effort toward improving the nutritional practices of Alaskans. Particular emphasis is focused in this program on the needs of young people and low-income residents. Paraprofessionals are employed, trained, and supervised in this intensive educational effort with individuals and families.

A five-year educational grant of $681,000 was received in 1973 from the W. K. Kellogg Foundation to provide leadership in broadening post-secondary education for adult Alaska Natives. The grant was extended in 1978 with $450,000 over the next three years to continue development of a broad range of non-credit and credit programs. The long-range object is improvement of the delivery of university programs to Alaska Natives.



State and Federal Agencies on Campus

Arctic Environmental Research Laboratory – This multi-million-dollar facility is a research laboratory for the U.S. Environmental Protection Agency. The laboratory conducts research on environmental problems in cold climates. Water-related problems account for most of the research underway; however, air pollution and solid waste management needs are also part of the laboratory mission. The AERL also administers the Alaska Village Demonstration Project, which was authorized by Congress, to demonstrate a central facility for safe water supply, bathing, laundry, and sewage disposal in one or more Native villages in the state. This federal laboratory, although not affiliated with the University of Alaska, is part of the growing arctic research effort on the Fairbanks campus of the University of Alaska.

Branch of Alaskan Geology of the U.S. Geological Survey – This branch conducts a program of geological exploration and research in Alaska. Some of the functions are geologic mapping studies and evaluation of metallic, nonmetallic, coal, and oil deposits; regional studies of structure and stratigraphy; detailed studies of selected type-areas; application of geology to engineering and related problems; and research in the use of new geologic methods. The Alaskan maps and geological reports are available to the public for use in the office.

College Observatory – The College Magnetic and Seismological Observatory is operated by the Branch of Electromagnetism and Geomagnetism of the U.S. Geological Survey, with the main facility on the West Ridge of the Fairbanks campus and an outpost facility near Farmer's Loop Road. Originally constructed in 1947, the observatory has expanded to 30 buildings and operates various instruments that continuously gather data for studies in the fields of geomagnetism and seismology. Prior to 1948 the magnetic observatory was at a different location on the Fairbanks campus. From 1941 to 1946 the observatory was operated by the Department of Terrestrial Magnetism, Carnegie Institution of Washington, in cooperation with

the University of Alaska, and then by the U.S. Coast and Geodetic Survey until 1948. The piers used for the magnetic instruments from 1941 to 1948 were the same ones that were used for the Second International Polar Year (1932-1934). Operation of the seismic equipment dates back to 1935.

In 1973 the observatory was transferred from the National Oceanic and Atmospheric Administration of the Department of Commerce to the U.S. Geological Survey of the Department of the Interior. The general mission of the observatory is to produce accurate and comprehensive data in the field of geomagnetism and seismology and to cooperate with other scientists and organizations in making studies in various scientific disciplines within the capability of personnel and facilities. The observatory monitors seismic and magnetic activity 24 hours a day. The facility plays a major part in keeping the people of Interior Alaska informed of current earthquake activity and informing scientists and organizations of the occurrence of major world magnetic events. The observatory also operates the Barrow Observatory at Barrow, Alaska, with logistic support provided by the university's Naval Arctic Research Laboratory.

Bureau of Mines, U.S. Department of the Interior – The Alaska Field Operation Center, with headquarters at Juneau, maintains a field office in the O'Neill Building. The field office provides support for the center's primary concern for mineral resources and environmental development. The functions that relate to this concern include surveillance and evaluation of industrial and commercial outlook for minerals and fuel deposits; studies to determine the relationship of mineral supply, demand, and technology to the national economy; studies and projects concerning the relationship of the mineral industry to environmental problems; and engineering studies regarding effective mining practices.

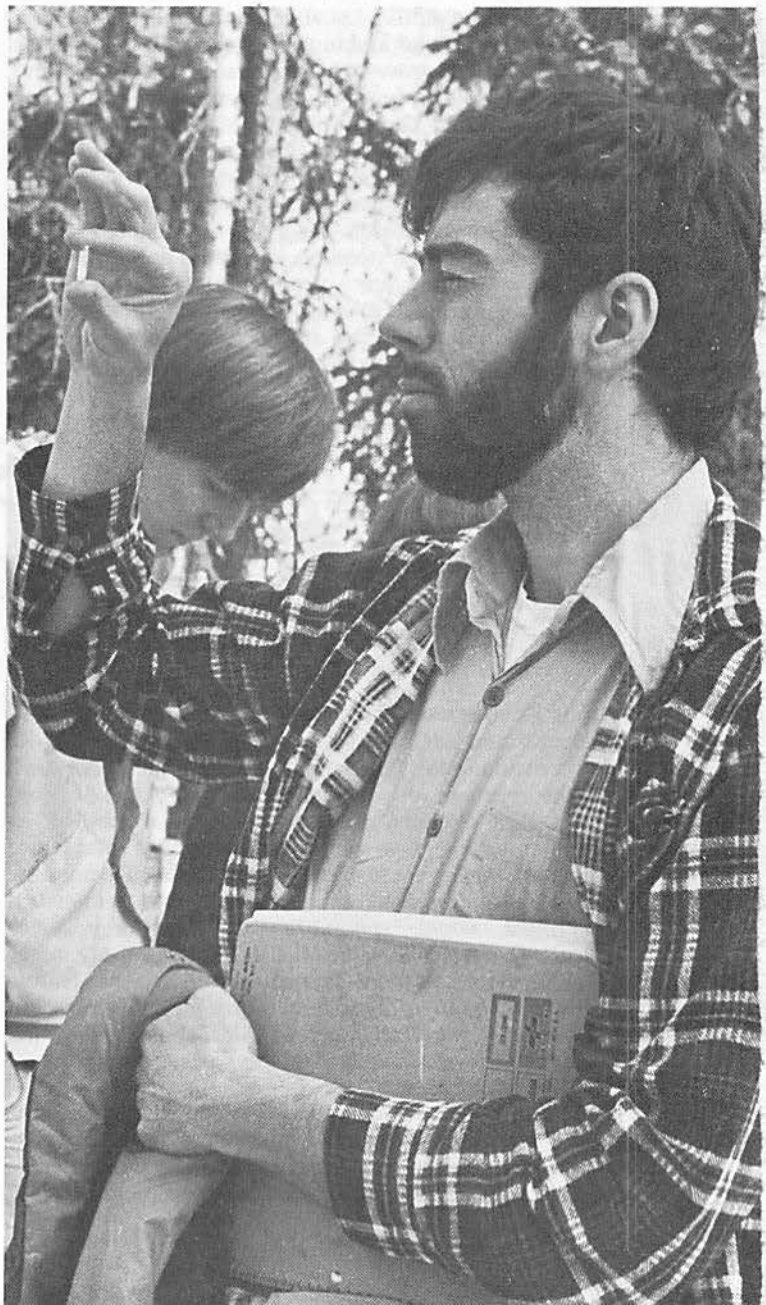
The field office responds to diverse inquiries from the public and governmental agencies relating to mineral resources and environmental problems; assists in the monitoring of research projects that are conducted by the Mineral Industry Research Laboratory for the Bureau of Mines through contracts with the University of Alaska; and maintains liaison with local federal and state agencies in regard to efforts of mutual interest.

Institute of Northern Forestry, U.S Department of Agriculture – The institute is a unit of the U.S. Forest Service, Pacific Northwest Forest and Range Experiment Station. Research is focused upon understanding the ecology of, and developing methods for managing, Alaska's boreal forests. Programs are underway to determine the succession of boreal forests and the effects of fire on soil, water, flora and fauna. Field work is conducted throughout the boreal forests in Alaska. The 12,500-acre Bonanza Creek Experimental Forest and the 26,000-acre Caribou-Poker Creeks Experimental Watershed provide convenient research locations for Forest Service and University scientists.

State Division of Geological and Geophysical Surveys – This division of the Alaska Department of Natural Resources maintains offices on campus in the O'Neill and Services buildings. The staff numbers 23, including mining geologists, an engineer, laboratory personnel, mining information specialists, and publications personnel. The laboratory provides analytical services to the staff and public and also conducts independent research. Field programs, including prospect examinations, are carried out by the geologists and the engineer. Technical information and advice is available to prospectors and exploration companies. An up-to-date file of mining claims and mineral occurrences is maintained. Bimonthly bulletins, project reports, maps, and pamphlets summarize the division's activities. Cooperative investigations with university personnel and government agencies contribute to the knowledge of Alaskan geology.

State Materials Laboratory – The Alaska State Division of Highways operates a state materials laboratory in conjunction with the Department of Civil Engineering. The state provides equipment and personnel for routine testing of highway materials and for highway research.

State Office of Research and Academic Coordination – This office is maintained on campus by the Alaska Department of Environmental Conservation. It provides services as a staff function within the department. ORAC's objectives include improving and strengthening research and academic contributions to environmental conservation. In cooperation with the university and other governmental agencies, it also provides assistance in the solution of environmental engineering problems encountered in water supply, waste disposal, housing, community development, etc., in the far north.





Academic Regulations

Each student will be held responsible for the regulations of the university as they apply to him/her.

Academic Advising

The university recognizes that academic success is promoted by close personal relationship between faculty and students. To foster this relationship, it has established a system of faculty advising which enables the student to become well acquainted with the degree programs available at the university and assures involvement of faculty in assisting the student in choosing a course of study and in helping guide him/her toward his/her overall academic objectives and future goals.

The academic advising program is the responsibility of the Chancellor and is directed by the Director of Academic Advising. Assignment of faculty advisors is made in accordance with the student's choice of college and department. Special advisement emphasis is provided for freshmen, for rural and Native students (*see* "Student Orientation Services" in the Student Affairs section of this catalog), and for students who have not yet chosen majors.

Academic Bankruptcy

Students occasionally perform at an academic level which makes them ineligible to continue their studies, and they drop out voluntarily or are dismissed for academic reasons. Subsequently, some may want to resume their college work, either in the same or another field, but find their academic record presents an essentially insurmountable obstacle.

Persons in this category who want an opportunity for a fresh start at the University of Alaska, Fairbanks, at the undergraduate level without the handicap of their prior academic record may apply for readmission on the basis that their academic record prior to readmission be disregarded, and they begin their college study again with no credits attempted, no credits earned, and no quality points earned. This policy may be evoked by students only once and is applicable only to students enrolled at the University of Alaska, Fairbanks, and only for University of Alaska, Fairbanks, credit.

Prior to the date of applying for admission on this basis, at least two years must have elapsed since the end of the semester in which the applicant was last in full-time attendance at school. The applicant's proposal must be approved by the dean of the college/school of the applicant's proposed degree program. The applicant must present adequate evidence to the dean that the conditions which caused the prior poor academic performance have changed sufficiently so that there is a reasonable expectation that the applicant can perform satisfactorily if permitted to resume college study.

For clarification, it is noted that the prior academic record remains a part of the person's overall academic record, but none of it is carried forward as part of his/her program. Also, none of the credits earned previously can be used in the new program. Students showing competency in any area may be allowed advanced standing (without credit) or a waiver of requirements just as any non-bankrupt student, but will not be allowed credit-by-examination for courses lost in bankruptcy. In spite of bankruptcy, the prior academic record is used in the computations for graduation honors.

Academic Petition

Any deviation from academic requirements and regulations must be approved by academic petition. A petition form, which requires the signatures of the student's advisor, unit head, and dean, may be obtained from the Office of the Director of Admissions and Records.

Petitions to waive general university or degree requirements must be processed through the Chancellor for final decision.

Access to Student Records

Students are entitled to see their student records. To insure the privacy of student records, the university releases information only upon written permission of students to agencies off campus. Records are available for legitimate on-campus professional use on a need-to-know basis.

Advanced Placement

Advanced Placement Credit through CEEB – The University of Alaska grants advanced credit, with waiver of fees, for satisfactory performance (a grade of 3 or higher) in the College Board Advanced Placement Tests. These tests are normally completed by students during their senior year in high school.

A student desiring CEEB Advanced Placement credit must request that an official report of his/her scores on the examination be sent to the Office of Admissions and Records and upon his/her enrollment, will be awarded appropriate credit. Students may receive credit for more than one Advanced Placement examination.

Local Advanced Placement Credit – Placement in an advanced course is available in some units through local placement tests given at the time of the student's enroll-

ment. Under some circumstances, advanced placement credit also may be awarded with waiver of fees after the student has satisfactorily completed the advanced course.

Attendance

Regular attendance is expected in all classes. Unexcused absences may result in a student being dropped from the course with a failing grade. It is the responsibility of the student to establish to the instructor's satisfaction the validity of an excuse for absence and to work out with the instructor acceptable arrangements for making up missed work.

Change of Grade Policy

Grades, other than incompletes and deferreds, submitted by the instructor upon completion of a course are assumed to be the student's final grades, and they become part of the student's permanent records. A grade may not be changed unless a legitimate error has been made on the part of the instructor in calculating the grade, and such changes must be approved by the unit head and dean. Corrections of grading errors must be made within 45 days after the original grade has been submitted to the Office of Admissions and Records. (*Also see* "Grading System," page 60.)

Class Standing

Class standing is determined on the basis of total credits earned. Students are classfied as:

Freshmen	0-29 credits
Sophomore	30-59 credits
Junior	60-94 credits
Senior	95 credits

Transfer students will be given class standing on the basis of the number of credits accepted by the university. Special students are registered without class standing.

Credit by Examination

CLEP General Examinations

1. Only currently enrolled students will be awarded credit or those students who have previously taken courses at the University of Alaska which resulted in the establishment of an official file at the Office of Admissions and Records.

2. Credit for CLEP General Examinations shall be awarded according to the following schedule:

English – No credit for any score
Math – 3 credits for 500 score
Natural Science – 6 credits for 500 score
Humanities – 6 credits for 500 score
Soc. Sci.-Hist. – 6 credits for 500 score
Max. possible ..... 21 credits

3. If as many as six semester credits have been earned in an area covered by a CLEP General Examination, no credit will be awarded for the successful completion of that examination.

4. Examinations can be repeated after an interval of one year.

CLEP Subject Examinations

1. Only currently enrolled students will be awarded credit or those students who have previously taken courses at the University of Alaska which resulted in the establishment of an official file at the Office of Admissions and Records.

2. A course challenged for credit must not duplicate a course for which credit has already been granted.

3. Minimum passing scores of CLEP Subject Examinations shall be 50 and is based on national norms. In the case of essay usage, the appropriate department shall determine a passing grade based on the CLEP score plus the essay.

4. Examinations may not be repeated earlier than one year.

Local Credit-by-Examinations

1. Only currently enrolled students will be awarded credit.

2. All courses, except -90's (193, 294, 497, etc.) and practicums, may be taken by examination.

3. A course challenged for credit must not duplicate a course for which credit has already been granted.

4. A person who has audited a class may not request credit via departmental examinations for that class until the subsequent academic year. An audit does not restrict the taking of a CLEP Subject Examination.

5. Departmental examination may be graded pass/fail or by a regular letter grade at the mutual agreement of the instructor and student.

6. Examinations may not be repeated earlier than one year.

Certified Public Secretaries of Examination

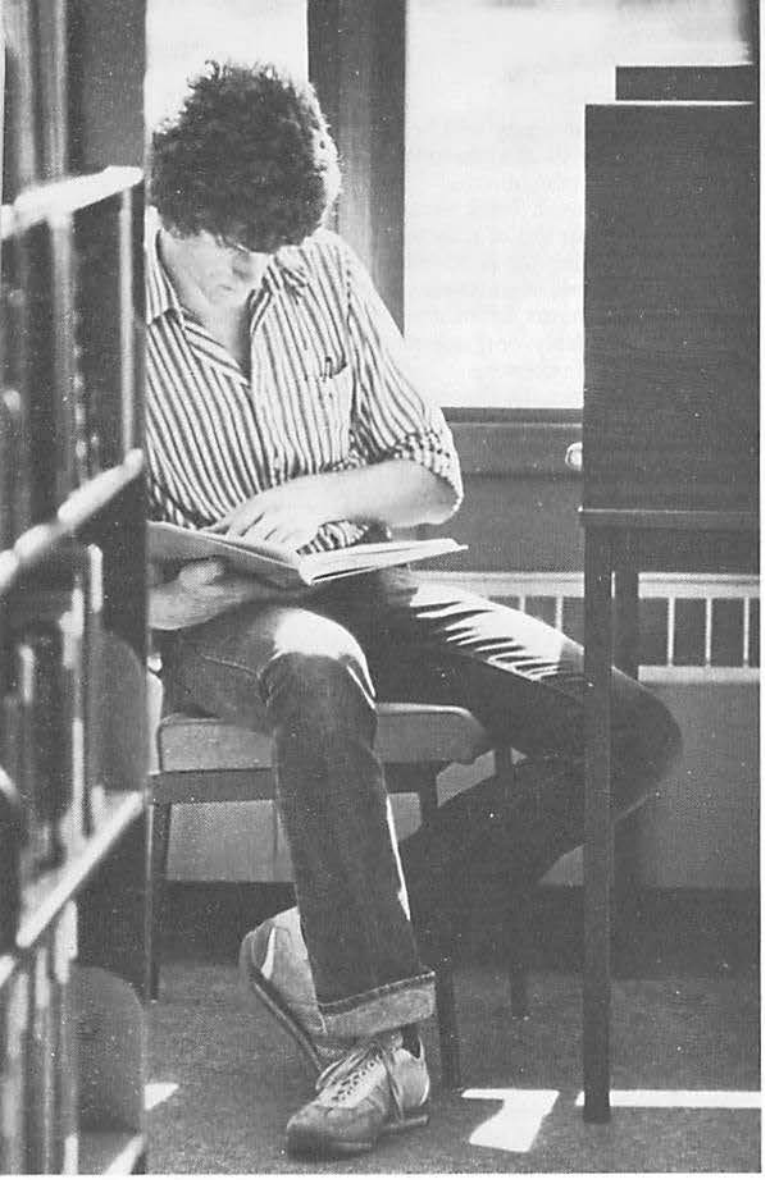
Candidates for credit-by-examination must be enrolled in the University of Alaska, Fairbanks, as degree candidates. Credit will be applied for by the CPS holder to the college according to similar procedures of credit-by-examination; however, examination by the college will not be required. The following courses are equated to the content of the six parts of the CPS exam:

		Credits
O.O. 154	Human Relations	2
O.O. 153	Business Law	3
B.A. 151 or O.O. 151	Introduction to Business	3
O.O. 085	Beginning Bookkeeping I	3
O.O. 086	Beginning Bookkeeping II	3
O.O. 103	Beginning Typewriting	3
O.O. 105	Intermediate Typewriting	3
O.O. 106	Advanced Typewriting	3
O.O. 155	Business English and Correspondence	3
O.O. 101	Beginning Shorthand	4
O.O. 102	Intermediate Shorthand	4
or O.O. 100	Rapidwriting	3
O.O. 221	Indexing, Filing and Records Management	2
O.O. 244	Secretarial Office Procedures	3
O.O. 282	Cooperative Office Occupational Experience	3

Total may not exceed 38 credit hours.

Procedure:

1. When a CPS holder applies for equivalency credit through the college, the Coordinator of Office Occupations will review the student's application to



determine the appropriate credits, especially important in the shorthand section.
2. No partial credit will be given for having passed less than *all* parts of the CPS examination.
3. Examinee's credits will reflect a "pass" grade on the transcript for the CPS equivalency credits.
4. The University credit-by-examination fee policy will apply.

Credit-No-Credit Option

The Credit-No-Credit option encourages students to explore areas of interest not necessarily related to their academic major. One "free" elective may be taken under this option each semester. The instructor will not be informed of the student's status in the course. The student will be given credit toward graduation if he/she performs at a level of C or above. If performance falls below that level, the course will not be recorded on the student's transcript. In either case, the course will not be included in any grade point calculations. If the student later changes his/her major and the course becomes a requirement, the course will be accepted by his/her new major department. The student may change from credit – no-credit status during the first two weeks of the semester by informing the Director of Admissions and Records of his/her desire to change status.

Drop/Add

A student is expected to complete the courses in which he/she is enrolled. He/she may, if circumstances warrant, withdraw from a course up to the end of the seventh week of the semester by following the Drop/Add procedure. After the end of the seventh week of the semester, student-initiated withdrawals, either from individual courses or from the university, will not be accepted. Refer to "Withdrawal" section, page 61, for further details. Students wishing to add courses to their schedules may do so until the end of the late registration period by following the Drop/Add procedure. Information about the Drop/Add procedure and Drop/Add forms may be obtained from the Office of Admissions and Records. A fee of $2 per course is charged for course changes.

Full-Time/Part-Time Status

An undergraduate student who registers for 12 or more semester hours of credit will be classified as full-time. A graduate student enrolled in 9 or more semester hours of credit or its equivalent will be classified as full-time. Non-credit courses may be included in the study load computation when determination of full-time/part-time status is made.

Grade Point Average Computation

For the computation of a grade point average, the number of University of Alaska credits attempted is divided into the number of grade points earned. To determine the number of grade points earned, the credit attempted is multiplied by a grade point factor as follows: grade A by 4 points, grade B by 3 points, grade C by 2 points, grade D by 1 point and grade F and I by 0 points. Credits attempted where grades of NC, CR, P, S, U, DF or W have been awarded are not included in the grade point average computation. In addition, noncredit courses and transfer credit do not affect the grade point average calculations. Undergraduate work is not included in the grade point average for graduate students.

All grades (original and any retakes) for a course will be shown on the transcript, but only the last grade achieved for a course will be computed in the grade point average.

Registration

Persons eligible for enrollment at the University of Alaska must complete registration according to the prescribed procedures and pay fees as determined by the university fee schedule in order to be eligible to attend classes and to earn credit. Auditors are required to register and pay appropriate fees. A registration period is held at the beginning of each regular session at times published in the official university calendar. Registration for special programs, short courses, seminars and other classes that are not part of the regular academic calendar will be arranged prior to the beginning of such sessions.

Reserving Graduate Credit

A senior student at the University of Alaska, Fairbanks, who has only a few remaining requirements for his/her bachelor's degree may take courses for graduate credit and have them reserved for an advanced degree. To do this a

student must be in his/her final year of baccalaureate study 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 the bachelor's degree. (Reserving these courses, however, does not assure that they will be accepted by a graduate advisory committee as part of the student's eventual graduate program.)

Residence Credit

Residence credit is defined as University of Alaska credit that is earned by a student in formal classroom instruction, in correspondence study, or in individual study or research through any unit of the University of Alaska. Transfer credit, formal service school credit, military service credit, and credit granted through nationally prepared examinations are not considered as residence credit. Credit by examination earned through locally prepared tests is not normally considered as residence credit except under unusual circumstances approved by petition.

Study Load

Students normally may register for 18 semester hours of credit; for 19-20 semester hours with the approval of the dean of the college; for 21 or more semester hours provided the student's grade point average with a full-time study load for the past two semesters is at least 2.75 and he/she has the approval of the chancellor.

For the purpose of computing study loads, noncredit courses are rated the same as credit courses.

Transcripts

An official transcript, containing the seal of the university and signature of the director of admissions and records, is available without charge upon the written request of the student to the Office of Admissions and Records. Official transcripts of credit earned at other institutions, high school transcripts and other supporting documents which have been presented for admission or evaluation of credit become the property of the University and are not reissued or copied for distribution.

Transfer of Credit

The University will accept by transfer credits from other accredited institutions when the grades of courses completed are C or above. Where possible, transfer credit will be equated with University of Alaska courses. The university reserves the right to reject work of doubtful quality or to require an examination before credit is allowed. Eight elective credits may be awarded to students having completed at least one calendar year of military service. In addition, credit may also be granted for formal service schooling, as recommended in the guide prepared by the American Council on Education for the evaluation of military service schooling. Credit is granted for the successful completion of DANTES courses, as recommended by the American Council on Education. Credit is not allowed for the General Educational Development Tests.

Veterans Training

The University of Alaska, Fairbanks, is approved for the training of veterans by the Veterans Administration. However, the university will be held responsible for overpayments made to the students receiving Veterans Administration educational benefits when such overpayments result from excessive absences, discontinuance or interruption of courses by veterans, or by a veteran's not meeting the academic standards of progress of the school. Therefore, university instructors will notify the veterans coordinator when a veteran is not attending, is attending irregularly, or is not meeting minimum academic standards in their classes.

In compliance with the requirements of the Veterans Administration, the university will report to the VA the name of any veteran receiving VA educational benefits who is not maintaining a semester grade point average or cumulative grade point average of 2.00 or above (3.00 for a veteran pursuing graduate studies). Failure to maintain a grade point average of 2.00 or better (3.00 or better for a veteran pursuing graduate studies) may result in suspension of VA benefits.

The University of Alaska, Fairbanks, does not have a Veterans Affairs Office on its campus. However, a veterans counselor visits the campus at regular intervals during the school year. Veterans interested in further information about educational benefits should contact the Office of Admissions and Records.

Grading System

Grades in all courses are letter grades unless specified in the class schedule. The method of grading, i.e., letter, pass/fail, pass/no credit, satisfactory/unsatisfactory, is an integral part of the course structure and as such is included in the description of the course in the class schedule, and is the same for all students taking the course. Grades appearing on academic records are as follows:

A – An honor grade; indicates originality and independent work, a thorough mastery of the subject, and the satisfactory completion of more work than is regularly required.

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

C – Indicates a satisfactory or average level of performance.

D – The lowest passing grade; indicates work of below average quality and performance.

F – Indicates failure.

P – Pass – Indicates passing work and carries no grade points.

S – Satisfactory – Indicates satisfactory completion, is used for graduate theses, special courses, specific career oriented courses, workshops and seminars and carries no grade points.

U – Unsatisfactory – Indicates unsatisfactory performance, is used for career oriented programs, and carries no grade points.

I – Incomplete – Indicates additional work must be performed for satisfactory completion of the course; may be given for unavoidable absence or other conditions beyond the control of the student where work already completed is grade C or better.

The grade for work that is incomplete (I) must be made up within one academic year or otherwise the incomplete will be changed to an "F."

Credit hours for a course in which an "I" is changed to an "F" will be used in the computation of the grade point average as credits attempted.

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 requirements of the course 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 – Indicates student has enrolled for informational instruction only. No academic credit is awarded.

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

CR – Indicates credit given under the credit-no-credit option and carries no grade point.

NC – Indicates no-credit and carries no grade points.

Honor Lists

The Dean's List – To be eligible for the Dean's List, a student must be a full-time (minimum 12 semester hours) undergraduate student enrolled at the University of Alaska, Fairbanks, and must have earned a minimum Grade Point Average of 3.5 for the semester.

The Chancellor's List – To be eligible for the Chancellor's List, a student must be a full-time (minimum 12 semester hours) undergraduate student enrolled at the University of Alaska, Fairbanks, and must have earned a Grade Point Average of 4.0 for the semester.

Major

A qualified student may be accepted to a major at the time formal admission to the university is granted. Any regular student who does not follow a prescribed course of study or curriculum leading to a specific degree will be enrolled with an "undeclared" major. A student with an interest in a specific college or school but who has not selected a major from that college or school will be enrolled as a nonmajor in that college or school. Special students are not eligible to delcare a major or to be assigned class standing.

A student desiring to change his/her major may do so only at the beginning of a semester, and must obtain the written consent of the heads of the departments concerned on a Change of Department and/or Major form which may be obtained at the Office of the Director of Admissions and Records.

Placement Testing

The ACT and other placement and guidance tests must be taken before a new student with less than sophomore standing may complete his/her registration. On the basis of test scores, a student whose background appears to be deficient in English and mathematics may be required to take Engl. 100 or Math. 075 or both in addition to the requirements of his/her chosen curricula. Achievement of a certain level of excellence in these subjects is essential to success in other areas of study. These basic English and mathematics courses are especially designed to assist the student in achieving these competencies.

A student continuing the study of a foreign language begun in high school will be required to take a placement test. If he/she fails to place at the level appropriate to the amount of his/her previous language study, he/she will be allowed to enroll for credit in a course that is one semester below his/her level. Work more than one semester below the normal level will be considered remedial and, although not prerequisite to further study, will carry no credit.

Probation and Academic Disqualification

At the end of any semester of attendance, a student failing to earn or maintain a grade point average of 2.00 may be placed on academic probation. A student who fails to raise his/her scholastic average after being placed on probation may be disqualified or, under unusual circumstances, may be permitted to continue on probation but may enroll for a maximum of two college level courses in any unit of the University providing that his/her program is approved by the dean of his/her college. If a C or higher average is obtained in these two courses, a student may enroll as a full-time student. If less than a C average is obtained in these two courses, the student may be academically disqualified. A disqualified student will not be permitted to reenter academic programs administered on the Fairbanks campus for one or more semesters, and will be readmitted only upon his/her presentation of evidence indicating a high probability that he/she can do satisfactory college-level work. The most obvious evidence is the completion of two or more college-level courses with a grade of C or higher at another accredited institution or another of the University of Alaska's programs – community colleges, summer sessions, etc.

Students who are academically disqualified from a baccalaureate degree program may, as high school graduates, enroll in academic programs offered at other units of the University of Alaska if admitted by the appropriate program dean or director.

Withdrawal

Withdrawal Policy

(*Also see* "Drop/Add," page 59)

A. After the end of the seventh week of the semester, student-initiated withdrawals, either from individual courses or from the University, will not be accepted.
B. After that time, all withdrawals must be initiated with the dean of the college/school in which the course is given. The intent of this policy is that such withdrawals are unusual and require substantial justification. The dean will immediately notify faculty members of withdrawal.
C. Withdrawals, regardless of type, will appear on the student's permanent record as the letter "W" but will be entered without prejudice (having no effect on the student's G.P.A. or any reference to the student's standing in the class).
D. All withdrawals must be acknowledged by the student in writing.
E. The above withdrawal policy deadlines are set for courses shorter in time than semester courses in direct proportion to the ratio of the length of the course and the length of the fall semester.
F. Nothing in this policy shall preclude the procedure for dropping a student for cause, as outlined in the appropriate University of Alaska catalog.
G. The Appeals route for students or faculty regarding the dean's decision is to the chancellor, and thence to the Grievance/Ethics Committee.

Withdrawal from the University – Withdrawal from the university is the official discontinuance of attendance prior to the end of a semester or session. An official withdrawal procedure must be completed according to the regulations of the university, and information concerning the total withdrawal procedure may be obtained from the Office of Student Affairs. Student-initiated withdrawals are not allowed after the seventh week of a semester. (*See* Withdrawal Policy above.)





Degree Requirements

To receive a degree from the University of Alaska, a student 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: requirements of the major are given in the Degree Programs section.

General University Requirements

Undergraduate – The minimum numbers of University of Alaska credits which must be earned including those accepted by transfer, are 60 semester hours for an associate degree and 130 semester hours for a bachelor's degree.

At least 15 of the final 30 semester hours for any associate degree must be earned at the University of Alaska. For a bachelor's degree a student must earn in residence at the University of Alaska at least 24 credits in upper-division courses and at least 30 of the last 36 credits for the degree. Transfer students will ordinarily be required to earn at the University of Alaska a minimum of twelve semester credits in each major field and a minimum of three semester credits in each minor field. Credit by examination does not qualify for residence credit.

A grade-point average of 2.00 (C) must be attained in all work as well as in the major and minor fields.

A student enrolled in an undergraduate degree program may elect to graduate under the requirements of the general catalog in effect during the year of graduation or in effect at the time he originally enrolled in the major, providing there has not been a time lapse of more than seven years.

Graduate – A graduate student must have applied and been admitted to a specific degree program and, in addition, must later be admitted to candidacy for that degree and discipline major.

A graduate student must be registered for each semester in which he is actively working toward his degree.

Credit by examination or courses taken under the "credit/no credit" option may not be used in fulfilling the basic course requirements of the degree program.

A cumulative grade point average of 3.00 (B) is required for good standing. An A or B grade must be earned in courses not primarily for graduate students (300 or 400); C will be accepted in graduate courses (500 or 600), provided the student maintains a B average both for all graduate courses and for 600-level courses. For the purposes of graduate study (good standing and meeting degree requirements), all grades, including those generated from retaking a course, will be included in the grade point average.

A graduate student must satisfactorily pass a final examination(s) according to the requirements for his degree.

Degree Requirements – Undergraduate

Associate Degrees

The associate degree is awarded upon the successful completion of a prescribed two-year program. The degree has its own integrity and for many people it will be their most advanced formal educational experience. For others, it will be the first undergraduate degree and a stepping stone to a baccalaureate program.

A maximum of 15 semester hours of credit completed by correspondence may be accepted toward an associate degree.

Associate of Arts Requirements	*Credits*
Written Communication	6
Oral Communication	3
Six credits from each of three of these areas: Humanities; Social Science; Natural Science; Mathematics; other (Acct., B.A., O.A., P.E., etc.)	

(No course used to meet the above requirements may be used to meet the requirements of the major.)

Major Specialty	20-30
Electives to total	60

Majors Available for A.A. Degree: Accounting, Business Administration, Computer Information Systems, Early Childhood Development, Family Living Management, Justice, Liberal Arts, Library Technical Assistant, Para-Professional Counseling, Science, Travel Industry Management.

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

Associate of Applied Science Requirements	*Credits*
Written Communication	6
Oral Communication	3
Humanities, Social Science, Natural Science, Mathematics	6
Major Speciality	30
Electives to total	60

Majors Available for A.A.S. Degree: Air Traffic Control, Airframe and Powerplant, Business Supervision, Chemical Science, Graphic Arts and Design, Electronics Technology, Fire Science Technology, Food Service Technology, Mineral and Petroleum Technology, Office Occupations, Professional Piloting.

(Requirements for the major are listed in the Degree Programs section of this catalog.)

Bachelor's Degrees

A maximum of 32 semester hours of work completed by correspondence may be accepted toward a baccalaureate degree.

Since English 211, 213, and 311 are primarily courses in writing, and interchangeable, any one of them will satisfy 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 one of the other courses may be considered

Course Classifications

Subjects and courses that may be used in satisfying generally stated degree requirements (e.g., "Social Science elective") have been classified as follows:

Natural Sciences	Social Sciences	Humanities
Biological Sciences	Anthropology	Art
Chemistry	Business Administration 331, 332	English
Geography 205, 339 and 401	Economics	Foreign Language and Literature
Geosciences	Geography except 205, 339, and 401	Journalism
Mathematics	History	Linguistics
Physics	Political Science	Music
	Psychology	Philosophy
	Sociology	Speech
		Theater

more appropriate, or a student who changes his major from a field in which one of these courses is considered more appropriate than the others, will not be required to take the other course.

A University of Alaska graduate wishing to obtain a second baccalaureate degree must complete 24 hours of credit beyond the first baccalaureate degree, i.e., a minimum of 154 credits. All general university requirements, degree requirements, and requirements of the major must be met for both degrees.

A student who holds a baccalaureate degree from a college or university other than the University of Alaska must apply for admission as a transfer student. All general university requirements, degree requirements, and requirements of the major must be met; a minimum of 30 credits must be earned in residence.

Bachelor of Arts Requirements

Communication:	*Credits*
English 111 or equivalent, and English 211 or 212 or 213 or equivalent	6
Speech Communication	3
Humanities:	
Any combination of courses at the 100 level or above, selected from at least 3 disciplines, with a maximum of 9 credits from any one discipline	18
Social Sciences:	
Any combination of courses at the 100 level or above, selected from at least 3 disciplines, with a maximum of 9 credits from any one discipline	18
Mathematics and Logic:	
Mathematics, Statistics, Logic, Computer Science. Any combination of courses at the 100 level or above	6
Natural Sciences:	
Any combination of courses at the 100 level or above which includes at least one laboratory course	7
Major Complex*	At least 30
Minor Complex*	At least 12
Free Electives	Remainder of 130

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

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

Majors Available for B.A. Degree: Anthropology, Art, Biological Sciences, Business Education, Chemistry, Earth Sciences, Economics, English, Eskimo, Foreign Language, Geography, Geography and Regional Development, History, Humanities, Interdisciplinary Studies, Journalism, Justice, Linguistics, Mathematics, Music, Northern Studies, Office Administration, Philosophy, Physical Education, Physics, Political Science, Psychology, Russian Studies, Sociology, Speech Communications, Theatre.

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

Minors Available for B.A. Degree: Accounting, Alaska Native Languages, Athletic Coaching, Anthropology, Art, Asian Studies, Biological Sciences, Business Administration, Chemistry, Economics, Secondary Education, Elementary Education, English, Eskimo, French, Geography, Geology, German, History, Humanities, Journalism, Linguistics, Mathematics, Military Science, Music, Office Administration, Philosophy, Physics, Physical Education, Police Administration, Political Science, Psychology, Russian, Russian Studies, Sociology, Spanish, Speech Communications, Theatre.

The following associate degree programs are approved as minors for the bachelor of arts degree: Air Traffic Control, Business Administration, Chemical Science, Early Childhood Development, Electronics Technology, Fire Science, Food Technology, Justice, Library Technical Assistant, Mineral and Petroleum Technology, Office Occupations, Paraprofessional Counseling, and Professional Piloting. (Requirements of these programs are found in the Degree Programs section of this catalog.)

*A double major, which must be approved by academic petition, may be completed instead of a major and a minor. The student must complete 130 credits and satisfy all other general requirements plus all requirements for both majors.

Bachelor of Science Requirements	*Credits*
English 111 or equivalent and English 211, 213 or 311	6
Speech Communication	3
One semester of college-level Calculus, Math. 203, or Applied Statistics 301	3 or more
Chemistry, Biology, Solid Earth Sciences (Geology), or Physics (minimum of 6 credits each in two disciplines), including 2 credits of laboratory	16
Social Science (minimum of 3 credits) and Humanities (minimum of 3 credits), exclusive of 9-credit communications requirement	15
Major Complex (see departmental curricula for specific requirements and for Minor Complex, if required)	variable
Other Electives to bring total credits to	130

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

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

Bachelor of Technology Requirements	*Credits*
*Must have completed an associate degree in a technical specialty (Associate of Technology, Associate of Applied Science). Students holding associate degrees of less technical depth (Associate of Arts) must make up the equivalent technical deficiencies before being admitted to the Bachelor of Technology degree program	60 or more
Communication (may have been taken as part of the associate degree):	
Engl. 111 and Engl. 211, 213, or 311	6
Oral Communication	3

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

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

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

Upper-division credits in technical specialty 0-12
Complementary area 24-30
Electives ..... to total 130

A minimum of 65 credits must be earned beyond those applied to the associate degree. Twenty-four upper division credits must be earned at the University of Alaska. All credits must be 100-level or above.

Major Complexes Available for the B.T. Degree: Business, Education.

*The following technical specialties have been approved as acceptable associate degree programs for admission to a Bachelor of Technology degree program:

Aviation Technology
Automotive Technology
Computer Information Systems (for Business major complex only)
Electronics Technology
Food Service Technology
Welding/Materials Technology
Medical Technology
Surveying Technology
Mineral and Petroleum Technology

Bachelor of Business Administration Requirements	*Credits*
Engl. 111 and Engl. 211, 213 or 311	6
Sp.C. Elective	3
Psy. 101 – Intro. to Psychology	3
Soc. 101 – Intro. to Sociology	3
B.A. 101 – Intro. to Data Processing and FORTRAN	3
History elective	3
P.S. 101 or 102 – Intro. to American Gov't	3
Acct. 101-102 – Elementary Accounting	6
Econ. 121, 122, 226	9
Math. 161, 162	7
Natural Science elective	4
Major requirements and foundation courses	54 to 60
Electives to bring total credits to	130

Majors Available for B.B.A. Degree: Accounting, Finance, Management, Marketing, Tourism.

(Requirements of majors are listed in the Degree Program section of this catalog.)

Bachelor of Education Requirements

See under Education in Degree Programs section.

Bachelor of Music Requirements

See under Music in Degree Programs section.

Bachelor of Fine Arts Requirements

B.F.A. general requirements are the same as the requirements for the B.A. (See page 64.)

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

Degree Requirements – Graduate

Specific requirements and procedures for graduate study are listed below and in the *Manual of Information and Procedures for Graduate Students.*

A student will be permitted to continue graduate study from semester to semester only if his/her performance is satisfactory as judged by the student's advisory committee and the dean, but, minimally, a cumulative grade-point average of 3.00 in courses of the approved program (all courses if the program has not yet been delineated) is required for good standing. (*See also* general university requirements for graduates, page 63.)

Master's Degree

The minimum number of credits which must be earned for every and all master's degrees is 30 semester hours.

A maximum of 12 credits may be devoted to thesis or to thesis and research, or a maximum of 6 to research in non-thesis degrees. At least 9 credits in addition to thesis and research must be at the 600 level.

A maximum of 9 semester hours of credit from another institution may be transferred to the University of Alaska and applied toward a master's degree upon approval of the student's advisory committee and the dean of the college or school in which the student is enrolled.

A student may apply for admission to candidacy for a specific master's degree after satisfying all the following requirements: the student must have (1) satisfactorily completed at least eight credits of graduate study at the University of Alaska; (2) fulfilled the language/research tool requirement, if required; and (3) received approval for the provisional thesis title.

The candidate must pass a comprehensive examination, either written or oral; if a thesis is required, the examination will include a defense of the thesis. The examining committee shall consist of a candidate's advisory committee and an examiner from outside the candidate's college or school, in the case of an oral exam, representing the Office of the Chancellor.

All work toward the fulfillment of the requirements of a master's degree must be completed within seven years. All courses listed on the student's program must be satisfactorily completed.

Deadlines for Graduate Students

(*See also* 1979-80 and 1980-81 Academic Calendars, pages 4 and 5.)

	Fall 1979	Spring 1980	Summer 1980	Fall 1980	Spring 1981	Summer 1981
Advancement to Candidacy forms to Office of Graduate Studies	Sept. 6	Jan. 21	July 7*	Sept. 4	Jan. 19	July 6**
Final draft of thesis due chairman of advisory committee	Nov. 14	Apr. 3	July 11	Nov. 12	Apr. 2	July 10
Graduation Application due Admissions and Records Office	Nov. 15	Feb. 15	July 15	Nov. 14	Feb. 16	July 15
Final exam form due to Director of Admissions and Records	Dec. 12	May 1	Aug. 8	Dec. 10	Apr. 30	Aug. 7
Thesis due to Office of Graduate Studies	Dec. 12	May 1	Aug. 8	Dec. 10	Apr. 30	Aug. 7

*For summer 1981 graduation.
**For summer 1982 graduation.

Undergraduate Degree Requirements

ACADEMIC DISCIPLINE	DEGREE: Associate of Arts	Associate of Applied Science	Bachelor of Arts	Bachelor of Science
Written Communication	6 credits	6 credits	Engl. 111 – 3 cr. Engl. 211, 213, or 311 – 3 cr.	Engl. 111 – 3 cr. Engl. 211, 213, or 311 – 3 cr.
Oral Communication	3 credits	3 credits	Sp. C. elective – 3 credits	Sp.C. elective – 3 credits
Humanities	6 credits from each of three of these areas – 18 credits	6 credits	18 credits in any combination of courses at the 100 level or above, selected from at least 3 disciplines, with a maximum of 9 credits from any one discipline in both humanities and social science areas – 36 credits	15 credits including at least 3 credits from each area
Social Science				
Natural Science			Any combination of courses at the 100 level or above which includes one laboratory course – 7 credits	Chem., Biol., Geol., or Physics – 16 cr. (6 cr. in each of 2 disciplines, incl. 2 cr. of lab)
Mathematics			Mathematics, statistics, logic, computer science: any combination of courses at the 100 level or above – 6 credits	One sem. college-level calculus, Math. 203 or A.S. 301 – 3 or more cr.
Other			Of the total credits required for the degree, 48 must be upper-division (300 or 400 level) courses.	
Major Complex or Specialty	20-30 credits	30 credits	At least 30 credits	Variable
Minor Complex			At least 12 credits	

Educational Specialist Degree

The minimum number of credits which must be earned beyond the master's degree is 30 semester hours, 21 of which must be 600 level.

A maximum of 6 hours of credit may be accepted by transfer, with approval of the student's graduate committee and the dean of the School of Education.

All work toward the fulfillment of the requirements for the educational specialist degree must be completed within seven years after first registering for the program. (*See* page 85 for additional information and requirements.)

Doctor of Philosophy Degree

The degree of doctor of philosophy is granted for proven ability and scholarly attainment. There are no fixed credit requirements for this degree at the University of Alaska. It is not policy to confer this degree upon anyone whose entire academic experience has been at this university.

The student chooses a major line of study and, with the advice of his/her advisory committee, such lines of study in related fields as are necessary for achievement of a thorough and scholarly knowledge of his/her subject. The committee and the student will prepare the student's graduate study plan for the degree which, including ap-

DEGREE				
Bachelor of Business Admin.	**Bachelor of Education**	**Bachelor of Music**	**Bachelor of Technology**	**ACADEMIC DISCIPLINE**
Eng. 111 – 3 cr. Engl. 211, 213, or 311 – 3 cr.	Engl. 111 – 3 cr. Engl. 211, 213, or 311 – 3 cr.	Engl. 111 – 3 cr. Engl. 211, 213, or 311 – 3 cr.	Engl. 111 – 3 cr. Engl. 211, 212, 213, or 311 – 3 cr.	**Written Communication**
3 credits	Sp.C. elective – 3 credits	Sp.C. elective – 3 credits	3 credits	**Oral Communication**
	Electives – 11 cr.	Non-Music Electives – 15 cr.		**Humanities**
History – 3 cr. Psy. 101 – 3 cr. Soc. 101 – 3 cr. P.S. 101 or 102 – 3 cr. Econ. 121, 122, 226 9 cr.	Electives – 9 cr. Hist. 101-102 or 131-132 – 6 cr. P.S. 101-102 – 6 cr. Psy. 101 – 3 cr.	Psy. 101 – 3 cr. Electives – 12 cr.	General Education – 24 credits (12 cr. in one area, 6 cr. in second area, and 3 cr. in each of other two areas) Courses taken as part of associate program are accepted.	**Social Science**
Nat. Sci. – 4 cr.	Nat. Sci. (Elem.) – 6 cr. Nat. Sci. and/or Math (Sec.) – 8 cr. Math. (Elem.) – 6 cr.			**Natural Science**
Math. 161-162 – 7 cr.				**Mathematics**
Acct. 101-102 – 6 cr. B.A. 101 – 3 cr.	Teaching major or minor or two subject fields – variable credit		Technical Assoc. Degree: 65 cr. must be earned beyond assoc. degree, including 30 cr. in major complex.	**Other**
54-60 credits	Education – 27-37 credits	Variable		**Major Complex or Specialty**
				Minor Complex

plicable and acceptable work transferred from other institutions, shall represent approximately three full years of study beyond the bachelor's degree.

The university requires completion of a foreign language/research tool requirement set by the candidate's advisory committee. The research tool may include competency in such areas as computer languages, statistics, mathematics, etc., at the discretion of the committee, but should in all instances be supportive of the student's degree program. The selection and administration of suitable proficiency tests will be under the direction of the graduate committee.

Admission to graduate study does not imply admission to candidacy for a degree. The student should seek admission to candidacy approximately one year before completing the requirements for the doctorate. A student may be accepted as a candidate by the advisory committee after (1) completing the full-time equivalent of two academic years of graduate study, (2) completing at least one semester in residence at the University of Alaska, (3) finalizing the graduate study plan, (4) passing the foreign language/research tool requirement, (5) obtaining approval by the advisory committee of the title and synopsis of the thesis, and (6) passing a written comprehensive examination set by the advisory committee.

The thesis, which is expected to represent the equivalent

of at least one full academic year's work at the University of Alaska, must be a substantial contribution to knowledge.

After submitting the thesis, the candidate must pass an oral examination supporting the thesis. The examining committee will consist of the student's advisory committee supplemented by additional examiners, including one from outside the candidate's college or school representing the Office of the Chancellor.

All work toward the fulfillment of a doctor's degree must be completed within ten years.

Thesis – Two copies of the thesis, typed and bound (original and best reproduction) must be filed in the university library. All work done and all specimens collected in connection with the preparation of thesis are the property of the university and the agency financing the work. That material which is the property of the university can be released with the permission of the head of the department and the dean after it has been reproduced by the university.

Doctor of Medicine

For further information contact the WAMI Medical Education Program Office, University of Alaska, Fairbanks, AK 99701, U.S.A.

Extended Registration for Graduate Students

A graduate student must be registered each semester in which he/she is actively working for a degree. A student whose only remaining requirement is the completion of the final examination(s), the removal of a deferred grade from an earlier enrollment, or the completion of the thesis, may extend registration by completing the extended registration procedure and paying the appropriate fee during the regular registration period at the beginning of the semester. Upon completion of extended registration, the student is considered enrolled for the current semester.

Graduation

Responsibility – The responsibility for meeting all requirements for graduation rests upon the student.

Application for Graduation – Degree candidates must formally apply for graduation. The application for graduation must be filed with the Office of Admissions and Records during the semester the student plans to graduate, and not later than the application filing dates which appear in the university academic calendar.

Applications for graduation filed after the deadline date will be processed for graduation the following semester.

Diplomas and Commencement – The University of Alaska issues diplomas to degree candidates three times each year: in September following the summer session, in December 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 – Undergraduate students who obtain a grade point average of 3.5 will be graduated *cum laude*; 3.8, *magna cum laude*; and 4.0, *summa cum laude*, provided they meet the honors as well as the general residence requirements.

Undergraduate students who meet honors requirements as well as residence requirements will graduate with honors provided they have been in attendance at the University of Alaska for at least 24 credit hours for an associate degree or 48 credit hours for a baccalaureate degree. All college work attempted, including that attempted at other institutions, is considered in the determination of a student's eligibility for graduation with honors.





Degree Programs

Accounting

School of Management

Degrees: Associate of Arts in Accounting, Bachelor of Business Administration

Minimum Requirements for Degree: A.A. – 60 credits, B.B.A. – 130 credits

The Accounting Department offers an extensive program for those interested in the fields of general accounting, auditing, managerial accounting, and taxation. The objectives of the program are to provide a strong business background through an understanding of accounting and to train students for employment in accounting work.

Accounting – A.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

	Credits
Written Communication	6
Oral Communication	3
Mathematics – including Math 110	6
O.O. 51 and 52 or Econ. 121 and 122	6
At least six credits in one of the following areas: Humanities, Natural Science, or other (Acct., B.A., O.A., Mil. Sci., P.E., etc.)	6
Acct. 100 – Intro. to Small Business Accounting	3
Acct. 101-102 – Elementary Accounting	6
Accounting Elective (200 or 300 level)	3
Acct. 310 – Income Tax	3
B.A. 101 – Intro. to Data Processing	3
B.A. 151 – Intro. to Business	3
B.A. 331 – Business Law	3
B.A. 380 – Processes of Management	3
Electives	6

Accounting – B.B.A. Degree

1. Complete general university requirements and B.B.A. degree requirements, pages 63 and 65.
2. Complete the following program (major) requirements:

A. Business Administration and Economics Courses:	Credits
B.A. 325 – Financial Management	3
B.A. 331-332 – Business Law	6
B.A. 343 – Principles of Marketing	3
Econ. 321 – Intermediate Microeconomics	3
Econ. 326 – Intermediate Statistics For Economics and Business	3
Econ. 350 – Money and Banking	3
B.A. 360 – Operations Management	3
B.A. 462 – Administrative Policy	3
B.A. 480 – Organization Theory	3

B. Accounting Courses:	
Acct. 310 – Income Tax	3
Acct. 361-362 – Intermediate Accounting	6
Acct. 316 – Acct. Information Systems	3
Acct. 342 – Managerial Cost Accounting	3
Acct. 401 – Advanced Accounting	3
Acct. 452 – Auditing	3

C. Complete the following:	
Acct. 403 – Advanced Taxes	3
Acct. 404 – Advanced Managerial Cost Acct.	5
Acct. 405 – Contemporary Issues in Accounting	3

If the sum of all credits in Accounting, Business and Advanced Economics is more than 78, then more than 130 total credits will be required for the degree.

Requirements for a Minor in Accounting	Credits
Acct. 101 – Elementary Accounting	3
Acct. 102 – Elementary Accounting	3
Acct. 310 – Income Tax	3
Acct. 361 – Intermediate Accounting	3
Acct. 342 – Managerial Cost Accounting	3
Another 300- or 400-level accounting course	3
	Total 18

Alaska Native Languages Program

College of Arts and Sciences

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

There are nearly twenty different Alaska native languages: Aleut, Pacific Gulf Eskimo (also called Aleut), Central Yupik Eskimo, St. Lawrence Island Eskimo, Inupiaq Eskimo, Tsimshian, Haida, Tlingit, Eyak, and about ten Athapaskan languages. These languages are becoming recognized as the priceless heritage they truly are. The passage of the Alaska bilingual education law in 1972 has generated a great 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 are many in teaching, research, and cultural, educational, and political development.

Central Yupik Eskimo is spoken by the largest number of people, and Inupiaq by the next largest. In these two languages major and minor curricula are now offered. 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, Athapaskan, St. Lawrence Island Eskimo, Aleut, Kutchin Athapaskan, Koyukon, comparative Eskimo, and comparative Athapaskan.

Yupik Eskimo – B.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

	Credits
Esk. 101-102 – Elementary Yupik Eskimo	10
Esk. 201-202 – Intermediate Yupik Eskimo	8
ANL 215 – Eskimo-Aleut Languages	3
Esk. 415 – Advanced Yupik Eskimo	3

Ling. 101 – Nature of Language 3

Complete two of the following:

Esk. 415 – (Additional) Advanced Yupik Esk. 3
ANL 387 – Bilingual Methods and Materials 3
Ling. 112 – Structure of Language 3
Anth. 342 – Anthropology of the Natives of Alaska and the Arctic 3
Hist. 100 – Heritage of Alaska Natives 3
P.S. 263 – Alaska Native Politics 3
Engl. 349 – Aleut, Eskimo and Indian Literature of Alaska in English Translation 3
ANL 216 – Indian Languages of Alaska 3
A course in Inupiaq Eskimo or other approved subject 3

Inupiaq Eskimo – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

	Credits
Esk. 111-112 – Elementary Inupiaq Eskimo	10
Esk. 211 – Intermediate Inupiaq Eskimo	3
ANL 215 – Eskimo-Aleut Languages	3
Esk. 417 – Advanced Inupiaq Eskimo	3
Ling. 101 – The Nature of Language	3

Complete four of the following:

Esk. 417 – (Additional) Adv. Inupiaq Eskimo	3
ANL 387 – Bilingual Methods and Materials	3
Ling. 112 – Structure of Language	3
Anth. 342 – Anthropology of the Natives of Alaska and the Arctic	3
Hist. 100 – Heritage of Alaska Natives	3
P.S. 263 – Alaska Native Politics	3
Engl. 349 – Aleut. Eskimo and Indian Literature of Alaska in English Translation	3
ANL 216 – Indian Languages of Alaska	3
A course in Yupik Eskimo or other approved subject	3

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

Anthropology

Division of Life Sciences
College of Environmental Sciences

Degrees: Bachelor of Arts, Bachelor of Science, Master of Arts

Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits; M.A. – 30 additional credits

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 man 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.

Anthropology – B.S. or B.A. Degree

1. Complete general university requirements and B.A. or B.S. degree requirements on pages 63 and 64.
2. Complete the following program (major) requirements:

	Credits
Anth. 201 – Social Anthropology	3
Anth. 202 – Cultural Anthropology	3
Anth. 211 – Fundamentals of Archaeology	3
Anth. 212 – Prehistoric Foundations of Civilization	3
Anth. 221 – Human Biology	3
Anth. 222 – Human Evolution	3

A. Area Studies – Complete 6 credits. Two different areas must be chosen which can be from the same or different subdiscipline.

Anth. 301 – Peoples of the World	3
Anth. 311 – World Prehistory	3
Anth. 321 – Human Population Biology	3
Anth. 342 – Anthropology of the Natives of Alaska and the Arctic	3

B. Method and Theory – Complete 6 hours. Any two courses may be chosen.

Anth. 400 – Anthropology of Religion	3
Anth. 402 – Cultural Change and Theories of Applied Anthropology	3
Anth. 176 – Anthropology of American Society and Culture	3
Anth. 409 – Women in Society	3
Anth. 410 – History of Anthropology	3
Anth. 411 – Archaeological Field and Lab Techniques	3
Anth. 412 – Archaeological Research Methods	3
Anth. 413 – Archaeological Theory	3
Anth. 414 – Environmental Archaeology	3
Anth. 415 – Contemporary Problems	3
Anth. 416 – Language and Culture	3
Anth. 421 – Analytical Techniques	3
Anth. 422 – Human Osteology	3
Anth. 428 – Human Ecology	3

A minor in Anthropology requires 12 hours in anthropology, including Anthropology 101.

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 thesis research.

The program offers two options – a thesis track and a non-thesis track. The choice of option is guided by the student's interests and goals, the graduate advisory committee and the requirements of the university.

Degree Requirements for all graduate students:

1. Students must complete the general university requirements for the master's degree as outlined on page 65.
2. Students must pass the general comprehensive examinations in anthropology. Each student is expected to take these examinations during the fourth semester of full graduate status regularly given according to the following schedule:

   Fall semester – first week of November
   Spring semester – first week of April

3. The need for a language requirement or a suitable substitute shall be determined by the student and his/her advisory committee.
4. Required courses for all graduate students enrolled in the program:

	Credits
Anth. 601 – Proseminar in Social/Cultural Anthropology	3
Anth. 611 – Proseminar in Archaeology	3
Anth. 621 – Proseminar in Physical Anthropology	3
Anth. 630 – Anthropological Field Methods	3

5a. Thesis Track: Core requirements outlined above to be included in a program of 30 hours study: 24 hours of which must be course work (at least 12 hours at the 600 level) plus 3 – 6 hours of thesis.
5b. Non-Thesis Track: 36 hours of course work (including the core requirements), 15 hours of which must be at the 600 level as part of 24 hours required in anthropology.

Applied Statistics

College of Arts and Sciences

The applied statistics program is designed to strengthen and consolidate the applied statistics teaching and consulting functions. The program, a non-degree-granting one,

is supervised by an interdisciplinary committee of selected staff members from the academic colleges and research institutes. The committee makes recommendations concerning the applied statistics course offerings, supervises the teaching program, provides a mechanism for statistical consulting services for other units of the university and serves as a focal point for applied statistics-related activities.

The applied statistics courses are taught by faculty members holding joint appointments in the applied statistics program and other units of the university. As demand and circumstances warrant, short courses or seminars covering specialized areas of applied statistics, for which the university has limited expertise, will be presented by experts from outside the university.

Although the applied statistics program is a non-degree granting program, a Bachelor of Science degree in Mathematics with an emphasis in Statistics is offered by the Mathematics Department. Several applied statistics courses are included in this degree program.

Arctic Engineering

School of Engineering

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

The arctic engineering program is designed to provide training for graduate engineers who must deal with the unique challenge of design, construction, and operations in the cold regions of the world. The special problems created by the climatic, geological, and logistical conditions of the Arctic and sub-arctic require knowledge and techniques not usually covered in the normal engineering courses. Of primary importance is a thorough understanding of heat transfer processes. In addition, properties of frozen ground and frozen water are basic to most engineering activities in the arctic. The areas of hydraulics, hydrology, and utility operations are also uniquely affected by arctic considerations. The arctic engineering program requires a set of core courses that will prepare an engineer to understand and adapt to cold regions problems and also allows the student to round out the program with elective advanced courses in his particular field of interest. Arctic engineering research activities carried out by faculty associated with this program can provide opportunities for theses or project papers dealing with the most current arctic knowledge.

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.

Arctic Engineering – M.S. Degree

1. Complete the general university requirements and master's degree requirements as listed on pages 63 and 65.
2. Complete the following degree program:

A. Core Courses: (Minimum of 15 credits)	Credits
C.E. 603 – Arctic Engineering	3
C.E. 681 – Frozen Ground Engineering	3
C.E. 682 – Ice Engineering *or*	
Geos. 606 – Adv. Snow, Ice, Permafrost, Glac. Studies	2 or 3
C.E. 683 – Arctic Hydrology and Hydraulic Engineering	3
C.E. 684 – Arctic Utility Distribution	3
M.E. 685 – Arctic Heat and Mass Transfer	3
B. C.E. 699 – Thesis	3

Electives: 12 credits in areas related to or supportive of the student's degree program and approved by the student's graduate committee.

3. Pass the state Engineer-in-Training Examination.

Art

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Fine Arts
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 language of art is universal and through it man's creative and intellectual endeavors become more meaningful.

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.

Art – B.A. Degree

1. Complete general university requirements and B.A. degree requirements pages 63 and 64.
2. Complete the following program (major) requirements:

A. Lower Division (27 credits)	Credits
Art 105 – Beginning Drawing	3
Art 205 – Intermediate Drawing	3
Art 161, 162 or 163 – Design and Color Theory (2 out of 3 courses)	6
Art 261-262 – History of World Art	6
Art 211 Beginning Sculpture	3
Art 213 – Beginning Oil Painting	3
One elective chosen from:	3
Art 201 – Beginning Ceramics	
Art 207 – Beginning Printmaking	
Art 209 – Beginning Metalsmithing	

B. Upper Division (12 credits)

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

Drawing	Sculpture
Painting	Ceramics
Printmaking	
Metalsmithing and Jewelry	

Upper-division Art History 3

Minimum Required Credits: 39

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

Art – B.F.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 64, including a non-art minor.
2. Complete the following program (major) requirements:

A. Lower Division (27 Credits)	Credits
Art 105 – Beginning Drawing	3
Art 205 – Intermediate Drawing	3
Art 161, 162 – 2-D Design, Color and Design or Art 163 – 3-D Design (two of the three)	6
Art 261, 262 – History of World Art	6
Art 211 – Beginning Sculpture	3
Art 213 – Beginning Painting	3
One of the following:	3

Art 201 – Beginning Ceramics
or Art 207 – Beginning Printmaking
or Art 209 – Beginning Metalsmithing

B. Upper Division (45 Credits)

Upper Division Art History 6
Two areas of specialization in Art:
Major specialization 21
Minor specialization 9
Art Electives 6
Thesis Project 3

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

A minor in Art requires 12 hours of approved Art courses.

Art Program for Teachers

Students who are preparing to teach Art must complete the requirements for an Education minor as required by the School of Education.

Asian Studies

Interdisciplinary Minor Program

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 for Asian Studies Minor

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: Hist. 121-122, 330, 331, Geog. 311; Jap. 101-102, 201-202; Phil. 202; P.S. 342.

Aviation Technology

Tanana Valley Community College

Degree: Associate in Applied Science
Minimum Requirements for Degree: 64 credits

Airframe and Powerplant – A.A.S. Degree**

1. Complete the general University requirements as listed on page 63.
2. Complete the A.A.S. degree requirements as listed on page 63.
3. Complete the following program (major) requirements:

	Credits
A.T. 146 – Basic Electricity	2
A.T. 148 – Aircraft Drawings	2
A.T. 157 – Weight and Balance	1
A.T. 149 – Fluid Lines and Fittings	1
A.T. 150 – Materials and Process	2
A.T. 158 – Ground Operation and Servicing	1
A.T. 151 – Cleaning and Corrosion Control	1
A.T. 152 – Maintenance Forms and Records	1
A.T. 159 – Basic Physics	3
A.T. 153 – Maintenance Publications	1
A.T. 154 – Mechanic Privileges and Limitations	1
A.T. 261 – Wood Structures	1
A.T. 262 – Aircraft Covering	1
A.T. 263 – Aircraft Finishes	1
A.T. 264 – Sheet Metal Structures	1
A.T. 265 – Welding	1
A.T. 266 – Assembly and Rigging	1
A.T. 267 – Airframe Inspection	1
A.T. 260 – Aircraft Landing Gear Systems	1
A.T. 259 – Hydraulic and Pneumatic Systems	1
A.T. 258 – Cabin Atmosphere Control Systems	1
A.T. 257 – Aircraft Instrument Systems	1
A.T. 256 – Communications and Navigation Systems	1
A.T. 251 – Aircraft Fuel Systems	1
A.T. 156 – Aircraft Electrical Systems	1
A.T. 253 – Position and Warning Systems	1
A.T. 254 – Ice and Rain Control Systems	1
A.T. 255 – Fire Protection Systems	1
A.T. 155 – Aircraft Reciprocating Engines	2
A.T. 160 – Turbine Engines	2
A.T. 161 – Engine Inspections	1
A.T. 162 – Engine Instrument Systems	1
A.T. 163 – Engine Fire Protection Systems	1
A.T. 147 – Engine Electrical Systems	1
A.T. 164 – Lubricating Systems	1
A.T. 165 – Ignition Systems	1
A.T. 246 – Fuel Metering Systems	1
A.T. 247 – Engine Fuel Systems	1
A.T. 248 – Induction Systems	1
A.T. 249 – Engine Cooling Systems	1
A.T. 250 – Engine Exhaust Systems	1
A.T. 252 – Propellers	1
Total	49

**The courses required for this degree are not offered at the Tanana Valley Community College. However, upon completion of a certified Airframe and Powerplant Mechanics program and successful passage of the Federal Aviation Association (FAA) written and oral examination, a degree candidate may petition for acceptance of up to 49 credits in the courses listed above.

Air Traffic Control – A.A.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

	Credits
A. Written Communication	6
Recommended: English 111 – Methods of Written Communication; English 211 – Intermediate Exposition, with Modes in Literature or English 213 – Intermediate Exposition	
B. Oral Communication	3
Sp. C 111 – Fundamentals of Oral Communication	
C. At least six credits from the following areas: Natural Sciences, Social Sciences, Humanities, Mathematics	6
Total	15

3. Complete the following program (major) requirements:

	Credits
A.T. 100 – Private Pilot Ground School	4
A.T. 117 – Aviation Weather	3
A.T. 118 – The Control Environment	3
A.T. 120 – Operation in the Flight Service Station	3
A.T. 137 – Aviation Laws and Regulations	3
A.T. 215 – Principles of Air Traffic Control (IFR)	3
A.T. 216 – Principles of Air Traffic Control (VFR)	3
A.T. 219 – The Radar Environment	3
A.T. 220 – The Air Traffic Control Intern Program	6
A.T. 235 – Elements of Weather	3
Total	34

Major Specialty Electives (Minimum of 6 credits):

A.T. 101 – Private Pilot Flying	3
A.T. 131 – Introduction to Aviation I or (A.T. 132 – Intro to Aviation II)	3
A.T. 200 – Instrument Ground School	4
A.T. 201 – Instrument Pilot Flying	2
A.T. 232 – Aviation Astronomy and Navigation	3
A.T. 236 – Celestial Navigation for Airmen	4
A.T. 237 – O.J.T. Instructor Techniques	3
B.A. 101 – Introduction to Data Processing	3
Math 075 – Intermediate Algebra	3
Additional Electives	9
Total credits required for degree	64

Professional Piloting – A.A.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

	Credits
A. Written Communications	6
Recommended: English 111 – Methods of Written Communication; English 211 – Intermediate Exposition, with Modes in Literature or English 213 – Intermediate Exposition	
B. Oral Communications	3
Sp.C. 111 – Fundamentals of Oral Communication	
At least six credits from the following areas: Natural Sciences, Social Sciences, Humanities, Mathematics	6
Total	15

3. Complete the following program (Major) requirements:

Major Specialty Required Courses:	Credits
A.T. 100 – Private Pilot Ground School	4
A.T. 101 – Private Flying	2
A.T. 102 – Commercial Ground Instruction	4
A.T. 103 – Commercial Flying	2
A.T. 117 – Aviation Weather	3
A.T. 155 – Airframe and Power Plant for Pilots	3
A.T. 200 – Instrument Ground School	4
A.T. 201 – Instrument Flying	3
A.T. 231 – Survival Search and Rescue	3
Total	28

Major Specialty Elective Courses:	Credits
A.T. 105 – Float Rating	1
A.T. 107 – Multi-Engine Rating	1
A.T. 108 – Introduction to Skis	1
A.T. 109 – Glider Flying	3
F.S. 117 – Rescue Practices	3
A.T. 131 – Introduction to Aviation I	3
A.T. 132 – Introduction to Aviation II	3
A.T. 137 – Aviation Laws and Regulations	3
A.T. 160 – Turbine Engines	3
A.T. 202 – CFI Ground School	3
A.T. 203 – CFI Flying	2
A.T. 205 – Certified Flight Instructor Instrument Flying	3
A.T. 206 – A.T.P. Ground Instruction	4
A.T. 207 – A.T.P. Flying	3
A.T. 208 – Flight Simulator Operation	3
A.T. 232 – Aviation Astronomy and Navigation	3
A.T. 234 – Complex Aircraft Systems	3
A.T. 235 – Elements of Weather	3
A.T. 236 – Celestial Navigation for Airmen	3
A.T. 239 – Aircraft Dispatcher	4
A.T. 241 – Flight Instructor Study Aides and Design	1-6
A.T. 136 – Air Traffic Control for Pilots	3
Minimum of 12 hours of elective courses.	
Total credits required for degree	64

Biological Sciences

College of Environmental Sciences

Degrees: Bachelor of Arts, Bachelor of Science, Master of Science, Master of Arts in Teaching, Doctor of Philosophy (Interdisciplinary)

Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits; M.S. – 30 additional credits; M.A.T. – 30 additional 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 greather 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.

Biological Sciences – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Bio. 107-108, 210, 252, 271 and at least 16 additional credits in biology, including at least one course in botany, one in microbiology, and one in zoology.* A majority of these credits should be at the upper-division level.

Chemistry – one year

Mathematics – one year

A minor in Biological Sciences requires 20 credits in Biology, including Biol. 107-108, 252, and 271 and two of the following courses:

Biol. 201, 210, 239, 242, 305.

Biological Sciences – B.S. Degree

1. Complete the general university requirements and B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Biol. 107-108, 210, 252, 271 and at least 25 additional credits in biology, including at least one course in botany, one in microbiology, and one in zoology.* A majority of these credits should be at the upper-division level.

Chem. 105-106

Organic Chemistry – one semester

Complete 8 credits, in addition to those listed in 1. and 2. above, chosen from: Physics, Geosciences, Applied Statistics, Chemistry and/or Math.

Foreign Language – one collegiate year; or 6 credits of Social Sciences and/or Humanities beyond the general requirements for the B.S. degree.

*Students preparing to enter professional schools (medical, dental, veterinary, etc.) may substitute up to eight credits in the B.A. program of 12 credits in the B.S. program of approved chemistry courses for some of these additional credits.

Students from Other Departments

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

Botany, Biology, or Zoology – M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits of approved courses.
3. Students working in subject areas involving significant non-English literature may be expected to read the appropriate foreign language.

M.A.T. Degree

Persons interested in this degree program should see the head of the program.

Ph.D. Degree

See page 66 for degree requirements.

Business Administration

School of Management

Degrees: Associate of Arts in Business Administration, Bachelor of Business Administration, Bachelor of Technology, Master of Business Administration.

Minimum Requirements for Degrees: A.A. – 60 credits; B.B.A., B.T. – 130 credits; M.B.A. – 30 additional credits.

The Business Administration Department offers professional training in the field of management, finance, and marketing to those individuals interested in entering industry or government upon graduation. The objective of the program is to prepare men and women to meet the

complex problems of the political, economic, and social environment and to enable them to give efficient service to industry and government on the basis of their academic training. B.A. 151 is an overview and is recommended as an introductory course for persons with a potential interest in a business major or minor who are either undecided or perhaps unclear about the nature of the various functions performed in the administration of organizations.

Business Administration – A.A. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

	Credits
Written Communication	6*
Sp.C. 111 – Fund. of Oral Communication	3
Math. 075 – High School Algebra *and*	
Math. 110 – Math. of Finance	6**
O.O. 51-52 – Economics	6
or Econ. 121-122 – Principles of Econ. I and II	6
Acct. 100-101 – Intro. Small Bus. Acct.	
Elementary Accounting *or*	
Acct. 101-102 – Elementary Accounting	6
Hist. 132 – History of the U.S.	3
History Elective	3
P.S. 101 – Intro. to American Government	3
B.A. 151 – Intro. to Business	3
B.A. 343 – Principles of Marketing	3
B.A. 380 – Principles of Management	3
B.A. 331-332 – Business Law	6
Electives in Business, Economics or Accounting (3 credits may be Business Practicum)	9

*At direction of advisor.

**Math. 075 may be waived by examination, 3 credits of mathematics elective will then be required.

Travel Industry Management – A.A. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

General Requirements:	Credits
Written Communication	6
Oral Communication	3
Social Sciences:	
Econ. 121-122 or Econ. 101, 137	6
Psy. 101 or Soc. 101	3
Mathematics:	
Math. 110 plus 3 credits of math electives	6
Acct. 101-102 Elementary Accounting	6
Major Complex	
B.A. 101 – Intro. to Data Processing	3
B.A. 151 – Intro. to Business	3
B.A. 160 – Tourism in Alaska	3
B.A. 253 – Internship in Business	3
B.A. 372 – Hotel Administration	3
B.A. 377 – Food and Beverage Management	3
B.A. 326 – Principles of Advertising	3
B.A. 331 – Business Law	3
Electives to bring total credits to	60

Business Administration – B.B.A. Degree

1. Complete general university requirements and B.B.A. degree requirements, pages 63 and 65.
2. Complete the following program (major) requirements:

	Credits
B.A. 310 – Management Information Systems	3
B.A. 325 – Financial Management	3
B.A. 331-332 – Business Law	6
B.A. 343 – Principles of Marketing	3
B.A. 360 – Operations Mgmt.	3
B.A. 380 – Principles of Mgmt.	3
B.A. 462 – Administrative Policy	3
B.A. 480 – Organization Theory	3
Econ. 321 – Intermediate Microeconomics	3
Econ. 326 – Statistical Methods*	3
Acct. 352 – Management Accounting	3

Complete a minimum of 21 hours of the courses listed below including all the courses in one of the three groups.

*Travel Industry Management majors should take Econ. 420 in lieu of Econ. 326.

Management

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

	Credits
B.A. 446 – Business Research	3
B.A. 361 – Personnel Management	3
B.A. 453 – Internship or 498 Research*	3
Econ. 324 – Intermediate Macroeconomics	3
Econ. 420 – Labor Management Relations	3
Elective approved by major advisor	6
	Total 21

Marketing

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

	Credits
B.A. 453 – Internship or 498 Research*	3
B.A. 475 – Transportation and Logistics	3
B.A. 483 – Integrative Marketing Strategy	3
Econ. 324 – Intermediate Macroeconomics	3
B.A. 326 – Principles of Advertising	3
B.A. 436 – Consumer Behavior	3
B.A. 445 – Business Research	3
	Total 21

Finance

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

	Credits
B.A. 423 – Investment Management	3
B.A. 425 – Advanced Finance	3
B.A. 453 – Internship or 498 Research*	3
B.A. 446 – Business Research	3
Econ. 324 – Intermediate Macroeconomics	3
Econ. 350 – Money and Banking	3
Electives	3
	Total 21

Travel Industry Management:

	Credits
B.A. 253 – Internship in Business	3
B.A. 160 – Tourism Principles and Practices	3
B.A. 372 – Hotel Administration	3
B.A. 377 – Food and Beverage Management	3
B.A. 375 – Marketing and Hospitality Services	3
B.A. 378 – Passenger Transportation Management	3
B.A. 453 – Internship	3
B.A. 465 – Tourism Planning and Development	3
B.A. 471 – Tourism Seminar	3
	Total 27

*B.A. 453 includes supervised work experience (internship) in an approved position. B.A. 498 includes studies on an individual basis in any phase of marketing not included in the organized courses. A written report is required of both options and both carry the prerequisite of 6 hours in marketing, junior standing, and consent of instructor.

Business – B.T. Degree

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

requirements, pages 63 and 64.

2. Complete the following major complex requirements beyond the associate degree major (30 credits):

	Credits
A. Upper division credits in technical specialty	0-6
B. Complementary area (27 credits):	
Acct. 101-102 – Elementary Accounting	6
Math. 161 – Algebra for Business and Economics	3
B.A. 101 – Intro. to Data Processing	3
Econ. 121-122 – Principles of Econ. I and II	6
Econ. 226 – Intro. to Statistics for Econ. and Business (May be used to fulfill Gen. Ed. Requirement)	3
B.A. 343 – Principles of Marketing	3
B.A. 380 – Proc. of Management or B.A. 480 – Organization Theory	3
B.A. 325 – Financial Management	3
B.A. 331-332 – Business Law	6
B.A. 361 – Personnel Management or Econ. 420 – Labor Economics	3

Requirements for a Minor in Business Administration:

Acct. 101 – Elementary Accounting	3
B.A. 325 – Financial Management	3
B.A. 343 – Principles of Marketing	3
B.A. 361 – Personnel Management or Econ. 420 – Labor Management Relations	3
B.A. 380 – Processes of Management or B.A. 480 – Organization Theory	3
B.A. 101 – Introduction to Data Processing	3
Total	18

Business Administration – M.B.A. Degree

1. Admission to the M.B.A. is open to any person possessing an undergraduate degree whose grade point average and score on the Graduate Management Admission Test indicates a potential for satisfactory completion of the program. In general, the candidate should have a total of at least 950 points based on the formula: 200 times the overall g.p.a. plus the GMAT score; or at least 1000 points based on the formula: 200 times the upper-division g.p.a. plus the GMAT score.

2. Entering students will be required to possess competence at the undergraduate level in the fields of accounting, economics, and quantitative methods. Prior to initial enrollment, the student's record will be reviewed to determine whether deficiences exist which must be remedied before graduate work is undertaken.

3. Complete the general university requirements and master's degree requirements, pages 63 and 65.

4. Complete a minimum of 30 semester hours (including 18 hours in the required core) of courses in business administration, accounting, and economics as approved by the candidate's graduate committee.

5. Earn a passing score for a comprehensive written examination generally taken during the last semester of course work to test achievement and knowledge in the general area of business and specialized courses.

6. If thesis or research project is elected, an oral examination covering its methodology and content will be conducted by the student's graduate committee.

M.B.A. Requirement:

Core Courses:	Credits
Acct. 650 – Management Accounting Seminar	3
B.A. 651 – Organizational Behavior	3
B.A. 680 – Seminar in Finance	3
B.A. 683 – Seminar in Marketing	3
B.A. 684 – Quantitative Methods for Management	3
B.A. 690 – Administrative Policy	3
Econ. 624 – Managerial Economics	3
Econ. 650 – Financial and Fiscal Institutions and Policy	3
	24
Electives	6
Total	30

Business Supervision

Tanana Valley Community College

Degree: Associate of Applied Science
Minimum Requirements for Degree: 60 Credits

1. Complete the general university requirements as listed on page 63.

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

	Credits
Engl. 111 – Methods of Written Communication	3
O.O. 155 – Business English and Correspondence	3
Sp.C. Elective ('100' or '200' level)	3
*General elective	3
*General elective	3
	15

*Elective to be selected from Humanities, Mathematics, Natural Science, and Social Science.

Major Specialty Required Courses:

O.O. 051 – Economics I	3
O.O. 052 – Economics II	3
O.O. 142 – Introduction to Accounting I	3
O.O. 143 – Introduction to Accounting II	3
O.O. 146 – Fundamentals of Data Processing	3
Bsup. 151 – Introduction to Business	3
O.O. 153 – Business Law	3
O.O. 154 – Human Relations	2
O.O. 156 – Business Mathematics	1
Bsup. 281 – Supervisory Cooperative Work Experience	3
Option 1 or Option 2	9
**Electives	9
Total credits for AAS degree	60

Option 1 – Supervision Emphasis

Bsup. 179 – Principles of Supervision	3
Bsup. 231 – Introduction to Personnel	3
Bsup. 273 – Small Business Supervision and Ownership	3
	9

Option 2 – Marketing Emphasis

Bsup. 251 – Marketing Tactics	3
Bsup. 253 – Principles of Retailing	3
Bsup. 255 – Introduction to Advertising	3
	9

**Electives to be selected from approved Office Occupations courses.

Certificate in Business Supervision (24 credit hour minimum)

Twenty-four (24) credit hours are required which must include:

	Credits
Bsup. 151 – Introduction to Business	3
Bsup. 179 – Principles of Supervision	3
O.O. 142 – Introduction to Accounting I	3
	9

An additional eleven to twelve (11-12) credits from the following:

Bsup. 231 – Personnel Management	3
Bsup. 251 – Marketing Tactics	3
Bsup. 253 – Principles of Retailing	3
Bsup. 255 – Introduction to Advertising	3
Bsup. 273 – Small Business Supervision and Ownership	3
O.O. 146 – Fundamentals of Data Processing	3
O.O. 153 – Business Law	3
O.O. 154 – Human Relations	2
	11-12

Four (4) credit hours may be elected from the selected course list below:

O.O. 051 – Economics	3
O.O. 141 – Payroll	1
O.O. 155 – Business English and Correspondence	3
O.O. 156 – Business Mathematics	1
Total Program Credits	24-25

Chemical Science

College of Arts and Sciences

Degree: Associate of Applied Science
Minimum Requirements for Degree: 60 Credits

Since the fall semester of 1971, the Department of Chemistry has offered a two-year program leading to an

A.A.S. degree. This degree provides academic recognition of a level of competence in chemical science required for a number of employment opportunities. In addition, the student completing this program should be in a position to continue his education toward a baccalaureate degree in chemistry with no loss in time or academic credit.

Chemical Science – A.A.S. Degree

1. Complete the general university requirements, page 63.
2. Complete the following degree and program (major) requirements:

	Credits
Chem. 105-106 – General Chemistry	8
or Chem. 211* – Chemical Principles	4
Chem. 212 – Quantitative Analysis	4
Chem. 321-322 – Organic Chemistry	6
Chem. 324 – Organic Laboratory	3
Math. 200 – Calculus	4
Phys. 103-104 or 211-212 – General Physics	8
E.S. 201 – Computer Techniques	3
Methods of Written Communication	6
Speech Communications	3
Social Science/Humanities elective	6
Electives to bring total credit to	60

*Completion of the Chem. 211-212 sequence with grades of "C" or better results in 4 credits of advanced placement credit.

Chemistry

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Science, Master of Arts, Master of Arts in Teaching, Master of Science

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

Graduates in chemistry qualify in many fields as teachers of chemistry; supervisors in industry; technical sales personnel; research chemists in federal, state, municipal, academic, or industrial laboratories; in premedicine; or as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce and the creation of the many synthetic products has caused phenomenal growth in the profession. Specific mention may be made of the manufacture of plastics, glass, pigments, starch, explosives, dyes, gases, petroleum products, fine and heavy chemicals, perfumes, drugs, vitamins, hormones, solvents, specialized fuels including nuclear fuels, and the various metals and alloys.

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, metallurgy, and advanced courses in biology, chemistry, mathematics, and physics according to the interest of the individual student.

The primary purpose of our program is to provide the educational basis for creative scientists or engineers who are so vital to the future development of the nation and the state of Alaska. In particular, the Chemistry Department encourages study of chemical problems associated with the Arctic in order to provide qualified staff for all schools and laboratories in Alaska. After the introductory courses, the curriculum is planned first for the student majoring in the broad field of chemistry and second, for the non-major who is primarily interested in other aspects of the physical or biological sciences, but who requires competency in the theories and techniques of contemporary chemistry to succeed in his chosen field. Such service courses and programs are an outstanding feature of the department.

The department offers the student well-equipped laboratories housing instrumentation for nuclear magnetic resonance and electron spin resonance spectrometry, high resolution infrared, laser Raman, ultraviolet, and visible spectrophotometry, gas chromatography, x-ray diffraction, and carbon-hydrogen-nitrogen analysis. Additional equipment, such as mass spectrometers, amino acid analyzers, and atomic absorption instruments, is available in cooperation with other departments and institutes at the university.

Chemistry – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

	Credits
Chem. 105-106 – General Chemistry	8
or Chem. 211* – Chemical Principles	4
Chem. 212* – Intro. Quantitative Analysis	4
Chem. 321-322 – Organic Chemistry	6
Chem. 324 – Organic Laboratory	3
Chem. 331-332 – Physical Chemistry	6
Chem. 433-434 – Instrumental Methods in Chem.	6
Chem. 492 – Seminar (seniors)	2
Math. 200-201-202 – Calculus	12
Phys. 103-104 or 211-212 – General Physics	8

Chemistry – B.S. Degree

1. Complete the general university requirements and B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

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

	Credits
Chem. 402 – Inorganic Chemistry	3
**Chem. 421 – Adv. Organic Chemistry	
or **Chem. 431 – Adv. Physical Chemistry	
or **Chem. 451 – General Biochemistry	3-4
Chem. 492 – Seminar (Juniors)	0
**Chem. 498 – Research	4

Suggested Curriculum for a B.S. Degree

First Year

Fall Semester	*15 to 18 credits*
Chem. 105 – General Chemistry	
or Chem. 211 – Chemical Principles	4
Phys. 103 or 211 – General Physics	4
Math. 200 – Calculus	4
Engl. 111 – Methods of Written Comm.	3
***Social Sci./Humanities elective	0-3

Spring Semester	*15 to 18 credits*
Chem. 106 – General Chemistry	
or Chem. 212 – Intro. Quantitative Analysis	4
Phys. 104 or 212 – General Physics	4
Math. 201 – Calculus	4
Sp.C. 111 – Fund. of Oral Communication	3
***Social Sci./Humanities elective	0-3

Second Year

Fall Semester	*16 or 17 credits*
Chem. 212 – Intro. Quantitative Analysis	
***or Elective	4
Chem. 321 – Organic Chemistry	3
Math. 202 – Calculus	4
Engl. 211 – Intermediate Expos. and Modes of Lit.	
or Engl. 213 – Intermediate Exposition	3
***Social Sci./Humanities elective	2-3

Spring Semester	*16 or 17 credits*
Chem. 322 – Organic Chemistry	3
Chem. 324 – Organic Laboratory	3
E.S. 201 – Computer Techniques	3
***Social Sci./Humanities electives	7-8

Third Year

Fall Semester	*16 or 17 credits*
Chem. 331 – Physical Chemistry	3
Chem. 433 – Instrumental Methods in Chemistry	3
Chem. 492 – Seminar	0
Foreign Language	3
***Electives	7-8

Spring Semester	*15 or 16 credits*
Chem. 332 – Physical Chemistry	3
Chem. 434 – Instrumental Methods in Chemistry	3
Chem. 492 – Seminar	0
Foreign Language	3
***Electives	7-8

Fourth Year

Fall Semester	*16 or 18 credits*
**Chem. 421 – Adv. Organic Chemistry or **Chem. 431 – Adv. Physical Chemistry or **Chem. 451 – General Biochemistry	3-4
Chem. 492 – Seminar	1
**Chem. 498 – Research	2
***Electives	7-10

Spring Semester	*16 or 18 credits*
Chem. 402 – Inorganic Chemistry	3
Chem. 492 – Seminar	1
**Chem. 498 – Research	2
***Electives	10-12

*Completion of the Chem. 211-212 sequence with grades of "C" or better results in 4 credits of advanced placement credit.

**Advanced courses in chemistry, mathematics, geology, physics, or biological sciences may be substituted with the approval of the Department of Chemistry.

***A minimum of 130 credits must be earned. This curriculum meets the suggested minimum standards of the American Chemical Society, but additional advanced courses in chemistry may be elected with the approval of the Department of Chemistry. Graduates are certified by the American Chemical Society on completion of appropriate courses. A reading knowledge of a foreign language, although not required for professional undergraduate education in chemistry, is strongly recommended, particularly for students planning advanced study in science. German is especially useful.

Requirements for a Minor in Chemistry

A minor in chemistry requires 12 credits above the foundation courses (Chem. 105-106 or Chem. 211) approved by the head of the Chemistry Department.

Chemistry – M.A. or M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits of approved courses.

A graduate student seeking a master's degree with a major in chemistry must develop a program in one of the general divisions of chemistry; analytical, biochemistry, inorganic, organic or physical. A student entering without preparation to take these courses may require additional time to earn his degree.

M.A.T. Degree

Persons interested in this degree program should see the head of the department.

Civil Engineering

School of Engineering

Degrees: Bachelor of Science, Master of Civil Engineering, Master of Science

Minimum Requirements for Degrees: B.S. – 130 credits; M.C.E. or M.S. – 30 additional credits.

Engineering embraces the wide range of cultural and professional subjects having to do with the planning, design and construction of works necessary for civilization. Civil engineering in particular deals with environmental control; bridges, buildings, dams, and harbor facilities; water resource development and waste disposal; water power, irrigation works, and drainage; air, water, highway, and railway transportation; construction and management; topographic surveying and geodesy; city management and developmental planning.

Candidates for the bachelor of science degree will be required to take a comprehensive examination in their general field. (Completion of the Alaska Engineer-in-Training Examination will satisfy this requirement.)

Graduate students should enter in one of two programs; those whose goal is broad professional practice will ordinarily choose the curriculum leading to the degree Master of Civil Engineering; those whose interests or background favor a specialized program, with emphasis on research and/or advanced specialized study, will ordinarily select the Master of Science in Civil Engineering degree.

In addition to the general civil engineering courses offered, the following specialty is available:

Water Resources and Hydrology: The master's degree programs can emphasize a flexible program in water resources and hydrology tailored to individual students. The courses within the department in these areas stress the problems of northern regions and emphasize principles of analysis, planning, and engineering design as related to water supply, flood control, environmental safety, and land management.

In addition to the civil engineering courses, a degree program can include courses in ocean engineering, environmental quality engineering, engineering management, and other areas.

Civil Engineering – B.S. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

First Year

Fall Semester	*16 credits*
Engl. 111 – Methods of Written Communication	3
Math 200 – Calculus	4
E.S. 101 – Graphics I	2
E.S. 111 – Engineering Science	3
Chemistry – Approved	4

Spring Semester	*16 credits*
Speech Communication Elective	3
Math 201 – Calculus	4
E.S. 102 – Graphics II	2
C.E. 112 – Elementary Surveying	3
Chemistry – Approved	4

Second Year

Fall Semester	*17 credits*
Math 202 – Calculus	4
Phys. 211 – General Physics	4
E.S. 201 – Computer Techniques	3
Engl. 211 – Intermediate Exposition, with Modes of Literature or Engl. 213 – Intermediate Exposition	3
Social Science/Humanities Elective	3

Spring Semester	*17 credits*
Math 302 – Differential Equations	3
Phys. 212 – General Physics	4
E.S. 208 – Mechanics	4
C.E. 334 – Properties of Materials	3
Social Science/Humanities Elective	3

Third Year

Fall Semester	*17 credits*
E.S. 301 – Engineering Analysis	3
E.S. 307 – Elements of Electrical Engineering	4
E.S. 331 – Mechanics of Materials	3
E.S. 341 – Fluid Mechanics	4
Social Science/Humanities Elective	3

Spring Semester — *16 Credits*
E.S. 346 – Basic Thermodynamics 3
E.S. 308 – Instrumentation and Measurements 3
C.E. 344 – Water Resources Engineering 3
C.E. 441 – Sanitary Engineering 4
Geos. 261 – Geology for Engineers 3

Fourth Year
Fall Semester — *16 Credits*
C.E. 415 – Advanced Surveying 3
C.E. 435 – Soil Mechanics 3
C.E. 431 – Structural Analysis 4
Social Sciences/Humanities Elective 6

Spring Semester — *16 Credits*
E.S.M. 450 – Economic Analysis and Operations 3
C.E. 402 – Transportation Engineering 3
C.E. 422 – Foundation Engineering 3
C.E. 432 – Structural Design 4
C.E. 438 – Design of Engineered Systems 3

Of the 15 social science/humanities credits, at least 6 must be above the 100 level or advanced courses in a 100-level sequence.

Civil Engineering – M.C.E. Degree

Students entering the Master of Civil Engineering program should have completed a bachelor's degree in engineering.

A student will elect a Civil Engineering program approved by his graduate committee and must complete the general university requirements and master's degree requirements, pages 63 and 65.

Thirty credits of approved courses beyond the B.S. degree are required. M.C.E. candidates will have passed a State Engineer-In-Training Examination prior to the awarding of the degree.

Civil Engineering – M.S. Degree

A student selecting this program will meet the general university requirements and master's degree requirements, pages 63 and 65, plus the following: 30 credits approved by his graduate committee, of which six to twelve credits will be thesis.

Computer Information Systems

School of Management

Degree: Associate of Arts
Minimum Requirements for Degree: 62 credits

Computer Information Systems – A.A. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

First Year
Fall Semester — *15 Credits*
Written Communication 3
Acct. 101 – Elementary Accounting 3
B.A. 151 – Intro. to Business 3
Math. 110 – Mathematics of Finance 3
B.A. 101 – Intro. to Data Processing and FORTRAN 3

Spring Semester — *15 Credits*
Written Communication 3
Acct. 102 – Elementary Accounting 3
Speech Communication 3
Elective 3
B.A. 220 – Basic Programming Languages 3

Second Year
Fall Semester — *15 Credits*
Econ. 226 – Intro. to Stat. Econ. 3
Elective 3
Acct. 316 – Accounting Information Systems 3
Political Sci. or History elective 3
Math. 161 – Calculus for Business Econ. 3

Spring Semester — *17 Credits*
B.A. 201 – COBOL 3
B.A. 253 – Business Practicum 1
B.A. 310 – Management Info. Systems 3
Political Sci. or History elective 3
Elective 6

Dentistry

See Health Sciences, Preprofessional Curricula.

Early Childhood Development

Tanana Valley Community College

Degree: Associate of Arts
Minimum Requirements for Degree: A.A. – 60 credits

The Associate degree (two-year) program in early childhood development consists of a lively curriculum which is designed to train men and women to teach and care for three to six year old children. Family day care, day care centers, and preschools are some of the possible employers of people who have had this training. Students who wish may continue on and complete requirements for a B.Ed. with a major in early childhood development.

Early Childhood Development – A.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

Credits
A. Written Communications 6
Recommended:
English 111 – Methods of Written Communication
English 211 – Intermediate Exposition, with Modes of Literature or English 213 – Intermediate Exposition

B. Oral Communications 3
Sp.C. 111 – Fundamentals of Oral Communication

C. Six credits each from three of these areas 18
Natural Sciences — Mathematics
Humanities — Other (Acct. B.A., O.O., P.E., etc.)
Social Sciences

Total 27

3. Complete the following program (major) requirements:
ECD 101 – Activities for Young Children: Art, Music and Movement 1
ECD 102 – Activities for Young Children: Literature and Language 1
ECD 103 – Activities for Young Children: Math and Science 1
ECD 105 – Survey of Programs for Young Children 3
ECD 120 – Child Nutrition, Illness and Health 3
AkSt 186 – Native Peoples of Alaska 3
ECD 205 – Practicum in Early Childhood Education 6
Sociology 242 3
Psy. 245 – Child Development 3
Total 24
Approved Electives 9
Total credits required for degree 60

Earth Science

College of Environmental Sciences

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

Earth Science – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following requirements:

A. Complete one year college-level mathematics.
B. Complete one semester of college chemistry.
(Chem. 103 recommended) or one semester of college physics (Phys. 103 recommended).

3. Complete 18 credits in Earth Science, including Geos. 101, 112, Geog. 205 *or* 401, Geog. 339 *or* 408, Minl. 101 *or* 102, and Minl. 103.

4. Major Electives:

Complete an additional 10 credits of 300-level or above Earth Science courses including one credit of Geos. 492 *or* Geog. 492 *or* Minl. 320.

5. Major-Related Electives:

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):

A.L.R. 101, 321, 350, 370, 492
Biology 104, 107-108, 271
B.A. 101

6. Approved electives, including minor requirements, to complete 130 credits.

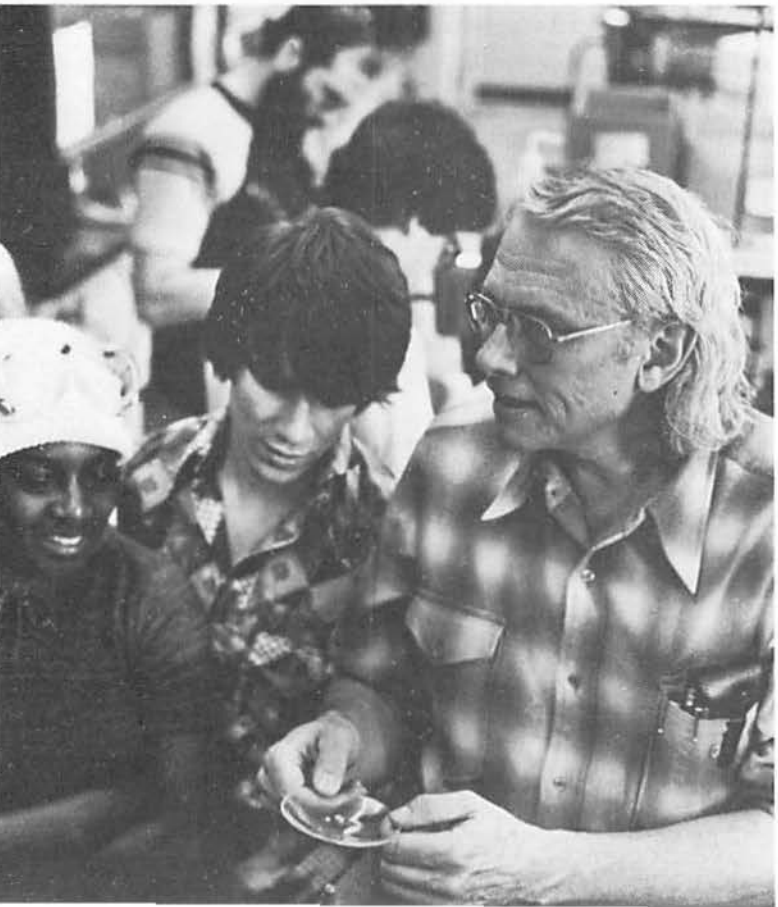
Economics

School of Management

Degree: Bachelor of Arts
Minimum Requirements for Degrees: B.A. – 130 credits

Economics is the study of those social activities of man 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 its goal of teaching to be three-fold: (1) to provide students with basic tools of analysis, and factual, statistical, and descriptive materials which will assist them in discharging their duties as citizens; (2) to introduce students majoring in this department to the various fields of economics in order to prepare them for positions in business, government, and graduate study; and (3) to offer a course of study suitable for a minor in economics.



Economics – B.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 64.

2. Complete the following program (major) requirements:

	Credits
Acct. 101 – Elementary Accounting	3
Econ. 121-122 – Principles of Economics	6
Math 161 – Calculus for Business and Economics	3
P.S. 101 – American Government and Politics	3
P.S. 102, 202, 211 *or* 301	3
Complete 27 additional credits in Economics, including:	
Econ. 226 – Intro. to Statics for Economics and Business	3
Econ. 321 – Intermediate Microeconomics	3
Econ. 324 – Intermediate Macroeconomics	3
Electives in Economics	18

Must be 200-level or higher and 6 credits of the following courses may be included:
B.A. 343, 325, 423, 425, 480; Geog. 103; Math. 162.

A Minor in Economics requires 15 credits in Economics including Econ. 121 and 122.

Education

School of Education

Degrees: Bachelor of Education, Bachelor of Technology, Master of Education, Master of Arts in Teaching, Educational Specialist
Minimum Requirements for Degrees: B.Ed., B.T. – 130 credits; M.Ed. – minimum of 36 additional credits; M.A.T. – minimum of 36 additional credits; Ed.S. – minimum of 30 credits beyond master's.

The School of Education offers curricula designed to prepare personnel for teaching in elementary and secondary schools. Students are introduced to fundamental problems of education in the contemporary world through courses designed to develop perspective and understanding of the relations of education to society. Courses provide information and practice in the development of instructional materials and the understanding of methods of instruction. Students are formally admitted to the program of teacher education on the basis of multiple criteria of their ability to make a positive contribution to the educational profession.

Cross-Cultural Education Development Program – This program, operated by the Center for Cross-Cultural Studies, provides training and support services related to the unique educational problems of Alaska's multicultural population. It is offered in cooperation with the Alaska State Department of Education. Field centers have been established throughout the state to make the services readily available to those for whom they are intended. Each field center is staffed by a full-time faculty member who is responsible for coordinating the program activities within the region. The field center locations are as follows: Bethel, Dillingham, Ft. Yukon, Shishmaref, and Tanana.

The services developed through the X-CED program are offered in three primary categories:

1. Full-time undergraduate course work for students seeking a B.Ed. degree, limited in number to a maximum of sixty students statewide, to be selected by regional panels.

2. In-service training for teachers and other community members seeking self-improvement, certificate renewal or advanced training which may lead to a master's degree (M.Ed.) in cross-cultural education. (M.Ed. students are also selected by regional panels.)
3. Supplemental services, including a resource library, workshops, technical assistance, and other support services as time and resources permit.

All inquiries regarding the above programs should be addressed to the field coordinator's office within the region in which the person resides, or to the Director, Center for Cross-Cultural Studies on campus.

Certification – Students may qualify for teaching certificates in various states only by planning their programs to meet specific requirements. Certificates are issued by the appropriate state department of education. In Alaska, certificates are granted by the Alaska Department of Education in Juneau. Students who obtain the B.Ed. degree will meet the current academic requirements for Alaskan certification. Any student minoring in education must meet the Alaska certification requirements. Students seeking a minor in education should consult with the dean of the School of Education during their freshman year to obtain specific requirements.

Admission to Teacher Education – Any student wishing to prepare for teaching through the University of Alaska must formally apply for admission to the teacher education program. Students should consult with the dean of the School of Education at the beginning of their sophomore years or while enrolled in Ed. 201 to initiate procedures for formal application for admission to the teacher education program. Enrollment in education courses or admission to graduate studies in no way implies admission to the teacher education program.

Early Childhood Education – B.Ed. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

Credits

A. Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech) 20

1. Required Courses:
Engl. 111 – Methods of Written Comm. 3
Engl. 211 – Intermediate Expos. with Modes of Literature or Engl. 213 – Intermediate Exposition 3
Sp.C. Elective 3

2. Recommended Courses:
Art 161 – Design and Color Theory 3
Art 162 – Design and Color Theory 3
Mus. 161 – Private Lessons (voice or piano) 2
Mus. 309 – Elementary School Music Methods 3

B. Social Sciences (Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology) 27

1. Required Courses:
Soc. 242 – The Family 3
Hist. 101-102 – Western Civilization or Hist. 131-132 – History of the U.S. 6
P.S. Elective 3
Psy. 101 – Introduction to Psychology 3
Soc. 101 – Introduction to Sociology 3

2. Electives 9

C. Natural Science and Mathematics (Anth. 222, Biological Sciences, Chemistry, Geog. 205, 339, 401, Geosciences, Physics) 9

Required Courses:
Math. 205-206 – Math. for Elementary Teachers 6

D. Early Childhood Development 12

Required Courses:
ECD 101 – Activities for Young Children: Art, Music and Movement 1
ECD 102 – Activities for Young Children: Literature and Language 1
ECD 103 – Activities for Young Children: Math and Science .. 1
ECD 105 – Survey of Programs for Young Children 3
ECD 120 – Child Nutrition, Illness and Health 3
Coun. 205 – Practicum in Paraprofessional Counseling (Early Childhood Center) 3

E. Education (students must receive a minimum grade of "C" in each required education course and maintain an overall g.p.a. of 2.00) 31

1. Required Courses:
Ed. 303 – Language Development 3
Ed. 304 – Literature for Children 3
Ed. 312 – Human Development and Learning 3
Ed. 313 – Educational Psychology 3
Ed. 331 – Evaluation Procedures for Early Childhood Education 1
Ed. 409 – The Teaching of Beginning Reading 3

2. Minimum of 9 credits from the following courses:
Ed. 311 – Audio-Visual Methods and Materials 2
Ed. 315 – Elementary Methods: Classroom Management 2
Ed. 316 – Elementary Methods: Language Arts and Social Studies 3
Ed. 317 – Elementary Methods: Mathematics and Science 3
Ed. 318 – Methods: Art in the Elementary School 2

3. Electives 6

F. Complete a minor (at least 12 credits) in any of the following fields:

Art	Physical Education
English	Speech
Music	

G. Forty-eight credits of upper-division courses, 24 of which must be completed at the University of Alaska.

H. Sufficient free electives to total 130 credits.

Candidates for the B.Ed. Degree with a Major in Early Childhood Education must also complete the following required courses for Elementary Teacher Credential Endorsement*:

Credits

Ed. 315 – Elementary Methods: Classroom Management 2
Ed. 316 – Elementary Methods: Language Arts and Social Studies 3
Ed. 317 – Elementary Methods: Mathematics and Science 3
Ed. 332 – Tests and Measurements 3
Ed. 410 – Developmental Reading in Content Areas 3
Ed. 452 – Student Teaching (Elementary) 9

*Appropriate credits earned in the fulfillment of the requirements for the B.Ed. with a Major in Early Childhood Education may be applied toward the above requirements.

Elementary Education – B.Ed. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

Credits

A. Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech) 20

1. Required Courses:
Engl. 111 – Methods of Written Com. 3
Engl. 211 – Intermediate Exposition with Modes of Literature or Engl. 213 – Intermediate Exposition 3
Mus. 309 – Elementary School Music Methods 3
Sp.C. Elective 3

2. Recommended Courses:
Engl. 213 – Intermediate Exposition 3

Engl. 318 – Modern Grammar 3
Phil. 201 – Introduction to Philosophy 3
Sp.C. 241 – Public Speaking I
or Sp.C. 211 – Voice and Diction 3

B. Social Sciences (Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology) 24
1. Required Courses:
Hist. 101-102 – Western Civilization
or Hist. 131-132 – History of the U.S. 6
P.S. 101-102 – Introduction to American Government and Political Science 6
Psy. 101 – Introduction to Psychology 3
2. Recommended Courses:
Anth. 101 – Introduction to Anthropology 3
Anth. 342 – Anthropology of the Natives of Alaska and The Arctic 3
Econ. 121-122 – Principles of Economics 6
Geog. 101 – Introductory Geography 3
Hist. 341 – History of Alaska 3
Psy. 245 – Child Development 3
Soc. 101-102 – Introduction to Sociology 6

C. Mathematics 6
(Students are advised to take Math. 205 and 206 or approved substitute.)

D. Natural Sciences (Anth. 222, Biological Sciences, Chemistry, Geography 205, 339, 401, Geosciences, Physics) 6

E. Physical Education
Required Course:
P.E. 327 – Movement Activities for Children 2
or P.E. 406 – Methods of Teaching Physical Education 3

F. Education (Students must receive a minimum grade of "C" in each required education course and maintain an overall g.p.a. of 2.00) 45
1. Required Courses:
Ed. 201 – Orientation to Education 3
Ed. 304 – Literature for Children 3
Ed. 311 – Audio-Visual Methods and Materials 2
Ed. 312 – Human Development and Learning 3
Ed. 313 – Educational Psychology 3
Ed. 315 – Elementary Methods: Classroom Management 2
Ed. 316 – Elementary Methods: Language Arts and Social Studies 3
Ed. 317 – Elementary Methods: Mathematics and Science 3
Ed. 318 – Methods: Art in the Elementary School 2
Ed. 332 – Tests and Measurements 3
Ed. 409 – The Teaching of Beginning Reading 3
Ed. 410 – Developmental Reading in Content Areas 3
*Ed. 452 – Student Teaching 9

*Candidates who have taught successfully two years in the public elementary schools may petition to be excused from Ed. 452. Candidates wishing to petition for student teaching waiver should see the Dean of the School of Education immediately.

2. Three credits from the following courses: *Credits*
Ed. 345 – Sociology of Education 3
Ed. 426 – Principles and Practices of Guidance 3
Ed. 446 – Structure of American Education 3
Ed. 480 – Education of Culturally Different Youth 3

G. A total of 36 credits (including 12 upper-division credits) in any two of the following fields, with a minimum of 12 credits in either field:

Alaska Native Languages
Anthropology
Art
Biological Sciences
Chemistry
Economics
English
Eskimo
French
Geography
Geosciences
German
History
Linguistics
Mathematics
Music
Philosophy
Physical Education
Physics
Political Science
Psychology
Russian
Spanish
Speech
Sociology

Credits earned in fulfillment of (A), (B), (C), (D), and (E) above may be applied toward courses listed in (G) above.

H. In lieu of Option "G" students may elect a concentration (36 hours, 12 of which must be upper-division credits) in the following Alaskan Studies:
AkSt 186 – The Native Peoples of Alaska
ANL 215-216 – Alaska Native Langauges
ANL 387 – Bilingual Methods and Materials (with permission of instructor)
ANL 388 – Bilingual Methods and Materials (with permission of instructor)
Anth. 101 – Introduction to Anthropology
Anth. 342 – Anthropology of the Natives of Alaska and The Arctic
Anth. 408 – Education and Anthropology
Biol. 104 – Natural History of Alaska
Coun. 204 – Introduction to Cross-cultural Counseling
Engl. 349 – Aleut, Eskimo, and Indian Literature of Alaska in English Translation
Engl. 350 – Frontier Literature of Alaska
Esk. – Eskimo Languages (to be approved by advisor)
Geog. 302 – Geography of Alaska
Geog. 327 – Cold Lands
Hist. 100 – Heritage of Alaska Natives
Hist. 341 – History of Alaska
Hist. 375 – History of North Pacific
Hist. 484 – Seminar in Northern Studies
Mus. 223 – Native Alaskan Music
PS 263 – Alaska Native Politics

With approval, students may elect a rural student teaching experience. Those who do will be under the supervision of an X-CED field faculty member in a rural site. A program of studies will be worked out for each individual.

I. Forty-eight credits of upper-division courses, 24 of which must be completed at the University of Alaska.

J. Sufficient free electives to total 130 credits.

Minor in Elementary Education and Minimum Requirements for Elementary Teacher Credential Endorsement*

1. Required Courses: *Credits*
Ed. 304 – Literature for Children 3
Ed. 312 – Human Development and Learning 3
Ed. 313 – Educational Psychology 3
Ed. 315 – Elementary Methods: Classroom Management 2
Ed. 316 – Elementary Methods: Language Arts and Social Studies 3
Ed. 317 – Elementary Methods: Mathematics and Science 3
Ed. 332 – Tests and Measurements 3
Ed. 409 – The Teaching of Beginning Reading 3
Ed. 410 – Developmental Reading in Content Areas 3
Ed. 452 – Student Teaching 9

2. Recommended Courses:
P.E. 327 – Movement Activities for Children 2
Ed. 309 – Elementary School Music Methods 3
Ed. 311 – Audio-Visual Methods and Materials 2
Ed. 318 – Methods: Art in the Elementary School 2

Students must complete a baccalaureate degree. Students must also meet requirements for admission to Ed. 452, Student Teaching, which include:

Psy. 101, and 6 credits of mathematics.

*See advisor or advisory committee.

Secondary Education – B.Ed. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

Credits

A. Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech) 20
1. Required Courses:
Engl. 111 – Methods of Written Comm. 3
Engl. 211 – Intermediate Exposition with Modes of Literature
or Engl. 213 – Intermediate Exposition 3
Sp.C. Elective 3

2. Recommended Courses:
Engl. 213 – Intermediate Exposition 3
Phil. 201 – Introduction to Philosophy 3
Sp.C. 241 – Public Speaking I
or Sp.C. 211 – Voice and Diction 3

B. Social Sciences (Anthropology, Economics, Geography, History, Political Science, Psychology, Sociology) 24
1. Required Courses:
Hist. 101-102 – Western Civilization
or Hist. 131-132 – History of the U.S. 6
P.S. 101-102 – Introduction to American Government and Political Science 6
Psy. 101 – Introduction to Psychology 3

2. Recommended Courses:
Anth. 101 – Introduction to Anthropology 3
Anth. 342 – Anth. of the Natives of Alaska and The Arctic 3
Econ. 121-122 – Principles of Economics 6
Hist. 341 – History of Alaska 3
Psy. 246 – Adolescence 3
Soc. 101-102 – Introduction to Sociology 6

C. Mathematics and Natural Sciences (Anth. 222, Biological Sciences, Chemistry, Geography 205, 339, 401, Geosciences, Physics) 8

D. Education (students must receive a minimum grade of "C" in each required education course and maintain an overall g.p.a. of 2.00) 36
1. Required Courses:
Ed. 201 – Orientation to Education 3
Ed. 312 – Human Development and Learning 3
Ed. 313 – Educational Psychology 3
Ed. 332 – Tests and Measurements 3
*Ed. 402 – Methods of Teaching 3
Ed. 410 – Developmental Reading in Content Areas 3
Ed. 421 – Secondary Education 3
**Ed. 452 – Student Teaching 9

2. Three credits from the following courses:
Ed. 426 – Principles and Practices of Guidance 3
Ed. 446 – Structure of American Education 3

3. Three credits from the following courses:
Ed. 345 – Sociology of Education 3
Ed. 480 – Education of Culturally Different Youth 3

4. Recommended:
Ed. 311 – Audio-Visual Methods and Materials 2

*Or appropriate methods course from subject area if offered.
**Candidates who have taught successfully two years in the public secondary schools may petition to be excused from Ed. 452. Candidates wishing to petition for student teaching waiver should see the Dean of the School of Education immediately.

E. Teaching majors and minors (students must maintain at least a 2.00 g.p.a. in their teaching majors):

Option A: Complete a teaching major of at least 26 approved credits and a teaching minor of at least 16 approved credits for a total of 51 credits of which at least 18 must be upper division. See advisor.

Major or Minor (Option A):

Art	History
Biological Sciences	Mathematics
Business Education	Music
Chemistry	Physical Education
Economics	Physics
English	Speech
**Foreign Language	

Minor Only (Option A):

*Geography	*Political Science
Journalism	*Sociology

Option B: Complete an integrated teaching major-minor of 51 approved credits. See advisor.

Integrated Major-Minor (Option B):

General Science	Earth Sciences
Social Science	

Option C: Rural high school major-minor** (for persons planning to teach in rural Alaska).

*Approved for history major only.
**Confer with Dean of the School of Education.

F. Forty-eight credits of upper-division courses, 24 of which must be completed at the University of Alaska.

G. Sufficient free electives to total 130 credits.

Credit earned in fulfillment of (B), (C), and (D) above may be applied toward the teaching major and teaching minor.

Minor in Secondary Education and Minimum Requirements for Secondary Teacher Credential Endorsement*

All major in other departments who wish to obtain an Alaskan secondary teaching certificate should confer with the Dean of the School of Education in their freshman year to obtain course requirements and application procedures for admission to the Teacher Education Program. It is essential that the student have the necessary prerequisites and admission to the Teacher Education Program for placement in student teaching in the public schools. The following courses should be taken at the indicated times:

	Fall Semester	*Spring Semester*
Sophomore		**Ed. 312
Junior	**Ed. 313	**Ed. 332
		**Ed. 410
Senior	**Ed. 421	**Ed. 402
		**Ed. 452

Students must complete a baccalaureate degree.

*Undergraduates should contact the Coordinator of Secondary Education at the beginning of their sophomore year to plan for a second teaching field.
**Students must receive a minimum grade of "C" in these courses.

Requirements for Admission to Student Teaching

1. Elementary School – kindergarten through eighth grade:
a. Acceptance to the teacher education program.
b. A formal application on file with the director of student teaching by October 1 for student teaching in the following spring semester and by February 15 for student teaching in the following fall semester.
c. A completed physical examination.
d. Completion of 100 credits leading to a bachelor's degree with a minimum g.p.a. of 2.00.
e. Completion of Psy. 101; six credits in mathematics; Ed. 312, 313, 315, 316, 317, 332 and 409 or 410.
f. A minimum grade of "C" in each education course attempted.
g. Approval of Committee on Admission to Teacher Education to enter student teaching.
h. A maximum of 15 credits is permitted while enrolled in student teaching. These 15 credits include the 9 credits granted for student teaching.
i. Those students who meet all of the above requirements at another university must take at least 9 credits of education courses at the University of Alaska Fairbanks.

2. Secondary Schools – seventh through twelfth grades:
a. Acceptance to the teacher education program.
b. A formal application on file with the director of student teaching by October 1 for student teaching in the following spring semester and by February 15 for student teaching in the following fall semester.
c. A completed physical examination.
d. Completion of 100 credits leading to a bachelor's degree with a minimum g.p.a. of 2.00.
e. Completion of a minimum of 24 approved credits in an approved teaching major with a g.p.a. of 2.00 or more.
f. Completion of Psy. 101, Ed. 312, 313, 332 and 421, with a minimum grade of "C" in each Education course.
g. A maximum of 15 credits is permitted while enrolled in student teaching. These 15 credits include the 9 credits granted for student teaching.
h. A minimum grade of "C" in all education courses attempted.
i. Approval of Committee on Admission to the Teacher Education Program to enter student teaching.
J. Those students who meet all of the above requirements at another university must take at least 9 credits of education courses at the University of Alaska, Fairbanks.

Education – B.T. Degree*

1. Complete general university requirements and B.T. degree requirements, pages 63 and 64.

2. Complete the following major complex requirement beyond the associate degree major (30 credits):

	Credits
A. Upper-division credits in technical specialty	0-6

B. Complementary area (27-30 credits):

1. Core requirements:

Ed. 313 – Educational Psychology	3
Ed. 332 – Tests and Measurements	3
Ed. 312 – Human Development and Learning	3
Ed. 402 – Methods of Teaching	3
Ed. 421 – Secondary Education	3
Ed. 446 – Structure of American Education	3

2. Specialty requirement:

Ed. 452 Student Teaching (for teaching in secondary schools) *or* Approved courses selected to meet specific needs for other levels and types of teaching 9

*Students at the time of electing education as a major complex must consult with the dean of the School of Education for admission to the teacher education program and for approval of teaching major.

M.Ed. Degree

A person must make application for admission to graduate study and may be required to submit acceptable scores on a graduate entrance examination before he will be considered for admission to the M.Ed. program. The program offers several options from which a person selects an area of specialization. Inquiries concerning the options available and the specific requirements of each option should be directed to the dean of the School of Education. In addition, the dean of the School of Education should be contacted concerning the procedure to be followed in applying for admission to graduate study and taking the graduate entrance examination.

Admission Requirements for M.Ed. Degrees in Cross-Cultural Education, Elementary Education, Secondary Education, Guidance and Counseling, and Public School Administration:

1. The equivalent of a University of Alaska Bachelor of Education degree or Alaska teaching certificate with a minimum of 24 credits of education courses with an average g.p.a. of 3.00.
2. One year of satisfactory teaching experience or administrative experience in public schools.
3. Admission also may be contingent upon (1) satisfactory scores on various standardized tests and (2) a satisfactory personal interview conducted by School of Education faculty members.

Minimum Degree Requirements:

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 36 credits in approved courses in a non-thesis program, including Ed. 601 and 627 *or* 30 credits of approved courses in a thesis program including Ed. 601 and Ed. 627.
3. Pass a comprehensive examination.
4. Recency of undergraduate credit will be of concern to the candidate's committee when developing the graduate program.

College Student Personnel Administration – M.Ed. Degree

This program is designed to train educators to be able to function in student service positions in higher education. This training would include specifically: history, philosophy, and contemporary issues in higher education; management concepts; principles of educational psychology, measurement, and research; and supervised laboratory experiences in college student personnel agencies.

Admission Requirements:

1. One year of satisfactory experience in post-secondary or secondary education or equivalent as approved by the Admissions Committee.
2. Admission may also be contingent upon (1) satisfactory scores on various standardized tests and (2) a satisfactory personal interview conducted by School of Education faculty members.

Minimum Degree Requirements:

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 36 credits in approved courses in a non-thesis program, including Ed. 627 *or* 30 credits of approved courses in a thesis program, including Ed. 627.
3. Pass a comprehensive examination.

Vocational Administration – M.Ed. Degree

This degree is designed to serve baccalaureate graduates with a major concentration in a subject normally taught in high school or community college vocational education programs coupled with successful teaching experience, who aspire to leadership and change agent roles. Subjects normally taught in high schools or community colleges are:

- Accounting and Bookkeeping
- Agriculture
- Clerical Occupations
- Communications
- Construction
- Electricity/Electronics
- Fisheries
- Food Services
- Forestry and Forest Products
- Health Occupations
- Home Economics
- Industrial Mechanics
- Marketing
- Metals
- Service Occupations
- Steno/Secretarial
- Transportation

Admission Requirements:

1. The equivalent of a University of Alaska Bachelor of Education degree with a concentration in a subject normally taught in a high school or community college vocational education program or an Alaska vocational teacher certificate with a minimum of 24 credits of education courses with an average g.p.a. of 3.00.
2. One year of satisfactory teaching experience or administrative experience in an accredited public secondary school or in a community college.
3. Admission also may be contingent upon (1) satisfactory scores on various standardized tests and (2) a satisfactory personal interview conducted by School of Education faculty members.

Minimum Degree Requirements:

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 36 credits in approved courses in a non-thesis program, including Ed. 627 *or* 30 credits of approved courses in a thesis program, including Ed. 627.
3. Pass a comprehensive examination.

Vocational Education – M.Ed. Degree

This degree is designed to serve baccalaureate graduates with a major concentration in a subject normally taught in a high school or community college vocational education program for a specialized career in teaching. Subjects normally taught in high schools or community colleges are:

- Accounting and Bookkeeping
- Agriculture
- Clerical Occupations
- Communications
- Construction
- Electricity/Electronics
- Fisheries
- Food Services
- Forestry and Forest Products
- Health Occupations
- Home Economics
- Industrial Mechanics
- Marketing
- Metals
- Service Occupations
- Steno/Secretarial
- Transportation

Admission Requirements:

1. The equivalent of a University of Alaska Bachelor of Education degree with a concentration in a subject normally taught in a high school or community college vocational education program or an Alaska teaching certificate with a minimum of 24 credits of education courses with an average g.p.a. of 3.00.
2. One year of satisfactory teaching experience or administrative experience in an accredited public secondary school or in a community college.
3. Admission may also be contingent upon (1) satisfactory scores on various standardized tests and (2) a satisfactory personal interview conducted by School of Education faculty members.

Minimum Degree Requirements:

1. Complete the general university requirements and master's degree requirements pages 63 and 65.
2. Complete a minimum of 36 credits in approved courses in a non-thesis program, including Ed. 627 *or* 30 credits of approved courses in a thesis program including Ed. 627.
3. Pass a comprehensive examination.

Master of Arts in Teaching

The Master of Arts in Teaching is designed to serve the following categories of students:

Category I

Baccalaureate graduates with a good general education and with majors or equivalent majors in a basic academic discipline who wish to prepare for a career in elementary school classroom teaching.

NOTE: Students under Category I will be admitted by the School of Education as education majors. The student's advisory committee, consisting of a minimum of three members, will be appointed by the Dean of the School of Education.

Category II

Baccalaureate graduates with a good general education and with majors or equivalent majors in subjects commonly taught in high school and who wish to prepare for a career in secondary school classroom teaching.

NOTE: Students under Category II will be admitted by the School of Education as education majors. The student's advisory committee, consisting of at least two members from education and one member from the student's major subject area, will be appointed by the Dean of the School of Education.

Category III

Baccalaureate graduates who have or who can qualify for the Alaska secondary school certificate, who intend to make secondary school classroom teaching their career and who wish to take additional work in their teaching major and/or minor as well as in Education.

NOTE: Students under Category III will enroll in a department or program which offers an approved M.A.T. program. Students who have been accepted for the M.A.T. degree must also apply through the School of Education for admission to the Teacher Education program.

Admission Requirements:

1. Eligibility for one of the three above-mentioned categories.
2. In general, a grade point average of at least 3.00 in the baccalaureate major, and in the case of Category III, at least 3.00 both in the teaching major and in education courses.
3. Submission of the following to the Director of Admissions and Records:
   a. a completed University Application of Admission to Graduate Study.
   b. a statement of goals to which the M.A.T. will contribute.
   c. official transcripts of all previous college or university work.
   d. at least three letters of reference.
4. Additional evaluative material may be required by some departments: e.g.,
   a. Scores from the aptitude test of the Graduate Record Examination and/or scores from the advanced tests in the field of the baccalaureate major.
   b. An interview (an interview is required for admission to a teacher certification program).
5. Recommendation for admission by the Dean of the School of Education and the dean (or head) of the subject matter discipline (except Category I).

Degree Requirements:

1. A minimum of 36 semester credits is required for the M.A.T. degree, 15 or more of which must be at the 600-level for Categories II and III (secondary). A minimum of nine 600-level credits must be earned for Category I. While 36 semester credits is the minimum number of credits required, experience has shown that many M.A.T. students find it necessary to earn 45 or more credits in order to satisfy academic deficiencies and/or professional certification requirements.
2. For general education background, the total education of each M.A.T. student should include approximately 15 semester credits of study in each of the following areas: (a) mathematics and natural science, (b) social science, and (c) humanities.
3. The total education of the student preparing for a career in secondary school teaching must include an approved teaching major as adjudged by the School of Education standards and/or accreditation standards of the Northwest Association of Secondary and Higher Schools.
4. The total education of the student preparing for a career in either elementary or secondary teaching must include the course requirements necessary for Alaska teacher certification. (See education minor in current catalog.)
5. Required education courses common to all M.A.T. degrees are:

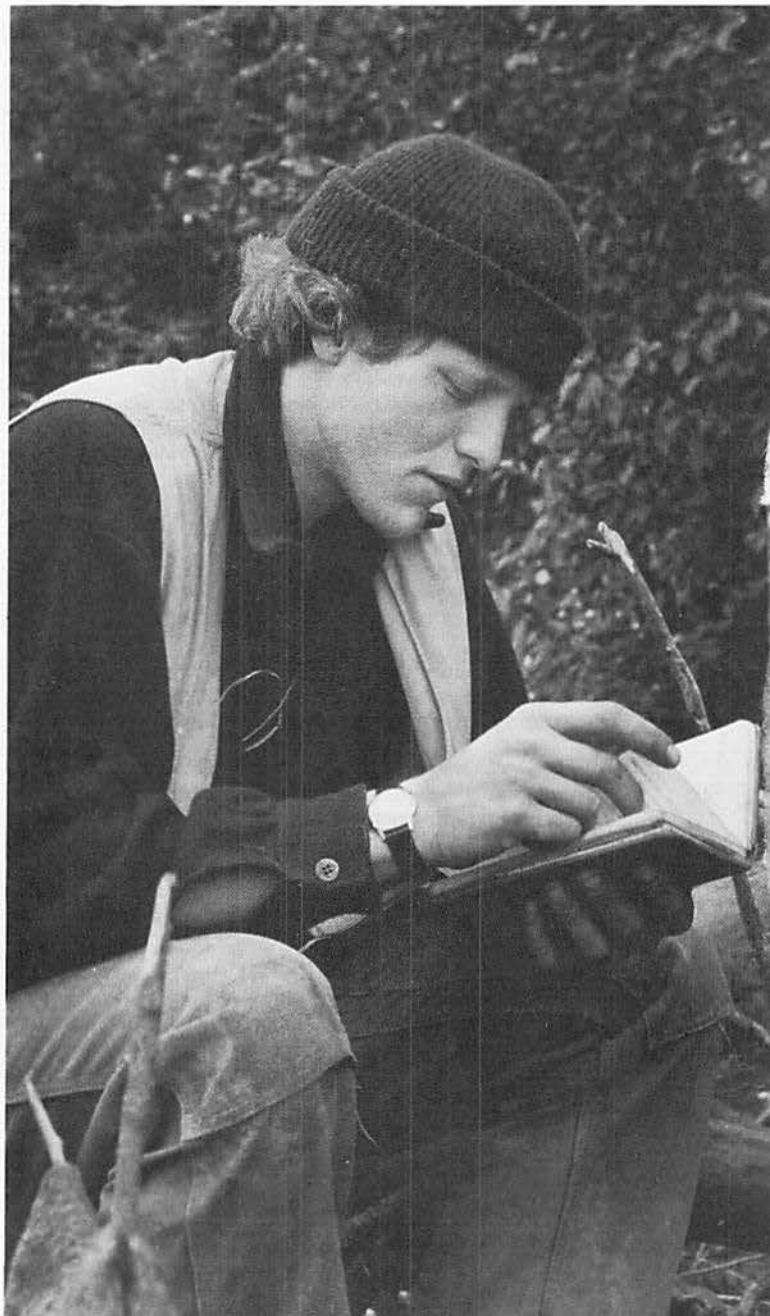
	Credits
Ed. 601 – Graduate Seminar	3
Ed. 622 – Philosophy of Education	3

Other specific courses required by the members of the student's graduate committee may vary depending on the particular degree.

6. Some departments may have additional degree requirements.
7. Each candidate must pass a written comprehensive examination. The examining committee shall consist of the student's advisory committee. There is no thesis requirement for the M.A.T. degree.

Approved Programs:

The M.A.T. degree at the University of Alaska has been approved for the following subject matter areas: biology, chemistry, education, English, geosciences, history, mathematics, music and physics. Departments other than these must request specific approval for offering the M.A.T. Normally, such approval will be restricted to departments representing commonly taught secondary school subjects. Students wishing to study toward the M.A.T.



degree in areas not previously approved may apply for admission under the University's interdisciplinary (individual attention) program.

School Administration – Ed.S. Degree

The Ed.S. degree is designed for teachers and other educators (1) who wish to undertake graduate study beyond the master's degree; (2) who wish to qualify for an intermediate degree between the master's and the doctorate; (3) who wish to develop further competence in one field of specialization.

Admission Requirements:

1. Applicants who must be qualified educators who have at least three years of public school teaching and/or administrative experience.
2. All candidates should meet the University of Alaska Bachelor of Education degree requirements (or equivalent) for either elementary or secondary education majors with a minimum of 24 credits of education courses with an overall average g.p.a. of 3.00.
3. A master's degree is required.
4. Submission to the Director of Admissions:
   a. A completed university application for admission to graduate study.
   b. Official transcripts of all previous college or university work.
   c. Three letters of reference, at least one from the most recent employer, testifying as to teaching or administrative ability.
5. Admission will be contingent upon:
   a. Satisfactory grade point average.
   b. Demonstrated competence in professional education through a qualifying written examination prior to advancement to candidacy.
6. Admission may also be contingent upon:
   a. Satisfactory scores on various standardized tests, and
   b. A satisfactory personal interview conducted by staff members of the School of Education.

Degree Requirements

1. The minimum requirements will be the completion of 30 semester hours beyond the master's degree. At least 24 hours must be completed at the University of Alaska.
2. Fulfillment of the requirements of the Ed.S. degree must be completed within seven years after first registering in the program.
3. Satisfactory performance on a written and/or oral examination conducted by the School of Education faculty is required.
4. At least 21 of the 30 semester hours must be at the graduate level.

Electrical Engineering

School of Engineering

Degrees: Bachelor of Science, Master of Science, Master of Electrical Engineering

Minimum Requirements for Degrees: B.S. – 130 credits; M.S. – 30 additional credits; M.E.E. – 32 additional credits

Electrical engineering includes all applications of electrical power and electrical and electronic signals. The electrical engineer designs and oversees the construction, installation, and maintenance of electrical systems – for cities and satellites – providing light and heat and power. He contributes the communication systems of telephone, telegraph, radio, and television, as well as the vacuum tubes, transistors, and integrated circuits used in these systems. He automates businesses, factories, pipelines, and refineries; and his control systems and computers 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 and products of his imagination.

While electrical engineers can point with pride to many accomplishments, they should look ahead to the opportunities and challenges of the profession, 10, 20, or more years in the future. Electrical engineering and scientific realities of tomorrow must surpass our vision of today. Electrical engineering has expanded tremendously in scope in recent years. Many developments have been basically important in this expansion, including automatic control theory, environmental monitoring, communications theory, the transistor, new geophysical instrumentation, digital computers, extra-high-voltage power transmission, integrated circuits, medical electronics, plasmas, magnetohydrodynamics, satellites, meteorological instrumentation, space technology lasers, new materials, and fuel cells. The process controls in the extraction, transmission, and refining of petroleum products are largely the responsibility of the electrical engineer. Development of techniques for utilizing new energy sources presents a fascinating and challenging problem, requiring much imagination and resourcefulness. Advanced training in engineering science and mathematics is generally required for creative work in these areas.

The electrical engineering curriculum has been carefully planned so that basic principles would be learned by all, and so that the graduating engineer can have access to his choice of these many applications of electrical energy, signals, and systems. Candidates for the Bachelor of Science degree are required to take an examination in their general field. (The State of Alaska Engineer-In-Training Examination will satisfy this requirement.)

Graduate students whose goal is broad professional practice will ordinarily choose the M.E.E. program; those who wish to emphasize research and advanced specialized study usually elect the M.S. degree program, which includes a thesis.

Electrical Engineering – B.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

First Year

Fall Semester	*15-16 credits*
Engl. 111 – Methods of Written Comm.	3
Math. 200 – Calculus	4
E.S. 101 – Graphics	2
E.S. 111 – Engineering Science	3
Biology or Chemistry	3-4

Spring Semester	*16-17 credits*
Speech Comm. Elective	3
Math. 201 – Calculus	4
E.E. 102 – Intro. to Electrical Engineering	3
Biology or Chemistry	3-4
Soc. Sci. or Humanities Elective	3

Second Year

Fall Semester	*15 credits*
Math 202 – Calculus	4
Phys. 211 – General Physics	4
E.S. 201 – Computer Techniques	3
E.E. 203 – Fund. of Elec. Engineering	4

Spring Semester	*15 credits*
Math 302 – Differential Equations	3
Phys. 212 – General Physics	4
E.S. 208 – Mechanics	4
E.E. 204 – Fund. of Elec. Engineering	4

Third Year

Fall Semester	*18 credits*
E.E. 333 – Physical Electronics	4
E.E. 353 – Circuit Theory I	3
Math. 321 – Intermed. Applied Math	4
Soc. Science or Humanities elective	3
Option I: Communications	
Phys. 331 – Electricity and Magnetism	3

E.E. 331 – High Frequency Lab 1
Option II: Power and Control
E.E. 303 – Elec. Machinery 4

Spring Semester *18 credits*
E.E. 334 – Electronic Circuit Design 4
E.E. 354 – Circuit Theory II 3
Eng. 211 or 213 3
Math. 422 – Intermed. Applied Math. 4
Option I: Communications
E.E. 332 – Electromagnetic Waves and Antennas 4
Option II: Power and Control
E.E. 404 – Elec. Power Systems 4

Fourth Year
Fall Semester *18 credits*
E.S. 331 – Mechanics of Materials 3
E.E. 471 – Fund. of Auto. Control 4
E.E. 442 – Digital Systems 4
Soc. Science or Humanities electives 3
Option I: Communications
E.E. 303 – Elec. Power Engineering I 4
Option II: Power and Control
Phys. 331 – Electricity and Magnetism 3
E.E. 331 – High Frequency Lab I 1

Spring Semester *16-17 credits*
E.S. 346 – Basic Thermodynamics 3
E.S.M. 450 – Economic Analysis and Operation 3
Soc. Science or Humanities electives 6
E.E. 492 – Seminar 1
Option I: Communications
E.E. 462 – Communications Systems 4
Option II: Power and Control
E.E. Elective (Additional Power Course) 4

At least 6 credits of social sciences and humanities must be at the 200 level or higher.

Electrical Engineering – M.E.E. Degree

Students selecting the Master of Electrical Engineering program will meet the general university requirements and master's degree requirements, pages 63 and 65, be guided in course work and an engineering project by a personal advisor, and accumulate a total of 32 credits of approved courses.

In addition to electrical engineering courses, additional subjects may be selected from the broad spectrum of advanced undergraduate and graduate courses in engineering, sciences, and management, according to the student's needs. Candidates for the M.E.E. degree must pass a State Engineering-in-Training Examination prior to the awarding of the degree.

Electrical Engineering – M.S. Degree

A candidate for the Master of Science degree will meet the general university requirements and master's degree requirements, pages 63 and 65, plus 30 credits approved by his graduate committee, of which six to twelve credits will be E.E. 699 – Thesis. Courses may be selected from the fields of engineering, sciences, and other areas according to the student's desired specialization.

Electronics Technology

Tanana Valley Community College

Degree: Associate of Applied Science
Minimum Requirements for Degree: 65-87 credits

The program in electronics technology is designed to prepare people to maintain, install and operate electronics equipment. Dramatic changes have taken place in recent years in the building of communications, control, and data processing systems. Advances in all these areas are being incorporated in present and future courses at Tanana Valley Community College.

Electronics Technology – A.A.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree and program (major) requirements for the specified technician option.

Electrical Service Technician:
(50 credits in Electrical Technology and
15 credits general degree requirements = 65 total credit hours)

First Year
First Semester *17 credits*
ELCO 103 – Basic Electricity 6
ITCO 111 – Technical Mathematics II 3
ELCO 109 – Electrical/Electronic Shop Practices 2
Engl. 111 – Methods of Written Communication 3
Sp.C. 111 – Fundamentals of Oral Communication 3

Second Semester *17 credits*
ITCO 112 – Technical Mathematics III 3
ELCO 104 – Applied Wiring 3
ELCO 106 – Applied Motors and Generators 3
ELXX – Individual Study and Practicum in Chosen Vocational Specialty 5
Engl. 107 – Technical Report Writing 3

Second Year
First Semester *16 credits*
ELCO 201 – Industrial Electricity 4
ELCO 203 – Introduction to Industrial Instrumentation 3
ELXX – Individual Study and Practicum in Chosen Vocational Specialty 6
*General University Requirements 3

Second Semester *15 credits*
ELCO 202 – Basic Solid State Devices 4
ELXX – Individual Study and Practicum in Chosen Vocational Specialty 8
*General University Requirements 3

*Humanities, Mathematics, Natural Science or Social Science.

Electronic Engineering Technology:
(72 credits in Electronic Technology and
15 credits general degree requirements = 87 credits)

First Year
First Semester *18 credits*
ETCO 101 – Electrical Fundamentals 6
ETCO 105 – Digital Electronic Fundamentals 3
ITCO 111 – Technical Mathematics II 3
ELCO 109 – Electrical/Electronic Shop Practices 2
ETCO 111 – Electronic Dialogue, Publications and Vocations . 1
ITCO 101 – Applied Physics I 3

Second Semester *18 credits*
ETCO 102 – Electronic Fundamentals 4
ETCO 104 – Applied Semiconductor Devices 4
ETCO 106 – Digital Computer Fundamentals 4
ITCO 112 – Technical Mathematics III 3
ITCO 102 – Applied Physics II 3

Second Year
First Semester *18 credits*
ETCO 201 – Applied Solid State Linear Circuits I 4
ETCO 203 – Electromagnetic Wave Transmission and Propagation 3
ETCO 205 – Applied Microprocessor Systems 3
ITCO 210 – Technical Mathematics IV 4
ETXX – Individual Study and Practicum in Chosen Vocational Specialty 4

Second Semester *18 credits*
ETCO 202 – Applied Solid State Linear Circuits II 4
ETCO 204 – Applied Automatic Control Theory 3
ETCO 206 – Applied Digital Systems Design 3
ITCO 211 – Technical Mathematics V 4

ETXX – Individual Study and Practicum in Chosen Vocational Specialty 4

In addition to the above, the student must complete Sp.C 111 or the equivalent, written communications equivalent to Engl. 111, technical report writing equivalent to Engl. 107; and 6 credits in humanities, mathematics, natural science or social science.

Electronic Service Technology:
(53 credits in Electronics Technology and 15 credits general degree requirements = 68 credits)

First Year

First Semester — *18 credits*
ETCO 101 – Electrical Fundamentals 6
ETCO 105 – Digital Electronics Fundamentals 3
ITCO 111 – Technical Mathematics II 3
ETCO 111 – Electronic Dialogue, Publications and Vocations . 1
ELCO 109 – Electrical/Electronic Shop Practices 2
Engl. 111 – Methods of Written Communication 3

Second Semester — *18 credits*
ETCO 102 – Electronic Fundamentals 4
ETCO 104 – Applied Semiconductor Devices 4
ETCO 106 – Digital Computer Fundamentals 4
ITCO 112 – Technical Mathematics III 3
Engl. 107 – Technical Report Writing 3

Second Year

First Semester — *16 credits*
ETCO 201 – Applied Solid State Linear Circuits I 4
ESXX – Individual Study and Practicum in Chosen Vocational Specialty 6
Sp.C. 111 – Fundamentals of Oral Communication 3
*General University Requirements 3

Second Semester — *16 credits*
ETCO 202 – Applied Solid State Linear Circuits II 4
ESXX – Individual Study and Practicum in Chosen Vocational Specialty 9
*General University Requirements 3

*Humanities, Mathematics, Natural Science or Social Science.

The following is a list of the specialty options for each of the three professions:

I. Electronic Engineering Technician (ETXX)

Program Core (CO)	ETCO 10X, 20X
Avionics Systems (AV)	ETAV 10X, 20X
Bio-Medical Electronics (BM)	ETBM 11X, 21X
Communication Systems (CM)	ETCM 12X, 22X
Computer Operating Systems (CS)	ETCS 13X, 23X
Automatic Control (AC)	ETAC 14X, 24X
Instrumentation (IN)	ETIN 15X, 25X
Laser Electro-Optics (LO)	ETLO 16X, 26X
Telecommunications Systems (TL)	ETTL 17X, 27X

II. Electronic Service Technician (ESXX)

Program Core (CO)	ESCO 10X, 20X
Automotive Electronics (AU)	ESAU 10X, 20X
Audio Service (AD)	ESAD 12X, 22X
Television Service (TV)	ESTV 11X, 21X
Radio Broadcast Engineer (RE)	ESRE 14X, 24X
TV Broadcast Engineer (TE)	ESTE 15X, 25X
Two-Way Mobile Radio Service (TW)	ESTW 13X, 23X

III. Electrical Service Technician (ELXX)

Program Core (CO)	ELCO 10X, 20X
Appliance Service (AP)	ELAP 10X, 20X
Electrician (EN)	ELEN 11X, 21X
Heating and Air Conditioning (HA)	ELHA 12X, 22X
Village Technician (VT)	ELVT 13X, 23X

The student may pursue an Associate Degree in Applied Science or a certificate in any of the options. A certificate will be granted specifying specific levels of achievement or proficiencies.

Engineering and Science Management

School of Engineering

Degrees: Master of Science in Engineering Management, Master of Science in Science Management

Minimum Requirements for Degrees: 30 credits (beyond a bachelor's degree in engineering or a scientific field)

The engineering and science management curriculum is designed for graduate engineers and 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.

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 or science 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 or science.

Candidates for the Engineering Management degree must hold a previous degree in an engineering discipline; candidates for the Science Management degree must hold a degree in a scientific field.

Engineering Management – M.S. Degree
Science Management – M.S. Degree

1. Complete the general university requirements and master's degree requirements as listed on pages 63 and 65.
2. Complete the following degree and program (major) requirements:

Fall Semester — *15 credits*
ESM 605 – Engineering Economy 3
ESM 611 – Accounting for E.S.M. 3
ESM 608 – Legal Principles for Engr. Mgt. 3
An approved course in statistics 3
*Elective 3

Spring Semester — *15 credits*
ESM 612 – Finance for E.S.M. 3
ESM 613 – Personnel for E.S.M. 3
ESM 621 – Operations Research 3
ESM 684 – Engr. Mgt. Project 3
*Elective 3

*Electives must have the approval of the department. Electives may include advanced courses in computer science but not courses in basic FORTRAN.

In addition to completing the 30 credits indicated above, a candidate must demonstrate competence in computer programming by passing a programming course or a qualifying examination.

Substitutions for one or more of the courses listed above are permitted if similar courses are included in the student's previous academic background. No more than nine credits of appropriate graduate-level course work completed at other institutions with a grade of A or B may be transferred and applied toward the total 30 credits of required and elective courses. Both substitutions and transfer of credit must be approved by the department.

English

College of Arts and Sciences

Degrees: Bachelor of Arts, Master of Arts, Master of Fine Arts, Master of Arts in Teaching

Minimum Requirements for Degrees: B.A. – 130 credits; M.A. – 30 additional credits; M.F.A. – 45 additional credits; M.A.T. – 30 additional credits

The work of the Department of English includes the two

functions traditionally associated with the discipline – teaching basic and advanced courses in written composition 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, in Alaskan literature, and in Canadian literature.

The department also offers several programs of graduate study, including work in research and scholarship, original writing, and preparation for teaching English.

English – B.A. Degree

A. Emphasis: Literature

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program major requirements: 36 credits in English besides Engl. 111 and Engl. 211 or 213, including:

Credits

a. Engl. 301 and 302 – Survey of World Lit. 6
b. One course chosen from each of the following sequences:

British Literature:

Engl. 303 – Survey of British Literature: From Beowulf through the Early Renaissance,

or Engl. 304 – Survey of British Literature: From the Late Renaissance through the Neoclassical Period,

or Engl. 305 – Survey of British Lit.: From the Romantic Period to the President 3

American Literature:

Engl. 306 – Survey of American Lit.: From the Colonial Period to the Civil War,

or Engl. 307 – Survey of American Lit.: From the Civil War to the Present 3

World Literature:

Engl. 401 – World Literature: Selected Masterpieces from Homer through Dante,

or Engl. 402 – World Literature: Selected Masterpieces from Cervantes to Present 3

c. Engl. 442 or 425 – Shakespeare 3
d. One course from the following:

Engl. 421–Chaucer, *or* Engl. 426–Milton 3

e. One course from the following:

Engl. 318 – Modern English Grammar
or Engl. 472 – History of the English Language 3

f. Four courses chosen from 300-400 levels in English with at least two courses on 400-level 12

B. Emphasis: Forms and Techniques of Writing

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements: 36 credits in English besides Engl. 111 and Engl. 211 or 213, including:

Credits

a, b, and c as listed in the requirements for a major with emphasis on literature 18
d. Two courses from the following:

Engl. 445 – 20th-Century Drama: From Chekhov to Ionesco,

or Engl. 446 – 20th-Century British and American Poetry,

or Engl. 452 – The British Novel to 1900,

or Engl. 448 – 20th Century American Literature, Exclusive of Poetry,

or Engl. 447 – 20th-Century British Literature, Exclusive of Poetry 6

e. Two courses from the following:

Engl. 481 – Craft of Poetry,

or Engl. 482 – Craft of Fiction,

or Engl. 483 – Craft of Drama,

or Engl. 484 – Craft of Non-Fiction Prose 6

f. Two courses chosen from 400-level English 6

Requirements for a minor in English:

Complete 21 credits in English besides Engl. 111 and Engl. 211 or 213, including:

a, b, and c as listed in the requirements for a major with emphasis on literature 18
d. One 400-level English course 3

English – M.A. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Demonstrate reading knowledge of a foreign language.

For the *Master of Arts in English*, the language requirement can be satisfied by *one* of the following means:

a. scoring about the 50th percentile on the Graduate School Foreign Language Test of the Educational Testing Service,
b. or passing a test arranged locally on the Fairbanks campus in a language other than English,
c. or presenting a transcript showing successful completion (grade of "C" or higher) of the fourth semester or sixth quarter of an undergraduate sequence in a language other than English,
d. or completing (with a grade of "C" or higher) during residency at the Fairbanks campus a 400 level literature course taught in a foreign language.

3. Complete a minimum of 30 approved credits on 400-600 levels, distributed as follows:

Credits

Engl. 601 – Bibliography, Meth., and Criticism 3
Six courses in English chosen in consultation with and approved by the graduate committee 18

4. Pass a qualifying examination before advancement to candidacy and in order to remain in good standing. The examination will normally be taken during the second semester of graduate study. A student who fails may be permitted to take the qualifying examination again, depending on the nature of the failure.

Engl. 692 – Seminar 3
Engl. 699 – Thesis 6

English – M.A.T. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 approved credits including at least 15 in English taken at the University of Alaska, Fairbanks.

This degree is designed to serve the baccalaureate graduate who has qualified or who can qualify for the Alaska secondary school certificate; who intends to make secondary school classroom teaching a career; and who wishes to take additional work in English as well as in education. A student's graduate committee will assist in planning a program.

3. Pass a qualifying examination before advancement to candidacy and in order to remain in good standing. The examination will normally be taken during the second semester of graduate study. A student who fails may be permitted to take the qualifying examination again, depending on the nature of the failure.

English – M.F.A. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Demonstrate reading knowledge of a foreign language.

For the *Master of Fine Arts in Creative Writing*, the language requirement can be satisfied in *one* of the ways specified for the M.A. *or* by completion of *all* the following courses:

a.	ANL 215 or 216:	Alaska Native Languages
b.	Engl. 349	Aleut, Eskimo and Indian Literature of Alaska in English Translation
c.	Engl. 472	History of the English Language
d.	Engl. 670	Studies in Comparative Literature

3. Complete a minimum of 45 approved credits on 400-600 levels, distributed as follows:

Credits

a. Engl. 601 – Bibliography, Meth., and Criticism 3
b. Five courses chosen from the following group, including two "craft" courses and two other courses, and representing poetry, fiction, and drama at least once each* 15

Engl. 445 – 20th-Century Drama: From Chekhov to Ionesco
Engl. 446 – 20th-Century British and American Poetry

Engl. 447 – 20th-Century British Literature, Exclusive of Poetry
Engl. 448 – 20th-Century American Literature, Exclusive of Poetry
Engl. 452 – The British Novel to 1900
Engl. 481 – Craft of Poetry
Engl. 482 – Craft of Fiction
Engl. 483 – Craft of Drama
Engl. 484 – Craft of Non-Fiction Prose

c. Engl. 671 – Writers' Workshop** 3
d. Engl. 692 – Seminar 3
e. Three elective English courses 9
f. Two elective interdisciplinary courses (to be approved by the graduate committee, with each course in a separate area unless the committee approves both in the same area) 6
Engl. 699 – Thesis 6

4. Pass a qualifying examination before advancement to candidacy and in order to remain in good standing. The examination will normally be taken during the second semester of graduate study. A student who fails may be permitted to take the qualifying examination again, depending on the nature of the failure.

*If the student has met any or all of this requirement as an undergraduate, English or interdisciplinary electives may be substituted, subject to approval by the graduate committee.
**The student may take Engl. 671 a second time for credit, as one of the three elective English courses.

Environmental Quality Engineering Program

School of Engineering

Degrees: Master of Science in Environmental Quality Engineering, Master of Science in Environmental Quality Science
Minimum Requirements for Degree: 30 credits (beyond a bachelor's degree)

The environmental quality engineering curriculum is designed for graduate engineers who will pursue a career in the areas of water supply, treatment, and distribution; waste treatment, stream pollution, air pollution, and solid-waste disposal. 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. Applicants should refer to the general requirements for graduate study, page 14.

Environmental Quality Engineering – M.S. Degree
Environmental Quality Science – M.S. Degree

1. Complete the general university requirements and master's degree requirements as listed on pages 63 and 65.
2. Complete the following degree and program (major) requirements:

	Credits
EQE 601 – EQE Measurements	3
EQE 602 – Engr. Mgmt. of Water Quality	3
EQE 603 – Solid Waste and Air Pollution	3
EQE 604 – Environ. Quality Evaluation	3
EQE 605 – C/P Processes	3
EQE 606 – Biological Treatment Processes	3
*EQE 693 – Special Topics	0-6
*EQE 697 – Individual Study	3
*EQE 697 – Individual Study (Special Project)	0-6
*EQE 699 – Thesis	6-9
*Electives	

*Electives, thesis, and/or special projects must have approval of graduate committee.

A minimum of 30 credits of approved and required courses must be completed. Thesis study (6 credits) is optional.

Thesis Option:

Theses	6
Required courses	18
Electives	6
Total	30

Non-Thesis Option:

Special Project	3
Required courses	18
Electives	9
Total	30

All students will be expected to have a basic knowledge of computer programming.

Family Living/Management

Tanana Valley Community College

Degree: Associate of Arts
Minimum Requirements for Degree: A.A. – 60 credits

The associate degree program in family living/management includes informative and up-to-date instruction in nearly all aspects of home economics. Courses in the family living/management program are designed to prepare men and women to fulfill their home and family responsibilities with competence and efficiency.

Family Living/Management – A.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

	Credits
A. Written Communications	6
Recommended:	
English 111 – Methods of Written Communication	
English 211 – Intermediate Exposition, with Modes of Literature or English 213 – Intermediate Exposition	
B. Oral Communications	3
Sp.C. 111 – Fundamentals of Oral Communication	
C. Six credits each from three of these areas	18
Natural Sciences / Mathematics	
Humanities / Other (Acct., B.A., O.A., P.E., etc.)	
Social Sciences	
Total	27

3. Complete the following program (major) requirements:

Psy 101 – Introduction to Psychology or Soc. 101 – Introduction to Sociology	3
Psy 245 – Child Development or 3 credits in Parent Survival courses	3
PFI 086 – Personal/Family Money Management	1
LvSk 119 – Every Day Nutrition	2
LvSk 121 – Nutrition Fact and Fiction	1
LvSk 142 – Alaskan Home Interiors	1
LvSk 211 – Consumer Know-How	2
LvSk 236 – Personal Choices: Singles, Couples and Families in the Real World	3
Clothing Construction classes	2
Food Preparation classes	2
Total	20
Approved Electives	13
Total credits required for degree	60

Fire Science Technology

Tanana Valley Community College

Degree: Associate of Applied Science
Minimum Requirements for Degree: 60 credits

The fire science program leads to the Associate of Applied Science degree. The program gives the student a fundamental working knowledge of many aspects of the fire

prevention and protection field. It also serves as an in-service program for personnel already employed by fire protection agencies and enhances the opportunities for advancement.

Fire Science Technology – A.A.S. Degree (Structural Fire Control Option)

1. Complete the general university requirements as listed on page 63.

2. Complete the following general degree requirements:

	Credits
A. Written Communications	6
Recommended:	
English 111 – Methods of Written Communication	
English 212 – Technical Report Writing	
B. Oral Communications	3
Sp.C. 111 – Fundamentals of Oral Communications	
C. At least six credits from the following areas	6
Natural Sciences — Social Science	
Humanities — Mathematics	
Total	15

3. Complete the following program (major) requirements:

F.S. 101 – Introduction to Fire Science	3
F.S. 105 – Fundamentals of Fire Prevention	3
F.S. 107 – Fire Tactics and Strategy	3
F.S. 111 – Fire Company Organization and Management	3
F.S. 117 – Rescue Practices	3
F.S. 202 – Fire Hydraulics	3
F.S. 204 – Hazardous Materials I	3
Major Specialty Approved Electives	9
Total	30

Select 15 credits from the following major specialty electives and/or from major specialty electives in Wildland Fire Control option:

F.S. 115 – Fire Apparatus and Equipment	3
F.S. 117 – Rescue Practices	3
F.S. 121 – Introduction to Fire Chemistry and Physics	3
F.S. 123 – Fire Investigation	3
F.S. 205 – Hazardous Materials II	3
F.S. 206 – Building Construction for Fire Protection	3
F.S. 208 – Fire Service Records and Reports	3
F.S. 212 – Related Codes and Ordinances	3
F.S. 214 – Fire Protection Equipment and Systems	3
Total credits required for degree	60

Fire Science Technology – A.A.S. Degree (Wildland Fire Control Option)

1. Complete the general university requirements as listed on page 63.

2. Complete the following general degree requirements:

General Education Requirements:	Credits
A. Written Communications	6
Recommended:	
English 111 – Methods of Written Communication	
English 212 – Technical Report Writing	
B. Oral Communications	3
Sp.C. 111 – Fundamentals of Oral Communication	
C. At least six credits from the following areas	6
Natural Sciences — Social Sciences	
Humanities — Mathematics	
Total	15

3. Complete the following program (major) requirements:

F.S. 117 – Rescue Practices	3
F.S. 151 – Wildland Fire Control I	3
F.S. 153 – Fire Organization and Management	3
F.S. 155 – Fire Behavior I	3
F.S. 157 – Air Operations Management	3
F.S. 252 – Wildland Fire Prevention, Law Enforcement and Investigation	3
F.S. 254 – Wildland Fire Business Management	3
Major Specialty Approved Electives	9
Total	30

Select 15 credits from the following major specialty electives and/or from major specialty electives in Structural Fire Control option:

F.S. 161 – Fire Service Functions	3
F.S. 163 – Air Attack	3
F.S. 213 – Wildland Fire Control II	3
F.S. 255 – Fire Behavior II	3
F.S. 256 – Fire Planning and Multiple Use Management	3
F.S. 258 – Prescribed Burning and Fuels Management	3
F.S. 260 – Fire Research and Development	3
F.S. 266 – Wildland Fire Environmental Considerations	3
Total credits required for degree	60

Fisheries Biology

College of Environmental Sciences

Degrees: Bachelor of Science, Master of Science
Minimum Requirements for Degrees: B.S. – 130 credits; M.S. – 30 additional credits

The fisheries undergraduate curriculum in the wildlife and fisheries 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 geographic location of the university is advantageous for the study of interior Alaska aquatic habitats. A number of subarctic streams and lakes are within easy reach. Access to the marine environment is being obtained through the National Sea Grant Program in Prince William Sound.

Adequate study collections of fishes are available, and the invertebrate collection is being rapidly expanded. Undergraduates 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.

Fisheries play an extremely important part in the economy and recreation of Alaskans; because of this, some courses in the department will be of interest to non-major students.



Fisheries Science – B.S. Degree

1. Complete the general university requirements as listed on page 63.

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

A. Core courses:

General	*Credits*
A.L.R. 101 – Conservation of Natural Resources	3
A.L.R. 370 – Introduction to Watershed Science	3
Econ. 235/435 – Natural Resource Economics	6
Sp.C. 241 – Public Speaking	3
Engl. 111 – Methods of Written Communication (or equiv.)	3
Engl. 213 – Intermediate Exposition	3
Engl. 414 – Research Writing	3
A.S. 301 – Elementary Probability and Statics	3
Chem. 105/106 – General Chemistry	8
*Math. 171/172 – Intro. to Calculus for Life Sciences	9
Total credits	43

Biology

Required

Biol. 107/108 – Fundamentals of Biology	4
Biol. 239 – Plant Form and Function	4
Biol. 271 – Principles of Ecology	3
Biol. 210 – General Physiology	4
Biol. 423 – Ichthyology	4
Biol. 252 – Principles of Genetics	4
Total credits	23

Electives (any 3 courses)

Biol. 242 – Introductory Microbiology	3
Biol. 222 – Biology of Vertebrates	4
Biol. 205 – Vertebrate Anatomy	3
Biol. 317 – Comparative Anatomy of Vertebrates	5
Biol. 305 – Invertebrate Zoology	4
Biol. 306 – Entomology	3
Biol. 307 – Parasitology	3
Biol. 308 – Principles of Evolution	3
Biol. 328 – Biology of Marine Animals	3
Biol. 476 – Animal Ecology	4
Total credits	9-14

Fisheries

Required

W.F. 411 – Fisheries Field Trip	1
W.F. 301 – Population Dynamics	3
W.F. 423 – Limnology or Ocn. 411 – General Oceanography	3
W.F. 429 – General Fisheries Biology	3
W.F. 430 – Management of Fisheries	3
Total credits	13

Electives (any 2 courses)

W.F. 435 – Problems in Water Pollution Biology	2
W.F. 436 – Advances jn Aquaculture	2
W.F. 493 – Special Topics (Aquatic Invertebrates)	3
W.F. 333 – Literature of Ecology and Resource Management	2
Total credits	4-5

B. Option (complete requirements of one option):

Research Option

Math. 203 – Finite Math.	4
Physics 103/104 – College Physics	8
C.S. 201 – Computer Programming I	3
Chemistry (1 additional course)	3
A.S. 302 – Introduction to Experimental Designs and Analyses	3
A.S. 402 – Scientific Sampling	3
Total credits	25

In addition, 7-13 hours of electives to satisfy the 130-hour requirements for graduation. Electives may be: language**, sociology, psychology, literature, philosophy, history, political science, journalism, economics.

Management Option:

J-B 201 or 311 – Newswriting or Magazine Article Writing	2 or 3
Psy. 101 – Introduction to Psychology	3
Total credits	5-6

In addition, 26 to 33 hours of electives to satisfy the 130-hour requirement to graduation: language**, journalism, English, justice, business, economics, secondary education, business administration, psychology, sociology, political science, philosophy. The majority of the credits should be taken in a curriculum other than Biology or Wildlife and Fisheries.

*Although Math. 171/172 is required for both curricula, it is recommended that those individuals anticipating graduate school take Calculus (Math. 200, 201, 202).

**Russian, Japanese, German and Native Alaska.

Bachelor of science candidates are strongly urged to obtain work experience in fisheries-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers. Fisheries undergraduate students will be asked each fall to describe their work experience of the previous year.

Fisheries Biology – M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.

2. Complete a minimum of 30 credits of approved courses, including W.F. 699 – Thesis, in the field of fisheries biology.

3. Students working in subject areas involving significant non-English literature may be expected to read the appropriate foreign language.

Graduate Study in Fisheries Biology

The wildlife and fisheries program offers graduate work leading to the Master of Science degree in Fisheries Biology. In exceptional cases an interdisciplinary Doctor of Philosophy degree can also be offered. Persons desiring detailed information on the graduate program in fisheries may obtain this from the Head, Wildlife and Fisheries Program. The procedure to be followed in applying for admission to graduate study is outlined in the Admissions section of this catalog.

The program offers a limited number of research assistantships under various federal and state government funding programs.

Food Service Technology

Tanana Valley Community College

Degrees: Associate of Applied Science, Certificate in Food Service Technology/Bakery

Minimum Requirements for Degrees: A.A.S. – 60 credits; Certificate – 18 credits

The two-year associate degree program in food service technology has as its objective the training of people to work in the food service industry as cooks, bakers, helpers, etc. The program can not only provide training for the beginner but can upgrade the education of people already employed within this industry. Instruction is given in the techniques of cooking and baking. Students will also get a well-rounded foundation in the basic aspects of food control, purchasing, and inventory control.

Food Service Technology – A.A.S. Degree

1. Complete the general university requirements as listed on page 63.

2. Complete the following general degree requirements:

	Credits
A. Written Communications	6
Recommended:	
English 111 – Methods of Written Communication	
English 211 – Intermediate Exposition, with Modes in Literature or English 213 – Intermediate Exposition	
B. Oral Communications	3
Sp.C. 111 – Fundamentals of Oral Communication	
C. At least six credits from the following areas:	6
Natural Science / Social Science	
Humanities / Mathematics	
Total	15

3. Complete the following program (major) requirements:

F.S.T. 101 – Introduction to Food Service	1
F.S.T. 102 – Foods and Nutrition	2
F.S.T. 103 – Quantity Food Production (Foods)	4
F.S.T. 104 – Sanitation	2
F.S.T. 110 – Food Standards	2
F.S.T. 111 – Quantity Food Production (Bakery)	4
F.S.T. 112 – Quantity Food Service I	2
F.S.T. 113 – Quantity Food Production (Meats)	4
F.S.T. 201 – Quantity Food Production (Specialized)	4
F.S.T. 202 – Food Service Bakery Practicum	4
F.S.T. 189-289 – Cooperative Education/Food Service Practicum	3-6
O.O. 142 – Introduction to Accounting	3
Total	35-38

4. Major specialty approved electives:

Choose at least one area of the three below and complete all credits in that area.

Food Production

F.S.T. 221 – Quantity Food Service II	2
F.S.T. 222 – Menu Making	1
F.S.T. 223 – Advanced Foods	3
Total	6

Bakery Production

F.S.T. 231 – Intermediate Pastry	4
F.S.T. 232 – Advanced Pastry and Baking Art	2
Total	6

Food Service Management

F.S.T. 210 – Stewardship	2
F.S.T. 212 – Leadership	1
F.S.T. 213 – Facility Layout and Design	2
Total	5
Additional electives	2-6
Total credits required for degree	60

Certificate Program – Food Service Technology Bakery

The program is designed to prepare students for employment in a commercial bakery with a concentration in the preparation of baked goods.

Certificate Program Requirements:	*Credits*
F.S.T. 105 – Introduction to Commercial Baking	1
F.S.T. 106 – Breads, Yeast Raised	4
F.S.T. 107 – Quick Breads	3
F.S.T. 108 – Cakes and Cookies	3
F.S.T. 114 – Pastry I	4
F.S.T. 115 – Cake Decorating	1
F.S.T. 211 – Bakery Management	2
Total credits required for certificate	18

General Science

College of Arts and Sciences

Degrees: Bachelor of Science, Master of Science

Minimum Requirements for Degrees: B.S. – 130 credits; M.S. – 30 additional credits

Man's insatiable curiosity and his desire to understand the world about him have led to the study of natural science and to the scientific method. Progress in this study has been fruitful and is so rapid now that the new discoveries in science are affecting our everyday lives, and most certainly will continue to do so in our lifetime. Consequently, every educated citizen needs a knowledge and appreciation of the philosophy and structure of science. It is generally agreed that the best method for achieving this is by direct study of a natural science, and most of the curricula at the University of Alaska reflect this fact in their requirements.

Traditionally, the role of mathematics has been to simplify, interpret, and extend the boundaries of science. The fact that mathematics still includes, as well as transcends, this function makes it a necessary study.

The major in general science has been designed, as its name indicates, to provide an opportunity to become familiar with a considerable number of natural sciences and thus provide a firm background for specialization in any one of them as well as in certain technical professions. The fields lying on the borders between the older sciences provide excellent opportunity for research. An acquaintance with the fundamentals of all the natural sciences is of value in teaching science in high school and college and also in preparing for specialization in certain of the social disciplines.

General Science – B.S. Degree

1. Complete the general university requirements as listed on page 63.

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

First Year

Fall Semester	*17 credits*
Engl. 111 – Methods of Written Comm.	3
Biol. 107-108 – Fund. of Biology	4
Math. 107-108 – Algebra and Trig.	6
Chem. 105 – General Chemistry or Phys. 103 – College Physics	4
Spring Semester	*15 credits*
Sp.C. 111 – Fund. of Oral Communication	3
Math. 200 – Calculus	4
Chem. 106 – General Chemistry or Phys. 104 – College Physics	4
Electives	4

Second Year

Fall Semester	*17 credits*
Phys. 103 – College Physics or Chem. 105 – General Chemistry	4
Econ. 121 – Principles of Economics	3
Geos. 101 – General Geology	4
Psy. 101 – Intro. to Psychology	3
Department elective	3
Spring Semester	*16 credits*
Phys. 104 – College Physics or Chem. 106 – General Chemistry	4
Geos. 112 – Historical Geology	4
Soc. 101 – Intro. to Sociology or Anth. 101 – Introduction to Anthropology	3
Electives	5

Third and Fourth Years

By the beginning of his/her junior year, each student in general science must decide upon his major field and, with the assistance of the person in charge of administering the curriculum in general science, make out a program for his third and fourth years of study.

Directions for making out the program:

1. Include the following courses:	*Credits*
Engl. 211 – Intermed. Exposition with Modes of Literature or Engl. 213 – Intermed. Exposition	3
Social Science and/or Humanities electives (3 credits must be Humanities)	6

2. The major field must comprise a minimum of 20 credits above the foundation courses included in this curriculum. The courses scheduled must be approved in writing by the head of the major department. A major may be elected in anthropology, biological sciences, chemistry, geosciences, mathematics, or physics.

3. The electives must include either two minors of at least 12 credits each above the foundation courses included in this curriculum, or a second major. Minors may be selected in any of the major departments listed or in the fields of economics, education (minimum 24 credits), English, French, German, Russian, history, or political science.

4. All prerequisites of courses elected must be met.
5. One year of German or Russian is recommended.
6. Courses selected to complete the requirements in the social sciences must be chosen from the following: anthropology except archaeology; sociology; economics; history; and political science.
7. Physics 211-212 may alternate for Physics 103-104 and Chem. 211 may alternate for Chem. 105-106.
8. A total of 130 credits is required.

General Science – M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits of approved courses.

The Departments of Mathematics, Physics, Chemistry, Biological Sciences, and Geology offer work toward the master of science degree with a major in general science. 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 departments is cooperating with at least one other department 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 department giving the degree. A thesis (maximum of three credits) or project (no credit) must be completed in the major department. It is not intended that the individual courses 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.

Geography

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Science
Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 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 the University of Alaska, geography is offered as: (a) part of a broad cultural background in a liberal arts curriculum; (b) as part of a comprehensive program in biological and earth sciences; (c) as background for studies in economics, history, political science, and other social sciences; (d) as preparation for teaching geography, earth science, or social science in elementary or secondary schools; (e) as technical training for professional geographic work in government, business, or industry; (f) as 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.

Geography – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

A. Complete 24 credits in geography, including the following: Geog. 101 or 103; 205; 202 or 302; 339 or 401; 305 or 311; 306 or 327; 492; geography elective.

B. Complete 20 credits of the following or approved alternative courses with groupings to emphasize cultural, economic, physical, or regional geography. (Can also be used to meet basic degree requirements and to apply toward minor requirements.):

Cultural Geography
  Anthropology 101, 201, 202, 301, 321, 342, 428
  Sociology 251, 307, 309, 363, 406
Economic Geography
  Economics 121, 235, 435, 437, 463
  Business Administration 475
  Political Science 435, 436
Physical Geography
  Geosciences 101, 112, 261, 304, 407, 408, 422
  Biology 107, 108, 271, 476
Agriculture and Land Resources 101, 350, 380, 430
Regional Geography
  History 261, 315, 316, 331, 341, 344, 350, 450
  Political Science 201, 315, 321, 322, 415, 435, 436, 460

C. Approved electives to complete 130 credits.

Geography – B.S. Degree

1. Complete general university requirements and B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

A. Complete 12 credits in approved mathematics courses.

B. Complete two minors.

C. Complete the requirements A, B, and C as stated above for the B.A. degree with emphasis in either economic or physical geography.

Geography and Regional Development – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements listed on pages 63 and 64.
2. Complete the following program (major) requirements:

A. Complete 36 credits in the following core courses:
  Geography 103, 205, 301, 404, 492
  Economics 221, 235 or 324, 337 or 435
  Biology 271
  Agriculture and Land Resources 101
  Political Science 211, 301

B. Complete 6 credits from each of the following five (5) groups (30 credits):
  1. Geography 202, 302, 311, 327
  2. History 341, 440, 450
  3. Sociology 201, 307, 309
  4. Geosciences 101, 112, 304, 408
  5. Agriculture and Land Resources 380, 460
     Wildlife and Fisheries 333
     Biology 107, 108

C. Approved electives to complete 130 credits

A minor in Geography requires 15 credits in Geography including Geography 101 or 103 and 205.

Geological Engineering

School of Mineral Industry

Degree: Bachelor of Science
Minimum Requirements for Degree: 130 credits plus 6 credits field course

Geological engineering is a branch of engineering dealing with the application of geology. Geological engineers work with man's 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.

Seniors are encouraged to take the state of Alaska Engineer-in-Training examination as a first step toward registration as professional engineers. Graduates of the program are employed by consulting companies as well as in other areas in the public and private sector.

Students may enter into geological engineering in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years.

Geological Engineering – B.S. Degree

1. Complete the general university requirements as listed on page 63.

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

First Year

Fall Semester	*17 credits*
Engl. 111 – Methods of Written Communications	3
Math. 200 – Calculus	4
Chem. 211 – Chemical Principles(1)	4
E.S. 111 – Engineering Science	3
*Social Science or Humanities Elective(2)	3
Spring Semester	*15 or 16 credits*
SpC. Elective	3
Math. 201 – Calculus	4
E.S. 102 – Graphics	2
Geos. 261 – Geology for Engineers	3
Chem. 212 – Introductory Quantitative Analysis *or* Minl. 418 – Emission Spec., X-Ray, and Atomic Absorption(4)	3 or 4

Second Year

Fall Semester	*18 credits*
Math. 202 – Calculus	4
Geos. 213 – Mineralogy	4
Phys. 211 – General Physics	4
Minl. 202 – Mine Surveying	3
Engl. 211 *or* 213 – Intermediate Exposition	3
Spring Semester	*17 credits*
E.S. 201 – Computer Techniques	3
Phys. 212 – General Physics	4
E.S. 208 – Mechanics	4
Geos. 214 – Petrology	3
*Social Science or Humanities Elective(2)	3

Third Year

Fall Semester	*17 credits*
E.S. 331 – Mechanics of Materials	3
E.S. 341 – Fluid Mechanics	4
Geos. 362 – Engineering Geology	3
Math. 302 – Differential Equations	3
Geos. 407 – Geology of Mineral and Energy Resources	4
Spring Semester	*16 credits*
Geos. 314 – Structural Geology	3
Minl. 401 – Rock Mechanics	3
Minl. 405 – Exploration Geophysics	4
*Social Science or Human Elective(2)	6
Summer	
Geos. 351 – Field Geology	6

Fourth Year

Fall Semester	*14 credits*
Minl. 403 – Operations Research in Mineral Industries	3
*Social Sciences or Humanities Elective(2)	4
Technical Elective(3)	7
Spring Semester	*15 credits*
A.S. 301 – Elementary Probability and Statistics	3
Geos. 408 – Map and Airphoto Interpretation	2
Minl. 408 – Mineral Valuation and Economics	4
Technical Elective(3)	6

NOTES:

(1) A Chemistry sequence of Chem. 105 and Chem. 106 may replace Chem. 211.

(2) Of the 16 credit hours required, at least 3 must be humanities and at least 3 social science.

(3) Technical electives are selected by the student in conference with his or her advisor.

(4) Minl. 418 to be taken later in the program and at least 1 credit must be added to the technical electives as indicated.

*As approved by advisor.

Geology and Geophysics

College of Environmental Sciences

Degrees: Bachelor of Science, Master of Science, Master of Arts in Teaching, Doctor of Philosophy.

Minimum Requirements for Degrees: B.S. – 130 credits plus 6 credits in summer field courses; M.S. – 30 additional credits, including thesis; M.A.T. – 30 additional credits; 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 student to pursue his own interests as much as possible 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 Industry and the oceanography and ocean engineering (OCN) program.

In addition to formal course work, there are many other opportunities for professional education and experience on the campus.

All serious students of the geological sciences at the University of Alaska should make it a point to keep themselves aware of the large number of diverse research programs and also of the many special seminars which are offered. The research programs are often of a nature that allow participation of interested students.

Geology – B.S. Degree

1. Complete the general university requirements as listed on page 63.

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

	Credits
Engl. 111 – Methods of Written Communications	3
Engl. 211 – Intermed. Expos. with Modes of Lit. *or* Engl. 213 – Intermed. Exposition	3
Speech Communications Elective	3
Social Science (minimum of 3 credits) and Humanities (minimum of 3 credits), exclusive of 9 credit communications requirement	15
Math. 200-201 – Calculus *and* Math. 203 – Finite Math *and* A.S. 301 – Elementary and Probability Statistics *or* Math. 200, 201, 202 – Calculus *and* Math. 302 – Differential Equations	15
Phys. 211-212 – General Physics	8
Chem. 105-106 – General Chemistry *or* Chem. 211-212 – Chem. Principles and Intro. Quant. Anal.	8
Biol. 107 – Fundamentals of Biology	3
General Geology Option:	
Geos. 101 – General Geology	4
Geos. 112 – Historical Geology	4
Geos. 213 – Mineralogy	4
Geos. 214 – Petrology	3
Geos. 304 – Geomorphology	3
Geos. 314 – Structural Geology	3
Geos. 321 – Sedimentation	3
Geos. 350 – Geologic Field Methods	2
Geos. 351 – Field Geology	6
Geos. 401 – Invertebrate Paleontology	4
Geos. 402 – Stratigraphic Principles	4
Geos. 408 – Map and Airphoto Interpretation	2
Geos. 416 – Optical Mineralogy-Petrography	4

Geos. 417 – Intro. to Geochemistry 3
Geos. 418 – Basic Geophysics ..... 3 or 4
Electives (professional and general) 26

Economic Geology Option:
Geos. 101 – General Geology 4
Geos. 112 – Historical Geology 4
Geos. 213 – Mineralogy 4
Geos. 214 – Petrology 3
Geos. 304 – Geomorphology 3
Geos. 314 – Structural Geology 3
Geos. 321 – Sedimentation 3
Geos. 350 – Geologic Field Methods 2
Geos. 351 – Field Geology 6
Geos. 362 – Engineering Geology 3
Geos. 401 – Invertebrate Paleontology 4
Geos. 402 – Stratigraphic Principles 4
Geos. 407 – Geology of Mineral and Energy Resources 4
Geos. 408 – Map and Airphoto Interpretation 2
Geos. 416 – Optical Mineralogy-Petrography 4
Geos. 417 – Intro. to Geochemistry 3
Minl. 405 – Exploration Geophysics 4
Electives (professional and general) 18
Total 136

Geophysics Option:	*Credits*
Math. 202 – Calculus	4
Math. 302 – Differential Equations	3
Math. 321-322 – Inter. Applied Math.	8
Phys. 311 – Mechanics	4
Phys. 331 – Elec. and Mag.	3
E.S. 201 – Computer Tech.	3
Geos. 418 – Basic Geophysics	3
Minl. 405 – Exploration Geophysics	4
Electives (professional and general)	18
Total	136

Petroleum Geology Option:	*Credits*
Geos. 302 – Marine Geology	3
Minl. 302 – Oil Well Design and Production	3
Minl. 304 – Petroleum Reservoir Engineering	3
Geos. 321 – Sedimentation	3
Minl. 405 – Exploration Geophysics	4
Geos. 407 – Geology of Mineral and Energy Resources	4
Electives (professional and general)	22
Total	136

A minor in Geology requires 12-16 credits of approved geosciences courses.

Geology and Geophysics – M.S. Degree*

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits, including a maximum of 12 credits in Geos. 693. Special Topics, and Geos. 699, Thesis.
3. *Geology Option:* Complete at least one course from each of the three core areas – advanced structural geology, advanced petrology, and advanced stratigraphy.
4. *Geophysics Option:* The student's graduate advisory committee will require a selection of advanced courses in both geology and physics, the actual courses depending on how far the student's degree work is biased towards one discipline or the other.
5. *Economic Geology Option:* Complete 9 credit hours in applied geoscience with at least one course in mineral economics or engineering management.
6. *Petroleum Geology Option:* One course in each of: Adv. Structural Geology, Adv. Stratigraphy and Sedimentation, Adv. Geology of Mineral and Energy Resources and a geophysics course as selected by the graduate committee.

*To be admitted to the graduate program unconditionally, the student is expected to have a background at least to the level of that listed for the B.S. in geosciences; however, deficiencies may be made up prior to unconditional acceptance.

Geology and Geophysics – Ph.D.

1. Complete the general university requirements and Ph.D. degree requirements, pages 63 and 66.
2. Complete required program as arranged by conference with graduate advisory committee.

Graphics Arts and Design

Tanana Valley Community College

Degree: Associate of Applied Science
Minimum Requirements for Degree: 60 credits

Graphics Arts and Design – A.A.S. Degree (Civil Drafting Option)

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

	Credits
A. Written Communication	6
B. Oral Communication	3
C. *Humanities, Social Science, Natural Science, Mathematics	6

3. Complete the following program (major) requirements for one of the options:

Civil Drafting Option

Required Courses:
Draf. 101 – Beginning Drafting I 4
Draf. 102 – Beginning Drafting II 4
Draf. 130 – Perspective Drafting I 4
Draf. 140 – Architectural Drafting I 4
Draf. 150 – Civil Drafting I 4
Draf. 152 – Civil Drafting II 4
Draf. 250 – Civil Drafting III 4
Draf. 252 – Civil Drafting IV 4

Approved Major Specialty Electives (selected from below) .. 13
C.T. 103 – Surveying Office and Field Computations 2
C.T. 252 – Engineering Estimates 2
C.E. 112 – Elementary Surveying 3
Phys. 103 – College Physics 4
O.O. 145 – Electronic Data Processing 4

*Suggested courses for general requirements:
Geos. 101 – General Geology ..... 3 or 4
Math. 108 – Trigonometry 3
Math. 109 – Analytic Geometry 3

Architectural Drafting Option

Required Courses:
Draf. 101 – Beginning Drafting I 4
Draf. 102 – Beginning Drafting II 4
Draf. 130 – Perspective Drafting I 4
Draf. 132 – Perspective Drafting II 4
Draf. 140 – Architectural Drafting I 4
Draf. 142 – Architectural Drafting II 4
Draf. 230 – Perspective Drafting III 4
Draf. 240 – Architectural Drafting III 4
Draf. 242 – Architectural Drafting IV 4

Approved Major Specialty Electives (selected from below) ... 9
Draf. 121 – Building Trades Blueprint Reading I 3
Draf. 122 – Building Trades Blueprint Reading II 3
O.O. 145 – Electronic Data Processing 4
Phys. 103 – College Physics 4
Draf. 232 – Perspective Drafting IV 4

Health, Physical Education, and Recreation

See Physical Education

Health Sciences – Preprofessional Curricula

Professional schools of medicine and dentistry as well as many of the professional schools in paramedical fields (e.g., nursing, physical therapy) require one to four years of collegiate work before a student will be admitted. These years of preliminary academic work may be taken at the University of Alaska, where the student follows a sequence of courses planned to meet the requirements of the particular professional field in which he is interested. Students

interested in health professions should contact the Health Sciences Preprofessional Advisor, Division of Life Sciences, before registering.

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

Health Sciences

See Medical Sciences

History

College of Arts and Sciences

Degrees: Bachelor of Arts, Master of Arts in Teaching
Minimum Requirements for Degrees: B.A. – 130 credits; M.A. – 30 additional credits; M.A.T. – 30 additional credits

The History Department seeks to make the student aware of the cultural heritage of mankind, the great problems that man has faced throughout history and how he has sought to solve them.

Through the study of history, a student may prepare himself for a career in teaching, in the public service, or for advanced work in history and other social sciences.

History – B.A. Degree

1. Complete general university and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Complete any four of the following:	*Credits*
Hist. 101-102 – Western Civilization	6
Hist. 121-122 – East Asian Civilization	6
Hist. 131-132 – History of the U.S.	6
Complete 21 upper-division credits in history, including:	
Hist. 475-476 – Historiography and Intro. to Historical Method	6

A minor in history requires the completion of 18 credits in history, six of which must be at the 300 level or above.

History – M.A.T. Degree

Refer to general requirements for M.A.T. degree on page 84. Persons interested in this degree program should contact the head of the department.

Humanities

College of Arts and Sciences

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

The humanities encompass all cultural phenomena as related to Man, the creator of the arts, of theological, philosophical, and scientific systems, and of technological achievements and social structures. A systematic investigation of the humanities shows that there is unity beneath the obvious variety of disciplines or historical developments.

In the humanities core courses, much emphasis is laid on this concept of unit. One main objective of the program is to enable the student to go beyond specialization and achieve integration of knowledge. Others are to deepen his appreciation of all the arts, to develop his critical thinking, and to heighten his awareness of his own self and his role in society.

The humanities program is set up in such a way as to offer a solid second major for many B.A. and B.S. degree candidates. It aims at students from virtually all fields of specialization.

Humanities – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Prerequisites:	*12 credits*
Hist. 101-102 – Western Civilization	6
Ling. 101 – The Nature of Language or Ling. 112 – The Structure of Language	3
Phil. 201 – Introduction of Philosophy or Phil 202 – Introduction to Eastern Philosophy	3
Core Courses:	*24 credits*
Hum. 201 – Unity in the Arts	3
Hum. 202 – Unity in the Sciences	3
Hum. 329 – The Modern Media	3
Hum. 332 – Varieties of Visual Expression	3
Hum. 342 – Synthesis in Musical Expression	3
Hum. 411 – Dimensions of Literature	3
Phil. 481 – Philosophy of Science	3
Hum. 492 – Senior Seminar	3
Electives:	*21 credits*

Courses chosen from the three major areas: Arts, Natural Sciences, Social Sciences; three courses to be taken in one of these areas, and two in each of the remaining ones, totaling 21 credits. A list of recommended courses, drawn up and periodically updated by the Humanities Standing Committee after consultation with all departments in all colleges that wish to cooperate, will assist the student in making the choice of electives.

Minor in Humanities

Prerequisites:	*6 credits*
Hist. 101-102 – Western Civilization	6
Core Courses:	*18 credits*
Hum. 201 – Unity in the Arts	3
Hum. 202 – Unity in the Sciences	3
Upper-division Humanities electives	12

Interdisciplinary Studies

Degrees: Bachelor of Arts, Bachelor of Science
Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits

The exceptional student with well-defined goals which do not fit into the established baccalaureate program of the university should have an opportunity to achieve baccalaureate recognition for carrying out an approved interdisciplinary program which approximates the requirements for a baccalaureate degree in an established discipline. For this purpose the B.A. or B.S. degree in interdisciplinary studies is offered.

Upon completion of 15 credits, which must be within the specific region of the University of Alaska in which the student will continue his study, and at least 60 credits prior to graduation, a student may submit to the appropriate

chancellor or his designated representative an interdisciplinary curriculum leading to a B.A. or B.S. degree in interdisciplinary studies to be taken at a baccalaureate degree granting campus of that region. The proposed curriculum must differ significantly from established degree programs in the University of Alaska system and will require evidence that the necessary facilities and faculty are available at that campus to ensure an approximation of a normal baccalaureate degree. All general requirements for the B.A. or B.S. degree must be met. The proposal may include studies elsewhere and a suggested program director and advisory committee.

The chancellor will appoint to review the proposal a committee of at least three faculty members familiar with the suggested campus and interdisciplinary subject. If the curriculum is approved by the chancellor, he will, in consultation with the student, appoint an advisory committee of at least three faculty members to assist the student in planning and carrying out his program. The degree title will be chosen by the advisory committee in concert with the student and with the approval of the chancellor. Changes within the approved curriculum would be made only with the approval of this advisory committee. The curriculum will not be transferable to other campuses, and it is expected that a student considering this program will thoroughly investigate the strengths and capabilities of the campus at which he plans to undertake the interdisciplinary studies.

Journalism and Broadcasting

College of Arts and Sciences

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

The journalism and broadcasting curriculum is designed to prepare students for a challenging profession which calls for a high degree of proficiency in communication with words and pictures, both for the print and broadcasting media, while being versatile enough to allow a broad general liberal arts education.

Students with diverse interests frequently find that journalism fits well into a joint educational program with many other fields. It also provides a solid foundation for politics or a law degree.

Journalism – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.

2. Complete the following program (major) requirements:

A. Complete the following courses in journalism: *18 credits*
J-B 101 – Introduction to Mass Communications 3
J-B 201 – Newswriting 3
J-B 203 – Basic Photography 3
J-B 300 – Intermediate Newswriting 3
J-B 413 – Mass Communications Law 3
J-B 200 or 400 – Media Practicum 3

B. Complete one of the following options:

1. News-Editorial Option: *18 credits*
J-B 212 – Editing 3
J-B 301 – Reporting 3
J-B 320 – Journalism in Perspective 3
J-B 412 – Advanced Editing 3
One additional course in writing or editing 3
One of the following:
J-B 324 – Typography and Publication Design 3
*J-B 326 – Principles of Advertising 3

2. Photojournalism Option: *18 credits*
J-B 303 – Intermediate Photography 3
J-B 402 – Advanced Photography 3
J-B 212 – Editing 3
One of the following:
J-B 301 – Reporting 3
J-B 317 – Writing for Radio and Television 3
J-B 311 – Magazine Article Writing 3
Two of the following:
J-B 216 – Television Production 3
J-B 320 – Journalism in Perspective 3
J-B 403 – Cinematography 3
J-B 323 – Magazine Editing 3
J-B 424 – Magazine Production 3

3. Magazine Journalism Option: *18 credits*
J-B 212 – Editing 3
J-B 311 – Magazine Article Writing 3
J-B 411 – Advanced Magazine Article Writing 3
J-B 323 – Magazine Editing 3
J-B 424 – Magazine Production 3
One of the following:
J-B 324 – Typography and Publication Design 3
J-B 326 – Principles of Advertising 3

4. **Broadcasting Journalism Option: *23 credits*
J-B 213 – Announcing 2
J-B 403 – Cinematography 3
J-B 215 – Audio Production 3
J-B 216 – Television Production 3
J-B 317 – Writing for Radio and Television 3
One of the following:
J-B 444 – Public Affairs Reporting 3
J-B 320 – Journalism in Perspective 3
J-B 416 – Advanced Television Production 3
J-B 301 – Reporting 3
J-B 331 – Retail Advertising 3
J-B 433 – Public Relations 3
Two of the following:
Sp.C. 211 – Voice and Diction 3
Sp.C. 241 – Public Speaking 3
Thr. 241 – Basic Stagecraft 3

5. Advertising Option: *21 credits*
J-B 324 – Typography and Publication Design 3
J-B 326 – Principles of Advertising 3
J-B 331 – Retail Advertising 3
J-B 433 – Public Relations 3
B.A. 343 – Principles of Marketing 3
Two of the following:
J-B 317 – Writing for Radio and Television 3
J-B 323 – Magazine Editing 3
J-B 424 – Magazine Production 3
J-B 216 – Television Production 3
J-B 215 – Audio Production 3

C. Complete at least 3 credits in each of the following areas:
Economics Sociology
Political Science History
Psychology

D. Although not required, it is strongly recommended that every journalism student study another language, both to help gain a better perspective of English and to better comprehend the changing world.

E. To assure the journalist of a broad liberal arts education, no more than 42 hours in journalism and broadcasting courses may be included in the 130 hours required for the B.A. degree.

*Cross-listed with B.A. 326, Principles of Advertising.

**NOTE: It should be understood that this broadcast option is primarily a news and production curriculum and is not intended as a dramatic or performing arts option.

Requirements for a Minor in Journalism:

Complete at least 15 credits in journalism including the following:
J-B 101 – Introduction to Mass Communications 3
J-B 201 – Newswriting 3
J-B 203 – Basic Photography 3
J-B 212 – Editing 3

Justice

College of Arts and Sciences

Degrees: Associate of Arts, Bachelor of Arts
Minimum Requirements for Degrees: A.A. – 60 credits; B.A. – 130 credits

It has been said that the quality of a nation's civilization can be largely measured by the methods it uses to enforce its criminal law.

We in the United States deal with our criminals through a complex maze of organizations commonly referred to as the criminal justice system. This system is composed of police, courts, corrections, and a multitude of supportive professions which are more or less actively engaged in dealing with criminals within the guidelines of our federal and state constitutions.

Our criminal justice system works only as well as it is understood and this understanding is made extremely difficult by incremental changes imposed upon it by our legislatures and by constant reinterpretation of constitutional guidelines by the judiciary.

Only through an active educational effort by criminal justice personnel and students planning to enter the profession can we hope to attain the high degree of professionalization so necessary to create and maintain a criminal justice system which will mirror our otherwise advanced civilization.

Justice – A.A. Degree

1. Complete the general university requirements and general requirements for the A.A. degree, page 63.
2. Complete the following program (major) requirements:

	Credits
Justice Core Course Requirements	12
Just. 110 – Introduction to Justice	3
Just. 221 – Justice Organization and Management	3
Just. 250 – Development of Law	3
Just. 251 – Criminology	3
Justice Emphasis Area Requirements	9-12

Option A: Police Administration
9 to 12 credits of Police Administration courses
Option B: Corrections
9 to 12 credits of Corrections courses
Option C: Legal Studies
9 to 12 credits of Legal Studies courses
Option D: General Justice
9 to 12 credits of general Justice courses

Free Elective Credits	9-12
	(To total 60 credits)

Justice – B.A. Degree

1. Complete the general university requirements and general requirements for the B.A. degree, pages 63 and 64.

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

2. Complete the following program (major) requirements:

	Credits
Justice Core Course Requirements	21
Just. 110 – Introduction to Justice	3
Just. 221 – Justice Organization and Management	3
Just. 250 – Development of Law	3
Just. 251 – Criminology	3
Just. 330 – Justice and Society	3
Just. 360 – Justice Processes	3
Just. 451 – Research, Planning and Policy Analysis	3

Justice Emphasis Area Requirements:

15 credits in Justice courses of which at least 12 credits must be upper division. Possible special emphasis areas might include:

Police Administration	Security Administration
Corrections	General Justice
Legal Studies	

Requirements for a Minor in Police Administration

1. Complete 12 credits in Justice including:

	Credits
Just. 110 – Intro. to Criminal Justice	3
Just. 251 – Criminology	3
Just. 252 – Criminal Law	3
Just. 254 – Procedural Law	3

2. Complete 9 credits of approved electives in Justice.

Land Resources

School of Agriculture and Land Resources Management

A program of graduate study in land resources is offered through the university's interdisciplinary graduate program. Personnel from various units of the natural resource management group participate in orientating individual studies toward M.S. and interdisciplinary Ph.D. degrees. Areas include forestry, watershed, outdoor recreation, planning, range, land use, soils, water relations, agronomy, and other aspects of natural resource management and agriculture. Students interested in graduate work should write to the Dean, School of Agriculture and Land Resources, outlining their area of interest and study objectives and academic background. Results from the Graduate Record Examination should be provided for the formal application. (See also Natural Resources Management, page 106.)

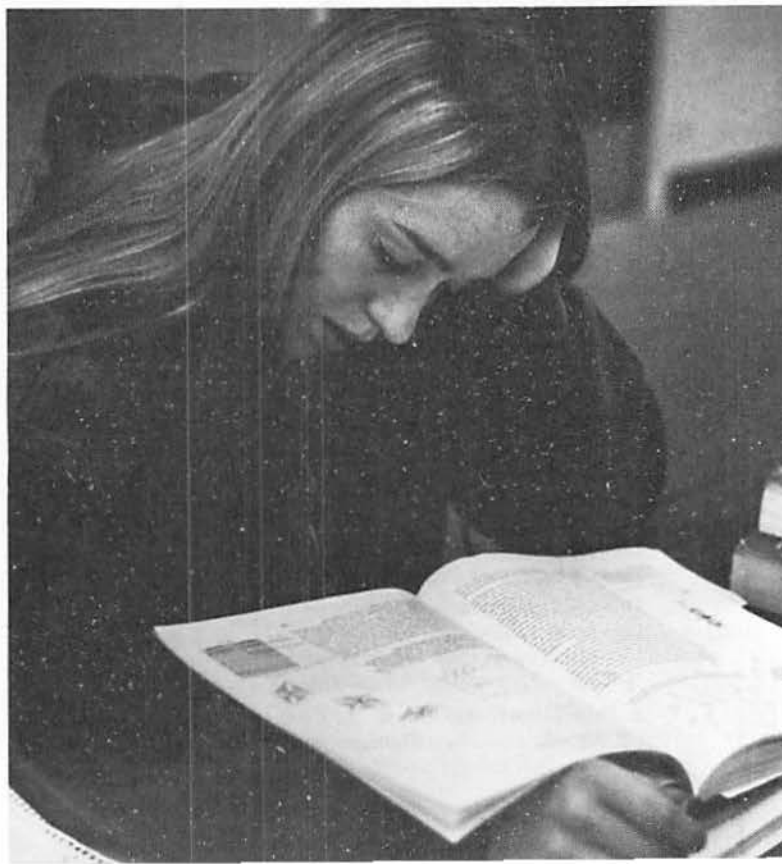
Liberal Arts

College of Arts and Sciences

Degree: Associate of Arts
Minimum Requirements for Degree: 60 credits

Liberal Arts – A.A. Degree

1. Complete the general university requirements as listed on page 63.



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

	Credits
Engl. 111 and 211 or 213	6
Oral Communication	3
At least six credits in each of three areas below:	18
Humanities	
Social Studies	
Natural Science	
Mathematics	
Other	

Major in Liberal Arts

No course used to meet the above requirements may be used to meet the requirements of the major.

A. Specific Requirements	20-30
One year of foreign language	6-10
or Two years of a foreign lang. in high school	
Speech (oral communication)	3
Formal Humanities course	4-6
Hist. 101-102 – Western Civilization, *or* Hist 121-122 – East Asian Civilization, *or* Hist. 131-132 – History of the U.S., *or* P.S. 101-102 – American Government	6
B. Approved electives (6 credits must be in one dept.)	Total 60

Library Technical Assistant

Tanana Valley Community College

Degree: Associate of Arts
Minimum Requirements for Degree: 60 credits

Library Technical Assistant – A.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

	Credits
Written Communication:	
Engl. 111 and Engl. 211 or 213	6
Oral Communication:	
Speech Communication Elective	3
Humanities Area:	
Speech Communication Elective	3
Engl. 249 – Native Literature in Translation	3
Social Sciences Area:	
Hist. 100 or Hist 115	3
Social Science Elective	3
Other:	
O.O. 103 – Typing*	3
Other approved electives outside Humanities and Social Sciences	3
Major Requirements:	
L.S. 202 – Introduction to Libraries	3
L.S. 203 – Technical Processes I	3
L.S. 204 – Technical Processes II	3
L.S. 206 – Public Services I	3
L.S. 207 – Public Services II	3
6 credits from the following:	
L.S. 201 – General Bibliography	2
L.S. 212 – Media	3
L.S. 214 – Library Service to Children	3
L.S. 293 – Special Topics	1-3
L.S. 297 – Individual Study	1-3
L.S. 288 – Library Internship	1-3
Electives to Total	60

*Typing requirement may be waived with demonstrated typing proficiency of 35 WPM. 3 additional credits in areas other than humanities or social sciences must then be completed.

Linguistics and Foreign Languages

College of Arts and Sciences

Degree: Bachelor of Arts
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.

Linguistics is the science of language. The study of linguistics and of foreign languages and literatures liberates the student from the confines of his own culture and makes his own culture more meaningful to him.

Foreign Language – B.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the B.A. degree requirements as listed on page 64.
3. Complete the following program (major) requirements:

	Credits
I. Background-related Requirements	24
Option A (Liberal Arts Option)	
a. Ling. 101; Hum. 201-202, 411	12
b. 6 credits in literature courses other than those of the field of specialization	6
c. 6 credits from among the following: Phil. 201; Hist. 101, 102, 315 or another major-related course; Art 261-262; Geog. 305 or 402 or equivalent	6
Option B (Career-oriented Option)	
a. Ling. 101 The Nature of Language	3
b. 21 credits in major-related courses in other disciplines, such as Business, Education, Journalism, Political Science, etc. (to be specified by the advisor according to the student's career preferences)	21
II. Major Requirements (two languages required) First Language (French, German or Spanish) (above 100 level)	24
Complete the following courses:	
201 – 3 Credits	
202 – 3 credits	
288 – 2 credits	
301 – 3 credits	
302 – 3 credits	
387 – 2 credits	
432 – 3 credits	
487 – 2 credits	
488 – 3 credits	
Second Language (French, German, Russian or Spanish) (above 100 level)	13
Complete the following courses:	
201 – 3 credits	
202 – 3 credits	
288 – 2 credits	
301 – 3 credits	
or 302 – 3 credits	
387 – 2 credits	

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

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

Linguistics – B.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the B.A. degree requirements as listed on page 64.
3. Complete the following program (major) requirements:

	Credits
I. Background-related requirements	24
a. Hum. 201-202; Phil. 204 or 341	9
b. Complete a minimum of 12 credits in one foreign language	12
c. Complete one of the following: Anth. 416; Hum. 411; A.S. 301 or 402	3
II. Major Requirements	24
Complete the following Linguistics courses:	
a. Ling. 101, 216	6
b. 2 upper-division courses in Linguistics	6

c. English 318 and 472 6
d. Eskimo 101 and 102;
or Eskimo 111 and 112;
or Alaska Native Languages 215 and 216 6

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

A minor in Linguistics requires 12 credits in Linguistics.

Audio-lingual practice in the language laboratory is an integral part of all elementary and intermediate language courses.

Marine Sciences and Ocean Engineering Program

College of Environmental Sciences

Degrees: Master of Science; Doctor of Philosophy

The program in oceanography and ocean engineering is coordinated through the Division of Marine Sciences by a committee composed of staff members from within the college involved in these areas of graduate education. The purpose of the program is to provide academic and research opportunities for students seeking M.S. level degrees in oceanography and engineering, and Ph.D. degrees in oceanography. At the M.S. level, the program emphasizes ocean related course work in the various disciplines of oceanography, and in ocean engineering. Additional courses are selected from the curriculum at large to assure a high level of competence in the student's area of major interest.

The Institute of Marine Science offers excellent opportunities for training in oceanography and ocean engineering through interaction with a large staff of scientists actively engaged on oceanographic research on the Fairbanks campus, at the Seward Marine Station and on various research vessels. Programs in chemistry, physics, geology, biological sciences, engineering, and mathematics offer substantial course material relevant to the program.

Graduate students are selected on the basis of their backgrounds and on the university's capabilities to meet their individual needs. Each applicant is considered by an admissions committee selected from the program coordination staff. Requests for graduate study are received and reviewed throughout the year.

Oceanography — M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits including OCN 620, 630, 650 and 660 (or equivalents) and two semesters of OCN 692. Fisheries Oceanographers will take OCN 640 and any three of the above courses.
3. Field experience aboard an oceanographic vessel is expected of oceanography majors.

Ocean Engineering — M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits including OCE 671, OCN 620 (or equivalent) and six additional credits of Oceanography or Marine Biology and two semesters of OCN 692.

Marine Biology — M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits including MBI 610, OCN 650 (or equivalent) plus six additional credits in Oceanography, Ocean Engineering, Biology or Marine Ecology and two semesters of OCN 692.

Mathematics

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Science, Master of Arts in Teaching, Master of Science.

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

The number of new fields in which professional mathematicians find employment grows continually. The department offers a variety of programs for students majoring in mathematics. Options exist for those who are planning careers in industry, government, or education.

In addition to the major programs, the department provides a number of service courses for the various units of the university.

Degree Requirements

In addition to meeting all the general requirements for the specific degree, certain mathematics courses are required by all mathematics majors. All electives must be approved by the Mathematics Department. Students preparing to teach mathematics in secondary schools must take the education courses necessary to obtain an Alaskan Teaching Certificate.

Mathematics — B.A. or B.S. Degree

1. Complete general university requirements and B.A. or B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

A. Complete the calculus sequence Math. 200-201-202.

B. Complete 27 approved credits in mathematics at the 300 level or above, at least six of which must be at the 400 level. For those earning a double major in a related field, up to nine credits in mathematics-related courses may be included in the 27 credit requirement with the approval of the head of the Department of Mathematics. Of these 27 credits, 12 must be taken while in residence on the Fairbanks campus. For those electing the secondary education option, all 27 credits may be at the 300 level.

Suggested Curriculum — B.S. Degree

First Year

Fall Semester — *17 credits*
Math. 200 — Calculus 4
Engl. 111 — Methods of Written Comm. 3
Humanities/Social Science elective 3
Phys. 103 — College Physics 4
Electives 3

Spring Semester — *17 credits*
Math. 201 — Calculus 4
Speech Communications elective 3
Humanities/Social Science elective 3
Phys. 104 — College Physics 4
Electives 3

Second Year

Fall Semester — *17 credits*
Math. 202 — Calculus 4
Engl. 211 — Intermed. Expos. with Modes of Lit. 3
Humanities/Social Science elective 3
Natural Science elective 4
Electives 3

Spring Semester — *16 credits*
Math. 302 — Differential Equations 3
Math. 314 — Linear Algebra 3
Humanities/Social Science elective 6
Natural Science elective 4

Third Year

Fall Semester — *16 credits*
Math. 303 — Intro. to Abstract Algebra 3
Math. 321 — Intermed. Applied Mathematics 4
Electives 9

Spring Semester — *16 credits*
Math. 304 – Topics in Algebra, Pure or Applied 3
Math. 324 – Advanced Calculus 3
Electives 10

Fourth Year
Fall Semester — *16 credits*
Math. 305 – Geometry 3
Math. 403 – Intro. to Real Analysis 3
Electives 10

Spring Semester — *15 credits*
400-Level Mathematics Elective 3
Electives 12

A minor in Mathematics requires completion of Math. 200-201-202 in addition to six approved credits at the 300 level or above.

Mathematics – M.A. T. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete 30 credits in courses approved by the student's graduate committee.

Mathematics – M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete 30 credits in courses approved by the student's graduate committee.
3. Complete a final examination, including a demonstration of proficiency in mathematics at the graduate level. The means of such demonstration will be determined by the candidate and his graduate committee.

Mechanical Engineering

School of Engineering

Degrees: Bachelor of Science; Master of Science
Minimum Requirements for Degrees: B.S. – 130 credits; M.S. – 30 additional credits

Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems – including complex man-machine 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.

Since engineering is based on mathematics, chemistry, and physics, students are introduced to the basic principles in these areas during their first two years of study. The third year encompasses courses in the engineering science – extensions to the basic sciences forming the foundation to engineering synthesis and design. Senior year courses focus on mechanical engineering design. The design project course draws on much of the student's previous learning through a simulated industrial design project. Throughout the four-year program, courses in communication, humanities, and social sciences are required because mechanical engineers must be able to effectively communicate in written, oral, and graphical form and must also be aware of their social responsibilities and their roles in a modern society.

Because of the unique location of the University of Alaska, Fairbanks, special emphasis is placed on cold regions engineering problems. This fact is highlighted in the mechanical engineering program by the technical elective, Arctic Engineering.

Candidates for the Bachelor of Science degree in Mechanical Engineering are required to take a comprehensive examination in their general field (completion of the State of Alaska Engineer-in-Training Examination will satisfy this requirement) during the senior year.

Mechanical Engineering – B.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements. Students must plan their elective courses in consultation with their mechanical engineering faculty advisor, and all elective courses must be approved by their mechanical engineering faculty advisor. At least 6 of the 15 social science and humanities elective credit must be: (a) above the 100 level; or (b) advanced courses in a 100 level sequence.

First Year
Fall Semester — *16 credits*
Engl. 111 – Methods of Written Comm. 3
Math. 200 – Calculus 4
E.S. 101 – Graphics 2
E.S. 111 – Engineering Science 3
Chemistry Elective 4

Spring Semester — *16 credits*
Speech Commun. Elective 3
Math. 201 – Calculus 4
E.S. 102 – Graphics 2
M.E. 321 – Industrial Processes 3
Chemistry Elective 4

Second Year
Fall Semester — *17 credits*
Phys. 211 – General Physics 4
Math. 202 – Calculus 4
E.S. 201 – Computer Techniques 3
Eng. 211 or 213 – Intermediate Exposition 3
Humanities/Social Science Elective 3

Spring Semester — *17 credits*
Phys. 212 – General Physics 4
Math. 302 – Differential Equations 3
E.S. 208 – Mechanics 4
E.S. 346 – Basic Thermodynamics 3
Humanities/Social Science Elective 3

Third Year
Fall Semester — *16 credits*
E.S. 301 – Engineering Analysis 3
E.S. 307 – Elements of Electrical Engineering 3
E.S. 331 – Mechanics of Materials 3
E.S. 341 – Fluid Mechanics 4
Humanities/Social Science Elective 3

Spring Semester — *16 credits*
M.E. 302 – Mechanical Design I 4
M.E. 313 – Mechanical Engineering Thermodynamics 3
M.E. 441 – Heat and Mass Transfer 3
E.S. 308 – Instrumentation and Measurement 3
Metallurgy Elective (CE 334/Minl. 304) 3

Fourth Year
Fall Semester — *15 credits*
M.E. 403 – Mechanical Design II 4
M.E. 414 – Thermal Systems Design 3
M.E. 415 – Thermal Systems Laboratory 2
Technical Elective* 3
Humanities/Social Science Elective 3

Spring Semester — *17 credits*
M.E. 487 – Design Project 3
ESM 450 – Economic Analysis and Operations 3
M.E. 408 – Dynamics of Systems 4
Humanities/Social Science Elective 3
Free Elective 4

*C.E. 603 – Arctic Engineering, or other course numbered over 400 in engineering.

Mechanical Enginering – M.S. Degree

Persons interested in pursuing a master of science degree in mechanical engineering at the University of Alaska should consult with the head of the Mechanical Engineering Department.

Medical Technology

University of Alaska/University of Washington Cooperative Program

Students may enroll for four semesters at the University of Alaska completing requirements noted below, then apply for acceptance into the professional phase of the Medical Technology Program at the University of Washington for an additional seven quarters. Up to four *bona fide* Alaska resident students will be accepted into the professional phase each year, if they qualified for admittance to the program. In addition, the professional phase will accept additional Alaska students on an "open competitive" basis with other students applying to the program. The B.S. degree is granted from the University of Washington.

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

	Credits
Biol. 107-108 – Fundamentals of Biology	4
Biol. 201 – Mammalian and Human Anatomy or Biol. 317 – Comp. Anatomy of Vertebrates	3 or 5
Biol. 210 – General Physiology	4
Biol. 343 – General Bacteriology	5
Chem. 105-106 – General Chemistry	8
Chem. 212 – Quantitative Analysis	4
Chem. 321-322-324 – Organic Chemistry and Lab	9
Math. 171-172 or A.S. 301 – Calculus; Statistics	7 or 8
Engl. 111-211 or 213 – Written Communication	6
Sp.C. 111 – Fundamentals of Oral Communications	3
Social Science elective – 3 credits, Humanities elective – 3 credits, other electives – 8-9 credits	

For information on application procedures to the University of Washington and the Medical Technology Program contact the Medical Technology Advisor, WAMI Program Office, University of Alaska, Fairbanks, AK 99701.

Medicine

Medical Sciences
Washington, Alaska, Montana, and Idaho Medical Education Program (WAMI)

In September 1971, the University of Alaska started a unique collaborative program for decentralizing portions of the educational and training program of the University of Washington School of Medicine. Resident Alaskan students now have a viable opportunity to pursue medicine and are exposed to Alaskan medicine early in their careers.

Students formally enrolled in the WAMI Program must first have been admitted as Alaska WAMI applicants to the freshman class of the University of Washington School of Medicine in Seattle as candidates for the doctoral degree in medicine and are, therefore, admitted to both universities. After the students complete the year's medical courses in Fairbanks, they study in Seattle until their junior or senior year, when they become eligible for community-based clinical clerkships with practicing physicians in one of the four WAMI states. This decentralized instruction in both the basic science (freshman and sophomore) and clinical (primarily junior and senior) years of medical school is designed to encourage physicians to consider practice in smaller communities.

The Medical Science courses listed in this catalog are taught at an advanced level (graduate equivalent) and are intended primarily for WAMI medical students. However, some of the courses are open to qualified students in good standing, subject to conditions listed for each course and with permission of the instructor.

Ten WAMI/University of Washington Medical School positions in each year's class are reserved for Alaskan residents.

Further information about the WAMI Medical Education Program may be obtained by contacting the WAMI Program Office, University of Alaska, Fairbanks. Information concerning admission to medical school may be obtained from the Premedical Advisor, University of Alaska.

Military Science

College of Arts and Sciences

The Army Reserve Officers' Training Program is a cooperative effort agreed to by the Army and the University of Alaska as a means of providing junior officer leadership in the interest of national security. The goal of the program is to assist young men and women with leadership potential in obtaining commissions in the Army Reserve, National Guard, or Regular Army.

The program of instruction is designed to complement the student's goal of obtaining a baccalaureate degree in a course of study of his or 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 for civilian executives as well.

Senior Division 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 or intend to enroll in the entire military science program.

Basic Course – All regularly enrolled university students are eligible to enroll. Students with prior military service can qualify for the advanced course.

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. Applicants must be physically qualified, have the approval of their dean, and be selected by the Professor of Military Science. Veterans may be allowed credit for the basic course if selected by the Professor of Military Science. A contract is required for students who desire to obtain a commission. Students who wish to take advanced course classes may do so without obligation, but they will not receive the $100-per-month subsistence allowance.

Academic Credit – Twenty-three credits in military science may be accepted by an academic advisor toward fulfilling graduation requirements. Three of these credits may be given for successful completion of the advanced summer camp. Students desiring the advanced camp credits must apply for them. Military Science is an academic minor for the B.A. degree.

Allowance – Advanced course students receive a monthly subsistence allowance during the school year which presently amounts to approximately $2,000 for the two-year period.

Uniforms and Equipment – Students enrolled in military science are furnished uniforms and texts by the department.

Awards – Awards are made annually at the university awards ceremony. Awards, such as the governor's and president's medals, are presented for outstanding achievement in the ROTC program, academic achievement, and leadership.

ROTC Rifle/Pistol 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.

University of Alaska Rangers – This is a voluntary organization open to all students. The program is designed to permit individuals to further develop their leadership abilities by participating in additional training in more advanced military skills such as mountaineering, cross country skiing, orienteering, etc. Training is conducted on-campus and at various military installations in Alaska.

Two-Year Program – A special program is available for transfer students and others who were unable to take ROTC prior to their last two years in school. Students should consult the PMS prior to March 1 annually.

Mineral and Petroleum Technology

Tanana Valley Community College

Degree: Associate of Applied Science
Minimum Requirements for Degree: A.A.S. – 62 credits

The State of Alaska will soon become the number one state in the nation in oil and gas production. This means that many petroleum industry jobs will be available that are not now in existence. Many of these jobs will require technically trained personnel.

Tanana Valley Community College offers the associate of applied science with a major in mineral and petroleum technology. A student who successfully completes this program may find many and varied employment opportunities awaiting him/her in the petroleum industry in Alaska.

Mineral and Petroleum Technology – A.A.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

	Credits
A. Written Communications	6
Recommended:	
English 111 – Methods of Written Communication	
English 211 – Intermediate Exposition, with Modes in Literature or English 213 – Intermediate Exposition	
B. Oral Communications	3
Sp.C. 111 – Fundamentals of Oral Communication	
C. At least six credits in one of the following areas:	6
Natural Science, Social Science, Humanities, Mathematics	
Total	15

3. Complete the following program (major) requirements:

Core Area: (35 credits)	
ETCO 101 – Electrical Fundamentals	3
ETCO 102 – Electronic Fundamentals	3
ITCO 111 – Technical Mathematics I	3
ITCO 112 – Technical Mathematics II	3
Draf. 101 – Beginning Drafting	4
M.P.T. 167 – Petroleum I (Petroleum Geology and Reservoir Technology)	3
M.P.T. 168 – Petroleum II (Drilling)	3
M.P.T. 175 – Petroleum III (Production)	3
M.P.T. 176 – Petroleum IV (Workover Operations)	3
M.P.T. 180 – Intro. to Mineral and Petroleum Economics	3
M.P.T. 182 – Field Trip	1
O.O. 146 – Fundamentals of Data Processing	3
Technical Electives (12 credits to be selected from the following)	
Art 209 – Beginning Metalsmithing *or* Art 210 – Beginning Metalsmithing	3
C.S. 201 – Computer Programming	3
Draf. 150 – Civil Drafting	4
Geog. 101 – Introduction to Geography	3
Geog. 302 – Geography of Alaska	3
Geog. 327 – Cold Lands	3
Geos. 101 – General Geology	3
Math. 107 – College Algebra	3
Math. 108 – Trigonometry	3
Minl. 101 – Minerals and Man	3
Minl. 102 – Introduction to Minerals Industry	1
Minl. 333 – Mining Law	3
O.O. 154 – Human Relations	3
O.O. 153 – Business Law	3
Total credits required for degree	62

Mineral Preparation Engineering

School of Mineral Industry

Degree: Master of Science

Mineral Preparation Engineering – M.S. Degree

1. Complete the general University requirements and master's degree requirements as listed on pages 63 and 65.
2. Complete the following degree and program requirements:

Fall Semester	*15 credits*
Minl. 601 – Froth Flotation	3
Minl. 698 – Mineral Preparation Research	3
Minl. 621 – Adv. Mineral Economics	3
Minl. 699 – Thesis	3
*Elective	3

Spring Semester	*15 credits*
Minl. 698 – Mineral Preparation Research	3
Minl. 606 – Plant Design	3
*Electives	6
Minl. 699 – Thesis	3

*Electives will be in the field of chemistry, physics and mathematics and will be chosen to broaden the candidate's fundamental knowledge, depending upon his speciffc background and interest.

Mining Engineering

School of Mineral Industry

Degrees: Bachelor of Science, Master of Science, Engineer of Mines
Minimum Requirements for Degrees: B.S. – 130 credits; M.S. – 30 additional credits; *E.M. – thesis and five years of experience

In the mining engineering curriculum, particular emphasis is placed upon engineering as it applies to the exploration and development of mineral resources and upon the economics of the business of mining. The program requires core courses in engineering and humanities, but allows the student the choice of technical electives to develop a major in an area of exploration, mining, or mineral benefication.

Students may enter into mining engineering in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years.

Undergraduate Degrees – The Department of Mineral Engineering offers the bachelor of science degree in mining engineering and the bachelor of science degree in geological engineering (*See* separate description of this degree under Geological Engineering).

Graduate Degrees – The graduate program allows for the awarding of master of science degrees in mining enginering and mineral preparation engineering. The curricula consist of courses in the respective fields as well as required courses in engineering management and mineral economics. University policy pertaining to graduate study leading to a master's degree applies.

***Professional Degrees** – The graduate program also provides for the awarding of a professional degree, engineer of mines (E.M.). This degree may be conferred upon engineering graduates who present satisfactory evidence of continuous engagement in responsible engineering work for not less than five years and a satisfactory thesis.

Mining Engineering – B.S. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements.

First Year

Fall Semester	*17 credits*
Engl. 111 – Methods of Written Communications	3
Math. 200 – Calculus	4
*Chem. 211 – Chemical Principles[1]	4
E.S. 111 – Engineering Science	3
*Social Science or Humanities Elective[2]	3
Spring Semester	*16 credits*
Minl. 102 – Introduction to the Minerals Industry	1
Sp.C. Elective	3
Math. 201 – Calculus	4
E.S. 102 – Graphics	2
Geos. 261 – Geology for Engineers	3
*Social Science or Humanities Elective[2]	3

Second Year

Fall Semester	*18 credits*
Math. 202 – Calculus	4
Geos. 213 – Mineralogy	4
Phys. 211 – General Physics	4
Minl. 202 – Mine Surveying	3
A.S. 301 – Elementary Probability and Statistics	3
Spring Semester	*17 credits*
E.S. 201 – Computer Techniques	3
Phys. 212 – General Physics	4
E.S. 208 – Mechanics	4
Math. 302 – Differential Equations	3
Engl. 211 or 213 – Intermediate Exposition	3

Third Year

Fall Semester	*17 credits*
E.S. 331 – Mechanics of Materials	3
E.S. 341 – Fluid Mechanics	4
Minl. 300 – Fundamentals of Mining	3
Minl. 304 – Introduction to Metallurgy	3
E.S. 307 – Elements of Electrical Engineering	4
Spring Semester	*15 credits*
E.S. 346 – Basic Thermodynamics or Chem. 331 – Physical Chemistry	3
Minl. 401 – Rock Mechanics	3
Minl. 418 – Emission Spec., X-Ray, Atomic Absorption[4]	3
E.S. 308 – Instrumentation and Measurements	3
*Social Science or Humanities Elective[2]	3

Fourth Year

Fall Semester	*15 credits*
Minl. 403 – Operations Research in Mineral Industries	3
Minl. 313 – Introduction to Mineral Preparation	3
Minl. 410 – Surface Materials Handling Systems	3
Technical Electives[3]	3
*Social Science or Humanities Elective[2]	3
Spring Semester	*15 credits*
Minl. 320 – Seminar and Senior Field Trip	0
Minl. 408 – Mineral Valuation and Economics	4
Minl. 407 – Mineral Industry and the Environment	2
Minl. 406 – Mining Plant Engineering	3
Technical Electives[3]	2
*Social Science or Humanities Elective[2]	4

NOTES:

(1) A Chemistry sequence of Chem. 105 and Chem. 106 may replace Chem. 211.

(2) Of the 16 credit hours required, at least 3 must be humanities and at least 3 social science.

(3) Technical electives are selected by the student in conference with his or her advisor.

(4) Minl. 418 to be taken later in the program and at least one credit must be added to the technical electives as indicated.

*As approved by advisor.

Petroleum Engineering – Because of recent developments in the petroleum industry in Alaska, the Board of Regents has approved the initiation of a two-year basic program in petroleum engineering at the University of Alaska. Students enrolling in petroleum engineering will normally complete the first two years of basic engineering listed in the mining engineering and/or the geological engineering curriculum. This course of study may be altered to include subject matter in petroleum engineering. Upon satisfactory completion of the basic engineering curriculum, students may transfer to a university having a petroleum engineering program and complete their course of study without loss of time or credit.

As an alternate, students following the mining option of the bachelor of science degree curriculum may elect to take petroleum engineering courses as their technical electives to better prepare themselves for job opportunities in the petroleum industry of Alaska.

Selected subjects in petroleum engineering are currently offered, and it is anticipated that additional courses will be available in the near future.

Mining Engineering – M.S. Degree

Complete the general university requirements and graduate degree requirements, pages 63 and 65.

Fall Semester	*15 credits*
Minl. 684 – Mineral Preparation Research	3
Minl. 621 – Adv. Min. Economics	3
Minl. 403 – Operations Research	3
*Approved elective	3
Minl. 699 – Thesis	3
Spring Semester	*15 credits*
E.S.M. 613 – Personnel for E.S.M.	3
Minl. 333 – Mining and Mineral Leasing Law	2
*Approved electives	7
Minl. 699 – Thesis	3

*Electives will consist of an approved course of study which will prepare the student for one or the other of the fields of mining or exploration.

Engineer of Mines – E.M. Degree

1. Requirements to be fulfilled:

a. The applicant must be a graduate from the School of Mineral Industry, University of Alaska, with an engineering degree.

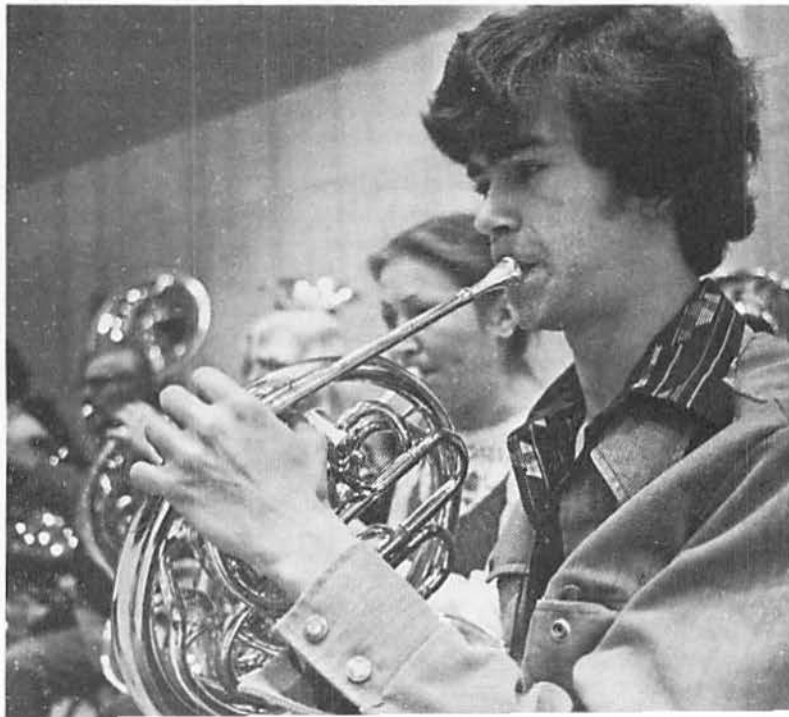
b. A minimum of five years of responsible engineering work is required.

c. An acceptable thesis* must be submitted.

2. The applicant must complete and submit a University of Alaska graduate application for admission form to the Director of Admissions and Records for the engineer of mines degree program. Included with the application must be a resume of engineering work experience as mentioned in 1(b).

3. The application will be reviewed by the dean of the School of Mineral Industry for acceptance recommendation and concurrence with the thesis topic selected.

4. The thesis will be prepared to meet the format requirements as outlined in the *Manual of Procedures and Information for Graduate Students*, including filing a copy in the university library.



5. Submission of thesis should follow the same procedures and lead-times as outlined on page 65, as should the submission of the application for graduation form.
6. The dean of the School of Mineral Industry will convene a committee of four faculty members, one from outside the school, to review the thesis, give guidance as needed and to assure that the thesis is satisfactory to meet the degree requirements and finally approve the thesis. A defense of thesis, oral or written, will be made to the committee.

Class work beyond the initial degree is not required, and credits for the thesis will be a minimum of six.

Registration at the University of Alaska during the semester of the thesis submittal is required.

*An "acceptable thesis" is defined as a demonstration of professional competency combined with normal research methods working with the student's committee.

Music

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Music, Master of Arts in Teaching

Minimum Requirements for Degrees: B.A. – 130 credits; B.Mus. – 130 credits, M.A.T. – 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 master of arts in teaching is designed primarily as a functional program for the public school music teacher. Areas of specialization are instrumental, vocal, music supervision, and elementary specialist. The program is determined by the student and his committee.

The various music organizations maintained by the department offer participation experiences for students in all academic divisions of the university. Music majors will be required to participate in at least one ensemble (Band, Choir, Orchestra, Chorus) each semester they are enrolled. In addition, participation in chamber music opportunities is offered. Piano majors may receive ensemble credit by performing as accompanists.

Attendance at recitals and concerts provides students with a variety of musical experiences which expand their regular curriculum, therefore, attendance is mandatory for all majors. All applied music students are expected to perform in student recitals during each semester of study.

At the end of the sophomore year, all music majors must demonstrate a satisfactory level of proficiency of performance in their applied major in order to advance to upper-division courses in music. A student may elect to continue study at the 200 level in attempting to pass requirements for admission to upper-division study.

A piano proficiency jury examination must be successfully completed by the end of the student's second year in the program. This examination will consist of (1) performance of a recital composition equivalent in difficulty to a Bach two-part invention, or Clementi or Kuhlau sonatina; (2) sight reading of Bach Chorales; (3) improvisation of a chordal accompaniment to a simple melody; and (4) transposition and harmonization of the same song to another key.

Students who desire to enroll in music theory courses will complete a placement examination and be allowed to enter at their appropriate level.

Current and prospective music majors may obtain a copy of the Music Department's *Student and Faculty Handbook* for further information about current degree requirements.

Music – B.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 65.
2. Complete the following program (major) requirements:

	Credits
Mus. 131-132 – Basic Theory	4
Mus. 133-134 – Basic Ear Training	4
Mus. 221-222 – History of Music	6
Mus. 231-232 – Advanced Theory	6
Mus. 331 – Form and Analysis	3
**Mus. 190 – Recital Attendance	0
Applied Music (to include 8 credits of private lessons and 8 credits of ensemble participation)	16
Piano proficiency.	

Music Education – B.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 65.
2. Complete the following program (major) requirements:

	Credits
Mus. 131-132 – Basic Theory	4
Mus. 133-134 – Basic Ear Training	4
Mus. 221-222 – History of Music	6
Mus. 231-232 – Advanced Theory	6
Mus. 315 – Music Methods and Techniques	6*
Applied Music (to include 6 credits of private lessons and 10 credits of ensemble participation (including two semesters of vocal ensembles)	16
Complete a minor in Education, including either:	
Music 309 or Music 405 (Contact Education Department before starting minor)	27-35 or more
**Mus. 190 – Recital Attendance	0

*2 credit course completed 3 times.

Music – B.M. Degree (Performance)

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

	Credits
Engl. 111 or equivalent and 211 or 213	6
Speech Communications	3
Humanities (non-music)	15
Natural and Social Science (including Computer Science)	15
Required Music Courses:	
Mus. 161-462 – Applied Music (major)	24
Mus. 131-132 – Basic Theory	4
Mus. 133-134 – Basic Ear Training	4
Mus. 221-222 – History of Music	6
Mus. 231-232 – Advanced Theory	6
Ensembles (1 per semester)	8
Ten credits to be elected from the following:	
Mus. 331 – Form and Analysis	3
Mus. 431 – Counterpoint	3
Mus. 432 – Orchestration	3
Mus. 351 – Conducting	3
Mus. 493 – Lit. of Performance Area	3-6
Mus. 493 – Special Topics	Arr.
**Mus. 190 – Recital Attendance	0
Piano Proficiency.	
Electives to bring total credits to	130

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 *Student and Faculty Handbook* for details.

Music – B.M. Degree
(Music Education – Secondary)

1. Complete the general university requirements as listed on page 63.

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

	Credits
Engl. 111 or equivalent and 211 or 213	6
Speech Communications	3
Humanities (non-music)	15
Natural and Social Science (includes Computer science); must include Psy. 101	15
Required Music Courses:	
Mus. 161-462 – Applied Music (major)	14
Mus. 131-132 – Basic Theory	4
Mus. 133-134 – Basic Ear Training	4
Mus. 221-222 – History of Music	6
Mus. 231-232 – Advanced Theory	6
Mus. 315 – Music Methods and Techniques	10
Mus. 331 – Form and Analysis	3
Mus. 351 – Conducting	3
Mus. 432 – Orchestration	3
Ensembles (1 per semester)	4
**Mus. 190 – Recital Attendance	0
Piano proficiency.	
Required Education courses (Contact Education Department before beginning Education courses):	
Ed. 312 – Human Development and Learning	3
Ed. 313 – Educational Psychology	3
Ed. 332 – Tests and Measurements	3
Ed. 402 – Methods of Teaching	3
Ed. 410 – Developmental Reading in Content Areas	3
Ed. 421 – Secondary Education	3
Ed. 452 – Student Teaching	9
Electives, to bring total credits to	130

Music – B.M. Degree
(Music Education – Elementary)

1. Complete the general university requirements as listed on page 63.

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

	Credits
Engl. 111 or equivalent and Engl. 211 or 213	6
Speech Communications	3
Humanities (non-music)	15
Natural and Social Science (including computer science); must include Psy. 101 and 6 credits of Mathematics	15
Required Music Courses:	
Mus. 161-462 – Applied Music (major)	14
Mus. 131-132 – Basic Theory	4
Mus. 133-134 – Basic Ear Training	4
Mus. 221-222 – History of Music	6
Mus. 231-232 – Advanced Theory	6
Mus. 315 – Music Methods and Techniques	10
Mus. 331 – Form and Analysis	3
Mus. 351 – Conducting	3
Mus. 432 – Orchestration	3
Ensembles (1 per semester)	4
**Mus. 190 – Recital Attendance	0
Piano Proficiency.	
Required Education courses (Contact Education Department before beginning Education courses):	
Ed. 304 – Literature for Children	3
Ed. 312 – Human Development and Learning	3
Ed. 313 – Educational Psychology	3
Ed. 315 – Elementary Methods: Classroom Mgr.	2
Ed. 316 – Elementary Methods: Language Arts and Social Science	3
Ed. 317 – Elementary Methods: Mathematics and Science	3
Ed. 332 – Tests and Measurements	3
Ed. 409 – Teaching of Beginning Reading	3
Ed. 410 – Developmental Reading in Content Areas	3
Ed. 452 – Student Teaching	9
Electives, to bring total credits to	130

A minor in Music requires 21 credits in Music to be selected from the following:

Music Theory, History and Appreciation (selected from Music 103, 123, 124, 131-133, 132-134, 221, 222, 223, 231, 232, 331, 351, 421, 422, 423, and 424)	15
Music 151, 153, 161-462	4
Music 101, 203, 205, 211	2

**All students enrolled in Applied Music must also enroll in Music 190 – Recital Attendance.

Natural Resources Management

School of Agriculture and Land Resources Management

Degrees: Bachelor of Science, Master of Science
Minimum requirements for Degrees: B.S. – 130 credits; M.S. – 30-35 credits

The natural resource management curriculum is designed to provide the student with a broad training in the various land resources and their related applied fields (land planning, conservation, watershed management, forestry, outdoor recreation and agriculture) and the sciences basic to these. Programs can be tailored to specific interests of students and can lead toward careers in general resource management, resource communications, conservation education, or several of the individual fields included.

Opportunities for summer employment are at times available through various state and federal agencies and through the university's Agricultural Experiment Station.

Natural Resource Management – B.S. Degree

1. Complete general university requirements and B.S. degree requirements, pages 63 and 64.

2. Complete the following program (major) requirements:

	Credits
Biol. 107-108 – Fundamentals of Biology	4
Biol. 271 – Principles of Ecology	3
Chem. 105-106 – General Chemistry	8
Econ. 235 – Intro. to Nat. Resource Econ.	3
Econ. 435 – Intermediate Natural Resource Economics	3
Geos. 101 – General Geology	4
A.L.R. 101 – Conservation of Natural Resources	3
A.L.R. 310 – Agriculture Concepts and Techniques	3
A.L.R. 340 – Natural Resources Measurements	3
A.L.R. 350 – Introduction to the Forest System	3
A.L.R. 370 – Introduction to Watershed Science	3
A.L.R. 380 – Soils	3
A.L.R. 400 – Natural Resource Policies or A.L.R. 401 – Natural Resource Legislation	3
A.L.R. 430 – Land Use Planning	3
A.L.R. 460 – Outdoor Recreation	3
W.F. 301 – Principles of Animal Population Dynamics and Management	3

3. Plus at least 12 credits from the following courses in man's environment and/or resources. Approved special topics courses may at times be applied toward this requirement.

	Credits
OCN. 411 – General Oceanography	3
Geos. 304 – Geomorphology	3
Minl. 101 – Minerals and Man	3
Soc. 307 – Population Problems	3
Geog. 327 – Cold Lands	3
E.Q.S. 403 – Solid Waste and Air Pollution	3
A.L.R. 411 – Plant Propagation	3
A.L.R. 450 – Forest Management	3
W.F. 402 – Wildlife Biology and Man	2
Geog. 402 – Man and Nature	3
Biol. 476 – Animal Ecology	4
Biol. 474 – Plant Ecology	3

W.F. 430 – Fisheries and their Management 3
W.F. 417 – Forest and Tundra 2
W.F. 419 – Wetlands 2
W.F. 435 – Water Pollution Biology 2
A.L.R. 311 – Domestic Plants 3
A.L.R. 320 – Principles of Domestic Animals 3
A.L.R. 461 – Interpretive Services 3
Econ. 437 – Regional Economic Development 3
Minl. 407 – Mineral Industry and Environment 3

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

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

5. The total program must include a minimum of 12 credits in the following social sciences: anthropology, economics, sociology, political science, and/or psychology. Courses must include one relating man's culture to his environment, and one dealing with human population characteristics and dynamics.

Natural Resources Management – M.S. Degree

1. Complete the general university requirements and graduate degree requirements, pages 63 and 65.

2. All candidates will meet the general requirements for the degree; individual programs may emphasize one of the following areas: forest management, soil management, parks and recreation, agriculture, watershed management, and land use planning.

a. Candidates must have or acquire a general familiarity with the major resource fields listed above, and in addition, wildlife management, environmental quality management, and mineral industries. Program depth in any one field will depend on the needs of the candidate and the capabilities of the University. For some fields, students will take additional courses at other universities that specialize in those fields.

b. Candidates must have course work, prior to or within the program, in computer science, statistical methods, and basic economics.

3. Program requirements:

a. *Thesis degree:* Designed for those intending to pursue management careers requiring thorough familiarity with research procedures and techniques in one or more of the resource fields, to proceed to doctoral programs, and/or to conduct research in management problems.

Required courses:	*Credits*
A.L.R. 630 – Regional Planning	3
A.L.R. 631 – Regional Planning Practicum	3
A.L.R. 692 – Graduate Seminar	4
A.L.R. 699 – Thesis	6-12
600-Level approved elective	3

Additional courses: a minimum of 5-11 credits, depending on thesis credits, individual student previous training and program needs, and approval by graduate committee.

Minimum required credits past the baccalaureate degree is 30.

b. *Non-thesis degree:* Designed for those planning for a management career involving largely non-research aspects such as general planning and administration, communication and public information, and impact assessment. The requirements are similar to the above with the following exceptions:

1) a 3-credit hour research paper will replace the 6-12 hour thesis;
2) additional courses: minimum credit will be increased to 19;
3) minimum number of credits required past the baccalaureate degree is 35.

Admissions Requirements:

1. Baccalaureate degree in appropriate undergraduate major.

2. Students desiring degree programs emphasizing socio-economic aspects of natural resources management must have strong undergraduate backgrounds in the social sciences, while those wishing in-depth work in any of the specific resource fields for which the University of Alaska does not have a strong undergraduate program at present, must have undergraduate degrees in such fields.

3. Scores of the general aptitude sections of the Graduate Record Examination.

Research Areas:

Thesis research will be directed toward problems specifically related to management of natural resources in high latitudes, and may involve, at various levels, basic information; biological-physical aspects of management on the land; and relationship of various management practices to the situation in Alaska at present and in the foreseeable future with respect to land ownership patterns, land use and planning economic trends, competing resources needs and wants, and knowledge of implications of various resource uses needed for informed decision making.

Northern Studies

Interdisciplinary Program

Degree: Bachelor of Arts
Minimum Requirements for Degree: B.A. – 130 credits

The purpose of the northern studies program is to give interested students a broader study of the northern region – its environment, peoples, and problems. The major in northern studies is a composite and interdisciplinary one. Students must meet the prerequisite requirements set by each department for particular upper-division courses.

Northern Studies – B.A. Degree

1. Complete general university requirements and B.A. degree requirements pages 63 and 64.

2. Complete the following program (major) requirements:

	Credits
Anth 342 – Natives of Alaska and the Arctic	3
Geog. 327 – Cold Lands	3
Hist. 380 – Polar Exploration and its Literature	3
A.L.R. 101 – Conservation of Natural Resources	3
Participate in the following seminar during the junior or senior year:	
Hist. 492 – Northern Studies Seminar	3

In addition, the student should take at least one course in five of the following six areas and sufficient other courses in one of the areas to equal a total of 18 credits:

Anthropology:
Anth. 301 – Peoples of the World (Siberian and Russian) 3
Anth. 311 – World Prehistory (Arctic) 3
Anth. 321 – Human Population Biology (Circumpolar Regions) 3

Linguistics:
Any linguistics or Alaska Native language or Eskimo language course or courses ..... 3 or more

Earth Sciences:
Geog. 205 – Elements of Physical Geog. 3
Geog. 302 – Geography of Alaska 3
Geog. 306 – Geography of the U.S.S.R. 3
Geog. 401 – Weather and Climate 3
Geos. 462 – Glacial and Pleistocene Geology 3

History:
Hist. 354 – Canadian History and Lit. to 1867 4
Hist. 355 – Canadian History and Lit.: 1867-Present 4
Hist. 341 – History of Alaska 3
Hist. 344 – Twentieth Century Russia 3
Hist. 375 – History of the North Pacific 3
P.S. 263 – Alaska Native Politics 3

Ecology:
Biol. 104 – Natural History of Alaska 3
Biol. 271 – Principles of Ecology 3
W.F. 417 – Wildlife Mgmt.: Forest and Tundra 2

Sociology:
Soc. 201 – Social Problems (Alaskan Society) 3
Soc. 408 – American Minorities (Alaskan Minorities) 3

With the approval of the committee, students may make substitutions for some of the requirements in these areas by taking such relevant courses as: arctic engineering; economics of natural resources; arctic oceanography; and such other courses as are approved by the committee.

Office Administration

School of Management

Degree: Bachelor of Arts
Minimum Requirements for Degree: B.A. – 130 credits

The bachelor of arts degree with a major in office administration is a plan of study designed to meet the needs of those who wish to specialize in the field of office operations. The objective of the curriculum is to provide the students with the knowledge, skills, and abilities required of the efficient office administrator or executive secretary. Also available is a four-year course leading to the degree of bachelor of arts with a major in business education. The objective of this curriculum is to prepare young men and women for the teaching of business subjects in the secondary schools. The skills courses, those designated by the O.O. prefix, are offered by the Tanana Valley Community College, with all management study, including work in accounting, business administration and economics, offered by the School of Management.

Office Administration or Business Education – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Foundation Courses:	*Credits*
Psy. 101 – Introduction to Psychology or Soc. 101 – Introduction to Sociology	3
P.S. 101 – Introduction to American Government and Political Science	3
Econ. 121-122 – Principles of Economics	6
Econ. 226 – Introduction to Statistics for Economics and Business	3
Math. 110 – Mathematics of Finance	3
Mathematics and/or Natural Science (lab science) electives	8
Complete the following core courses:	
O.O. 105-106 – Intermed. and Adv. Typewriting	6
O.O. 155 – Business English and Correspondence	3
O.O. 203 – Calculating Machines	2
B.A. 101 – Intro. to Data Processing and FORTRAN	3
Acct. 101-102 – Intro. to Accounting	6
B.A. 325 – Financial Management	3
B.A. 331 – Business Law	3
B.A. 343 – Marketing	3
B.A. 361 – Personnel Management or B.A. 480 – Organization Theory	3



Complete one of the following majors:

A. Office Administration

O.O. 101-102 – Shorthand Prin., Beg. Dict. and Trans.	8
O.O. 201 – Speed Dictation and Transcription	3
O.O. 221 – Indexing, Filing and Records Mgt.	2
O.O. 127 – Dictation and Transcription Machines	1
O.O. 244 – Secretarial Office Procedures	3
Complete a minor complex	12 or more

B. Business Education – Option 1

O.O. 101-102 – Shorthand Prin., Beg. Dict. and Trans.	8
O.O. 201 – Speed Dictation and Transcription	3
O.O. 221 – Indexing, Filing and Records Mgt.	2
O.O. 127 – Dictation and Transcription Machines	1
O.O. 244 – Secretarial Office Procedures	3
Complete a minor in Secondary Ed.	25

C. Business Education – Option 2

Acct. 310 – Income Tax	3
Acct. 342 – Managerial Cost Accounting	3

Acct. 361 – Intermediate Accounting 3
Adv. electives from B.A., Econ., or Acct. 3
Complete a minor in Secondary Ed. 25
Complete electives to bring total credits to 130

Requirements for Office Administration Minor

A minor in office administration consists of the following 19 credits:

	Credits
O.O. 102 – Beginning Dictation and Transcription	4
O.O. 105 – Intermediate Typing	3
O.O. 106 – Advanced Typing	3
O.O. 155 – Business English and Correspondence	3
O.O. 203 – Calculating Machines	2
O.O. 244 – Secretarial Office Procedures	3
O.O. 125 – Mag. Card Executive Typewriter Operation	1

Office Occupations

Tanana Valley Community College

Degree: Associate of Applied Science, Certificate in Secretarial Service

Minimum Requirements for Degree: A.A.S. – 60 credits; Certificate – variable number of credits needed for individual certificates

This program emphasizes preparation in office occupations, including both entry-level training and upgrading of current skills. The student may pursue (1) an associate of applied science degree, and/or (2) one or more of several certificate programs. The program features flexible entry and exit, individualized instruction and a performance based curriculum.

Office Occupations – A.A.S. Degree

1. Complete general university requirements as listed on page 63.
2. Complete the following general degree requirements:

A. Written Communication:	Credits
Engl. 067 – Elementary Exposition or Engl. 111 – Methods of Written Communications	3
Engl. 068 – Elementary Exposition or Engl. 213 – Intermediate Exposition	3
B. Oral Communication:	
Sp.C. – General Speech Elective ('100' or '200' level course)	3
C. Humanities, Social Science, Natural Science, Mathematics (Student Choice)	6
Total	15

3. Complete the following program (major) requirements:

Each student must choose one of the following major specialization areas: Accounting Occupations, Secretarial Occupations or Clerical Occupations.

Accounting Occupations:	Credits
O.O. 142 – Introduction to Accounting I	3
O.O. 143 – Introduction to Accounting II	3
O.O. 146 – Fundamentals of Data Processing	3
O.O. 153 – Business Law	3
O.O. 203 – Calculating Machines	2
O.O. 231 – Accounting Practice I	2
O.O. 232 – Accounting Practice II	4
*Major Specialty Electives	15
	35
General Education Electives (Student Choice)	10
Total Credits for Degree	60

Secretarial Occupations:	Credits
O.O. 101 – Shorthand I – Shorthand Principles	4
O.O. 102 – Beginning Dictation and Transcription	4
O.O. 105 – Typing 2 – Intermediate Typing	3
O.O. 106 – Typing 3 – Advanced Typing	3
O.O. 142 – Introduction to Accounting I	3
O.O. 143 – Introduction to Accounting II	3
O.O. 155 – Business English and Correspondence	3
O.O. 201 – Shorthand 3 – Speed Dictation and Transcription	3
O.O. 203 – Calculating Machines	2
O.O. 221 – Indexing, Filing and Records Management	2
O.O. 244 – Secretarial Office Procedures	3
**Major Specialty Electives	4
	37
General Education Electives (Student Choice)	8
Total Credits for Degree	60

Clerical Occupations:	
O.O. 105 – Typing 2 – Intermediate Typing	3
O.O. 106 – Typing 3 – Advanced Typing	3



O.O. 125 – Magnetic Card Executive Typewriter Operation or O.O. 129 – Memory Typewriter Operation 1
O.O. 127 – Dictation and Transcription Machines 1
O.O. 141 – Payroll Procedures 1
O.O. 146 – Fundamentals of Data Processing 3
O.O. 155 – Business English and Correspondence 3
O.O. 156 – Business Mathematics 1
O.O. 203 – Calcualting Machines 2
O.O. 221 – Indexing, Filing and Records Management 2
O.O. 242 – General Office Procedures 3
*** Major Specialty Electives 12
35
General Education Electives (Student Choice) 10
Total Credits for Degree 60

Major Specialty Electives for O.O. Program:

*Approved electives for Accounting Occupations: Credits
O.O. 051 – Economics I 3
O.O. 052 – Economics II 3
O.O. 141 – Payroll Procedures 1
O.O. 145 – Electronic Data Processing 4
O.O. 154 – Human Relations 2
O.O. 155 – Business English and Correspondence 3
O.O. 156 – Business Mathematics 1
O.O. 281 – Simulation and Projects (Variable Credit) 1-9
O.O. 282 – Cooperative Office Occupational Experience 3
Bsup. 151 – Introduction to Business 3
Bsup. 179 – Principles of Supervision 3

**Approved electives for Secretarial Occupations:*

Many students may have had previous training in the office occupations area and those who have may choose to specialize further in Secretarial Occupations by selecting from the Legal Secretary, Technical Secretary, Medical Secretary, or Administrative Secretary options in lieu of repeating the basic courses in Office Occupations.

**Approved electives for Legal Secretary option:
O.O. 051 – Economics I 3
O.O. 052 – Economics II 3
O.O. 103 – Typing 1 – Beginning Typing 3
O.O. 104 – Typing Skill Building 1-3
O.O. 125 – Magnetic Card Executive Typewriter Operation ... 1
O.O. 126 – Executive Typewriter Operation (IBM) 1
O.O. 129 – Memory Typewriter Operation 1
O.O. 153 – Business Law 3
O.O. 154 – Human Relations 2
O.O. 200 – Shorthand Skill Building 1-3
O.O. 206 – Legal Terminology, Dictation and Transcription ... 3
O.O. 210 – Legal Typing 2
O.O. 213 – Professional Typing 3
O.O. 243 – Legal Office Procedures 3
O.O. 281 – Simulation and Projects (variable credit) 1-9
O.O. 282 – Cooperative Office Occupational Experience 3

**Approved electives for Technical Secretary option:
O.O. 051 – Economics I 3
O.O. 052 – Economics II 3
O.O. 103 – Typing 1 – Beginning Typing 3
O.O. 104 – Typing Skill Building 1-3
O.O. 125 – Magnetic Card Executive Typewriter Operation ... 1
O.O. 126 – Executive Typewriter Operation (IBM) 1
O.O. 129 – Memory Typewriter Operation 1
O.O. 153 – Business Law 3
O.O. 154 – Human Relations 2
O.O. 200 – Shorthand Skill Building 1-3
O.O. 205 – Technical Terminology, Dictation and Transcription 3
O.O. 212 – Technical and Scientific Typing 2
O.O. 213 – Professional Typing 3
O.O. 281 – Simulation and Projects (variable credit) 1-9
O.O. 282 – Cooperative Office Occupational Experience 3

**Approved electives for Medical Secretary option:
O.O. 051 – Economics I 3
O.O. 052 – Economics II 3
O.O. 103 – Typing 1 – Beginning Typing 3
O.O. 104 – Typing Skill Building 1-3
O.O. 125 – Magnetic Card Executive Typewriter Operation ... 1



O.O. 126 – Executive Typewriter Operation (IBM) 1
O.O. 129 – Memory Typewriter Operation 1
O.O. 153 – Business Law 3
O.O. 154 – Human Relations 2
O.O. 200 – Shorthand Skill Building 1-3
O.O. 204 – Medical Terminology, Dictation and Transcription 3
O.O. 211 – Medical Typing 3
O.O. 213 – Professional Typing 3
O.O. 245 – Medical Office Procedures 3
O.O. 281 – Simulation and Projects (variable credit) 1-9
O.O. 282 – Cooperative Office Occupational Experience 3

**Approved electives for Administrative Secretary option:
O.O. 051 – Economics I 3
O.O. 052 – Economics II 3
O.O. 103 – Typing 1 – Beginning Typing 3
O.O. 104 – Typing Skill Building 1-3
O.O. 125 – Magnetic Card Executive Typewriter Operation ... 1
O.O. 126 – Executive Typewriter Operation (IBM) 1
O.O. 129 – Memory Typewriter Operation 1
O.O. 153 – Business Law 3
O.O. 154 – Human Relations 2
O.O. 200 – Shorthand Skill Building 1-3
O.O. 202 – Shorthand IV – Advanced Speed Dictation and Transcription 3
O.O. 213 – Professional Typing 3
O.O. 231 – Accounting Practice I 2

O.O. 232 – Accounting Practice II 4
O.O. 241 – Administrative Secretarial Procedures 3
O.O. 281 – Simulation and Projects (variable credit) 1-9
O.O. 282 – Cooperative Office Occupational Experience 3

****Approved electives for Clerical Occupations:*

O.O. 051 – Economics I 3
O.O. 052 – Economics II 3
O.O. 100 – Rapidwriting 3
O.O. 103 – Typing 1 – Beginning Typing 3
O.O. 104 – Typing Skill Building 1-3
O.O. 107 – Typing 4 – Employment Test (and Civil Service Test) Prep 2
O.O. 108 – Data and Statistical Typing 2
O.O. 125 – Magnetic Card Executive Typewriter Operation ... 1
O.O. 126 – Executive Typewriter Operation (IBM) 1
O.O. 129 – Memory Typewriter Operation 1
O.O. 153 – Business Law 3
O.O. 154 – Human Relations 2
O.O. 173 – Receptionist 2
O.O. 200 – Shorthand Skill Building 1-3
O.O. 210 – Legal Typing 2
O.O. 211 – Medical Typing 3
O.O. 212 – Technical and Scientific Typing 2
O.O. 213 – Professional Typing 3
O.O. 252 – Card-Punch Machine Operation 3
O.O. 281 – Simulation and Projects (variable credit) 1-9
O.O. 282 – Cooperative Office Occupational Experience 3
Bsup. 179 – Principles of Supervision 3

Certificate Programs in Office Occupations

Each student who successfully completes a certificate program will receive a certificate that states the occupation in which training was given and certifies that the student has the skills needed for employment in that occupation.

Program List:
Audit Clerk
Bookkeeper
Payroll Clerk
Card Punch Operator
File Clerk
Personnel Clerk
Secretary
Secretary, Legal
Secretary, Medical
Stenographer
Clerk Typist

(See instructor for list of requirements.)

Paraprofessional Counseling

Tanana Valley Community College

Degree: Associate of Arts
Minimum Requirements for Degree: 62 credits

The paraprofessional counseling program is a practical approach to learning beginning counseling skills. Both theoretical and experiential, this humanistic program introduces the basics of interpersonal relationships. These foundations are pursued through the personal growth of discovering oneself and discovering the other. Whether for personal enrichment or for academic training, the student learns realistic skills within a paraprofessional context.

Paraprofessional Counseling – A.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following general degree requirements:

Credits

A. Written Communication 6
Recommended:
English 111 – Methods of Written Communication
English 211 – Intermediate Exposition, with Modes of Literature
or English 213 – Intermediate Exposition
B. Oral Communication 3
Sp.C. 111 – Fundamentals of Oral Communication
C. At least six credits from each of three of the following areas:
Natural Sciences
Humanities
Social Sciences
Mathematics
Other 18
Total 27

3. Complete the following program (major) requirements:

Coun. 100 – Empathy Training 2
Coun. 103 – Introduction to Individual Counseling 3
Coun. 106 – Introduction to Principles of Group Counseling .. 3
Coun. 107 – Prospectives on Alcohol and Chemical Dependence 3
Coun. 112 – Introduction to Personality Theories 3
Coun. 200 – Depression and Counseling in Life Crisis Situations 3
Coun. 201 – Social Service Reporting and Introduction to Psychodiagnostics 3
Coun. 203 – Introduction to Marriage and Family Counseling . 3
Coun. 204 – Introduction to Cross-cultural Counseling 3
Coun. 205 – Practicum in Para-Professional Counseling 6
Coun. 206 – Principles of Group Counseling 3
Total 35

Total Credits Required for Degree 62

Petroleum Engineering

The Mineral Engineering Department offers courses in petroleum engineering (refer to course offerings of the department). These petroleum engineering courses may be taken as electives by students enrolled in other engineering programs and who may be interested in employment in the petroleum industry of Alaska.

Philosophy

College of Arts and Sciences

Degree: Bachelor of Arts
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 to independent reflection on them, thus broadening his perspectives for the various areas of specialization in science, the social sciences and humanities.

Philosophy – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:
Complete a year sequence in mathematics.
Complete 33 credits in Philosophy, including:

Credits

Phil. 201 – Introduction to Philosophy 3
Phil. 202 – Introduction to Eastern Philosophy 3
Phil. 204 – Introduction to Logic 3
Phil. 351-352 – History of Philosophy and Science 6
Phil. 471 – Contemp. Philosophical Problems 3
Phil. 493 – Special Topics 3
Choose two of the following:
Phil. 320 – Axiology 3
Phil. 341 – Epistemology 3
Phil. 342 – Metaphysics 3
Choose two of the following:
Phil. 481 – Philosophy of Science 3

Phil. 482 – Comparative Religion 3
Phil. 483 – Philosophy of Social Science 3
Phil. 484 – Philosophy of History 3

3. Successfully complete a comprehensive oral examination conducted by the staff of the Department of Philosophy covering all course work in Philosophy. The student is to arrange for the examination at the beginning of the last semester of his major study.

A minor in Philosophy requires 18 credits of approved Philosophy courses including:

Credits

Phil. 201 – Introduction to Philosophy 3
Phil. 351-352 – History of Philosophy and Science 6
Phil. 471 – Contemp. Philosophical Problems 3
Choose six credits from the following:
Phil. 202 – Intro. to Eastern Philosophy 3
Phil. 204 – Introduction to Logic 3
Phil. 320 – Axiology 3
Phil. 341 – Epistemology 3
Phil. 342 – Metaphysics 3
Phil. 481 – Philosophy of Science 3
Phil. 482 – Comparative Religion 3
Phil. 483 – Philosophy of Social Science 3
Phil. 484 – Philosophy of History 3
Phil. 493 – Special Topics ..... Arr.

Physical Education

College of Arts and Sciences

Degrees: Bachelor of Arts; Bachelor of Science
Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits

The curriculum in Physical Education encompasses three programs of instruction: an academic discipline, a teacher certification specialty, and a program for individual development in physical activities.

1. The academic discipline of Physical Education, which can be a major or minor area of study for a baccalaureate degree, is the study of human beings engaged in sport and physical activities which serve as expressions of their physical and competitive natures.
2. Courses which relate to teaching Physical Education or coaching athletic teams in school or recreation programs can be added to academic discipline courses to complete a teaching or coaching specialty for state certification.
3. Finally, a program of courses is provided for the general and professional student to acquire individual skills, attitudes, knowledge, and physical fitness for participation in selected sports and physical activities.

Physical Education – B.A. or B.S. Degree

1. Complete the general university requirements and B.A. or B.S. degree requirements listed on pages 63 and 64.

2. Complete the following background requirements: *Credits*
Chem. 103 or 104 – Contemporary Chemistry 4
Biol. 107-108 – Fundamentals of Biology 4
Biol. 201 – Mammalian and Human Anatomy 4
Biol. 210 – General Physiology 4

3. Complete the following program (major) requirements:
a. Required Courses (24 credits):
P.E. 201 – Concepts and Activities in Physical Fitness 2
P.E. 311 – Sport and Physical Activity in American Society ... 3
P.E. 318 – Motor Development and Learning 3
P.E. 327 – Movement Activities for Children 2
P.E. 328 – Physical Activities for Adolescents 2
P.E. 421 – Physiology of Exercise 3
P.E. 432 – Biomechanics of Physical Performance 3
P.E. 437 – Adapted Programs of Physical Activity 3
P.E. 440 – Prevention and Care of Athletic Injuries 3

b. Elective Courses (select 12 credits):
P.E. 246 – Advanced First Aid 2
P.E. 301 – Theory of Basketball 2
P.E. 304 – Techniques in Winter Sports 2
P.E. 307 – Techniques in Camping and Outdoor Recreation ... 2
P.E. 309 – Aquatics Instructor 2
P.E. 310 – Techniques in Rhythms and Dance 2
P.E. 400 – Judging and Coaching Gymnastics 2
P.E. 406 – Methods of Teaching Physical Education 3
P.E. 408 – Aquatics Program Management 2
P.E. 412 – Principles and Problems in Athletic Coaching 3
P.E. 425 – Administration of Physical Education and Athletics 3

Physical Education – Teaching Major

Students who seek a State of Alaska secondary teaching certificate with a Physical Education teaching major must complete the same program (major) requirements listed above, but must include P.E. 406 and P.E. 425 as required courses within the total of 36 credits. Such students must also complete the appropriate Education courses to qualify for the Secondary Education minor and the state certification. (See catalog listing under *Education*.)

Physical Education – Minor

For a minor in Physical Education in one of the following degree programs, consult the Department Head for suitable courses:

B.A. or B.S. Degree – 18 credits
B.Ed. Degree, Secondary Education – 18 credits
B.Ed. Degree, Elementary Education – 12 credits

Athletic Coaching – Minor

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

1. Complete the following required courses: *Credits*
P.E. 311 – Sport and Physical Activity in American Society ... 3
P.E. 412 – Principles and Problems in Athletic Coaching 3
P.E. 421 – Physiology of Exercise 3
P.E. 432 – Biomechanics of Physical Performance 3
P.E. 440 – Prevention and Care of Athletic Injuries 3
15

2. Complete the remaining credits in approved courses which will develop competency in the area selected for coaching 3
18

(NOTE: This minor is not available to the Physical Education Major.)

Physical Therapy

See Health Sciences, Preprofessional Curricula.

Physics

College of Arts and Sciences

(For Space Physics and Atmospheric Sciences graduate programs, *see* Space Physics and Atmospheric Sciences, page 117.)

Degrees: Bachelor of Arts, Bachelor of Science, Master of Science, Master of Arts in Teaching, Doctor of Philosophy
Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits; M.S. – 30 additional credits; M.A.T. – 30 additional credits; Ph.D. – no fixed credits.

The 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.

Undergraduate Program – The undergraduate curriculum aims at a good foundation in general physics with emphasis on the experimental aspects. It provides oppor-

tunities for careers in education and industry, and opens the door to advanced work in physics and related sciences.

Graduate Program – The graduate work is intimately connected with the research activities of the Geophysical Institute which offers ample thesis material in the fields of the atmospheric and space sciences, experimental atomic and molecular physics, and in solid earth physics. The research program of the Geophysical Institute currently emphasizes investigations of auroral and ionospheric physics, geomagnetism and earth currents, radio wave propagation and scattering, solar-terrestrial relations, polar meteorology and glaciology, seismology and solid earth physics, and laboratory studies of atomic and molecular processes.

A graduate student may designate his/her major field as physics or geophysics. He/she will pursue his/her studies under the supervision of an advisory committee. The committee advises on the course of study to be followed and determines the background courses (mathematics, physics, astronomy, chemistry, geophysics) necessary to support the major field.



Physics – B.A. Degree

1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Complete the foundation courses:
Phys. 211-212 – General Physics ..... 8 credits
Complete a minor in Mathematics, which includes Math. 200-201-202, and 6 credits at the 300-level or above.
Complete 20 additional credits of approved courses in Physics.

Applied Physics – B.S. Degree

1. Complete the general university requirements and B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Complete Math. 200-201-202, 302 and 9 additional credits in mathematics at the 200-level or above.
*Complete Physics 311 and 331 and 12 additional credits in physics at the 300-level or above.
Complete 20 approved credits** in a chosen subject area of Applied Physics.

*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.

Physics – B.S. Degree

1. Complete general university requirements and B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Math. 200-201-202, 302 and 9 additional credits at the 300-level or above.
Phys. 211-212, 311-312-313, 331-332, 411-412, 445, 381 and 382.

Suggested Curriculum

First Year

Fall Semester	*16 credits*
Engl. 111 – Methods of Written Comm.	3
E.S. 201 – Computer Techniques	3
Math. 200 – Calculus	4
Chem. 105 – General Chemistry	4
Free electives	2
Spring Semester	*17 credits*
Sp.C. 111 – Fundamentals of Oral Comm.	3
Phys. 211 – General Physics	4
Math. 201 – Calculus	4
Chem. 106 – General Chemistry	4
Free electives	2

Second Year

Fall Semester	*16 credits*
Math. 202 – Calculus	4
Phys. 212 – General Physics	4
Engl. 211 – Intermediate Expos. with Modes of Lit. *or* Engl. 213 – Intermediate Exposition	3
Humanities/Social Science elective	3
Free electives	2
Spring Semester	*16 credits*
Math 302 – Differential Equations	3
E.E. 481 – Electron. and Instr. for Sci. and Engr.	3
Humanities/Social electives	6
Free electives	4

Third Year

Fall Semester	*17 credits*
Math. 321 – Intermed. Applied Mathematics	4
Phys. 313 – Thermo. and Stat. Physics	4
Phys. 331 – Electricity and Magnetism	3
Phys. 381 – Physics Laboratory	2
Humanities/Social Science electives	3
Free elective	1
Spring Semester	*16 credits*
Math. 422 – Intermed. Applied Mathematics	4
Phys. 445 – Solid State Physics and Physical Electronics	3

Phys. 332 – Electricity and Magnetism 3
Phys. 382 – Laboratory 2
Humanities/Social Science electives 3
Free elective 1

Fourth Year

Fall Semester — *15 credits*

Phys. 411 – Modern Physics 4
Phys. 311 – Mechanics I 4
Math. elective 3
Free electives 4

Spring Semester — *16 credits*

Phys. 412 – Modern Physics 4
Phys. 312 – Mechanics II 4
Free electives 8

A minor in Physics requires 12-16 credits.

Physics – M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits of approved courses, including Phys. 699, Thesis.

Physics – M.A.T. Degree

Persons interested in this degree program should see the head of the department.

Physics – Ph.D. Degree

Complete the general university requirements and Ph.D. requirements, pages 63 and 66.

Police Administration

See Justice.

Political Science

College of Arts and Sciences

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

The study of political science is the study of man's efforts to create social organizations and processes compatible with his environment. Political science is related to all of the social science disciplines. It is the study of the dynamics of human behavior in the various cultural, national, and international spheres.

The student of political science may prepare for teaching or for advanced study in law and social science, or prepare himself for a career in public service.

Political Science – B.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Credits

Hist. 101-102 – Western Civilization 6
Hist. 131-132 – History of the U.S. 6
Econ. 121-122 – Principles of Economics 6

Basic courses (i.e., Logic, Constitutional Law, statistics, business law, computers, sociology, psychology, and accounting) are strongly recommended for majors and students planning to enter graduate study or law school.

P.S. 101-102 – Intro. to American Govt. and Politics 6
P.S. 201 – Comp. Politics: Methods of Pol. Analysis 3
P.S. 202 – Comp. Politics: Contemp. Doctrines and Structures . 3
P.S. 321-322 – International Politics 6
P.S. 401-402 – Political Behavior I and II 6

Six credits in Political Theory from the following:

P.S. 315, 411, 412, 415 6

A minor in Political Science requires 15 credits distributed as follows:

P.S. 101-102 – Intro. to American Govt. and Politics 6
P.S. 201 or 202 – Comparative Politics: Political Analysis and Doctrines and Structures 3
P.S. 321 or 322 – International Politics 3

Three credits in Political Theory from the following:

P.S. 315, 411, 412, or 415 3

Psychology

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Science
Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits

Psychology seeks to guide the student in an understanding of human behavior. The field of psychology is necessary for students who are preparing for graduate study in psychology and also is helpful in preparing for other career fields.

***Psychology – B.A. or B.S. Degree**

1. Complete general university requirements and B.A. or B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

30 credits in Psychology beyond Psy. 101 and 201, including:

Complete the 12 credit core requirement plus one of the options:

Core Requirement: — *Credits*

Psy. 101 – Introduction to Psychology 3
Psy. 250 – Introductory Statistics for the Behavioral Sciences 3
Psy. 260 – Experimental Psychology 3
Psy. 350 – Comparative Psychology 3

Generally Oriented Option:

18 credits from the following:

Psy. 102 – Advanced General Psychology 3
Psy. 240 – Developmental Psychology
or Psy. 380 – Human Behavior in the Arctic 3
Psy. 320 – History and Systems of Psychology
or Psy. 410 – Theories of Personality 3
Psy. 330 – Social Psychology 3
Psy. 340 – Abnormal Psychology 3
Psy. 420 – Motivation
or Psy. 440 – Learning 3
Psy. 430 – Clinical Psychology 3

6 credits from the following:

Psy. 360 – Psychological Tests and Measurements 3
Psy. 370 – Drugs and Drug Dependence 3
Psy. 380 – Human Behavior in the Arctic 3
Psy. 450 – Human Memory and Language 3
Psy. 460 – Physiological Psychology 4
Psy. 470 – Sensation and Perception 3
Psy. 480 – Clinical Neurology 3

Complete the following (may be used to meet general degree requirements):

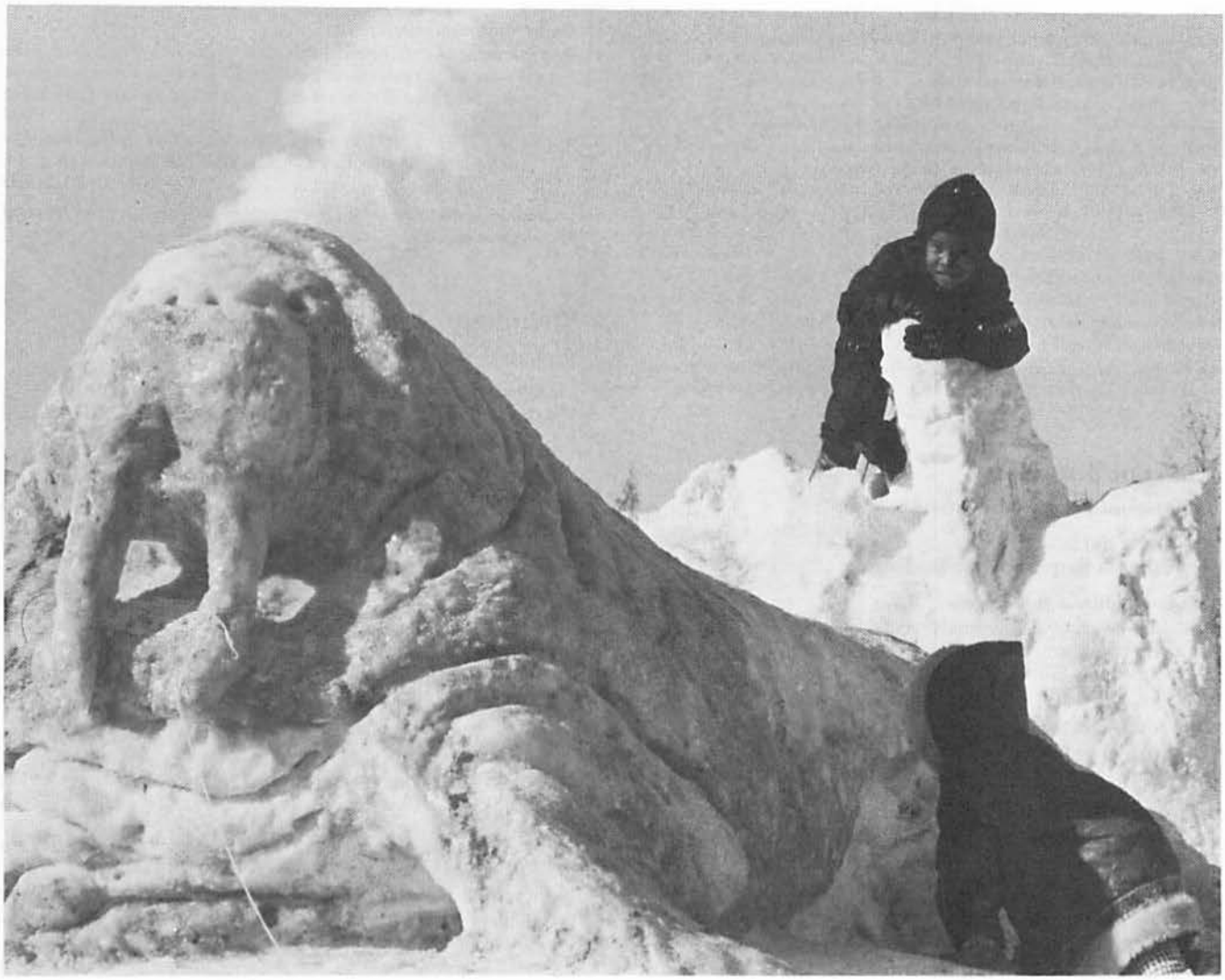
Anth. 101, 121, 201 or 222 3
Biology Elective (any 3 credit course) 3
Soc. 101 – Introduction to Sociology 3

Clinically Oriented Option

Complete the following:

Psy. 240 – Developmental Psychology 3
Psy. 340 – Abnormal Psychology 3
Psy. 360 – Psychological Tests and Measurements 3
Psy. 410 – Theories of Personality 3
Psy. 420 – Motivation
or Psy. 440 – Learning 3

6 credits from the following:



Psy. 360 – History and Systems of Psychology 3
Psy. 330 – Social Psychology 3
Psy. 370 – Drugs and Drug Dependence 3
Psy. 380 – Human Behavior in the Arctic 3
Psy. 420 – Motivation 3
Psy. 440 – Learning 3
Psy. 450 – Human Memory and Language 3
Psy. 460 – Physiological Psychology 4
Psy. 470 – Sensation and Perception 3
Psy. 480 – Clinical Neurology 3

Complete the following (may be used to meet general degree requirements):

Anth. 101, 121, 201 or 222 3
Biol. 107 – Fundamentals of Biology 3
Soc. 101 – Introduction to Sociology 3

Experimentally Oriented Option

Complete the following:

Psy. 320 – History and Systems of Psychology
or Psy. 410 – Theories of Personality 3
Psy. 340 – Abnormal Psychology 3
Psy. 420 – Motivation 3
Psy. 440 – Learning
or Psy. 450 – Human Memory and Language 3
Psy. 460 – Physiological Psychology 4
Psy. 470 – Sensation and Perception 3

6 credits from the following:

Psy. 240 – Developmental Psychology 3
Psy. 330 – Social Psychology 3
Psy. 370 – Drugs and Drug Dependence 3
Psy. 380 – Human Behavior in the Arctic 3
Psy. 440 – Learning 3
Psy. 450 – Human Memory and Language 3
Psy. 480 – Clinical Neurology 3

Complete the following (may be used to meet general degree requirements):

Anth. 101, 121, 201, or 222 3
Biol. 107-108 – Fundamentals of Biology 4
Soc. 101 – Introduction to Sociology 3

A minor is not required for the B.S. degree with a major in Psychology.

***A minor in Psychology requires 15 credits as follows:**

	Credits
Psy. 101 – Introduction to Psychology	3
9 credits from the following:	
Psy. 250 – Introductory Statistics for the Behavioral Sciences	3
Psy. 260 – Experimental Psychology *or* Psy. 350 – Comparative Psychology	3
Psy. 320 – History and Systems of Psychology *or* Psy. 410 – Theories of Personality	3
Psy. 340 – Abnormal Psychology	3
Psy. 420 – Motivation *or* Psy. 470 – Sensation and Perception	3
Psy. 440 – Learning *or* Psy. 450 – Human Memory and Language	3
Psy. 460 – Physiological Psychology *or* Psy. 480 – Clinical Neurology	3
3 credits of Psychology electives from the following:	
Psy. 102 – Advanced General Psychology	3
Psy. 240 – Developmental Psychology	3

Psy. 320 – History and Systems of Psychology 3
Psy. 330 – Social Psychology 3
Psy. 340 – Abnormal Psychology 3
Psy. 350 – Comparative Psychology 3
Psy. 360 – Psychological Tests and Measurements 3
Psy. 370 – Drugs and Drug Dependence 3
Psy. 380 – Human Behavior in the Arctic 3
Psy. 410 – Theories of Personality 3
Psy. 420 – Motivation 3
Psy. 430 – Clinical Psychology 3
Psy. 440 – Learning 3
Psy. 450 – Human Memory and Language 3
Psy. 460 – Physiological Psychology 4
Psy. 470 – Sensation and Perception 3
Psy. 480 – Clinical Neurology 3

*A Psychology/Sociology course cross-referenced in both fields can be used only once when the major and minor are in Psychology/Sociology.

Russian Studies

Interdisciplinary Major Program

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

Russian Studies – B.A. Degree

1. Complete general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Credits

Core courses (24 credits):
Anth. 301 – Peoples of the World (Siberia and the Russian North) 3
Geog. 306 – Geography of the Soviet Union 3
Hist. 261 – Russian History 3
Hist. 344 – Twentieth Century Russia 3
Russ. 301 – Advanced Russian* 3
Russ. 302 – Advanced Russian* 3
Russ. 322 – Studies in Russian Lit. 6

Complete at least 12 credits from the following courses or alternatives as approved by the program advisor:
Geog. 405 – Political Geography 3
Hist. 315 – Europe 1914-1945 3
Phil. 471 – Contemporary Philosophical Prob. 3
P.S. 202 – Comparative Politics: Contemporary Doctrines and Structures 3
P.S. 321 – International Politics 3
P.S. 322 – International Politics 3
Russ. 322 – Studies in Russian Lit. 3

*Students must complete two years of Russian language study (Russ. 101-102-201-202) or equivalent as a prerequisite for Russ. 301-302.

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

Science

Degree: Associate of Arts
Minimum Requirements for Degree: 60 credits

Science – A.A. Degree

1. Complete the general university requirements as listed on page 63.
2. Complete the following degree and program (major) requirements:

Credits

Engl. 67-68 or 111 and 211 or 213 6
Oral Communication 3
Humanities 6
Social Science 6
Six credits in one of the following:
Natural Science, Mathematics, or other 6
Major Requirements:
One semester of college level calculus ..... 3 or more
A year's sequence course in Biology, Chemistry, Geosciences, or Physics, plus two semesters in area other than that chosen for sequence 14-16
Approved Science elective (may include courses in Mathematics or Applied Sci. such as Engineering, Wildlife Mgmt., etc.) . 4-6
Electives to total ..... 60 credits

Courses used to meet the degree requirements may not be used to meet the major requirements.

Sociology

College of Arts and Sciences

Degrees: Bachelor of Arts, Bachelor of Science
Minimum Requirements for Degrees: B.A. – 130 credits; B.S. – 130 credits

Sociology is the study of groups and their influence on personal behavior and culture. It is concerned with social processes which give rise to and shape man's language, experience, perception, meaning, and behavior.

***Sociology – B.A. or B.S. Degree**

1. Complete the general university requirements and B.A. or B.S. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:

Credits

Complete 27 credits in Sociology beyond Soc. 101-102, including:
Soc. 251 – Intro. Statistics for Behavioral Sci. (also Psy. 251) .. 3
Soc. 302 – Social Psychology (also Psy. 302) 3
Soc. 304 – Culture and Personality 3
Soc. 309 – Urban Sociology 3
Soc. 402 – Theories of Sociology 3
Soc. 473 – Social Science Research Methods 3
Sociology electives:
(Soc. 363 and 407 recommended) 9

Complete 9 credits composed of one course each from Anthropology, Philosophy, and Psychology.

A minor is not required for the B.S. degree with a major in Sociology.

***A minor in Sociology requires 15 credits in Sociology beyond Soc. 101-102.**

The Social Work Curriculum

In addition to courses specifically related to the social services, the undergraduate program provides a sound grounding in the humanities and the biological and social sciences. The general requirements for a bachelor of arts degree must be met. These include courses in communication, mathematics, the humanities, and natural sciences.

The concentration in social work concerns itself with the knowledge and methods used in the social institutions for the maintenance and enhancement of human social functioning. The social services include counseling, social work, social welfare, corrections, probation and parole.

***Sociology with a Concentration in Social Work – B.A. Degree**

1. Complete the general university requirements and B.A. degree requirements on pages 63 and 64.
2. Complete the following program (major) requirements:

Credits

Psy. 101 – Introduction to Psychology 3
Soc. 101 – Introduction to Sociology 3
Soc. 103 – Introduction to Social Work 3
Soc. 305 – Social Welfare 3
Soc. 306 – Social Welfare: Policy and Issues 3
Soc. 201 – Social Problems 3
Soc. 251 – Statistics for the Behavioral Sciences 3
Soc. 342 – Human Behavior in the Social Environment 3
Soc. 343 – Sociology of Deviance
or Psy. 340 – Abnormal Psychology 3

Soc. 363 – Social Stratification 3
Soc. 361-362 – Intermediate Social Work Methods and Practice I and II 12
Soc. 461 – Advanced Social Work Methods and Practice I 6
Soc. 462 – Adv. Social Work Methods and Practice: Administration
or Soc. 463 – Adv. Social Work Methods and Practice: Community Organization 6
Soc. 408 – American Minority Groups 3
Soc. 473 – Social Science Research Methods 3

*A Psychology/Sociology course cross-referenced in both fields can be used only once when the major and minor are in Psychology/Sociology.

Space Physics and Atmospheric Sciences Program

College of Environmental Sciences

Degrees: Master of Science, Doctor of Philosophy
Minimum Requirements for Degrees: M.S., 30 credits beyond B.S.; Ph.D., no fixed credit

The space physics and atmospheric sciences program is a graduate program that is intimately connected with the research activities of the Geophysical Institute, which offers ample thesis material in the fields of space science and atmospheric physics. The research program of the Geophysical Institute currently emphasizes investigations of auroral, ionospheric and magnetospheric physics, geomagnetism and earth currents, radio wave propagation and scattering, solar-terrestrial relationships, aeronomy, polar meteorology, and laboratory studies of atomic and molecular processes.

A graduate degree may also be obtained in the fields of solar-terrestrial and atmospheric sciences through the external degree program (see page 49), in which there is no residency requirement.

Space Physics – M.S. Degree

1. Complete the general university requirements and the masters degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits of approved courses including:

	Credits
Basic courses in space physics	12
Approved Physics courses (minimum)	12

Atmospheric Sciences – M.S. Degree

1. Complete the general university requirements and the masters degree requirements, pages 63 and 65.
2. Complete a minimum of 30 credits of approved courses including:

	Credits
Basic courses in atmospheric sciences	12
Approved Physics courses (minimum)	12

Space Physics – Ph.D. Degree

1. Complete the general university requirements and Ph.D. requirements, pages 63 and 66.
2. Complete the following:

	Credits
Basic courses in space physics	12
Approved Physics courses (minimum)	12

Atmospheric Sciences – Ph.D. Degree

1. Complete the general university requirements and Ph.D. requirements, pages 63 and 66.
2. Complete the following:

	Credits
Basic courses in atmospheric sciences	12
Approved Physics courses (minimum)	12

Basic courses in Space Physics:	Credits
Geos. 640 – Auroral Physics	3
Geos. 650 – Aeronomy	3
Geos. 672 – Space Physics	3
Geos. 673 – Space Physics	3

Basic courses in Atmospheric Sciences:	
Geos. 636 – Physics of the Lower Atmosphere	3
Geos. 646 – Atmospheric Dynamics	3
Geos. 650 – Aeronomy	3
Geos. 656 – Atmospheric Circulation, Weather, and Climate	3

The physics courses which are integral parts of the SPAS program are listed below:

Physics Courses:	
Phys. 611 – Mathematical Physics	3
Phys. 612 – Mathematical Physics	3
Phys. 621 – Classical Mechanics	3
Phys. 622 – Statistical Mechanics	3
Phys. 626 – Magnetohydrodynamics and Plasma Physics	3
Phys. 627 – Plasma Physics	3
Phys. 631 – Electromagnetic Theory	3
Phys. 632 – Electromagnetic Theory	3
Phys. 651 – Quantum Mechanics	3
Phys. 652 – Quantum Mechanics	3

Speech, Drama, and Radio

College of Arts and Sciences

Degree: Bachelor of Arts
Minimum Requirements for Degree: 130 credits

Few phenomena of man's life are of greater concern to him than communication. In one way or another, communication has become the common problem, *sine qua non*, of the sciences and the arts alike. The life and behavioral sciences concern themselves directly with communication, for it is the processes of communication which define and maintain the structure and functioning of living things. The physical sciences from archaeology to space have an equal, if less direct, concern for the progress and development of any science depends upon communication. It is the business of the arts to communicate, just as it is the art of science to communicate.

The Department of Speech, Drama, and Radio offers the student many opportunities to participate in formal communication processes through theatre and broadcasting productions, debates, oral interpretation presentations, etc., and to study the processes through formal course offerings in broadcasting, speech communication, and theater. Blending practical application with the study of fact and theory, each program is designed to provide majors with the preparation for employment or further education and to provide all students with elective opportunities in fields of study central to all human communication.

The department offers the following programs:

- A major or minor in Speech Communication with options in Rhetoric and Public Address, Communication Studies, and Communication Education
- A major or minor in Theater

Speech Communication – B.A. Degree

1. Complete the general university requirements and the B.A. degree requirements as listed on pages 63 and 64, including one of the following three courses for the Speech Communication Requirement: Sp.C. 111, Sp.C. 235, Sp.C. 241.
2. Complete a minimum of 30 credits in approved Speech Communication courses including the Speech Communication Core Program and all of the courses specified in one of the Options.

Speech Communication Core Program:	Credits
Sp.C. 320 – General Semantics	3
Sp.C. 321 – Nonverbal Communication	3
Sp.C. 425 – Communication Theory	3

Option A:
Rhetoric and Public Address (It is recommended that students choosing Option A consider a minor in Philosophy, History or Political Science.)

Sp.C. 235 – Discussion and Small Group Process 3
Sp.C. 241 – Public Speaking 3
Sp.C. 341 – Persuasion 3
Sp.C. 342 – Advanced Public Speaking 3
Sp.C. 351 – Argumentation and Debate 3
Sp.C. 361 – Oral Interpretation 3
Sp.C. 443 – Rhetorical Communication 3

Option B:
Communication Studies
I. Human Communication (It is recommended that students choosing Human Communication consider a minor in Psychology, Sociology, Linguistics, Languages, or Anthropology.)

Sp.C. 111 – Fundamentals of Oral Communication 3
Sp.C. 235 – Discussion and Small Group Process 3
Sp.C. 241 – Public Speaking 3
Sp.C. 330 – Intercultural Communication 3
Sp.C. 335 – Communication in Organizations 3
Sp.C. 341 – Persuasion 3
Sp.C. 443 – Rhetorical Communication 3

II. Organizational Communication (It is recommended that students choosing Organizational Communication consider a minor in Business, Journalism, Criminal Justice, Political Science or Sociology.)

Sp.C. 235 – Discussion and Small Group Process 3
Sp.C. 241 – Public Speaking 3
Sp.C. 330 – Intercultural Communication 3
Sp.C. 335 – Communication in Organizations 3
Sp.C. 341 – Persuasion 3
Sp.C. 351 – Argumentation and Debate 3
J-B 101 – Introduction to Mass Communication 3
J-B 331 – Retail Advertising 3

Option C:
Communication Education (For Alaska State Certification, a student must meet the State certification requirements listed in the catalog.)

Sp.C. 111 – Fundamentals of Oral Communication 3
Sp.C. 211 – Voice and Diction 3
Sp.C. 235 – Discussion and Small Group Process 3
Sp.C. 241 – Public Speaking 3
Sp.C. 351 – Argumentation and Debate 3
Sp.C. 361 – Oral Interpretation 3
Sp.C. 371 – Speech Problems for the Classroom Teacher 3
Sp.C. 443 – Rhetorical Communication 3

It is recommended that a student interested in secondary school teaching also take Sp.C. 341 – Persuasion and Sp.C. 330 – Intercultural Communication.

A minor in Speech Communication requires 18 credits in approved Speech Communication. A minor program requires the approval of a speech program faculty member in advance of declaring the minor, preferably no later than the first semester of the junior year.

Theater – B.A. Degree
1. Complete the general university requirements and B.A. degree requirements, pages 63 and 64.
2. Complete the following program (major) requirements:
A. Complete a minimum of 45 credits in theatre and stipulated related courses as specified below, including the following foundation courses:

	Credits
Thr. 211 – Introduction to the Theatre	3
Thr. 221 – Acting I	3
Thr. 241 – Basic Stagecraft	3
Thr. 325 – Theatre Speech	3
Thr. 331 – Directing	3
Thr. 411 – Theatre History	3
	18

B. Complete the following:
1. A minimum of one course from: 3
Thr. 321 – Acting II
Thr. 351 – Makeup for Theatre
Thr. 421 – Period Styles of Acting
2. A minimum of one course from: 3
Thr. 341 – Intermediate Stagecraft
Thr. 355 – History of Stage Costume
3. A minimum of one course from: 3
Thr. 343 – Scene Design
Thr. 347 – Lighting Design
4. A minimum of two courses from: 6
Engl. 217 – Introduction to Drama
Engl. 422 – Shakespeare: History Plays and Tragedies
Engl. 425 – Shakespeare: Comedies and Non-Dramatic Poetry
Engl. 445 – 20th Century Drama: Chekhov to Ionesco
Engl. 483 – Craft of Drama
5. A minimum of one course from: 3
Art 261 – History of World Art
Art 262 – History of World Art
Mus. 123 – Experiencing Music
Mus. 124 – Music in World Cultures
6. A minimum of one course from: 3
Art 105 or 106 – Beginning Drawing
J-B 215 – Audio Production
J-B 216 – Television Production
E.S. 101-102 – Graphics (2 cr. each)
P.E. 100 – Modern Dance, Fencing, Gymnastics (1 cr. each)
Sp.C. 361 – Oral Interpretation
Sp.C. 311 – Phonetics
F.L. 110 – Pronunciation of French, German, Italian and Spanish
7. A minimum of one course from:
An additional course from 1, 2, 3 or 4 or an individual study
Thr. 435 – Directing
Thr. 461 – Senior Project

A minor in Theatre requires 18 credits in theatre courses including the following:

Thr. 211 – Introduction to the Theatre
Thr. 221 – Acting I
Thr. 241 – Basic Stagecraft

No more than 3 credits in Theatre Practicum may be applied to the minor. The minor program requires the approval of a member of the Theatre faculty in advance of formally declaring the minor, preferably no later than the first semester of the junior year.

Wildlife Management

College of Environmental Sciences

Degrees: Bachelor of Science, Master of Science, Doctor of Philosophy (interdisciplinary)
Minimum Requirements for Degrees: B.S., 130 credits; M.S., 30 additional credits

The undergraduate curricula in the program in wildlife are intended to provide basic education and training. Two options are available: a wildlife research biologist option and a wildlife management biologist option. The research biologist option is designed for those students whose objective is to undertake the field and laboratory research needed to provide additional information on the workings of wild animal populations, the condition of their habitat, and the habitat-animal relationships. The management biologist option is designed for those students whose primary interests involve the interpretation, application, or dissemination of research findings, rather than their acquisition. That option is appropriate for those students contemplating careers in wildlife agency administration, in developing and implementing wildlife management plans and in public information and education. The curricula in both options provide a solid foundation for graduate study.

The geographic location of the university is particularly advantageous for the study of wildlife management.

Spruce forest, aspen-birch forest, alpine tundra, bogs, and several types of aquatic habitats are within easy reach. Studies can be made in many other habitats ranging from the dense forests of Southeastern Alaska to the Arctic coast.

Adequate study collections of plants and animals are available, and a 2,000-acre study area is near the campus. Undergraduates have ample opportunity for close association with the personnel of the Alaska Cooperative Wildlife Research Unit, the Alaska Cooperative Park Studies Unit, and the several local offices of the federal and state conservation agencies. These agencies usually hire a number of students for summer field work. Thus, an unusually good opportunity is available for students to gain experience and to make job connections.

Wildlife plays an extremely important part in the economy and recreation of Alaskans; because of this, some courses in the department will be of interest to non-major students.

Wildlife Management – B.S. Degree (Research Biologist Option)

1. Complete the general university requirements as listed on page 63.

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

First Year

Fall Semester	*14 credits*
Biol. 107-108 – Fundamentals of Biology	4
Chem. 105 – General Chemistry	4
Engl. 111 – Methods of Written Communication	3
A.L.R. 101 – Conservation of Natural Resources	3
Spring Semester	*16 credits*
**Biol. 210 – General Physiology	4
Chem. 106 – General Chemistry	
**Biol. 239 – Plant Form and Function	4
*Math. 172 – Intro. to Calculus for the Life Sciences	5

Second Year

Fall Semester	*17 credits*
Biol. 271 – Principles of Ecology	3
W.F. 333 – Literature of Ecology and Resource Management	2
Math. 203 – Intro. Finite Mathematics	4
Phys. 103 – College Physics	4
Biol. 222 – Biology of Vertebrates	4
Spring Semester	*13 credits*
Biol. 205 – Vertebrate Anatomy	3
A.L.R. 380 – Soils	3
Phys. 104 – College Physics	4
Sp.C. – Elective	3

Third Year

Fall Semester	*16 credits*
Econ. 235 – Intro. to Nat. Res. Econ.	3
Engl. 212 or 213 – Intermediate Exposition	3
Biol. 423, 425, and 426 – Selection (Ichthyology, Mammalogy and Ornithology, respectively)	6
Geos. 101 – General Geology	4
Spring Semester	*17 credits*
Biol. 331 – Systematic Botany	4
Biol. 476 – Animal Ecology	4
A.S. 301 – Elementary Statistics	3
W.F. 301 – Principles of Animal Pop. Dyn. and Management	3
Econ. 435 – Inter. Nat. Res. Econ.	3

Fourth Year

Fall Semester	*17 credits*
Biol. 252 – Principles of Genetics	3
W.F. 401 – Wildlife Management and Techniques	3
W.F. 402 – Wildlife Biology and Management	2
W.F. 423 or Limnology	
Ocn. 411 – General Oceanography	3
Biol. 474 – Plant Ecology	3
***C.S. – Computer Science Elective	3
Spring Semester	*8+ credits*
Engl. 414 – Research Writing	3
A.S. 402 – Scientific Sampling	3
W.F. 403 – Wildlife Management Problems	2

In addition:

1. Complete the B.S. social sciences/humanities requirement, 6 credits.

2. Complete sufficient electives to bring total to 130 credits.

3. Bachelor of science candidates are strongly urged to obtain work experience in wildlife-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers.

Recommended electives in Biological Sciences, Land Resources, and Wildlife and Fisheries:

	Credits
Biol. 308 – Principles of Evolution	3
Biol. 414 – Comparative Physiology	4
Biol. 416 – Plant Physiology	3
Biol. 441 – Principles of Animal Behavior	3
A.L.R. 370 – Intro. to Watershed Science	3
A.L.R. 460 – Principles of Outdoor Recreation Management	3
A.L.R. 400 – Natural Resource Policies	3
A.L.R. 430 – Land-use Planning	3
A.L.R. 450 – Forest Management	3
W.F. 417 – Wildlife Management – Forest and Tundra	2
W.F. 419 – Wildlife Management – Wetlands	2
W.F. 429 – General Fisheries Biology	3
W.F. 430 – Fisheries and Their Management	3
W.F. 436 – Advances in Aquaculture	3

Wildlife Management – B.S. Degree
(Management Biologist Option)

1. Complete the general university requirements as listed on page 63.

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

First Year

Fall Semester	*15 credits*
Biol. 107-108 – Fundamentals of Biology	4
Chem. 105 – General Chemistry	4
Engl. 111 – Methods of Written Communication	3
A.L.R. 101 – Conservation of Natural Resources	3
Spring Semester	*15 credits*
**Biol. 210 – General Physiology	4
Chem. 106 – General Chemistry	4
**Biol. 239 – Plant Form and Function	4
Biol. 205 – Vertebrate Anatomy or Sp.C. Speech Communication	3

Second Year

Fall Semester	*18 credits*
Biol. 222 – Biology of Vertebrates	4
Biol. 271 – Principles of Ecology	3
Math. 203 – Finite Math.	4
Phys. 103 – College Physics	4
Econ. 235 – Intro. to Nat. Res. Econ.	3
Spring Semester	*14 credits*
Biol. 205 – Vertebrate Anatomy or Sp.C. 111 – Speech Communication	3
Biol. 331 – Systematic Botany	4
Phys. 104 – College Physics	4
Econ. 435 – Inter. Nat. Res. Econ.	3

Third Year

Fall Semester	*8+ credits*
Biol. 425 – Mammalogy or Biol. 426 – Orthnithology	3

*Students inadequately prepared for calculus will take Math. 171 prior to taking Math. 172.

**Note prerequisite.

***Course must be approved by advisor; course requirement may be waived by Program Chairman if student demonstrates acceptable level of programming ability.

Geos. 101 – General Geology	3
W.F. 333 – Lit. Ecol. and Resource Management	2

Spring Semester — *16 credits*

Biol. 476 – Animal Ecology	4
A.S. 301 – Elementary Prob. and Statistics	3
W.F. 301 – Principles of Animal Pop. Dyn. and Management	3
A.L.R. 380 – Soils	3
Engl. 213 – Intermediate Exposition	3

Fourth Year

Fall Semester — *11+ credits*

W.F. 401 – Wildlife Management Techniques	3
W.F. 402 – Wildlife Biology and Management	3
W.F. 423 – Limnology	3
Biol. 474 – Plant Ecology	3
A.L.R. 430 – Land Use Planning	3

Spring Semester — *8+ credits*

Engl. 414 – Research Writing	3
A.L.R. 420 – Natural Resource Policies	3
W.F. 403 – Wildlife Management Problems	2

In addition:

1. At least 9 credits must be completed from this group: *Credits*

Geog. 302 – Geography of Alaska	3
Geog. 402 – Man and Nature	3
*J-B 101 – Intro. to Mass Communications	3
*J-B 201 – News Writing	3
*J-B 203 – Basic Photography	3
J-B 311 – Magazine Article Writing	3
Phil. 320 – Axiology	3
P.S. 101 – Intro. to American Government	3
P.S. 201 – Comp. Politics: Methods of Political Analysis	3
P.S. 263 – Alaska Native Policies	3
P.S. 301 – Public Admin. in Political Process	3
Psy. 101 – Intro. to Psychology	3
Soc. 101 – Intro. to Sociology	3
Soc. 102 – Intro. to Sociology	3
Soc. 309 – Urban Sociology	3

2. At least 1 of the following courses must be included:

A.L.R. 350 – Intro. to Forest System	3
A.L.R. 460 – Principles Outdoor Recreation Management	3
A.L.R. 450 – Forest Management	3
A.L.R. 370 – Introduction to Watershed Science	3

3. At least 2 of the following courses must be included:

W.F. 417 – Wildlife Management – Forest and Tundra	2
W.F. 419 – Wildlife Management – Wetlands	2
W.F. 429 – General Fisheries Biology	3
W.F. 430 – Fisheries and Their Management	3
W.F. 436 – Advances in Aquaculture	3

4. Complete sufficient electives to bring total credits to 130.

Bachelor of science candidates are strongly urged to obtain work experience in wildlife-related positions with public resource agencies or private firms. Faculty members can help students contact potential employers.

The Wildlife and Fisheries Program and the Alaska Cooperative Wildlife Research Unit cooperate in offering graduate work leading to the Master of Science degree. An interdisciplinary Doctor of Philosophy degree can also be offered. Persons desiring detailed information on the graduate program in wildlife management may obtain this from the head, Wildlife and Fisheries Program. The procedure to be followed in applying for admission to graduate study is outlined in the section on Admission to Graduate Study in this catalog.

The Alaska Cooperative Wildlife Research Unit offers a limited number of research assistantships; information on these and the unit's program can be obtained from the Leader, Alaska Cooperative Wildlife Research Unit, University of Alaska, Fairbanks, Alaska. Applications for these assistantships should be sent to the unit leader; such applications are supplementary to the application for admission for graduate study.

Wildlife Management – M.S. Degree

1. Complete the general university requirements and master's degree requirements, pages 63 and 65.

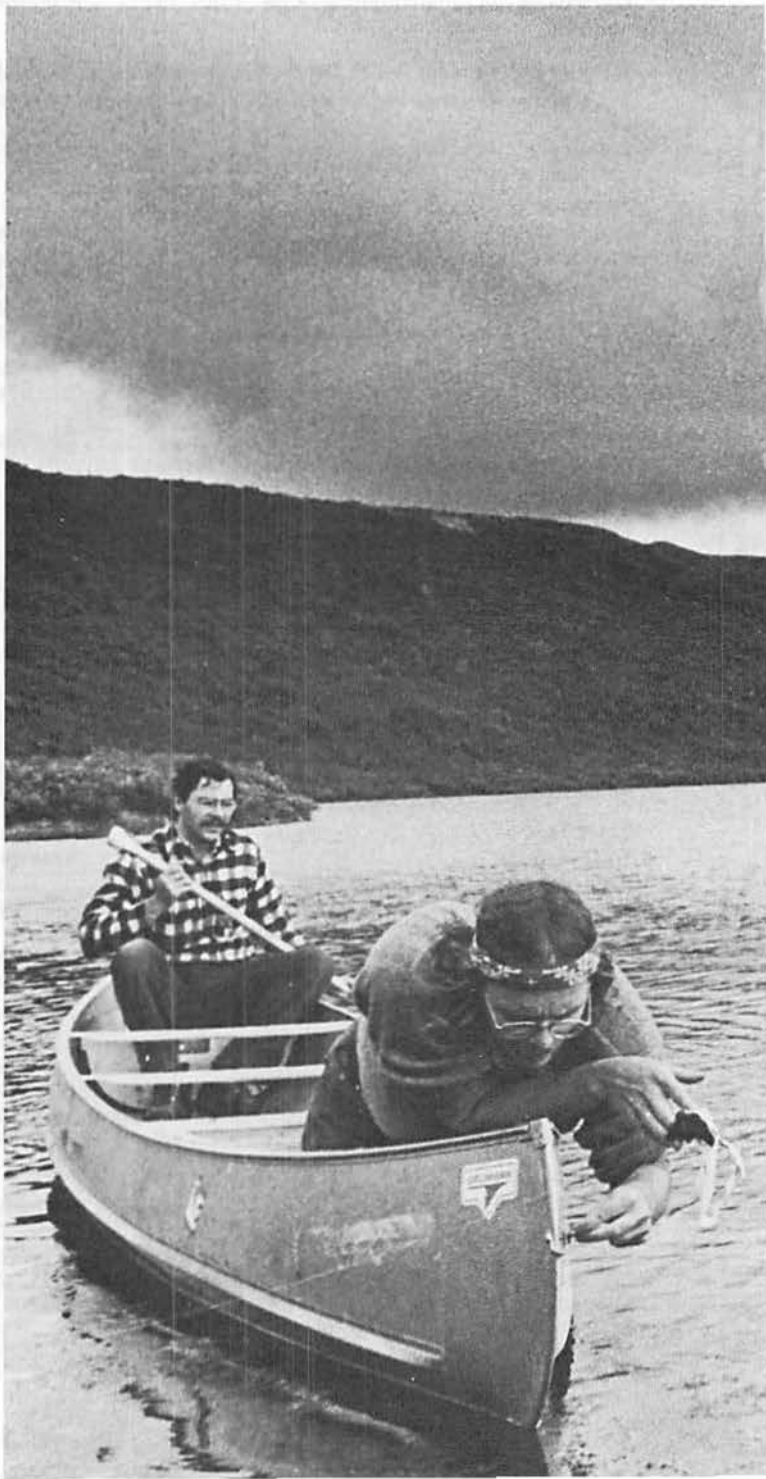
2. Complete a minimum of 30 credits of approved courses, including W.F. 699 – Thesis, in the field of wildlife management.

3. Students working in subject areas involving significant non-English literature will be expected to read the appropriate foreign language.

Wildlife Management – Interdisciplinary Ph.D. Degree

See page 66 for degree requirements.

*Maximum of 3 credits may be included in the required 9.





Course Descriptions

Courses offered by the university are listed alphabetically by subject area.

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. Freshmen and sophomore students are cautioned to register for upper division (300 and 400) level courses only if they had adequate preparation and background to undertake advanced study in the field in which the course is offered.

1-49 — Noncredit courses.

50-99 — Courses designed for associate degree or technical certificate; they are not applicable to baccalaureate requirements.

100-299 — Lower-division courses.

300-499 — Upper-division courses. Freshmen 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.

600-699 — Graduate courses to which a few well qualified undergraduates may be admitted with the permission of the head of the department in which the course is offered.

Special or Reserved Numbers — Courses identified with numbers ending in -92 are seminars; ending in -93 are special topics courses, approved to be offered only once during the year or on a trial basis; -97 indicates individual study; -98, individual research; -99, thesis.

Courses identified with these special or reserved numbers may be available at all levels (i.e., 193, 293, 393, etc.) at the discretion of any department, although offerings above the level of approved programs must be approved in advance by the provost (e.g., 600-level offerings in areas without approved graduate programs). These courses may be repeated for credit.

Course Credits

One credit represents satisfactory completion of 840 minutes of lecture or 1680 or 2520 minutes of laboratory, whichever is appropriate. Credit hours may not be divided, except one-half credit hours may be granted at the appropriate rate. For short courses and classes of less than one semester in duration, course hours may not be compressed into fewer than *three days per credit*, and no more than one credit may be earned per week, per student.

Following the title of each course, the figures in parenthesis indicate the number of lecture and laboratory hours the class meets each week for one semester. The first, lecture hours; the second, laboratory. For example (2+3) indicates that a class has two hours of lecture and three of laboratory work week.

The number of credits listed is for each semester. Thus "3 credits" means three credits may be earned.

Accounting

Acct. 100 3 Credits Fall
Intro. to Small Business Accounting (3+0)
Financial accounting for small business enterprises including a study of the entire accounting cycle utilizing a practice set and a detailed study of payroll reporting. Accounting procedures will be stressed.

Acct. 101 3 Credits Fall and Spring
Elementary Accounting (3+0)
An introduction course in accounting concepts and procedures for service businesses and for merchandising businesses owned by a single proprietor. (Prerequisite: completion of all required remedial courses.)

Acct. 102 3 Credits Fall and Spring
Elementary Accounting (3+0)
A continuation of introductory accounting concepts and procedures emphasizing the problems of businesses organized as partnerships or corporations and performing manufacturing operations. (Prerequisite: Acct. 101.)

Acct. 310 3 Credits Fall
Income Tax (3+0)
A study of federal and state income taxes relating primarily to the individual residing in Alaska and an introduction to corporate income taxation. The course entails tax reporting, planning, and research.

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

Acct. 342 3 Credits Spring
Managerial Cost Accounting (3+0)
A cost accounting course with a managerial emphasis focusing on breakeven analysis, job order costing, capital budgeting, profit planning, standard costing and variance analysis. (Prerequisite: Acct. 102.)

Acct. 352 3 Credits Fall
Management Accounting (3+0)
A managerial accounting course focusing on business policy profit planning, resource planning, control concepts, reporting for man-

agement control and the impact of public reporting on management decisions. (Prerequisites: Acct. 101 and Acct. 102.)

Acct. 361 3 Credits Fall
Acct. 362 3 Credits Spring
Intermediate Accounting (3+0)
A treatment in depth of the balance sheet accounts and procedures for their analysis and correction. Study of working capital and fixed assets will receive special emphasis during Fall semester. Special attention will be given to long-term liabilities and stockholders' equity during Spring semester. (Prerequisites: Acct. 102.)

Acct. 401 3 Credits Fall
Advanced Accounting (3+0)
A thorough study of the accounting for partnerships, parent-subsidiary relationships, fiduciaries, and installment sales. (Prerequisite: Acct. 362.)

Acct. 402 3 Credits Fall
Governmental Accounting (3+0)
Principles and operations of fund accounting; financial reporting, budgetary control for governmental, municipal and non-profit organizations. (Prerequisite: Acct. 102.)

Acct. 403 3 Credits Spring
Advanced Taxes (3+0)
A study of federal and state income taxes for all entities, gift, estate, and social security taxes. The course entails tax planning and tax research. (Prerequisite: Acct. 310.)

Acct. 404 3 Credits Fall
Adv. Cost Accounting and Controllership
A cost accounting course with a managerial emphasis focusing on inventory valuation, joint costing, process costing, decentralization, cost behavior patterns, sales mix and other cost analysis. (Prerequisite: Acct. 342.)

Acct. 405 3 Credits Spring
Contemporary Issues in Accounting (3+0)
A study of current developments in financial and managerial accounting theory and auditing standards. Relevant court cases, recent SEC rulings, FASB publications and AICPA sponsored studies affecting accounting will be researched and discussed. (Prerequisite: Acct. 401.)

Acct. 452 3 Credits Spring
Auditing (3+0)
A study of the procedures for verification of financial data and the professional standards applicable to the auditor's examination of financial statements and his expression of opinion relative to them. (Prerequisite: Acct. 362.)

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

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

Acct. 483 1 Credit Spring
Estate Tax Planning (1+0)
The course will entail estate tax planning. The course will focus on gift, estate, and social security taxes. (Prerequisites: Upper division standing or permission of instructor.)

Acct. 611 3 Credits Fall
Accounting Theory and Practice (3+0)
An examination and discussion of theoretical issues and developments in accounting with emphasis on asset valuations and income determination. Special attention will be given to problems and contemporary pronouncements which will aid the student in preparing for the CPA examination. (Prerequisite: Acct. 362.)

Acct. 650 3 Credits Spring
Management Accounting Seminar (3+0)
Use of accounting information for managerial decisions, planning and control in economic entities. Topics covered include: the accounting process, responsibility accounting, performance measurement, capital budgeting, financial analysis and financial reports for managers, government, investors and the public. Students participation will include problem analysis and oral and written report preparation. (Prerequisite: Graduate standing, Acct. 101 and 102, or permission of instructor.)

Alaskan Studies

AkSt 186 3 Credits Fall
The Native Peoples of Alaska (3+0)
Presentation of Alaskan Native culture from the earliest archaeological record to today, changes that occurred over time, and relationship of the traditional cultures to the contemporary ways of life.

Agriculture and Land Resources Management

A.L.R. 101 3 Credits Fall
Conservation of Natural Resources (3+0)
Consideration of natural resources including discussion of their biological and physical nature, social and economic aspects of use, conflicts of use, and alternative means for conservation. Majors in all fields are welcome.

A.L.R. 310 3 Credits Alternate Spring
Agricultural Concepts and Techniques (3+0)
Concepts and techniques of agriculture in its broadest sense as related to past, present and future cultures; food and fiber production; uses of wild and domestic plants and animals; esthetics; and quality and protection of the environment. (Prerequisite: Biol 107, 108; Chem 105, 106. Next offered: 1979-80.)

A.L.R. 311 3 Credits Alternate Fall
Domestic Plants (2+3)
Principles of plant science as related to production of economic crops, with special attention to those grown in Alaska. (Prerequisite: A general course in botany. Next offered: 1979-80.)

A.L.R. 320 3 Credits Alternate Fall
Introduction to Animal Science (2+3)
Origin, history, and economic significance of breeds of dairy and beef cattle, swine, sheep, and poultry. Discussion of reindeer, bison, and musk-ox. Introduction to management and production systems with special reference to Alaska. (Next offered: 1980-81.)

A.L.R. 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. (Next offered in 1979-80.)

A.L.R. 340 3 Credits Alternate Spring
Natural Resources Measurements (2+3)
Introduction to the techniques and instrumentations used in the measurement and inventory of natural resources. Measurements used by managers of land, timber, range, wildlife, water, and recreation resources will be discussed. (Prerequisites: junior standing or permission of instructor. Next offered in 1980-81.)

A.L.R. 350 3 Credits Spring
Introduction to the Forest System (2+3)
The physiological and ecological foundations for forest resource management. Forestry concepts involving soils, silvics, silviculture, fire, pathology, and entomology are discussed. Emphasis on

Alaska's forest resources. (Prerequisites: Biol. 271 and A.L.R. 101 or permission of instructor.)

A.L.R. 370 3 Credits Fall
Introduction to Watershed Management (2+3)
Examination of the hydrologic cycle and the influence of land management techniques on water quantity, quality and timing. Topics of water yield, soil erosion and non-point pollution, snowpack management and land use alternatives will be discussed. (Prerequisites: Biol. 239, and Geos. 101, or permission of instructor.)

A.L.R. 380 3 Credits Spring
Soils (2+3)
Origin and development, weathering, classification, terminology; physical and chemical properties, biology, aeration, and moisture; reaction and liming; manures and fertilizers; management; problems in Alaska. (Prerequisite: Chem. 105.)

A.L.R. 400 3 Credits Alternate Spring
Natural Resource Policies (3+0)
The origin, development, and significance of major public policies in fields such as forest management, water resources, outdoor recreation, public land management, wildlife management, mineral and petroleum resources, and agriculture. Focuses on Alaskan issues and national issues relevant to the problems of northern natural resource management. (Prerequisites: Upper division or graduate standing. Next offered: 1979-80.)

A.L.R. 401 3 Credits Alternate Spring
Natural Resources Legislation (3+0)
An examination of the background and potential importance of selected federal and Alaskan legislation in the fields of land use, land planning, and resource development and management. A study of the legislative process of policy development (Prerequisites: Junior, senior, or graduate standing with major in agriculture, wildlife, fisheries, natural resources management, or, with instructor's permission, related fields. (Next offered: 1980-81.)

A.L.R. 411 3 Credits Alternate Fall
Plant Propagation (2+3)
Principles of plant propagation, including seeds, bulbs, divisions, layers, cuttings, buds, grafts and rootstocks. Where possible, emphasis will be placed on the propagation of indigenous plants. (Prerequisites: ALR 311 or permission of instructor. Next offered: 1980-81.)

A.L.R. 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: 1979-80.)

A.L.R. 430 3 Credits Alternate Spring
Land-Use Planning (3+0)
Land use and resources planning principles and practices in the United States, with primary emphasis on the state and regional levels, and with special attention to Alaska. (Next offered: 1980-81.)

A.L.R. 450 3 Credits Alternate Fall
Forest Management (3+0)
Introduction to forest land management for production of goods and services; relation of timber production to other forest land uses; topics include sustained yield, allowable cut, management planning inventory, valuation. (Prerequisites: A.L.R. 350, Econ. 235, or permission of instructor. Next offered: 1980-81.)

A.L.R. 460 3 Credits Fall
Principles of Outdoor Recreation Management (3+0)
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.)

A.L.R. 461 3 Credits Alternate Spring
Interpretive Services (3+0)
Naturalist and other visitor programs in outdoor recreation areas: philosophy, planning, and development of interpretive programs; resources, agencies, users, interpretive media, and program evaluation. (Prerequisites: At least junior standing or permission of instructor. Next offered: 1979-80.)



A.L.R. 630 3 Credits Alternate Fall
Regional Planning (3+0)
An advanced course in which specific problems in regional planning, of importance to Alaska, are considered in depth. (Next offered: 1980-81.)

A.L.R. 631 3 Credits Alternate Spring
Regional Planning Practicum (3+0)
Application of planning theories and methods to specific regional problems in Alaska. Students will work in small teams on problems illustrating regional development, land use planning, environmental management, growth policy, and other issues in Alaska. (Prerequisite: A.L.R. 630 or permission of instructor. Next offered: 1980-81.)

A.L.R. 640 3 Credits Alternate Spring
Simulation and Modeling in Resource Management (3+0)
An introduction to and discussion of the use of simulation and modeling in natural resource management. Emphasis on concepts, strategies, and case studies. (Next offered: 1979-80.)

A.L.R. 670 3 Credits Alternate Fall
Biometeorology (3+0)
Solar radiation, energy balance relationships, and disposal of incident energy at the earth's surface; physical environment in relation to biological activity of plants and animals. Concepts emphasized. (Prerequisites: calculus, physics, biology or permission of the instructor. A.L.R. 350 recommended. Next offered: 1979-80.)

A.L.R. 680 3 Credits Alternate Fall
Predicting Environmental Change (3+0)
Analyzes theoretical and practical problems of prediction from the standpoint of social, environmental, and economic disciplines. Examines the potential and actual role of scientific prediction in political decision-making especially through the National Environmental Policy Act's Environmental Impact Statement process and similar State legislation. (Prerequisites: Graduate status or upper division standing and permission of instructor. Next offered: 1979-80.)

Alaska Native Languages

ANL 215 3 Credits Fall
ANL 216 3 Credits Spring
Alaska Native Languages (3+0)
A survey of all Native Languages of Alaska, open to all students. History, present and future of these languages; examples of Indian and Eskimo language structures, with native speakers in class; present situation and prospects for the future as a cultural and political force in Alaska and elsewhere. Fall semester devoted mainly to Eskimo and Aleut; Spring to Athabaskan, Eyak, Tlingit, Haida, Tsimshian. Semesters may be taken independently.

ANL 387 3 Credits Fall
ANL 388 3 Credits Spring
Bilingual Methods and Materials (3+0)
Training and research in bilingual education methods in Alaska native languages and preparation of books and materials in any of them.

Anthropology

Anth. 101 3 Credits Fall and Spring
Introduction to Anthropology (3+0)
An introduction to the general field of anthropology, including the physical and social/cultural aspects of man. The course is designed to introduce the basic ideas, methods, and substantive results of anthropology to those desiring some understanding of what anthropology does, how it does it, who does it and where, and something of what has been learned about the variations and similarities of human beings.

Anth. 121 3 Credits Alternate Spring
Human Origins (3+0)
A general review of human origins and evolution based on evidence from the fossil record and the anatomy and behavior of nonhuman primates, bio-behavioral trends in hominid evolution, modes of communication and the origin of language, and the biocultural consequences of big-game hunting. (Next offered: 1979-80.)

Anth. 176 3 Credits As Demand Warrants
Anthropology of American Society and Culture (3+0)
Concentrates on the study of American culture and society from the point of view of anthropology. Various aspects of American culture will be addressed: patterns and processes of American lifestyle; values; structure and organization of subcultures. The approach to American culture and society will be comparable to that taken with primitive and peasant societies.

Anth. 201 3 Credits Alternate Spring
Social Anthropology (3+0)
Study of the development, methods, and purpose of social anthropology. The course will systematically study social relations and institutions of human groups (social organization and structure). The fundamental core subjects of social anthropology will be addressed: kinship; social groups; political anthropology; economic anthropology; legal anthropology; religion and ritual; community study; and, urban anthropology. (Next offered: 1980-81).

Anth. 202 3 Credits Alternate Fall
Cultural Anthropology (3+0)
Cultural anthropology concentrates on the areas of ethnology and ethnography, the comparative culture study in both the temporal and spacial context. Cultural history, culture area, culture change, and man's interaction with environment are key concerns. The descriptive aspects of anthropology, ethnography will also be addressed. (Next offered: 1980-81.)

Anth. 211 3 Credits Alternate Fall
Fundamentals of Archaeology (3+0)
Study of the development and methods of archaeology emphasizing the historical background of the discipline and the different approaches characteristic of its development. The application of basic archaeological techniques is illustrated through the use of a study module which presents the raw data from an excavation as well as a collection of artifacts which the class analyzes and discusses in terms of possible interpretations using the methods and techniques of archaeology as presented in the first part of the course. (Next offered: 1979-80.)

Anth. 212 3 Credits Alternate Spring
Prehistoric Foundations of Civilization (3+0)
A survey course dealing with the origins and evolution of human culture as seen through the archaeological record in the Old and New World. (Prerequisite: Anth. 211 or permission of the instructor. Next offered: 1979-80.)

Anth. 221 3 Credits Alternate Fall
Human Biology (2+3)
Modern human populations, including systematics, behavior, ecology, and inter- and intrapopulation genetic and morphological variations. Human adaptations to heat, cold, high altitude and changing nutritional and disease patterns. (Next offered: 1979-80.)

Anth. 222 3 Credits Alternate Spring
Human Evolution (3+0)
The fossils – their morphology, inferred functional and ecological relationships, geochronologic and geochronometric placements. Current taxonomic and phylogenic assessments, theories of evolutionary processes, behavioral primatology and the role of culture in hominid evolution are also major concerns. (Next offered: 1980-81.)

Anth. 301 3 Credits As Demand Warrants
Peoples of the World (3+0)
Study of the culture and the traditions of major non-literate and peasant societies. The material of the course consists of the in-depth descriptions of cultures grouped by rough geographical proximity about the world. Specific areas to be covered in different semesters include North America, South America, Oceania, Siberia and the Russian North, and Asia. (Prerequisites: Anth. 201 or 202 or junior standing or permission of the instructor. (Next offered: Fall 1979.)

Anth. 311 3 Credits As Demand Warrants
World Prehistory (3+0)
The prehistory of different cultural and/or geographical areas will be studied during alternate offerings of this course. Each time the course is offered only one area will be considered in depth. Areas to be covered include: North America, Arctic, Eurasia. (Prerequisite: Anth. 211 or 212 or junior standing or permission of the instructor. Next offered: Spring 1980.)

Anth. 321 3 Credits As Demand Warrants
Human Population Biology (3+0)
An areal survey of the physical anthropology of the peoples of one major geographic region of the world. Areas to be covered during different semesters will include: Circumpolar regions, North and South America, and Oceania. The course will emphasize the analysis of patterns of biological variation within and between prehistoric and modern human populations in a given area. General problems to be considered include origins and historical relationships, analysis of microevolutionary processes, and adaptation to climatic stress. (Next offered: Spring 1980.)

Anth. 342 3 Credits Spring
Anthropology of the Natives of Alaska and the Arctic (3+0)
A survey of the cultures of native peoples of Alaska, Canada, and Greenland at the time of European contact, with an emphasis on Alaskan peoples. The course includes a presentation of linguistic and cultural groupings of this arctic and subarctic area with an emphasis on their subsistence patterns, social organization, and religion in terms of the ecology of the area. Precontact interactions between these groups are also explored. This is a general course on this area and provides the background for understanding this area today. The course is part of a series of four courses emphasizing northern cultures and is complemented by Anth. 311 – World Prehistory: Arctic, Anth. 321 – Human Population Biology: Arctic, and Anth. 301 – Peoples of the World: Siberia and the Russian North. (Prerequisite: junior standing or permission of the instructor.)

Anth. 400 3 Credits As Demand Warrants
Anthropology of Religion (3+0)
This course focuses on one of the more fascinating subsystems of human culture and society, religion or supernatural belief. As approached from the perspective of anthropology, the study of religion is both comparative and wide-ranging. While much of the material will emphasize religion in the context of "primitive" society, its role in the more complex society will also be examined. Among the various topics the student can expect to encounter are: religious practitioners, ritual, belief systems, and the relationship of religious behavior to other aspects of social behavior.

Anth. 402 3 Credits As Demand Warrants
Culture Change and Theories of Applied Anthropology (3+0)
An intensive survey of the materials of culture change, particularly directed or planned culture change. The various methods and theories of applied anthropology are explored, as are the various approaches, values, practical aspects, theoretical implications, and ethics of each. (Prerequisites: senior standing or permission of the instructor. A background in anthropology will be essential.)

Anth. 409 3 Credits As Demand Warrants
Women in Society (3+0)
This course examines the nature of sex roles cross-culturally. The history of the study of sex roles, with an emphasis on female roles, in anthropology is discussed. Current research on the biological and cultural aspects of these rules is presented and various hypotheses in anthropology regarding male and female behavior cross-culturally are discussed and supplemented by in-depth studies of cultures representing different types of techno-environmental adaptation – hunting, horticultural, pastoral, agricultural, and industrial societies. (Prerequisites: junior standing or permission of the instructor.)

Anth. 410 3 Credits Alternate Fall
History of Anthropology (3+0)
This course presents the major theoretical approaches in cultural/social anthropology in a chronological framework which begins with the formulation of the discipline of anthropology and ends with current theory. The substance of the various approaches are used for discussions regarding the nature of the discipline, its goals and methods, and the relevance of theoretical perspectives to interpretations in anthropology. (Next offered: 1980-81.)

Anth. 411 Credits Arranged As Demand Warrants
Archaeological Field/Lab Techniques
Survey and excavation strategies, mapping, gridding, sampling techniques and data processing in archaeology and related field disciplines are presented. The course will be augmented by field experience at current archaeological excavations operated by the University of Alaska. In addition, students will process archaeological materials, drawing on the methods and techniques of analysis presented in class.

Anth. 412 3 Credits As Demand Warrants
Archaeological Research Methods (3+0)
Introduction to archaeological research design, laboratory techniques and methods of data analysis. These methods will be illustrated through the study of archaeological collections. (Prerequisite: Anth. 211 or permission of the instructor.)

Anth. 413 3 Credits As Demand Warrants
Archaeological Theory (3+0)
The history of archaeological theory will be presented as the framework for discussion and assessment of different theoretical perspectives in archaeology. These various perspectives will be illustrated through the study of their application to specific research problems. (Prerequisite: Anth. 211 or permission of the instructor.)

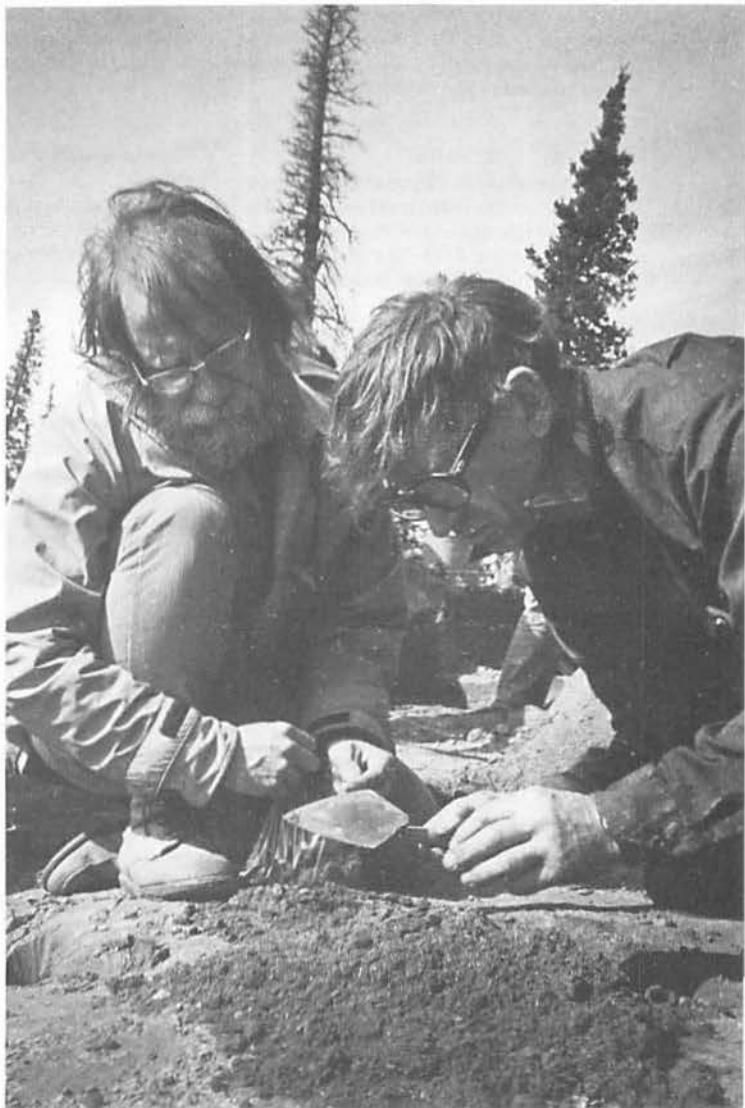
Anth. 414 3 Credits As Demand Warrants
Environmental Archaeology (3+0)
Introduction to Quaternary environmental reconstruction through the integration of geological, archaeological, botanical, and zoological data. (Prerequisite: Anth. 211 or permission of the instructor.)

Anth. 415 3 Credits As Demand Warrants
Contemporary Problems (3+0)
Specific subject governed by the interests of students, staff availability and current matters of discussion in the field of anthropology. Among the many possibilities for this course, comparative law, comparative economics, political anthropology, folklore, oral literature, or other topics which are not offered within the regular anthropology program can be provided. (Prerequisite: Permission of the instructor.)

Anth. 416 3 Credits As Demand Warrants
Language and Culture (3+0)
This course examines the role of language and linguistics in anthropology, language differences, and cultural differences. Examines the nature of language and its study, and the interrelationships of language and culture/society. Current theories of ethnolinguistics and ethnoscience, sociollinguistics and language origins are also discussed. (Prerequisites: Anth. 101 or 201 or 202.)

Anth. 421 3 Credits As Demand Warrants
Analytical Techniques (+3)
Classification, sampling, collection, and analysis of anthropological data: parametric and nonparametric significance tests and measures of association, analysis of frequency data, estimating resemblance using multiple variables, computer simulations, and methods of illustrating results of analysis. (Prerequisites: Any 200-level Anthropology course.)

Anth. 422 3 Credits As Demand Warrants
Human Osteology (2+3)
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. (Prerequisite: Anth. 221 or 222 or permission of instructor.)



Anth. 428 3 Credits As Demand Warrants
Human Ecology (3+0)
Human ecology attempts to understand man by studying individuals and human populations as biological entities profoundly modified by human society and culture. It is considered that animal and human ecology share some basic premises since man, in the native state, is born nearly hairless, naked, and is physiologically a tropical, sea-level dwelling primate. This course is concerned with some of the biobehavioral effects of ecological circumstances on man, expressed in human population size regulations, nutritional energetics, human adaptation and cultural ecology. The "man in the ecosystem" approach will be utilized.

Anth. 601 3 Credits Alternate Fall
Proseminar in Social/Cultural Anthropology (3+0)
An intensive graduate level survey on the subdiscipline of social/cultural anthropology dealing with the methods and theories in the field. Special attention will be directed at examining the substantive materials resulting from social/cultural studies. (Next offered: 1979-80.)

Anth. 611 3 Credits Alternate Fall
Proseminar in Archaeology (3+0)
An intensive coverage of advanced topics in archaeological theory and techniques of data recovery and analysis. The course will emphasize both field and laboratory aspects as well as the substantive results of archaeological research. (Next offered: 1980-81.)

Anth. 612 3 Credits As Demand Warrants
Paleoecology (3+0)
Advanced study of Quaternary environments. The influences of climatic change and the interrelationships of physical and biological factors on the distribution and evolution of biota including humans will be discussed. (Prerequisite: graduate standing or permission of the instructor.)

Anth. 621 3 Credits Alternate Spring
Proseminar in Physical Anthropology (3+0)
An intensive graduate level survey of the subdiscipline of physical anthropology dealing with historical developments and current problems in the field. The general areas of human paleontology and human population biology will be stressed. (Next offered: 1979-80.)

Anth. 622 3 Credits As Demand Warrants
Problems in Human Population Biology (3+0)
Preview of current methodological and theoretical advances in human population biology. Problem areas to be considered will include behavior, genetic analysis, the biological basis of human social behavior, phylogenetic reconstruction, the evidence for natural selection in human populations, human ecology, and demography. Emphasis will be placed on the recent literature of the field.

Anth. 630 3 Credits Alternate Spring
Anthropological Field Methods (3+0)
This course concentrates on the practical concerns and aspects of doing anthropological field research. Students are exposed to the relevant literature and significant discussions on the different aspects of fieldwork. In addition, students will gain practical experience in the problems, techniques and methods of fieldwork involving people from similar or distinct cultural backgrounds. The preparation of research proposals is also given attention. (Next offered: 1980-81.)

Anth. 640 3 Credits As Demand Warrants
Monograph Analysis (3+0)
Examination and criticism of exemplary landmarks in the anthropological literature. The course will be devoted to a subdiscipline during each offering.

Applied Statistics

A.S. 301 3 Credits Fall and Spring
Elementary Probability and Statistics (2+3)
Descriptive statistics, frequency distributions, mean, median, mode, standard deviation, elementary probability, inferential statistics, estimation of population parameters, tests of hypothesis, including non parametric methods, correlation, linear regression, and analysis of variance. (Prerequisite: Math 107-108 and junior standing or consent of instructor.)

A.S. 302 3 Credits Spring
Introduction to Experimental Designs and Analyses (2+3)
The development and analysis of various designs useful in experimental studies, including completely random, randomized complete block, incomplete block, Latin square, and factorial designs. Development of analysis of variance for the above designs. Brief treatment of a general analytic technique useful for the linear models specifying the above designs. (Prerequisite: A.S. 301.)

A.S. 402 3 Credits Spring
Scientific Sampling (2+3)
Sampling methods, including simple random, stratified and systematic; estimation procedures, including ratio and regression method; special area and point sampling procedures; optimum allocation. (Prerequisite: A.S. 301.)

A.S. 451 3 Credits Fall
Statistics for Civil Engineering (3+0)
An introduction to the use of probability and statistics in civil engineering design. Probability theory, choice of frequency models, estimation; significance testing, introduction to Baysian decision making. Application to civil engineering problems. (Prerequisites: Math. 302, junior standing in engineering or physical sciences.)

A.S. 602 3 Credits As Demand Warrants
Experimental Design (3+0)
Constructing and analyzing designs for experimental investigations; completely randomized, randomized block and Latin-square designs, split-plot design, incomplete block design, simple and partially compounded factorial designs, lattice and cubic lattice designs, treatment of missing data, comparison of designs. (Prerequisites: A.S. 302 or consent of instructor.)

NOTE: The following courses are statistical in orientation. A course description and listing of prerequisites may be found in the appropriate departmental course listings.
Anth. 421—Analytical Techniques
B.A. 360—Operations Management
B.A. 684—Quantitative Methods for Management
Geos. 430—Statistical and Data Analysis in Geology
Econ. 226—Introduction to Statistics for Economics and Business
Econ. 326—Statistical Methods
E.S.M. 621—Operations Research
Med. S. 630—Epidemiology
Minl. 403—Operations Research in Mineral Industries
Psy. 250—Introduction to Statistics for Behavioral Sciences
Psy. 360—Psychological Tests & Measurements

Art

Art 100 3 Credits Fall
Art Exploration (2+2)
Recommended for the student seeking an initial broad exposure in Art or desiring a basic understanding and appreciation of art through actual participation in such subject areas as drawing, sculpture, ceramics, printmaking, etc.

Art 105 3 Credits Fall, Spring
Beginning Drawing (1+4)
Introduction to basic elements in drawing. Emphasis on a variety of techniques and media.

Art 161 3 Credits Every Third Spring or Fall
Two-Dimensional Design (1+4)
Fundamentals of form; principles of composition, organization, and structure. (Next offered: Spring 1980.)

Art 162 3 Credits Every Third Fall or Spring
Color and Design (1+4)
Fundamentals of color and visual perception. Emphasis on two dimensions. (Next offered: Spring or Fall 1981.)

Art 163 3 Credits Alternate Spring
Three-Dimensional Design (1+4)
Work in three dimensions in sheet metal, plaster, paper, wire, etc., using the principles and elements of design. (Next offered: Spring 1981.)

Art 201 3 Credits Fall, Spring
Beginning Ceramics (1+4)
Introduction to the making and firing of clay objects. Study of clay methods of forming decorations, glazing, and firing. Foundation experiences in other materials such as plaster, enamels, concrete and glass.

Art 205 3 Credits Alternate Fall
Intermediate Drawing (1+4)
Exploration of pictorial composition and creative interpretation of subjects. (Prerequisite: Beginning drawing. Next offered: 1980-81.)

Art 207 3 Credits Fall, Spring
Beginning Printmaking (1+4)
Introduction to the concepts and techniques of printmaking. Each semester concentration on working on some of the following:

Relief (collography, linocut, woodcut, wood engraving)
Intaglio (etching, engraving, drypoint, aquatint)
Serigraphy (silkscreen, stencil)
Lithography and various photographic techniques.

Art 209 3 Credits Fall, Spring
Beginning Metalsmithing (1+4)
Introduction to the basic techniques of fine metalsmithing and jewelry.

Art 211 3 Credits Fall, Spring
Beginning Sculpture (1+4)
An introduction to sculpture using wood, stone, metal, wire, plaster, etc. This course is designed to make the student artist aware of his materials and the tools required for the execution of sculpture.

Art 213 3 Credits Fall, Spring
Beginning Painting (Acrylic or Oil) (1+4)
Investigation of basic materials and techniques in painting in the medium specified. (Prerequisites: Beginning drawing or permission of the instructor.)

Art 223 3 Credits Every Third Spring
Watercolor Painting (1+4)
Painting in various transparent and opaque media (watercolor, tempera, polymer, casein). Emphasis on techniques and subjects. (Prerequisite: Beginning Drawing. Next offered: 1981-82.)

Art 261 3 Credits Fall
Art 262 3 Credits Spring
History of World Art (3+0)
Origins of art and its progressive development from the beginning to contemporary art: emphasis on change and progress. Art 261-262 may be taken in reverse order; however, course content is presented in a chronological sequence beginning with fall semester. Term paper required each semester. (Prerequisite: Sophomore standing.)

Art 265 3 Credits Fall, Spring
Alaska Native Arts (1+4)
Materials and techniques in Alaska Native Art and comprehensive study of forms and styles from prehistoric development to contemporary expression. (Prerequisite: Art 211 or permission of instructor. Next offered: Fall 1979.)

Art 291 3 Credits Every Third Spring
Art Activities (1+4)
Introduction to planning and installing exhibitions, art laboratory and studio practices and related activities. (Prerequisite: Written permission of the instructor. (Next offered: Spring 1982.)

Art 301 3 Credits Fall, Spring
Intermediate Ceramics (1+4)
A continuation of basic ceramics with an emphasis on the potter's wheel, glaze calculations and plaster as it relates to pottery. (Prerequisites: Art 201 or permission of instructor.)

Art 305 3 Credits Alternate Fall, Spring
Advanced Drawing (1+4)
Development and refinement of individual problems in drawing. Can be repeated for credit with permission of instructor. (Prerequisites: Intermediate Drawing or permission of instructor. Next offered: Spring 1980, Fall 1980.)

Art 307 3 Credits Fall, Spring
Intermediate Printmaking (1+4)
Continued development of techniques and creative interpretation in selected graphic area. (Prerequisite: Beginning Printmaking.)

Art 309 3 Credits Fall, Spring
Intermediate Metalsmithing and Jewelry (1+4)
Further investigation of material processes and techniques for metalsmithing and jewelry with some emphasis on design.

Art 311 3 Credits Fall, Spring
Intermediate Sculpture (1+4)
More advanced exploration of the sculptural idea; work on an individual basis with more advanced use of a variety of techniques and materials.

Art 313 3 Credits Fall, Spring
Intermediate Painting (1+4)
Continued development of expressive skills in painting in any media. Emphasis on pictoral and conceptual problems. (Prerequisite: Beginning Painting.)

Art 319 3 Credits Every Third Spring
Life Drawing (1+4)
Problems in drawing from life, exploring possibilities in pictorial design and composition. Emphasis on form in space using charcoal, pen, brush, and various other media. (Prerequisite: Art 105 or permission of instructor. Next offered: 1981-82.)

Art 324 3 Credits Every Third Fall
Watercolor Painting and Composition (1+4)
Development of individual approach to watercolor media. Can be repeated for credits with permission of the instructor. (Prerequisite: Watercolor Painting. Next offered: 1979-80.)

Art 363 3 Credits Alternate Spring
History of Modern Art (3+0)
Development of modern art forms and theories in the visual arts from the late 19th century until contemporary art. Concentration on explaining the artistic pluralism of 20th century art forms: Cubism, Futurism, Surrealism, Expressionism, Constructivism, Non-objective Art, Abstract Expressionism, Pop Art, Realism and many other "ism." (Prerequisites: Art 262 or permission of instructor. Next offered: 1979-80.)

Art 364 3 Credits Alternate Spring
Italian Renaissance Art (3+0)
The development of the Renaissance from early Florentine beginnings to the High Renaissance of Venice. Study of the works of such artists as Massacio, Michelangelo, DaVinci, Titian, etc. (Prerequisite: Art 261 or permission of instructor. Next offered: 1980-81.)

Art 365 3 Credits Summer
Native Art of Alaska (3+0)
A study of art forms of the Eskimo, Indian, and Aleut ranging from pre-history to the present: emphasis upon the changes in forms through the centuries. (Prerequisites: Advanced standing or permission of instructor.)

Art 401 3 Credits Fall, Spring
Advanced Ceramics (1+4)
Advanced wheel work; design of large scale ceramic murals for incorporation into architecture. Study of the practical application of ceramics in the commercial fields. Advanced body and glaze calculation. May be repeated for credit with permission of instructor. (Prerequisites: Art 301 or permission of instructor.)

Art 407 3 Credits Fall, Spring
Advanced Printmaking (1+4)
Individual development of technical and creative processes in Printmaking. Can be repeated for credit with permission of instructor. (Prerequisite: Intermediate printmaking.)

Art 409 3 Credits Fall, Spring
Advanced Metalsmithing and Jewelry (1+4)
Continued investigation of materials and processes with an introduction to holloware skills and forging. May be repeated for credits with permission of instructor.

Art 411 3 Credits Fall, Spring
Advanced Sculpture (1+4)
Styrofoam burn-out, bronze casting, steel welding, repoussee sculpture, inlay, and architectural sculpture (stone and concrete). May be repeated for credit with permission of the instructor.

Art 413 3 Credits Fall, Spring
Advanced Painting (1+4)
Experimentation and development of individual ideas and techniques in painting. Can be repeated for credits with permission of instructor. (Prerequisite: Intermediate Painting.)

Art 441 3 Credits Fall
Lost Wax Casting (1+4)
A study of the design and execution of jewelry and other small metal objects by the lost wax casting method. (Prerequisite: Art 409 or permission of the instructor.)

Art 442 3 Credits Fall
Nonferrous Forging (1+4)
A study of the design and execution of hammer forged nonferrous metal objects. (Prerequisite: Art 409 or permission of instructor.)

Art 443 3 Credits Fall
Holloware (1+4)
A study of the design and construction of holloware by raising, dapping, and fabricating. (Prerequisite: Art 409 or permission of instructor.) May be repeated for credit.

Art 450 3 Credits Every Third Fall
Raku Pottery (1+4)
A one semester experience in Raku pottery. Body and glaze development for raku purposes. Special emphasis on decorative techniques. Raku kiln building and burner construction employing a variety of fuels such as: wood, charcoal, electricity, natural gas, propane, oil, etc. (Prerequisite: Art 201 or permission of instructor. Next offered: 1979-80.)

Art 451 3 Credits Every Third Spring
Earthenware (1+4)
A one semester experience in earthenware pottery. Understanding the advantages and disadvantages of earthenware. Intensive laboratory activities in earthenware body and glaze development, decorative techniques and firing procedures. (Prerequisite: Art 201 or permission of instructor. Next offered: 1979-80.)

Art 452 3 Credits Every Third Fall
Porcelain (1+4)
A one semester experience in working with porcelain. Intensive laboratory experiences in developing a full complement of porcelain bodies (and glazes) suitable for hand building, throwing, casting, pressing, etc. Decorative techniques appropriate to this firing range as well as firing procedures associated with porcelain. (Prerequisite: Art 201 or permission of instructor. Next offered: 1980-81.)

Art 453 3 Credits Every Third Spring
Kiln Design & Construction (1+4)
A one semester experience in kiln design and construction. After appropriate classroom instruction in understanding refractories, construction techniques and burners, the class will participate in constructing full size electric and fuel fired kilns. (Prerequisite: Art 201 or permission of instructor. Next offered: 1980-81.)

Art 454 3 Credits Every Third Fall
Vapor Glazing (1+4)
Salt glazing (i.e., vapor glazing). Construction and maintenance of salt kilns. Development and use of clay bodies and decorative techniques peculiar to the salting phenomena, as well as the history and contemporary use of "salt" in pottery. (Prerequisites: Art 201 and permission of instructor. Next offered: 1981-82.)

Art 455 3 Credits Every Third Spring
Studio Glass (1+4)
Studio participation in cold glass and hot glass techniques. (Prerequisites: Advanced standing or permission of instructor. Next offered: 1981-82.)

Art 499 1-3 Credits Fall, Spring
Thesis Project
Thesis Project. Directed study towards a one person show or individual creative project in art. Work is done outside of the regularly scheduled classes. BFA degree candidates must complete a thesis project. (Prerequisites: Senior standing.)

Aviation Technology

A.T. 100 4 Credits Fall and Spring
Private Pilot Ground School (4+0)
Preparation for the Federal Aviation Administration private pilot examination. Includes air traffic control, principles of flight, engine operation, weather navigation, and other related subjects.

A.T. 101 2 Credits As Demand Warrants
Private Flying (2+0)
Flight instruction arranged by student with a flight school approved by the college designed to qualify students for a private pilot certificate. Training will be in accordance with current Federal Aviation Administration flight training directives. Approximately 40 hours of flying. Course completion requires the awarding of a private pilot certificate from a Federal Aviation Administration flight inspector. (Prerequisite: A.T. 100 or passing score on FAA Private Pilot Written Exam.)

A.T. 102 3 Credits As Demand Warrants
Commercial Ground Instruction (4+0)
Advanced work in the topics discussed in AVT 100 plus: alcohol, drugs and flight physiology; aircraft ignition systems; basic radar and transponder; oxygen, altitude, and the body; oxygen systems; high performance aircraft; emergency procedures; icing; maneuvers. (Prerequisite: A.T. 100 or permission of instructor.)

A.T. 103 3 Credits As Demand Warrants
Commercial Flying (0+2)
Flight instruction arranged by student with a flight school approved by the college designed to qualify private pilots for a commercial pilot certificate. Training will be in accordance with current Federal Aviation Administration flight directives. Approximately 120 hours of flying. Course completion requires the awarding of a commercial pilot certificate from a Federal Aviation Administration flight inspector. (Prequisite: A.T. 101 or 102 or passing score on FAA Commercial Written Exam.)

A.T. 105 1 Credit As Demand Warrants
Float Rating (0+1)
Flight instruction arranged by student with a flight school approved by the college, designed to qualify pilots for a sea plane rating. Training will be in accordance with current FAA flight training directives. Approximately 10 hours of flying. Course completion requires the awarding of a single engine sea rating from a FAA flight inspector.

A.T. 107 1 Credit As Demand Warrants
Multi-Engine Rating (1+0)
Flight instruction designed to prepare the pilot for a Federal Aviation Administration multi-engine rating. Flight instruction arranged by student with a flight school approved by the college. Training will be in accordance with current Federal Aviation Administration flight training directives. Approximately 10 hours flying. Course completion requires the awarding of a multi-engine rating from an FAA flight inspector. (Prerequisite: private pilot certificate or higher.)

A.T. 108 1 Credit As Demand Warrants
Introduction to Skis (1+0)
Pilot instruction arranged by student with a flight school approved by the college designed to introduce the pilot to techniques of ski-plane operation. Cold weather maintenance procedures will be included in the course. Approximately 10 hours of flying and 5 hours of classroom are to be included.

A.T. 109 3 Credits As Demand Warrants
Glider Flying (3+0)
Flight instruction arranged by student with a flight school approved by the college designed to qualify pilots for the glider rating. Training will be in accordance with current Federal Aviation Administration flight training directives. Approximately 10 hours of flying. Course completion requires the awarding of a glider rating from a Federal Aviation Administration flight inspector.

A.T. 110 1 Credit As Demand Warrants
Biennial Flight Review (1+0)
This course will include a review of the following subjects: Safe Flight; Night Flight; Collision Avoidance; Flight Watch; Weather and Weather Services; Federal Aviation Regulations; National Airspace systems; Services provided by Air Traffic Control; Radar Terminal Control Areas; Currency Requirements; Instrument Competency Checks; and a review of the various flight maneuvers.

A.T. 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.

A.T. 118 3 Credits As Demand Warrants
The Control Environment (3+0)
Basic Navigation with emphasis on air navigation. Operation and function of radio aids to navigation (NAVAIDS). Basic airway structure. Use of air navigation charts, instrument approach plates, standard instrument arrival and departure routes, and the Airman's Information Manual.

A.T. 120 3 Credits As Demand Warrants
Operation in the Flight Service Station (3+0)
Involves actual methods of operation in a flight service station. Includes weather observation, teletype operation, pilot briefing techniques, use of air-to-ground radio frequencies, positions of operation and emergency procedures. (Prerequisites: A.T. 117 and A.T. 118, concurrent enrollment permitted, or background in air traffic or weather service, or hold private pilot license or higher certificate.

A.T. 131 3 Credits As Demand Warrants
Introduction to Aviation I (3+0)
15th Century until 1918. An introduction to the theory of flight followed by a detailed tracing of man's attempts to fly with particular emphasis on the development of heavier-than-air machines. The development and present status of the aviation industry to include characteristics, classification, and inter-relations of its principal segments.

A.T. 132 3 Credits As Demand Warrants
Introduction to Aviation II (3+0)
A continuation of Introduction to Aviation I, 1918 to present. A historical study of the airplane in Alaska and the role it played in the territory's social and economic development. The history of and operating methods of Alaska's first "bush pilots." The modern day bush pilot. Emphasis on air transportation, federal regulatory agencies, and areas where aerospace age careers exist and will be developing.

A.T. 136 3 Credits As Demand Warrants
Air Traffic Control for Pilots (3+0)
An introduction to air traffic control designed to familiarize the professional pilot with the ever increasing complexity od today's terminal and airway systems and theory of air traffic control, VFR, IFR, radar environment and methods used in its implementation. Authority, responsibility, and methods used by air traffic controllers and the future trends of air traffic control.

A.T. 137 3 Credits As Demand Warrants
Aviation Laws and Regulations (3+0)
A history of significant acts influencing aviation; case studies of important aviation litigation, organization authority, responsibility, and functions of the Department of Transportation, the FAA, and the CAB. An in-depth look at federal aviation regulations and their use. A survey of official flight information publications.

A.T. 155 3 Credits Fall and Spring
Preventive Maintenance for Pilots (3+0)
This course is designed to familiarize pilots with federal aviation regulations concerning legal repairs a pilot might make on his own aircraft. The course also deals with types of airframe construction, as well as power plants. Will include an introduction to turbo-prop and jet engines although the main emphasis will be on reciprocating engines, including accessories such as carburetion, magnetos, generators, alternators, electrical systems, and a thorough introduction to cold weather operations.

A.T. 160 3 Credits As Demand Warrants
Turbine Engines (3+0)
A theory course designed to familiarize the pilot with a wide variety of specific jet and turbo-prop engines: The historic development of the jet and the turbo-prop engines with an emphasis on combustion chambers, fuel systems, fuel control units, compressors, turbines, gear boxes, power levers, and coordinators.

A.T. 200 4 Credits Fall and Spring
Instrument Ground Instruction (4+0)
Instrument operation in detail; attitude-instrument flying, air traffic control and navigation facilities, pilot responsibilities, IFR enroute charts, approach plates, airspace and airway route systems, ATC operations and procedures, Federal Aviation Regulations, flight planning, medical facts for pilots, meteorology, simulated flights. Course includes visits to FAA RAPCON and ARTCC facilities. (Prerequisites: A.T. 100, A.T. 102 or passing score on FAA-Private or commercial pilot written exams or permission. Must also take A.T. 102, Commercial Ground Instruction, in order to graduate from TVCC FAA Approved Advanced Ground School.)

A.T. 201 3 Credits As Demand Warrants
Instrument Flying (3+0)
Flight instruction arranged by student with a flight school approved by the college designed to qualify commercial pilots for an instrument rating. Training will be in accordance with current Federal Aviation Administration flight training directives. Approximately 40 hours of flying. Course completion requires the awarding of an instrument rating by an FAA flight inspector. (Prerequisites: Private or commercial pilot certificate or A.T. 200 (concurrent enrollment allowed) or passing score on FAA private or commercial pilot written exam or permission.)

A.T. 202 3 Credits As Demand Warrants
CFI Ground Instruction (3+0)
Principles of teaching and learning, analysis of motivation of students, the flight instructor's role and responsibilities, important flight training maneuvers, advanced aerodynamics, the integrated method of flight instruction, fundamentals of instrument flight, flight training publications, Federal Aviation Regulations, use of pilot information publications, group projects, and practice instructing on the college's flight simulator. (Prerequisites: commer-

cial pilot certificate or passing score on FAA commercial written exam.)

A.T. 203 2 Credits As Demand Warrants
CFI Flying (2+0)
Flight instruction arranged by student with a flight school approved by the college designed to qualify commercial pilots for the certified flight instructor certificate. Training will be in accordance with current Federal Aviation Administration flight training directives. Approximately 30 hours of flying. Course completion requires the awarding of a certified flight instructor certificate from an FAA flight inspector. (Prerequisites: Commercial pilot certificate and A.T. 202 (concurrent enrollment allowed) or passing score on FAA Flight Instructor Exams.)

A.T. 205 2 Credits As Demand Warrants
C.F.I.I. (2+0)
Flight instruction arranged by student with a flight school approved by the college designed to qualify commercial pilots for certified flight instructor-instrument certificate. Training will be in accordance with current FAA flight training directives. Approximately 20 hours of flying. Course completion requires the awarding of a certified flight instructor-instrument certificate from an FAA flight inspector. (Prerequisites: Certified flight instructor certificate, instrument rating, and passing score on FAA CFII exams plus 10 hours of simulator time.)

A.T. 206 4 Credits As Demand Warrants
A.T.P. Ground Instruction
Preparation for the FAA ATP written exam and operating multi-engine jet equipment under FAR Part 121. Includes FAR Part 91 review, IFR and TERPS review, ILS review, ATC procedures review, attitude instrument flying review, Airman's Information Manual (AIM), Jeppesen CR Series computer, cross-country planning, performance charts, weight and balance, weather theory, interpreting high altitude weather charts – domestic and oceanic, forecasts – area and terminal, federal air regulations Part 121. (Prerequisites: Compliance with FAR 61.141 and 61.145 and simulator.)

A.T. 207 2 Credits As Demand Warrants
A.T.P. Flying (2+0)
Flight instruction arranged by student with a flight school approved by the college designed to qualify commercial pilots for an airline transport pilot certificate. Training will be in accordance with current FAA flight training directives. Approximately 25 hours of flying. Course completion requires the awarding of an airline transport pilot rating by an FAA examiner.

A.T. 208 4 Credits As Demand Warrants
Flight Simulator Operation (3+3)
Prepare advanced aviation students to be qualified flight simulator operators. Half the credit will be for classroom work and the other half will be given for practical experience on the college's flight simulator. (Prerequisite: permission.)

A.T. 215 3 Credits As Demand Warrants
Principles of Air Traffic Control (IFR) (3+0)
Procedures and techniques for the control of air traffic in the terminal and enroute situation under instrument weather conditions. Involves use of non-radar separation, instrument arrival and departure procedures, emergency operations, altitude reservations, flow control and special military procedures. Laboratory. (Prerequisites: All lower number ATC courses, air traffic control background, private pilot with instrument rating or higher, permission of instructor.)

A.T. 216 3 Credits As Demand Warrants
Principles of Air Traffic Control (VER) (3+0)
Operation in an air traffic control tower under visual conditions. Includes operation of airport lighting systems, proper phraseologies, separation requirements, control technique and operation in emergencies. (Prerequisites: A.T. 116 through A.T. 121 private pilot or higher certificate, permission.)

A.T. 219 3 Credits As Demand Warrants
The Radar Environment (3+0)
Fundamental radar theory. Operations of basic radar systems in the air traffic control system. Radar separation of air traffic. Future radar development. Laboratory. (Prerequisites: A.T. 215 and A.T. 218, air-traffic control background, commercial pilot with instrument rating or higher, permission of instructor.)

A.T. 220 3 Credits As Demand Warrants
The Air Traffic Control Intern Program (3+0)
Restricted to students enrolled in the Air Traffic Control courses. Function as an intern for a period of indoctrination and work practice at actual air traffic control facilities. (Prerequisites: A.T. 116 through A.T. 120, permission of instructor.)

A.T. 231 3 Credits Fall and Spring
Survival Search and Rescue (3+0)
Designed to prepare the pilot to deal with situations that develop from lost or downed aircraft. Principles of survival and a survey of survival techniques in all climates. Emphasis on survival in arctic environment. Organization of search and rescue, with emphasis on systems and operational methods used in Alaska.

A.T. 232 3 Credits As Demand Warrants
Aviation Astronomy and Navigation (3+0)
An introductory course to navigation and navigational astronomy dealing with the earth's surface and mapping, aeronautical charts, theory and operation of airborne navigational equipment, star and constellation identification, elements of astronomical triangle, navigational calculations, grid navigation, and other high latitude navigation systems.

A.T. 234 3 Credits As Demand Warrants
Complex Aircraft Systems (3+0)
A general interest course for the professional airman who plans on transitioning from light single engine and light multi-engine aircraft into both heavy aircraft (12,500 pounds and over) and turboprops or turbojets. A comprehensive introduction to the main systems of the following aircraft would be included: Turbo Commander, King Air, Twin Otter, Hercules, Lear Jet, Douglas C-47 and the Boeing 727.

A.T. 235 3 Credits As Demand Warrants
Elements of Weather (3+0)
Weather as it affects aircraft operators. Definitions of weather elements, methods of measurement, composition of the atmosphere, description of atmospheric process leading to rain, fog, snow, hail, hurricanes, tornadoes, thunderstorms; weather fronts and pressure systems and their movement, general circulation of the atmosphere and its source, wind and secondary circulation, weather forecasts – how they are made and how they can be used; weather satellites – current and projected use.

A.T. 236 4 Credits As Demand Warrants
Celestial Navigation for the Pilot (3+3)
A course designed to provide an introduction to mathematics required for basic concepts of celestial navigation as well as Loran, Doppler, inertial and grid navigation. Emphasis of the course will be on terminology, elements of astronomical triangle, time and the Air Almanac, star identification, line of position solutions and special solutions. Altimetry procedures including solution for drift and pressure line of position will also be included. Navigation instruments, such as compass systems, airspeed indicator, machmeters, altimeters, thermometers, absolute altimeters and sextants will be thoroughly covered.

A.T. 237 3 Credits As Demand Warrants
Air Traffic Control O.J.T. Instructor Techniques (3+0)
Provides instruction in basic communication skills; methods of teaching in an O.J.T. environment; the learning process; workshops in providing O.J.T. instruction; evaluating the teaching-learning process; applying the technique to the air traffic environment.

A.T. 239 4 Credits As Demand Warrants
Aircraft Dispatcher (1+4)
This course will prepare the student to pass the FAA aircraft dispatcher written examination. It includes flight planning, coordination functions involving the aircraft and other departments of the airline. Aviation weather will be covered including high level weather prognastic charts. Aircraft performance including takeoff,

landing, and weight and balance data are to be covered as well as flight planning, climb and descent planning, cruise performance, holding data, fuel consumption, high altitude charts, instrument approach procedures, approach lighting data, flight time analysis, and appropriate F.A.R.'s pertraining to the rating. (Prerequisite: A.T 117.)

A.T. 241 1-6 Credits As Demand Warrants
Flight Instructor Study Aids and Design (0+6)
Designed for the professional pilot whose main interest will be in the flight and ground instructional field. A workshop in which new and innovative methods of visual aids will both be designed, built and then tried in actual aviation technology classes. Examples of projects could include: portable wind tunnels; schematic electrical systems; fuel systems; symbolic jet, turbo-prop and reciprocating engines; control systems; and hydraulic and pneumatic systems. Weather system models including cold fronts, warm fronts, high pressure and low pressure areas, movies, photographs, video-audio tapes, rear projection, filmstrip with recordings of any instructional ideas that could possibly contribute to professional pilot education.

Biology

Biol. 104 3 Credits Fall
Natural History of Alaska (3+0)
Aspects of the physical environment peculiar to the north and important in determining the biological setting; major ecosystem concepts to develop an appreciation for land use and wildlife management problems in both terrestrial and aquatic situations.

Biol. 107 3 Credits Fall and Spring
Fundamentals of Biology (3+0)
Basic principles of living systems; chemical and structural bases; major metabolic mechanisms; reproduction and development; genetics; evolution and diversity; environmental relationships; and mechanisms for stability of cells, organisms, and populations. An introductory course open to students in all curricula.

Biol. 108 1 Credit Fall and Spring
Fundamentals of Biology (3+0)
Laboratory part of Biology 107. Exercises are designed to illustrate principles and concepts developed in Biology 107. (Prerequisites: concurrent registration, or credit in Biol. 107.)

Biol. 201 4 Credits Alternate Spring
Mammalian and Human Anatomy (3+3)
Mammalian gross and microanatomy, with emphasis on human structure. Dissection of cat and comparison with human. (Prerequisite: Biol. 107-108. Next offered: 1979-1980.)

Biol. 205 3 Credits Alternate Spring
Vertebrate Anatomy (1+6)
Anatomy of bony fishes, birds, and mammals. Laboratory dissections emphasized. (Prerequisites: Biol. 107-108 with a grade of B or better, or Biol. 107-108 and sophomore standing. Next offered: 1980-81.)

Biol. 210 4 Credits Spring
General Physiology (3+3)
Organism function, including such topics as respiration, digestion, circulation, nerve and muscle function, hormones, and reproduction. (Prerequisites: Biol. 107-108; Chem. 103 and 104 or concurrent registration in Chem. 105.)

Biol. 222 4 Credits Fall
Biology of the Vertebrates (3+3)
An introduction to the fishes, amphibians, reptiles, birds and mammals emphasizing systematics, structure, behavior and physiological features of each group. (Prerequisites: Biol. 107-108.)

Biol. 239 4 Credits Spring
Plant Form and Function (3+3)
Structure, function, ecology and evolutionary patterns of the major groups of plants. (Prerequisites: Biol. 107-108.)

Biol. 242 3 Credits Spring
Introductory Microbiology (2+3)
A survey of morphology and physiology of microorganisms (viruses, bacteria, fungi, algae and protozoans). The role of these organisms in the environment and their relationship to man are considered. Concepts of immunology are introduced. The laboratory stresses aseptic techniques for handling microorganisms. (Prerequisite: Biol. 107-108.)

Biol. 252 4 Credits Fall
Principles of Genetics (3+3)
Principles of inheritance; physico-chemical properties of genetic systems. (Prerequisites: Biol. 107-108.)

Biol. 271 3 Credits Fall
Principles of Ecology (3+0)
Relationships between organisms and their environments. Communities, environmental factors affecting plants and animals, population structure, and reaction of organisms. Field trips. (Prerequisites: Biol. 107-108 with a grade of B or better, or Biol. 107-108 and sophomore standing.)

Biol. 305 4 Credits Fall
Invertebrate Zoology (3+3)
Classification, structure, function, evolution, and life histories of invertebrate animals. (Prerequisites: Junior standing and at least eight credits in Biology, including Biol. 107 and 108, or permission of the instructor.)

Biol. 306 3 Credits As Demand Warrants
Entomology (2+3)
The biology and identification of insects and related arthroho t th mphasis on anatomy, physiology, behavior, ecology and evolution. Laboratories will emphasize collecting and preservation techniques and identification. (Prerequisites: Biol. 107 and 108; Biol. 271 recommended.)

Biol. 307 3 Credits Fall
Parasitology (2+3)
Structure, function, life history, and ecology of animal parasites. (Prerequisites: Biol. 107-108 and permission of instructor.)

Biol. 308 3 Credits Fall
Principles of Evolution (3+0)
An introduction to the mechanisms of, and evidence for, the evolution of living systems. The coding and transmission of genetic information in populations, population variability, change and stabilization. (Prerequisites: Biol. 107-108, 252, 271, or permission of the instructor.)

Biol. 317 5 Credits Spring
Comparative Anatomy of Vertebrates (2+9)
Anatomy, phylogeny, and evolution of the vertebrates. (Prerequisites: Biol. 107-108 with a grade of B or better, or Biol. 107-108 and sophomore standing.)

Biol. 328 3 Credits Fall
Biology of Marine Animals (3+0)
Introduction to Biology of marine organisms; ocean as a habitat, distribution, classification, functional morphology, and general biology of the major biological groups; man and the oceans. (Prerequisite: Upper division standing in a biologically oriented major.)

Biol. 331 4 Credits Spring
Systematic Botany (2+6)
Identification and classification of vascular plants with emphasis on Alaskan flora; discussion of taxonomic principles and both classical and experimental methods of taxonomic research. Preregistration is required to insure that each student will prepare a plant collection. (Prerequisite: Biol. 239 or permission of the instructor. Biol. 252 recommended.)

Biol. 333 3 Credits Alternate Fall
Morphology of the Non-Vascular Plants (2+3)
Comparative study of structure, development, phylogenetic trends, and life histories of the major groups of algae, fungi, and bryophytes. (Prerequisite: Biol. 239. Next offered: 1980-81.)

Biol. 334 4 Credits Alternate Fall
Morthology and Anatomy of Vascular Plants (3+3)
Comparative study of morphology, development anatomy, phylogenetic trends, and life histories of the major groups of vascular plants. (Prerequisite: Biol. 239. Next offered: 1979-80.)

Biol. 343 5 Credits Alternate Fall
General Bacteriology (3+6)
Morphology, physiology and systematics of bacteria and viruses and their relationship to man. Introduction to microbial pathogenesis and concepts of immunology. The laboratory stresses bacterial isolation and identification as well as demonstration of the physiological properties of various known bacterial types. (Prerequisites: Biol. 242 Chem. 321 or permission of instructor. Next offered: 1980-81.)

Biol. 352 3 Credits Alternate Spring
Cytogenetics (2+3)
Cell structure emphasizing the role of chromosomes in the differentiation and development of plants and animals. (Prerequisites: Biol. 252 or permission of the instructor. Next offered: 1978-80.)

Biol. 361 4 Credits Alternate Spring
Cell Biology (3+3)
Detailed structure, including ultrastructure, and function of the cell; isolation, composition, and biochemical properties of cell organelles and their integration. (Prerequisites: A year each of college chemistry and biology. Next offered: 1980-81.)

Biol. 414 4 Credits Alternate Spring
Comparative Physiology (3+3)
Functional variations and interrelationships among the major animal phyla; includes ionic and osmotic regulation, temperature regulation, metabolism, excretion, respiration, cardiovascular systems, nerve and muscle function. (Prerequisites: Biol. 210, Chem. 106; Chem. 321, and Biol. 361 recommended. Next offered 1979-80.)

Biol. 416 3 Credits Alternate Spring
Plant Physiology (2+3)
Functions of the vascular plants; plant-soil-water relations, synthesis and metabolism of organic compounds; growth and development. (Prerequisites: Biol. 210, Chem. 106, Chem. 321 and Biol. 361 recommended. Next offered 1979-80.)

Biol. 423 4 Credits Fall
Ichthyology (3+3)
Major groups of fishes, emphasizing the fishes of northwestern North America. Classification structure, evolution, general biology and importance to man of the major groups. (Prerequisites: Biol. 222; Biol. 317 recommended, or permission of the instructor.)

Biol. 425 3 Credits Fall
Mammalogy (2+3)
Variety of mammals, their behavior, life histories, identification, phylogeny and systematics, morphology, distribution and zoogeography. (Prerequisites: 20 credits in Biology including Biol. 222 and Biol. 205 or 317, or permission of instructor.)

Biol. 426 3 Credits Fall
Ornithology (2+3)
Evolution, classification, adaptations, distribution, behavior, breeding biology, population dynamics, and migration of birds. Several field trips to interior Alaska, and one to coastal southcentral Alaska. (Prerequisites: 20 credits in Biology, including Biol. 222, and Biol. 205 or 317; or permission of instructor.)

Biol. 427 2 Credits Alternate Fall
Basic Electron Microscopy (1+5)
Theory of electron microscopy and its applications to biological problems. Specimen preparation, use of the transmission electron microscope, special techniques in electron microscopy, and the intrepretation of results will be covered. Students will choose individual research projects, with the probably emphasis for medical and other interested students being placed on a selected mammalian tissue and its study in normal and diseased states. Students will write a research paper requiring additional work in the laboratory. (Prerequisites: Upper division, graduate or medical student status and permission of instructor. Next offered: 1979-80.)

Biol. 441 3 Credits Fall
Principles of Animal Behavior (2+3)
Basic principles (Casual factors and functional consequences) in the behavior of individual organisms and social groups, and in the development of behavior patterns. (Prerequisites: Biol. 210, 222 and 305.)

Biol. 443 3 Credits Alternate Fall
Microbial Ecology (2+3)
Laboratory investigation of ecological activity and impact of bacteria and fungi. Isolation and study of important genera. (Prerequisites: Biol. 343; or Biol. 242 and Biol. 271; or permission of instructor. Next offered: 1980-81.)

Biol. 474 3 Credits Fall
Plant Ecology (2+3)
Occurrence abundance and productivity of plant species under field conditions, structure, composition and variations in time and space of plant communities; relative environmental aspects; methods of analysis. (Prerequisites: Biol. 239 and 271 or permission of instructor.)

Biol. 476 4 Credits Spring
Animal Ecology (4+0)
Principles and concepts of ecology as applied to animal populations, including distribution and abundance, growth and regulation of populations, their role in the functioning of natural ecosystems, ecological energy relationships, and the organization of natural communities. (Prerequisites: Biol. 271 and Biol. 222 or 305 or permission of instructor.)

Biol. 478 2 Credits Spring
Field Ecology (0+3)
An intensive experience in the collection and interpretation of ecological data. The course consists of a field trip during spring break. Students will engage in the design, execution, and analysis of field projects dealing with various aspects of ecology. (Prerequisites: Biol. 271 and Biol. 474 or 476 [may be taken concurrently], and permission of instructor. Students will be expected to share in expenses.)

Biol. 610 3 Credits Fall
Regulation of Biological Processes (3+0)
A consideration of regulation of biological processes at various levels of organization, from the molecular to society and the ecosystem. The course will use animal, microbiol and plant material as thought necessary and will consider control theory and its applications to Biology. (Prerequisites: Graduate Standing and, in cases of highly qualified undergraduates, the instructor's permission.)

Biol. 616 3 Credits Alternate Spring
Principles and Methods of Taxonomy (2+3)

Modern taxonomic ideas and their application to zoological and botanical problems. (Next offered: 1980-81.)

Biol. 618 2 Credits Alternate Spring
Biogeography (2+0)
Spatial and temporal geography of plant and animal groups; emphasis on environmental and historical features controlling present patterns of distribution. (Next offered: 1979-80.)

Biol. 619 2 Credits Alternate Fall
Marine Mammals (1+3)
Topics related to the biology of marine mammals will be considered including evolution, taxonomy, morphology, physiology, ecology, and behavior. (Prerequisites: Graduate standing or permission of instructor. Next offered: 1978-80.)

Biol. 624 3 Credits Every Third Semester
Physiological Ecology: Temperature Regulation and Thermal Adaptation (2+3)
A study of physiological processes involved in the interaction of organisms with their environment. Special emphasis will be placed on northern habits. Temperature regulation and thermal adaptation will cover the effects of temperature upon organisms and the various ways organisms have responded to extreme ther-

mal environments. (Prerequisites: Graduate Standing and a physiological course and Biol. 271 or permission of instructor. Next offered Spring 1980.)

Biol. 625 3 Credits Every Third Semester
Physiological Ecology: Energetics and Nutrition (2+3)
A study of physiological processes involved in the interaction of organisms with their environment. Special emphasis will be placed on northern habits. Energetics and nutrition will cover the nutritional ecology of plants and animals and describe the adaptations of organisms to avoid or minimize nutritional imbalance or inadequacy. (Prerequisites: Graduate standing and a physiological course and Biol. 271 or permission of instructor. Next offered Fall 1980.)

Biol. 626 3 Credits Every Third Semester
Physiological Ecology: Sensory and Reproductive Physiological Ecology (2+3)
A study of the physiological processes involved in the interaction of organisms with their environment. Special emphasis will be placed on northern habits. Sensory and reproductive physiological ecology will cover the physiology and ecology of reproduction, nervous and hormone systems and circadian rhythms. (Prerequisites: Graduate standing and a physiological course and Biol. 271 or permission of instructor. Next offered: Fall 1980.)

Biol. 629 3 Credits Alternate Spring
Advanced Animal Behavior (3+0)
Adaptive nature of behavior in relation to the physical, biological, and social environment. Current problems and controversies in the study of behavior. (Prerequisites: Biol. 441 and permission of the instructor. Next offered: 1979-80.)

Biol. 637 2 Credits Fall
Contemporary Evolutionary Theory (2+0)
Contemporary ideas of and problems with the mechanics of evolution.

Biol. 652 3 Credits Alternate Spring
Marine Ecology (3+0)
The sea as a biological environment, organisms in the ocean, factors influencing the growth of organisms, nutrient cycles, productivity, food web and interdependence of organisms, several field trips may be required. (Prerequisites: Biol. 271, Chem. 212, 322; Geol. 411 or permission of the instructor. Next offered: 1980-81.)

Biol. 674 3 Credits Alternate Spring
Advanced Plant Ecology (2+3)
Current concepts, controversies and advances in plant ecology, emphasis on community-level ecology, methods of classification and ordination, and recent literature. (Prerequisite: Biol. 474. Next offered: 1980-81.)

Broadcasting – See Journalism and Broadcasting

Business Administration

B.A. 101 3 Credits Fall and Spring
Introduction to Data Processing and FORTRAN (3+0)
A beginning course covering topics in machine organization, problem formulation, FORTRAN, programming, information flow management, and applications of automatic data processing systems: to include input-output procedures and the utilization of prepared programs available to students on the computer at the University of Alaska.

B.A. 151 3 Credits Fall and Spring
Introduction to Business (3+0)
Business organization, nature of major business functions such as management, finance, accounting, marketing, personnel administration. The opportunities and requirements for professional business careers.

B.A. 160 3 Credits Fall
Tourism Principles and Practices (3+0)
Forces which influence the international and domestic hospitality, leisure, travel and recreation industries. Socio-economic models and measure of regional impact, demand and supply.

B.A. 201 3 Credits Alternate Spring
COBOL (2+2)
Training and practice in writing problems in the COBOL language. Multiple file processing, editing, and report generating routines. (Next offered: 1980-81)

B.A. 220 Credits Alternate Spring
Basic Programming Languages (3+0)
Programming in selected computer languages including ASSEMBLER, RPG, and machine language. (Prerequisite: B.A. 101. Next offered: 1979-80.)

B.A. 253 1-3 Credits Fall-Spring-Summer
Internship in Business (0+1-3)
Supervised work experience in an approved position which is related to the student's career interests or objectives. Number of credits given will depend on types of position and amount of time worked by the student. No student can count more than eight internship credits towards a degree. (Prerequisite; approval of program or department head.)

B.A. 303 3 Credits Spring
Advanced Leadership (3+0)
(Same as Mil. 303)
Comprehensive analysis of leadership styles and functions applicable to formal organizations. Lab: Advanced leadership development including enrichment seminars. (Prerequisite: junior standing as a minimum.)

B.A. 306 3 Credits Spring
Small Business Management (3+0)
The course focuses on the operations and special problems of the small business with emphasis on both existing firms and new ventures. Subjects to be covered include starting new businesses, buying going concerns, acquiring and operating franchises, establishing lines of credit, management, legal matters, profit planning, pricing, inventory levels, record systems, tax regulations, and employee supervision.

B.A. 310 3 Credits Fall
Management Information System (3+0)
Concepts and techniques of designing information systems. Topics include systems theory; data collection, classification, transmission, and display, data base organization, sequential and random techniques, online systems, computer software related to system design. COBOL programming language will be utilized to implement a systems project. Emphasis will be placed on management planning and control modes. (Prerequisites: B.A. 101.)

B.A. 325 3 Credits Fall
Financial Management (3+0)
Intensive analysis of the methods of corporate financial planning and control, asset management, capital budgeting, and financial markets and instruments. (Prerequisites: Acct. 101 and Acct. 102.)

B.A. 326 3 Credits Spring
Principles of Advertising (3+0)
(Same as J-B 326)
Theory and practice of advertising: including strategy, media use, creation and production of advertisements and measurement of advertising effectiveness.

B.A. 331 3 Credits Fall
B.A. 332 3 Credits Spring
Business Law I and II (3+0)
Survey of the legal aspects of business problems; basic principles, institutions, and administration of law. FALL, Contracts, agency, employment, personal property sales, and insurance partnerships. SPRING: Negotiable instruments, secured transactions, partnerships, corporations, real property, wills, bankruptcy, torts, and business crimes. (Prerequisites: Junior standing or permission of instructor; B.A. 331 prerequisite to B.A. 332.)

B.A. 343 3 Credits Fall
Principles of Marketing (3+0)
Role of marketing in society and economy. The business firm as a marketing system, management of the firm's marketing effort. (Prerequisite: Econ. 121, 122.)

B.A. 350 3 Credits Fall
Introduction to Real Estate and Land Economics (3+0)
Study of processes and considerations that influence decisions of individuals and groups concerning real estate investment and utilization. Functions of various types of real estate operators are also considered in the course.

B.A. 356 2 Credits Alternate Spring
Beverage Production Preparation and Control (2+0)
The importance of beverage function in today's hospitality operations. The production, preparation, service and control of beverages will be systematically presented. (Next offered: 1980-81.)

B.A. 360 3 Credits Fall
Operations Management (3+0)
An introduction to the operational field of production, with emphasis on the design of efficient operating systems. Specific areas considered are: forecasting, facilities planning, inventory management, production scheduling, and job design as applicable to all types of organizations. (Prerequisite: Econ. 226.)

B.A. 361 3 Credits Spring
Personnel Management
Personnel practice in industry; analysis of labor-management problems; methods and administration of recruiting, selecting, training and compensating employees; labor laws and their applications.

B.A. 372 3 Credits Spring
Hotel Administration (3+0)
An intensive examination of the practices and concepts necessary for successful hotel operation in Alaska including but not limited to management systems financing of hotels, budgeting and food costing, housekeeping, and front office management. (Prerequisites: B.A. 160, B.A. 253 and B.A. 380.)

B.A. 375 3 Credits Spring
Marketing of Hospitality Service (3+0)
Principles of marketing applied to service industries, advertising, promotion, public relations and personal selling to achieve profitable public recognition and good will. (Prerequisites: B.A. 343.)

B.A. 377 3 Credits Alternate Fall
Food and Beverage Management
Students will follow the development of a successful food and beverage system from its inception to operation and will deal with the diverse subjects of menu planning, purchasing, preparation, service and food beverage cost control. (Prerequisites: B.A. 160, B.A. 253, B.A. 380. Next offered: 1980-81.)

B.A. 378 3 Credits Fall
Passenger Transportation Management (3+0)
Students will become familiar with all modern forms of passenger transportation. Main emphasis will be put on those carriers presently operating in Alaska and future development of transportation in Alaska. (Prerequisites: B.A. 160 and B.A. 253.)

B.A. 380 3 Credits Fall
Processes of Management (3+0)
A systematic examination of the basic functions of management with particular attention on the human side of the organization. Modes of communication and coordination are evaluated in terms of the need for planning, controlling, and decision-making among the organizational components. An overall framework for effective integration of the distinct processes is emphasized.

B.A. 423 3 Credits Fall
Investment Management (3+0)
Principles of investing in marketable securities from the individual's persepective, the determination of value, analysis of growth, technical analysis, and portfolio management. (Prerequisite: B.A. 325 or equivalent.)

B.A. 425 3 Credits Alternate Spring
Advanced Corporate Financial Problems (3+0)
A consideration of corporate financial problems, planning and controls, and major functions performed by corporate financial managers. (Prerequisite: B.A. 325. Next offered: 1979-80.)

B.A. 436 3 Credits Alternate Spring
Consumer Behavior (3+0)
Examination of the complex system of communication in marketing. The role of culture and its effects on product discrimination; social class, personality, symbolism, and persuasion are studied from the marketing manager's point of view. The analysis is extended to the organizational influences on corporate buyers and the impact of buyer behavior on the strategy and tactics of marketing management. (Prerequisites: B.A. 343. Next offered: 1979-80.)

B.A. 446 3 Credits Alternate Spring
Business Research (3+0)
Objective is to familiarize students with the basic processes and tools of business research with emphasis on utilization of research findings as an integral part of the managerial decision-making process. Students will apply techniques of data-gathering and analysis to a business problem. (Prerequisites, Econ. 226 and six hours in major. Next offered: 1979-80.)

B.A. 453 3 Credits Fall and Spring
Internship in Business Administration
A supervised practical work experience designed to provide students with a meaningful external involvement in their major discipline. Admission dependent upon completion of satisfactory sponsorship arrangements and permission of the instructor. (Prerequisite: Senior standing and permission of instructor.)

B.A. 462 3 Credits Spring
Administrative Policy (3+0)
An advanced case course which focuses on the questions of organizational purpose and design through the eyes of the general manager. Marketing, management, and financial considerations are integrated with external influences to forge strategic planning and control.

B.A. 465 3 Credits Alternate Spring
Tourism Destination Planning and Development (3+0)
Tourism resource characteristics, location, and market demand considerations. Analysis of development potential, planning processes and procedures, capital and personnel requirements, and tourism destination developments. (Next offered: 1979-80.)

B.A. 471 3 Credits Alternate Spring
Tourism Seminar (3+0)
A senior seminar bringing together all areas of the travel-tourism industry. Lecturer, guest industry speakers and the case study method will all be utilized. (Prerequisite: admission by instructor's permission and upper division standing. Next offered: 1980-81.)

B.A. 475 3 Credits Spring
Transportation and Logistics (3+0)
The essential focus of teaching and research in transportation is on systems planning, especially multimode systems. The program

builds upon basic knowledge of the properties of transportation systems components, and the ability to analyze interactions among these components and between the transportation system and its environment. Special consideration will be given to Alaskan transportation problems by experienced specialists. (Prerequisite: Econ. 226.)

B.A. 480 3 Credits
Organization Theory (3+0)
A review of the literature on organization theory, emphasizing theoretical concepts, social science research techniques and organizational behavior. Development and study of the various approaches to organizational change including the initiation of change and the evaluation of change programs.

B.A. 483 3 Credits Spring
Integrative Marketing Strategy (3+0)
Analysis planning and implementation of the total marketing program of an organization: goal setting, marketing mix, problem recognition and analysis, and current issues. (Prerequisite: B.A. 343.)

B.A. 651 3 Credits Fall
Organizational Behavior (3+0)
A detailed study of organizational behavior, including such concepts as leadership styles, authority and organizational change. (Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head.)

B.A. 680 3 Credits Spring
Seminar in Finance
This course studies the finance function of the firm and the major problems faced by financial managers, considers capital investment analysis and valuation, capital budgeting, financial structure and dividend policies, working capital management and other current topics in financial management. (Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head.)

B.A. 683 3 Credits Fall
Seminar in Marketing (3+0)
A survey of marketing institutions, systems, policies and practices. Review of marketing constituents in economic development, marketing theory and current problems. (Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head.)

B.A. 684 3 Credits Spring
Quantitative Methods for Management (3+0)
Survey of quantitative techniques employed by management in business decision making. Specific topics examined include linear programming, decision theory, PERT, queing theory, simulation, inventory control, and forecasting prediction methods. (Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head.)

B.A. 690 3 Credits Spring
Administrative Policy (3+0)
The emphasis of the course is on the concept of strategy and the planning process. Business policy focuses on the role of the general manager and the integration of previously learned functional specialities. This integrative experience is achieved by the solution of numerous complex management problems drawn from actual business situations. (Prerequisites: Post graduate standing. Approval of the graduate student's advisory committee or the department head.)

Business Supervision

Bsup. 151 3 Credits Fall/Spring/Summer
Introduction to Business
To equip the student with an understanding of the principles of business, including management, marketing, production, personnel and finance.

Bsup. 179 3 Credits Fall/Spring/Summer
Principles of Management
Designed to develop the student's understanding of the major functions of management and the skills that lead to managerial success.

Bsup. 231 3 Credits Fall/Spring/Summer
Introduction to Personnel (3+0)
A course designed to develop competency in the process of personnel management. Emphasis will be placed on organizational structure of a company, job analysis, staffing and organization, employee growth and development, employee supervision, and developing leadership.

Bsup. 251 3 Credits Fall/Spring/Summer
Marketing Tactics (3+0)
This course is designed to acquaint the student with the processes used in the distribution of goods and services from their inception to the ultimate consumer. It includes treatment of pricing, product planning, promotion, channels of distribution, and case work.

Bsup. 253 3 Credits Fall/Spring/Summer
Principles of Retailing (3+0)
This course is designed to give the student knowledge and understanding in retailing concepts and principles, including work in shortage control, financial analysis, buying, pricing, services, retailing under the law, and store layout and design.

Bsup. 255 3 Credits Fall/Spring/Summer
Introduction to Advertising (3+0)
This course includes instruction in the purposes of advertising, economic and social aspects of advertising, slogans, trademarks, and the mechanical production of advertisements and graphic presentations.

Bsup. 273 3 Credits Fall/Spring/Summer
Small Business Supervision and Ownership (3+0)
This course is designed to present some of the important skills necessary for successful small and middle-scale business management. The following general areas will be covered: The advantages and disadvantages of business ownership; The danger of small business failure; Employee Relations; Purchasing and Supplier Relations; Obtaining Credit and Capital; Financing a Going Concern; and Recordkeeping and Financial Statements. (Prerequisites: O.O. 142, Introduction to Accounting I and Bsup. 253, Principles of Retailing are strongly suggested.)

Bsup. 281 3 Credits Fall/Spring/Summer
Supervisory Cooperative Work Experience (3+0)
This course will provide the student a culminating experience in actual on-the-job training related to his educational program and occupational objective in conjunction with a seminar with the coordinator. (Prerequisites: Minimum 9 credit hours of O.O. or Bsup. courses.)

Chemistry

Chem. 103 4 Credits Fall
Chem. 104 4 Credits Spring
Contemporary Chemistry (3+3)
Descriptive courses with laboratory designed to provide orientation in chemistry for students in non-science and science related curricula. Either semester may be taken separately without prerequisites: Chem. 103: Introductory principles of inorganic chemistry and their applications. Chem. 104: Principles and applications of the chemistry of carbon in a modern economic, social and biological context.

Chem. 105 4 Credits Fall and Spring
Chem. 106 4 Credits Fall and Spring
General Chemistry (3+3)
An introduction to chemistry, including atomic and molecular structure; the principles of chemical change and related energy changes. Chemistry 106 includes the chemistry of the elements. (Prerequisites: High school algebra and high school chemistry or permission of the instructor. For Chem. 106, Chem. 105 is required.)

Chem. 195 1 Credit Spring
Lectures in Science (1+0)
Introductory lectures given by local experts on various areas of science that are not usually encountered in the traditional courses.

Chem. 211 4 Credits Fall
Chemical Principles (3+3)
An intensive, systematic study of the laws and concepts of chemistry, with considerable emphasis on mathematical aspects. Laboratory work will include both qualitative and quantitative procedures. (Prerequisites: High school chemistry or Chem. 103-104 and satisfactory performance on an advanced placement examination given three weeks into the semester with Math. 200 at least corequisite. Completion of the Chem. 211-212 sequence with grades of "C" or better results in 4 credits of advanced placement credit.

Chem. 212 4 Credits Spring
Introductory Quantitative Analysis (2+6)
The theoretical treatment of statistics, electro-chemistry, and spectroscopic methods. A rigorous treatment of acid-base, oxidation-reduction, and complex equilibria. The laboratory includes practice in volumetric, gravimetric, spectroscopic and electrochemical methods. (Prerequisites: Chem. 106 or 211 Math 107-108 or equivalent.)

Chem. 321 3 Credits Fall and Spring
Chem. 322 3 Credits Spring
Organic Chemistry (3+0)
A systematic study of the more important classes of carbon compounds, reactions of their functional groups, methods of synthesis, relations, and uses. (Prerequisite, Chem. 106 or 211 for Chem. 321; Chem. 321 for Chem. 322.)

Chem. 324 3 Credits Spring
Organic Laboratory (1+8)
A laboratory designed to illustrate modern techniques of isolation, purification, analysis, and structure determination of covalent, principally organic, compounds. (Prerequisites: Chem. 321 or permission of the instructor.)

Chem. 331 3 Credits Fall
Chem. 332 3 Credits Spring
Physical Chemistry (3+0)
Fall semester; kinetic theory of gases, principles of thermodynamics, with applications to solutions, phase equilibria and chemical equilibria. Spring semester, chemical kinetics, electrochemistry, atomic, and molecular structure. (Prerequisites, Chem. 106 or 211, Math. 202, Phys. 104 or 212 or permission of the instructor; Chem. 331 for Chem. 332.)

Chem. 402 3 Credits Spring
Inorganic Chemistry (3+0)
Systematic application of the theories of atomic structure and chemical bonding to the elements as they appear in the Periodic System. (Prerequisite or corequisite: Chem. 332.)

Chem. 421 3 Credits As Demand Warrants
Advanced Organic Chemistry (3+4)
The design and reactivity of organic molecules, variable content. (Prerequisites: Chem. 322, 331 or permission of instructor.)

Chem. 431 3 Credits Fall
Advanced Physical Chemistry (3+0)
Introduction to quantum chemistry. (Prerequisite: Chem. 332.)

Chem. 433 3 Credits Fall
Chem. 434 3 Credits Spring
Instrumental Methods in Chemistry (1+6)
The application of instrumental methods to quantitative, qualitative, and structural analysis of chemical systems. (Prerequisite or Corequisites: Chem. 331 for Chem. 433; Chem. 332 for Chem. 434.)

Chem. 451 4 Credits Spring
General Biochemistry (4+0)
Chemistry of bio-molecules; enzyme mechanisms and kinetics; aspects of bioenergetics; catabolic and anabolic pathways. (Prerequisites: Chem. 322; Chem. 331 and 332 recommended or permission of the instructor.)

Chem. 602 3 Credits As Demand Warrants
Advanced Inorganic Chemistry (3+0)
Advanced topics in inorganic chemistry. Topic Areas: Solid state chemistry, X-ray diffraction, thermodynamic aspects, physical methods, unusual oxidation states, etc. (Prerequisite: Chem. 402 or 431.)

Chem. 612 3 Credits As Demand Warrants
Advanced Analytical Chemistry (3+0)
Applications of equilibria and statistics to analytical methods. (Prerequisite, Chem. 332.)

Chem. 622 3 Credits As Demand Warrants
Advanced Organic Chemistry II (3+0)
Modern interpretations of organic chemical reactions based on structure, kinetics, and energetics. Variable content. (Prerequisites: Chem. 322 and 332.)

Chem. 632 3 Credits As Demand Warrants
Advanced Physical Chemistry II (3+0)
Applications of quantum mechanics to molecular bonding and electronic spectroscopy. (Prerequisite: Chem. 431.)

Chem. 652 3 Credits Alternate Years
Advanced Biochemistry (3+0)
Current research in one of the major biochemical disciplines; proteins, lipids, carbohydrates; biochemical genetics; comparative biochemistry; enzymology; physical biochemistry; vitamins and hormones. Variable content. Arranged in consultation with instructor. (Prerequisites: Chem. 451 or equivalent. Next offered: Fall 1980-81.)

Chem. 660 3 Credits Fall or Spring
Chemical Oceanography I (3+0)
(Same as OCN 660)
Chemical composition and properties of sea water, evaluation of salinity; pH, excess base, and carbon dioxide system, interface reactions; dissolved gases; organic components and trace inorganic components. (Prerequisites: Chem. 212, 322, 332, or permission of the instructor.)

Chem. 665 2 Credits As Demand Warrants
Cellular Biochemistry (2+0)
Chemistry, structure and metabolism of microorganisms including growth kinetics and energetics, transport and control processes. (Prerequisite: Chem. 451, or equivalent.)

Civil Engineering

C.E. 112 3 Credits Spring
Elementary Surveying (2+3)
Basic plane surveying; chaining; use of transit, level, theodolite, and plane table. Stadia, public land system, circular curves, traverses. (Prerequisites: E.S. 111 or permission of the instructor.)

C.E. 334 3 Credits Spring
Properties of Materials (1+6)
Introduction to the properties of engineering materials. Bonding, crystal, and amorphous structures. Relationships between microstructure and engineering properties. Modification of properties and environmental serviceability. Concrete and asphalt mixes.

C.E. 344 3 Credits Spring
Water Resources Engineering (2+2)
Fundamentals of engineering hydrology and hydraulic engineering. Precipitation, runoff, statistical methods, flood control, open channels, and groundwater. (Prerequisite: E.S. 341.)

C.E. 402 3 Credits Spring
Transportation Engineering (2+3)
Administration, economics, location, design, construction and maintenance of highways, railways, airports, and other transportation facilities. (Prerequisite: C.E. 435 or permission of the instructor.)

C.E. 412 3 Credits Alternate Spring
Elements of Photogrammetry (2+3)
Elementary study of aerial and terrestrial photographs as applied to surveying and mapping. (Prerequisite: permission of the instructor. Next offered: 1979-80.)

C.E. 415 3 Credits Fall
Advanced Surveying (2+3)
Azimuth by astronomic methods. Route surveying, including horizontal and vertical curves, cross-sectioning, earthwork. Reduction of electronic distance measurements. Alaska State Plane Coordinate System. (Prerequisite: C.E. 112)

C.E. 416 1 Credit Spring
Boundary Surveying (1+0)
Surveying problems related to land subdivision with emphasis on the legal aspects. Both metes and bounds descriptions and platted subdivisions are considered.

C.E. 422 3 Credits Spring
Foundation Engineering (3+0)
Principles of foundation design; ultimate bearing capacity of soils and effects of settlements on structure; design of footings and rafts; design of pile and pier foundations, retaining walls and anchored bulkheads; foundations on frozen soils, construction problems in foundation engineering. (Prerequisite, C.E. 435.)

C.E. 431 4 Credits Fall
Structural Analysis (3+3)
Statistically determinate structures. Loadings. Graphical and analytical solutions, stresses and deflections. Indeterminate structures. Influence lines. Matrix Foundation. (Prerequisite: E.S. 331.)

C.E. 432 4 Credits Spring
Structural Design (3+3)
Planning of structural systems. Loadings. Steel and reinforced concrete design. Composite design. Details and connections. (Prerequisite: C.E. 431.)

C.E. 434 1 Credit Spring
Timber Design (1+0)
Essentials of structural design in timber. Design of basic components of solid and laminated timber, connections, arches, pole framing, diaphragms, stressed-skin construction and timber shells. (Prerequisite: E.S. 331.)

C.E. 435 3 Credits Fall
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. (Prerequisite: E.S. 331, C.E. 334.)

C.E. 438 3 Credits Spring
Design of Engineered Systems (3+0)
Introduction to system design methods for large scale engineering systems. The application linear and dynamic programming and statistical methods to design decisions. Emphasis on problems in civil engineering. (Prerequisite: Senior standing in an engineering program.)

C.E. 441 4 Credits Spring
Sanitary Engineering (3+3)
Introduction to fundamentals of environmental engineering including theory and application of water and wastewater engineering practice. Conservation, quality, treatment, and distribution of water supply. Wastewater characteristics, collection, treatment and disposal. Introductory information on solid waste management and air pollution control. (Prerequisite: E.S. 341 or permission of instructor.)

C.E. 470 1 Credit Fall and Spring
Civil Engineering Internship (0+3)
Designed to give students the opportunity to investigate the practical workings of engineering organizations. Assignments individually arranged with cooperating organizations and agencies. (Prerequisites: senior standing, Permission of Department Coordinator.)

C.E. 603 3 Credits Fall
Arctic Engineering (3+0)
Application of engineering fundamentals to problems of advancing civilization to polar regions. Logistics, foundations on frozen ground and ice thermal aspects of structures; materials, transport and communications; heating and ventilating. (Prerequisite: Graduate standing or permission of instructor.)

C.E. 617 3 Credits Alternate Fall
Control Surveys (3+0)
Geodetic surveying, where the shape of the earth must be considered. Both horizontal and vertical control will be studied. Heavy emphasis on Alaska State plane coordinate system. Adjustments of level nets, traverses, triangulation, and trilateration. (Prerequisite, C.E. 415 or other surveying experience acceptable to the instructor. Next offered: 1979-80.)

C.E. 620 3 Credits Alternate Spring
Civil Engineering Construction (3+0)
Construction equipment, methods, planning and scheduling; construction contracts, management and accounting; construction estimates, costs, and project control. (Prerequisites: ESM 450 or equivalent. Next offered; 1980-81.)

C.E. 631 3 Credits As Demand Warrants
Advanced Structural Analysis (3+0)
Continuation of C.E. 431. Continuity in structure. Elastic and plastic theories. Arches and shells. Tall frames. (Prerequisite: C.E. 431.)

C.E. 632 3 Credits Alternate Fall
Advanced Structural Design (3+0)
Design of complex structures and frames. Live, dead, and earthquake loadings. Structural joints, columns, connectors, ties and struts. Application of modern materials and techniques to design. (Prerequisite: C.E. 431. Next offered: 1980-81.)

C.E. 661 3 Credits As Demand Warrants
Advanced Water Resources Engineering (3+0)
Engineering hydraulics and hydrology with emphasis on statewide topics: computer modeling for runoff and groundwater studies, reservoir mechanics, fish hatchery design, and hydro-power generation. (Prerequisite: Permission of the instructor. Next offered: Fall 1979.)

C.E. 662 3 Credits Alternate Spring
Open Channel and River Engineering (3+0)
Principles of open channel flow, transitions and controls, unsteady flow, river engineering, stream channel mechanics, and mechanics of sedimentation. (Prerequisite: E.S. 341. Next offered: 1980-81.)

C.E. 663 3 Credits Alternate Years
Groundwater Dynamics (3+0)
Fundamentals of geohydrology, hydraulics of flow through porous media, well hydraulics, and groundwater pollution, groundwater resources development. (Prerequisite: E.S. 341. Next offered: Spring 1981.)

C.E. 676 3 Credits As Demand Warrants
Coastal Engineering (3+0)
Review of deep and shallow water waves, littoral drift, coastal structures, pollution problems, harbor seiches. (Next offered: Fall 1979.)

C.E. 681 3 Credits Alternate Years
Frozen Ground Engineering (3+0)
Nature of frozen ground, thermal properties of frozen soils, classification, physical and mechanical properties of frozen soils, sub-surface investigation of frozen ground, thaw settlement and thaw consolidation, slope stability, and principles of foundation design in frozen ground. (Prerequisite: Training or experience in Soil Mechanics. Next offered: Spring 1980.)

C.E. 682 2 Credits Alternate Years
Ice Engineering (2+0)
In this course, the factors governing design of marine structures, which must contend with the presence of ice are discussed. Topics include ice growth, ice structure, mechanical properties and their

dependence on temperature and structure, creep and fracture, mechanics of ice sheets, forces on structures, and experimental methods. (Prerequisite: E.S. 331, Math 202, training or experience in Soil Mechanics. Next offered: Spring 1980.)

C.E. 683 3 Credits Alternate Years
Arctic Hydrology and Hydraulic Engineering (3+0)
The course is designed to present material on aspects of hydrology and hydraulics unique to engineering problems of the north. Although the emphasis will be on Alaskan conditions, information from Canada and other circum-polar countries will be included in the course. (Prerequisite: C.E. 344 or equivalent. Next offered: Fall 1980.)

C.E. 684 3 Credits Alternate Years
Arctic Utility Distribution (3+0)
Practices and considerations of utility distribution in Arctic regions. Emphasis on proper design to include freeze protection, materials, energy conservation and system selection. (Prerequisite, E.S. 341 or permission of instructor. Next offered: Spring 1981.)

Computer Science

C.S. 101 3 Credits Fall or Spring
Computers and Man (3+0)
A course in computer literacy for everyone. An overview of computing machines and the automatic processing of data. The interaction between social institutions and automated decision making. Some programming, but as a means of understanding the process rather than skill development.

C.S. 201 3 Credits Fall or Spring
Computer Programming I (2+3)
Development on skill in the use of problem solving computer languages such as FORTRAN and BASIC. (Prerequisite: Placement beyond Math 108.)

C.S. 202 3 Credits Spring
Computer Programming II (2+3)
Additional topics in problem solving computer languages. Use of library programs. Plotting. Manipulation of files. Introduction to additional computer problem solving computer languages such as APL and Algol. (Prerequisites: C.S. 201 or E.S. 201.)

C.S. 401 3 Credits Fall or Spring
Programming Practicum (1+6)
Development of specialized skill in programming for the needs of research workers, scientists, and engineers. Individual projects to be selected for the particular needs of the student.

Counseling (Para-Professional)

Coun. 100 2 Credits Fall and Spring
Empathy Training (2+0)
A cognitive and experiential look at empathy. There will be some encounter, and Gestalt and a little psychosynthesis, large and small group work to facilitate a warm group experience and safe climate so as to better internalize empathy skills.

Coun. 101 3 Credits Fall
Decision Making and Personal Growth (3+0)
Areas to be covered include: perception of the here and now, personal behavior desired including values classification and decision-making skills; importance of gathering and evaluating information with practice of skills acquired.

Coun. 103 3 Credits Fall and Spring
Introduction to Individual Counseling (3+0)
The theory and practice of individual counseling; to include academic study and experiential training/exercises; exploration of current counseling techniques and practices; crisis intervention processes.

Coun. 106 3 Credits Fall
Introduction to Principles of Group Counseling (3+0)
An introduction to the theory and practice of group counseling to include academic study and experiential training/exercises; exploration of current counseling techniques and practices.

Coun. 107 3 Credits Fall
Perspectives on Alcohol and Chemical Dependencies (3+0)
Consideration of the social and cultural aspects of dependency. Evaluation of the effects of alcohol and other chemical substance on personality, social development and economic stability will be explored.

Coun. 112 3 Credits Fall and Spring
Personality Theories (3+0)
A basic introduction and exploration of personality and learning theory with general overview of major contemporary theories and their application to counseling.

Coun. 200 3 Credits Fall
Depression and Counseling in a Life Crisis Situation (3+0)
An exploration of depression, its root and causes, and a unique variety, depression in Alaska, "The Long Winter". There will be exploration of life crises, their dynamics and what role counseling plays in a crisis.

Coun. 201 3 Credits Fall
Social Service Reporting and Introduction to Psychodiagnostics (3+0)
Designed to acquaint future para-professional counselors with the paper work that might be demanded of them. Also includes an introduction to psychodiagnostics, its terminology and use.

Coun. 203 3 Credits Spring
Introduction to Family Counseling (3+0)
A basic introduction to the principles and practices of family counseling; theoretical examination of dysfunctional family units; experiential training in the application of family counseling

Coun. 204 3 Credits Spring
Introduction to Cross-cultural Counseling (3+0)
An exploration of cultural variables and their significance in the counseling situation with an emphasis upon Alaskan Native culture; modifications of standard counseling approaches and psychodiagnostics conducive to effective counseling with indigenous groups; cultural views of mental health and mental disorder.

Coun. 205 Credits Arr. Fall and Spring
Practicum in Para-Professional Counseling
Supervised practicum placement in local service delivery agencies; development of counseling skills in one of three major areas of expertise (chemical dependency, mental health, community service); development of marketable talents and knowledge as determined by current local agency demand. (Course may be repeated up to 6 credits.)

Coun. 206 3 Credits Spring
Introduction to Group Counseling (3+0)
A continuation of Counseling 106. Introduction to group counseling accentuates current methods and modalities in the group process. Time is allowed during the course for each participant to lead and facilitate the class. (Prerequisite: Coun. 106.)

Cross-Cultural Communication

CCC 103 3 Credits As Demand Warrants
Intensive Language Development (5+0)
An approach to problems of communication with special sensitivity to differences in culture, language, and the stylistic features which characterize informal, formal, spoken, and written usage. The balance among listening, speaking, writing, and reading will be determined by the needs of each class. Weekly conferences with the instructor are required. (Prerequisite: Approval of Student Orientation Services.)

CCC 104 3 Credits Fall and Spring
University Communications (5+0)
Concept similar to Communication Skills 103, except that all material used will be correlated with a specified course elsewhere in the University in which the student is concurrently enrolled, and work will be focused on problems peculiar to that course. Weekly conferences with the instructor are required. May be repeated for credits when the correlated course is different. (Prerequisite: Approval of Student Orientation Services.)

CCC 105 3 Credits As Demand Warrants
Inteisive Reading Development (5+0)
Intensive instruction in reading, designed to encourage wide reading and vocabulary development and to develop the reading skills necessary for successful competition in college courses. Emphasis will be in the kind of materials commonly encountered by freshmen. Reading lab material will be available. Weekly conferences with the instructor are required. (Prerequisite: Approval of Student Orientation Services.)

CCC 106 3 Credits Spring
Intensive Writing Development (5+0)
A writing program emphasizing the differences between speech and writing, narrative and factual reporting, with particular emphasis on the use of connectors and other organizational devices used in college writing. Weekly conferences with the instructor are required. (Prerequisite: approval of Student Orientation Services.)

CCC 111 3 Credits Fall and Spring
Methods of Expository Writing (3+0+1)
Meeting three times a week as a class and once a week individually with the instructor, students will analyze and learn to produce clear, correct, and effective expository prose of the various types frequently encountered in university classes. Class sessions will be a combination of lecture, discussion, exercises, writing, and quizzes. Weekly conferences will allow close attention by instructor and student to individual writing problems. Emphasis will be placed on the value of careful revision to bring all papers to an acceptable level. (Prerequisites: approval of Student Orientation Services. Adequate preparation as reflected by ACT scores or by success in more fundamental English or Communication Skills courses.)

Drafting

Draf. 101 4 Credits Fall
Beginning Drafting I
A beginning course in drafting designed to build skill and knowledge in technical lettering, line techniques, equipment, orthographics, dimensioning, pictorials, auxiliaries, and sections. This course is designed to build drafting skill needed to be a Drafting Technician

Draf. 102 4 Credits Fall
Beginning Drafting II
This course is designed to build additional skill and knowledge in drafting. More difficult problems in geometric construction, sketching, orthographics and dimensioning, sections auxiliaries, threads and fasteners, tolerances, intersections and development, technical illustrations and design drafting will be covered. The student will also work on problem solving. (Prerequisites: Draf. 101.)

Draf. 121 3 Credits Fall
Building Trades Blueprint Reading I
For the student interested in learning how to read blueprints. The student learns the basic methods of drawing and how to read simple drawings. (Assemble, machine, architectural, map, and specifications.)

Draf. 122 3 Credits Fall
Building Trades Blueprint Reading II
This course is a continuation of Building Trades Blueprint Reading I (Draf. 121). Students will work in two or more of the following areas: Residential Electrical Trades, Electrical Trades (Commercial), Electrical Trades (Industrial), Electrical Wiring (Residential), B/P National Electrical Code, Sheet Metal, Plumbing Trades (Residential and Commercial), Building Trades, Carpentry Trades (Residential), Automotive Drawings, B/P for Machinist (Elementary), B/P for Machinist (Intermediate), B/P for Machinist (Advanced), B/P for Welders. (Prerequisites: Draf. 121.)

Draf. 130 4 Credits Fall
Perspective Drawing I
This course is designed to cover the basics of perspectives (1 pt., 2 pt., 3 pt.) and to introduce the student to the KLOK Perspective Board. The student will begin to learn shading techniques.

Draf. 132 4 Credits Fall
Perspective Drafting II
This course is designed to give additional experience in 1 and 2 point perspectives on the KLOK Perspective Board in both interior and exterior perspectives. The development of a formal presentation using different methods (pencil, airbrush, charcoal, color ink, water color or appropriate combination). (Prerequisites: Draf. 130.)

Draf. 140 4 Credits Fall
Architectural Drafing I
This is a basic course in Architectural Drafting. The student will learn to accomplish the basic types of drawing for site plans, foundations, floor plans, elevations, architectural sections, framing plans and area planning. The student will be introduced to Graphic Standfards.

Draf. 142 4 Credits Fall
Architectural Drafting II
This course is a continuation of Architectural Drafting I. The student will gain additional experience in the basic types of drawings plus detailed plans, electrical, plumbing, and heating will be covered with emphasis on interior and exterior design. The student will also be introduced to specification writing and construction cost estimating. (Prerequisites: Draft. 140.)

Draf. 150 4 Credits Fall
Civil Drafting I
This is a beginning course in Civil Drafting covering plotting traverse and surveys by bearing and distances, latitudes and departures, coordinates, contours, plot elevations, map symbols and profiles.

Draf. 152 4 Credits Fall
Civil Drafting II
This course is a continuation of Civil Drafting I which will cover the following areas: R/W Plotting, subdivision of land, topographic maps, photogrammetry, land description and further application of C.D.I. principles. (Prerequisites: Draf. 150.)

Draf. 230 4 Credits Fall
Perspective Drafting III
This course is designed to give the student additional experience, and more in-depth training in formal presentations in Perspective Drafting. (Prerequisites: Draf. 130, Draf. 132.)

Draf. 232 4 Credits Fall
Perspective Drafting IV
This course is a continuation of Perspective Drafting III. It is designed to give the student additional experience and more in-depth training in formal presentations. (Prerequisites: Draf. 130, Draf. 132, and Draf. 230.)

Draf. 240 4 Credits Fall
Architectural Drafting III
This is an advanced course in Architectural Drafting. The student will use the principles taught in Architectural Drafting I and II in the drawing and designing of industrial and commercial buildings. Application of the National Codes (electrical, plumbing and building codes) will be taught. (Prerequisites: Draf. 140, Draf. 142.)

Draf. 242 4 Credits Fall
Architectural Drafting IV
This course should be considered as Advanced Architectural Drafting. The student will be required to complete a "Design Project" under the supervision of the instructor. (Prerequisites: Draf. 140, 142 and 240.)

Draf. 250 4 Credits Fall
Civil Drafting III
This course is specifically designed to cover highway design. It will cover highway drafting, route location, boundary and R/W layout, vertical and horizontal curves, cut and fill composition, and detail drawings (i.e., culverts, sewers, fences, guard rails, signs, traffic control). Application of principles of C.D.I. and II will be covered. (Prerequisites: Draf. 150, 152.)

Draf. 252 4 Credits **Fall**
Civil Drafting IV
This course should be considered as Advanced Civil Drafting and is a continuation of Civil Drafting III. It is designed to give the student additional experience in all aspects of Civil Drafting. (Prerequisites: Draf. 150, 152 and 250.)

Early Childhood Development

ECD 101 1 Credit **Spring**
Activities for Young Children: Art, Music and Movement (½ + 1)
Designed for parents, caregivers and teachers of young children between the ages of 3-8 years, this course will focus on practical activities in art and music that require only inexpensive materials and can easily be done at home.

ECD 102 1 Credit **Spring**
Activities for Young Children: Literature and Language (½ + 1)
Focus on practical and fun ways of communicating literature and language skills. Includes lecture, demonstration and participation in storytelling, puppetry, library services, vocabulary, and reading readiness games.

ECD 103 1 Credit **Spring**
Activities for Young Children: Math and Science (½ + 1)
Emphasis on practical and fun ways of communicating science and math concepts through lecture, demonstration and preparation of games in the following areas: animals, plants, places, people, shapes, weights, measures, and food.

ECD 105 3 Credits **Fall**
Survey of Programs for Young Children (3 + 0)
Students will become acquainted with various approaches used in the education of young children. What is available locally and nationally, how do goals and methods differ, and how well do they work.

ECD 120 3 Credits **Spring**
Child Nutrition, Illness and Health (3 + 0)
Nutrition, food selection and meal planning in relation to feeding young children. Common diseases and illnesses of early childhood.

ECD 205 3-6 Credits **As Demand Warrants**
Practicum in Early Childhood Education (0 + 6) (0 + 12)
Supervised participation in a program designed for the education of young children. Students will take increasing responsibility for planning, implementing, and evaluating developmentally appropriate activities and for supervising the children. Outside reading and regular seminar attendance is required. (Prerequisites: ECD 101, 102, 103, 105, 120, and Psy. 245.)

Economics

Econ. 101 3 Credits **Fall and Spring**
Introduction to Current Economic Problems (3 + 0)
A one semester course designed primarily for the student who plans no further work in economics. The course utilizes a less theoretical approach than is customary in introductory economics courses and focuses on such current problems as unemployment, inflation, pollution, poverty, etc.

Econ. 121 3 Credits **Fall and Spring**
Principles of Economics I (3 + 0)
Introduction to economics; analysis and theory of national income; money and banking; stabilization policies.

Econ. 122 3 Credits **Fall and Spring**
Principles of Economics II (3 + 0)
Theory of prices and markets; income distribution; contemporary problems of labor, agriculture, market structure, pollution, etc.

Econ. 137 3 Credits **Spring**
The Alaskan Economy (3 + 0)
A broad introductory examination of economic problems in Alaska; analysis of historical trends and current patterns of economic growth; particular emphasis on present and future alternative economic policies, and their potential impacts.

Econ. 226 3 Credits **Fall**
Introduction to Statistics for Economics and Business (3 + 0)
Problems in economics and business translated into statistical terms. Topics covered include descriptive measures, probability and probability distributions, sampling methods, sampling distributions, point and interval estimation, hypothesis testing, index numbers, and time series analysis. (Prerequisite: Math. 107-108 or Math. 161.)

Econ. 235 3 Credits **Fall**
Introduction to Natural Resource Economics
Introduction to microeconomic principles and their application to natural resource issues. Specific topics include supply, demand, marginality, optimality, elementary production economics, economic rent, comparative advantage. These principles are applied to agency budget allocation decisions, multiple use, resource valuation, conservation, market failure, and public outdoor recreation problems.

Econ. 321 3 Credits **Fall**
Intermediate Microeconomics (3 + 0)
Analysis of demand and supply under various market forms; cost and theory of production; factor pricing and theory of distribution; survey of welfare economics. (Prerequisites: Econ. 121, 122.)

Econ. 324 3 Credits **Spring**
Intermediate Macroeconomics (3 + 0)
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. 121, 122.)

Econ. 326 3 Credits **Spring**
Intermediate Statistics for Economics and Business (3 + 0)
Extension of topics developed in Economics 226. Development of statistical techniques and their application to economic and business problems. Topics include simple and multiple regression and correlation, analysis of variance, forecasting techniques, quality control, non-parametric methods and decision theory. (Prerequisites: Econ. 226, Math. 162 or 200.)

Econ. 350 3 Credits **Fall**
Money and Banking (3 + 0)
The liquid wealth system in the United States, to include the commercial banking system, the Federal Reserve System and nonbank financial institutions; the regulation of money and credit and its impact on macroeconomic policy objectives. (Prerequisites: Econ. 121 and 122.)

Econ. 351 3 Credits **Alternate Spring**
Public Finance (3 + 0)
Economic justifications for government; federal, state and local government taxation, spending and debt; their effects on allocation, distribution, stabilization and growth. (Prerequisites: Econ. 121 and 122. Next offered: 1979-80.)

Econ. 409 3 Credits **Alternate Spring**
Industrial Organization and Public Policy (3 + 0)
The study of the relationship of market structure to the economic conduct and performance of firms and industries; the determinants, measurement and classification of market structure; public policy toward mergers, industrial concentration and aggregate concentration. (Prerequisites: Econ. 121, 122, and 321. Next offered: 1979-80.)

Econ. 420 3 Credits **Fall**
Labor/Management Relations (3 + 0)
History of the organized labor movement; labor legislation and cases with emphasis on Taft-Hartley, Landrum-Griffin, Railway Labor and Alaska Public Employment Relations Acts; labor market analysis and wage theory; collective bargaining; equal employment opportunity laws and cases. (Prerequisites: Econ. 121, 122.)

Econ. 424 3 Credits Alternate Spring
Managerial Economics (3+0)
Interpretation of economic data and applications of economic theory in business firms. Bridging the gap between theory and practice through empirical studies, cases and decision problems. Particular emphasis upon decision-making based heavily upon analysis of data developed from research. (Prerequisite: Econ. 221 and 321. Next offered: 1980-81.)

Econ. 435 3 Credits Spring
Intermediate Natural Resource Economics (3+0)
Extension of concepts developed in Econ. 235, using a higher level of economic analysis in examining natural resource issues. Specific topics include welfare economics and economic efficiency concepts, benefit/cost analysis, resource allocation overtime, resource taxation, common property problems, externalities, public goods, valuation of non-market resources, and land use planning issues. (Prerequisite: Econ. 235 or 321.)

Econ. 437 3 Credits Alternate Fall
Regional Economic Development (3+0)
Determinants and effects of the spatial distribution of economic activity. Impact of public policy on regional development within the Alaskan context. (Prerequisites: Econ. 121-122. Next Offered: 1980-81.)

Econ. 463 3 Credits Alternate Fall
International Economics (3+0)
Pure theory of international trade; comparative cost, terms of trade, and factor movements. International disequilibrium; balance of payments and its impact on national economy, capital movement, economic development through international trade. (Prerequisites: Econ. 121 and 122. Next offered 1979-80.)

Econ. 475 1-3 Credits Fall and Spring
Economic Internship
Designed to give students the opportunity to do research or other practical work with business, governmental agencies or research organizations. (Prerequisite: admission by permission of instructor.)

Econ. 601 3 Credits Fall
Principles of Economic Analysis (3+0)
An accelerated course in economic principles and analysis with applications to business decisions. This course is designed for masters of business administration students without sufficient undergraduate preparation in economics, and engineering students desiring a rigorous one semester course in economics. This course will not be accepted for elective credit in the MBA program. (Prerequisites: Graduate standing.)

Econ. 624 3 Credits Alternate Spring
Managerial Economics (3+0)
This course includes the development of basic economic concepts and their application to managerial decision-making. Major topics to be covered will include: demand and cost analysis, pricing decisions, capital budgeting and capital management, and decision-making under conditions of risk and uncertainty. The case method will be used as a principle technique for application of the concepts and tools to "real world" situations. (Prerequisites: Econ. 121 and 122; or Econ. 601; and graduate standing. Next offered: 1979-80.)

Econ. 650 3 Credits Alternate Fall
Financial and Fiscal Institutions and Policy (3+0)
Financial institutions, money and capital markets and instruments, interest rate determination, central banking, federal macro policymaking bodies, theoretical and empirical bases for macro policy formulation. Relevance for business decision making is stressed. (Prerequisites: Econ. 121 and 122; or Econ. 601; and graduate standing. Next offered: 1979-80.)

Education

Ed. 201 3 Credits Fall and Spring
Orientation to Education (1+6)
Designed to acquaint the prospective teacher with the nature of teaching, including the scholastic, professional, and personality requirements for effective teaching. Involves laboratory time in the public schools as teacher's aide. Open to all students. Required for students majoring in education.

Ed. 303 3 Credits Alternate Fall
Language Development (3+0)
Principles, procedures and materials for enhancing the language development of young children. (Prerequisite: Ed. 312. Next offered: 1980-81.)

Ed. 304 3 Credits Fall
Literature for Children (2+3)
Criteria for evaluating children's books and application of criteria to books selected by student; history of children's literature; study of outstanding authors, illustrators and content of specific categories of literature; book selection aids and effective use of literature to promote learning.

Ed. 309 3 Credits Fall
Elementary School Music Methods (3+0) (Same as Mus. 309)
Principles, procedures, and materials for teaching music to children at the elementary level. (Prerequisites: Ed. 313 and prerequisites thereto.)

Ed. 311 2 Credits Spring
Audio-Visual Methods and Materials (1+3)
Selection and use of audio-visual materials in teaching and learning at all levels of education. (Prerequisites: Ed. 313 and prerequisites thereto.)

Ed. 312 3 Credits Fall and Spring
Human Development and Learning (3+3)
Content is a synthesis of the interrelated principles of human growth, development, adjustment, and learning. It is designed primarily for students preparing for a career in teaching but is also open to parents, counselors, community workers, and others interested in human development and learning.

Ed. 313 3 Credits Fall and Spring
Educational Psychology (3+0)
Study of psychological principles and experience in applying them to classroom teaching and learning in public school classrooms. Course will include a tutoring experience. (Prerequisites: Psy. 101, Ed. 312, or by permission.)

Ed. 315 2 Credits Fall and Spring
Elementary Methods: Classroom Management (1+3)
General methods and management procedures in the elementary school classroom. (Prerequisite: Ed. 313.)

Ed. 316 3 Credits Fall and Spring
Elementary Methods: Language Arts and Social Studies (2+3)
Concepts, methods and materials of teaching social studies and all aspects of the language arts, except reading. Includes field experience in the public schools. (Prerequisite: Ed. 313.)

Ed. 317 3 Credits Fall and Spring
Elementary Methods: Mathematics and Science (2+3)
Modern concepts, process skills, methods and materials of teaching mathematics and science with a field-based emphasis. (Prerequisites: Math. 205 or equivalent, and Ed. 131.)

Ed. 318 2 Credits Spring
Methods: Art in the Elementary School (2+0)
Methods and materials necessary for teachers in the schools to conduct basic art instruction. Combines theory and practical experience in working with a variety of media.

Ed. 331 1 Credit Alternate Spring
Evaluation Procedures for Early Childhood Education (1+0)
Techniques of evaluation appropriate to early childhood education. (Next Offered: 1979-80.)

Ed. 332 3 Credits Fall and Spring
Tests and Measurements (3+0)
Theory and practice of educational evaluation; emphasis on testing aspects most applicable for classroom teachers; construction of

teacher-made tests; interpretation of teacher-made and standardized instruments emphasized. (Prerequisites: Ed. 313 and prerequisites thereto or by permission.)

Ed. 345 3 Credits Fall
Sociology of Education (3+0)
Examination of the process of becoming a teacher, the social world of the classroom, and the way political and economic forces influence what happens in schools. (Prerequisite: Soc. 101 or permission of the instructor.)

Ed. 402 3 Credits Fall and Spring
Methods of Teaching (3+0)
Principles and methods of teaching management, routine, daily programs, etc. (Prerequisite: must be taken concurrently with Student Teaching, Ed. 452, at the secondary level.)

Ed. 409 3 Credits Fall
The Teaching of Beginning Reading (3+0)
Concepts, methods, materials and language arts content relevant to the beginning stages of a developmental reading program. Includes limited field experience. (Prerequisite: Ed. 313.)

Ed. 410 3 Credits Spring
Developmental Reading in Content Areas (3+0)
Concepts, methods, materials and language arts content relevant to the intermediate and advanced stages of a developmental reading program. Stresses reading skills in the content areas. Includes limited field experience. (Prerequisites: Ed. 313 and Ed. 409 or permission of instructor.)

Ed. 421 3 Credits Fall
Secondary Education (3+0)
Development of a working concept of secondary education in the U.S., its history, objectives, curriculum, organization, practices, and consideration of current issues. (Prerequisites: Senior standing or permission of instructor.)

Ed. 422 3 Credits Spring
Philosophy and History of Education (3+0)
A study of Western Civilization's political, economic, and religious institutions and how these influenced education; along with an application of philosophic concepts to education of the past and present. (Prerequisites: History 101, 102 or History 131, 132; Phil. 201 or permission of the instructor.)

Ed. 426 3 Credits Fall
Principles and Practices of Guidance (3+0)
Introduction to the philosophies; organization, patterns, tools, and techniques that aid teachers and guidance personnel in preparing students for responsible decision-making in modern society. (Prerequisites: Ed. 332 and prerequisites thereto.)

Ed. 443 3 Credits As Demand Warrants
Foundations of Vocational Education (3+0)
A study of the social and philosophical roots of vocational education in America, and public policy as a response to the need for an educated labor force. The relationship of vocational, technical, and special education to general education and the responsibility of public education in a technological society. (Prerequisite: Teaching credential consistent with program design.)

Ed. 446 3 Credits Fall
Structure of American Education (3+0)
Fundamentals of public school organization, control, and support. Relation of federal, state, and local agencies. Problems incidental to public school organization, control, and support in Alaska. (Prerequisite: Senior standing in education. Not open to students who took Ed. 442, 542 before they were abolished.)

Ed. 452 9 Credits Fall and Spring
Student Teaching (0+18)
Supervised teaching in elementary or secondary schools of Fairbanks or in a school approved by the School of Education. The School may limit registration, determine assignments, prescribe the number of teaching hours required, and cancel the registration of students doing unsatisfactory work. (Prerequisite: See requirements for admission to student teaching.)

Ed. 480 3 Credits Spring
Education of Culturally Different Youth (3+0)
Interdisciplinary study of problems encountered by teachers in educating culturally atypical pupils. Consideration of psychological and social factors inherent in the educational process. Specific attention given to curricular improvement and teaching strategies appropriate for culturally different students. (Prerequisites: Ed. 313 and prerequisites thereto and junior standing.)

Ed. 601 3 Credits Fall
Graduate Seminar (3+0)
Expectations, concerns, and questions regarding elementary and secondary classroom teaching today. Selected major trends, problems, and issues in elementary and secondary education and the profession of elementary and secondary teaching. (Prerequisite: Graduate standing or permission of the instructor.)

Ed. 604 3 Credits Fall
Diagnosis and Correction of Reading Deficiencies (3+0)
Nature of the reading process; emphasis on psychology involved in discerning reading difficulties; testing programs to ascertain specific disabilities in readiness, vocabulary, and word-attack, comprehension, speed and accuracy; specific suggestions for their correction; newer approaches to teaching reading. (Prerequisites: Ed. 409 and Ed. 410 and experience in the teaching of reading.)

Ed. 605 3 Credits Spring
Reading Lab (0+9)
Working with a child who has been identified as having reading problems using testing and remedial techniques appropriate to his need. (Prerequisites: Ed. 409, Ed. 410 and Ed. 604.)

Ed. 607 3 Credits Fall
Reading in Secondary Schools (3+0)
Identification of the general goals of reading instruction on the secondary level. An approach to the improvement of learning in the content subjects through the refinement of needed reading skills. Includes guidelines and practical projects for pre-and in-service content area teachers. Open to all secondary teachers.

Ed. 608 3 Credits Alternate Spring
The Improvement of Elementary Teaching (3+0)
Emphasis on improvement of elementary teaching; a re-evaluation of teaching practices; relating of principles of learning, instructional procedures, and recent developments in education to situations made meaningful through the student's teaching experience. (Prerequisites: Graduate standing in education and elementary teaching experience. Next offered: 1979-80.)

Ed. 612 3 Credits Fall
Human Relations in Education (3+0)
Designed to develop actualizing behavior for the student and those he encounters. (Prerequisite: Graduate standing.)

Ed. 620 3 Credits Fall
Curriculum Development (3+0)
Basic definition of curriculum. Present need for curriculum improvement. Criteria for selection of broad goals. Types of curriculum framework examined. Consideration of the organization of specific learning experiences as part of the curriculum structure. (Prerequisites: Ed. 313 and graduate standing in education.)

Ed. 621 3 Credits Alternate Fall
Student Personnel Work in Higher Education (3+0)
Provide selected student services paraprofessionals and graduate students in education with information to assist in development of an increased understanding of the role and scope of student personnel work as a supporting force in American higher education. (Prerequisite: Permission of the instructor. Next offered: 1979-80.)

Ed. 622 3 Credits Spring
Philosophy of Education (3+0)
Basic philosophic concepts and their historical development; philosophy applied to education and related issues and problems; examination of contribution of outstanding educators. (Prerequisite: Graduate standing in education.)

Ed. 623 3 Credits Fall
Principles of Individual Counseling (3+0)
Counseling techniques and procedures in education, social work and on a limited basis, clinical psychology; their applications by the classroom teacher and guidance specialist in assisting students with adjustment problems within a normal range. (Prerequisites: Ed. 426 and permission of the instructor.)

Ed. 624 3 Credits Spring
Group Counseling (3+0)
Kinds and types of groups with emphasis on methods, problems and needed skills in working with groups in a counseling situation. (Prerequisites: Ed. 426, 623.)

Ed. 625 3 Credits Spring
Higher Education: Basic Understandings (3+0)
Historical and philosophical foundations of higher education, both in America and abroad. Examination of curriculum development, instruction, administration and interinstitutional cooperation, with emphasis on trends and innovations in higher education. (Prerequisites: Graduate standing and permission of the instructor.)

Ed. 626 3 Credits Fall and Spring
Practicum in Student Personnel Administration (1+6)
Supervised field experience in student service agencies. Each of two semesters will require six hours per week in the pre-arranged work setting, as well as one additional hour per week for seminar sessions with the supervisors, instructor, and other practicum students. (Prerequisites: Ed. 621 and permission of the instructor.)

Ed. 627 3 Credits Spring
Education Research (3+0)
Techniques of education research; selection of topics and problems, data gathering, interpretation and preparation of reports. (Prerequisite: Graduate standing in education.)

Ed. 628 3 Credits Spring
Analysis of the Individual (3+0)
Means of acquiring data pertinent to the individual. Interpreting data and formulating case reports conducive to greater understanding. (Prerequisites: Ed. 426 and permission of the instructor.)

Ed. 629 3 Credits Alternate Fall
Individual Tests of Intelligence (2+3)
Individual intelligence tests with emphasis on the Revised Stanford-Binet Intelligence Scale and the Wechsler Intelligence Scale. (Prerequisites: Ed. 332 and permission of the instructor. Next offered: 1980-81.)

Ed. 631 3 Credits Spring
Advanced Educational Psychology: Developmental (3+0)
Stresses understanding of human emotional, mental, physical, and social development. Emphasis on individual differences. Assumes one previous course in human development, educational psychology, and teaching experience. (Prerequisite: Graduate standing.)

Ed. 632 3 Credits Alternate Spring
Occupational Information (3+0)
Principles and practices of vocational guidance. Explains process of choosing a vocation, theories of vocational choice, sources and dissemination of occupational information. (Prerequisites: Graduate standing, Ed. 426 and permission of the instructor. Next offered: 1980-81.)

Ed. 633 3 Credits Alternate Spring
Organization, Administration, and Supervision of Guidance (3+0)
For administrators, guidance personnel and others interested in developing or evaluating a guidance program; selection procedures and supervision of guidance personnel are considered. (Prerequisite: Ed. 426. Next offered: 1979-80.)

Ed. 634 3 Credits As Demand Warrants
Counseling Practicum (0+9)
Provides supervised field experience, including preparatory activities in an educational and agency setting. (Prerequisite: Approval of instructor. May be repeated for a maximum of six credits.)

Ed. 635 3 Credits Alternate Fall
Current Issues in Student Personnel Administration (3+0)
The contemporary problems and issues affecting student personnel workers in higher education. Includes an examination of the changing role of students; student diversity; students' rights, freedoms, and responsibilities; evaluation, research, and accountability; financing; and relationship to central administrative services. (Prerequisites: Ed. 621 and permission of the instructor. Next offered: 1980-81.)

Ed. 637 3 Credits Spring
Public School Administration (3+0)
Responsibility pertaining to the organization of a school and the direction of personnel. Functions of instructional leadership. Public school administration as a career. Problems incidental to public school administration in Alaska. (Prerequisites: Ed. 446 and graduate standing in education.)

Ed. 638 3 Credits Alternate Spring
Supervision and Improvement of Instruction (3+0)
Development, purpose, organization of supervisory programs; special attention to current in-service education programs. (Prerequisite: Graduate standing in education. Next offered: 1980-81.)

Ed. 639 3 Credits Spring
Public School Finance (3+0)
Contemporary basis for raising and distributing federal, state and local education funds; problems of school financing in Alaska (Prerequisite: Graduate standing in education.)

Ed. 641 3 Credits Fall
School Law (3+0)
Rights and responsibilities of teachers and pupils; rulings of the Attorney General; decisions of the courts, regulations of the State Board of Education. (Prerequisite: Graduate standing in education.)

Ed. 642 3 Credits As Demand Warrants
Career Education in Public Schools (3+0)
An introduction and examination of career education concepts, teacher strategies and career guidance structure in grades K-12. (Prerequisite: Graduate standing in education.)

Ed. 643 3 Credits As Demand Warrants
Cooperative Occupational Education in the Curriculum (3+0)
A study of cooperative work experience programs as an interdependent combination of instruction and employment. The course will focus on key elements of the cooperative work experience plan as a vehicle for applying and testing what has been learned in the classroom. (Prerequisite: Teaching credential consistent with program design.)

Ed. 644 3 Credits As Demand Warrants
Organization and Administration of Vocational Education (3+0)
This course will examine the principles and problems of organizations and administrative practices as related to the structure and operation of state and local programs of vocational education. (Prerequisite: Teaching credential consistent with program design.)

Ed. 660 3-6 Credits Fall and Spring
Internship
Field work in an appropriate educational or agency setting. Each student will complete an approved field study project. (Prerequisites: Approval of student's advisory committee and admission to candidacy for the M.Ed. or Ed.S. degree.)

Electrical Engineering

E.E. 102 3 Credits Spring
Introduction to Electrical Engineering (3+0)
Basic modern devices, concepts, technical skills, and instruments of electrical engineering. (Corequisite: Math. 200.)

E.E. 203 4 Credits Fall
Electrical Engineering Fundamentals I (3+3)
Analysis of alternating-current circuits using complex notation and phasor diagrams; resonance; transformers; Fourier analysis; the complex frequency plane; three-phase circuits. Introduction to network and system analysis. (Prerequisites: Math. 200. E.E. 102.)*

E.E. 204 4 Credits Spring
Electrical Engineering Fundamentals II (3+3)
Electronics of vacuum and solid state devices, amplifier design, digital circuits, energy conversion, electromechanics, control systems, and instrumentation. (Prerequisite: E.E. 203.)*

E.E. 303 4 Credits Fall
Electrical Machinery (3+3)
Electromechanical energy conversion principles; characteristics and applications of transformers, DC machines, synchronos and induction machines. Introduction to electric power systems. (Prerequisite: E.E. 204.)*

E.E. 331 1 Credit Fall
High Frequency Lab (0+3)
Laboratory experiments in transmission lines, impedances, bridges, scattering parameters, hybrids, waveguides. (Prerequisite: Phys. 331.)*

E.E. 332 4 Credits Spring
Electromagnetic Waves and Antennas (3+3)
Use of Maxwell's equations in the analysis of waveguides, cavity resonators, and transmission lines; retarded potentials; antennas for radio and microwave frequencies, radio propagation. (Prerequisites: Math. 302, Physics 331.)*

E.E. 333 4 Credits Fall
Physical Electronics (3+3)
Basic properties of semiconductors; Principles of semiconductor devices diodes, transistors and integrated circuits. (Prerequisite: E.E. 204.)*

E.E. 334 4 Credits Spring
Electronic Circuit Design (3+3)
Application of semiconductor devices in the design of circuits used in computation, automatic control, and communication. (Prerequisite: E.E. 333.)*

E.E. 353 3 Credits Fall
Circuit Theory I (3+0)
Transient analysis by Laplace transform, state variable, and Fourier methods; filter networks, computer aided analysis. (Prerequisite: E.E. 204.)*

E.E. 354 3 Credits Spring
Circuit Theory II (3+0)
State variable methods, advanced network analysis and synthesis. (Prerequisite: E.E. 353.)*

E.E. 404 4 Credits Spring
Electrical Power Systems (3+3)
Alternate energy sources; transmission system components; elements of control, system protection, and interconnections. (Prerequisite: E.E. 303.)*

E.E. 442 4 Credits Fall
Digital System Analysis and Design I (3+3)
Digital hardware; combinational and sequential logic; computer function, structure, and control; data conversion; basic I/O interfacing. (Prerequisite: Junior standing.)*

E.E. 443 4 Credits Spring
Digital System Analysis and Design II (3+3)
Digital instrumentation; application of small computers and programmable controllers; assembly language; real-time operating systems; application languages; interface design; instrumentation specifications for computer applications. (Prerequisite: E.E. 442.)*

E.E. 462 4 Credits Spring
Communication Systems (3+3)
Theory and practice of communications systems; introduction to probability, statistics, and information theory; systems design and laboratory experience in analog and digital communication. (Prerequisite: E.E. 354, E.E. 334.)*

E.E. 471 4 Credits Fall
Fundamentals of Automatic Control (4+0)
Linear system representation by transfer functions and state variables. The concept of feedback. Time and frequency response of linear systems. Identification. Controllability and observability. Stability by Routh-Hurwitz criterion and frequency plane methods. Specifications of higher order linear systems. System design and compensation; introduction to sampled data systems. (Prerequisites: E.E. 354, Math 321.)*

E.E. 481 3 Credits As Demand Warrants
Electronics and Instrumentation for Scientists and Engineers I (2+3)
Theory and design of solid state electronic circuitry for practicing engineers and scientists in the physical and life sciences. Diodes, transistors, field effect transistors, integrated circuits and other solid state devices. Analysis of modern electronic systems. (Prerequisites: 1 year of college physics; Corequisite: Math 200.)*

E.E. 482 3 Credits As Demand Warrants
Electronics and Instrumentation for Scientists and Engineers II (2+3)
Instrumentation theory and concepts; transducers; data transmission, recording and reducing. Digital electronics. Electrical measurement of physical variables and error analysis. (Prerequisite: E.E. 481 or equivalent.)*

E.E. 603 3 Credits As Demand Warrants
Advanced Electric Power Engineering (3+0)
Selected advanced topics in electric power generation, transmission, utilization, optimization, stability, and economics. (Prerequisite: E.E. 404 or equivalent.)*

E.E. 632 3 Credits As Demand Warrants
High Frequency Devices (3+0)
Principles of operation of microwave tubes, microwave semiconductor devices, parametric amplifiers, nonlinear elements, ferromagnetics. (Prerequisite: E.E. 332.)*

E.E. 635 3 Credits As Demand Warrants
Advanced Electronic Circuit Design (3+0)
Low noise level design; networks for extraction of signals from noise; environmental design; signal conditioning networks. (Prerequisite: E.E. 334.)*

E.E. 662 3 Credits As Demand Warrants
Communication Theory (3+0)
Generalized harmonic analysis, probability in communication systems, random variables, power spectral density, characterization of signals, sampling theory, detection, optimum filtering, coded systems, channel models. (Prerequisite: E.E. 462.)*

*Certain prerequisites may be waived by instructor under special circumstances.

Electronics Technology

Industrial Technology Core Courses:

ITCO 101 3 Credits Fall
Applied Physics I (2+2)
This course covers mechanics of measurement, structure of matter, heat energy, heat engines, sound and light. Lab time is provided for demonstrations and projects covering principles and procedures covered in the class. (Prerequisites: 1st semester enrollment in Electronic Technology or permission of instructor.)

ITCO 102 3 Credits Spring
Applied Physics II (2+2)
This course covers the principles of vectors, kinematics, work-

power-energy, machines and angular vectors. Lab time is provided for demonstrations and projects covering principles and procedures covered in the class. (Prerequisites: Second semester standing in Electronics Technology Program or permission of instructor.)

ITCO 110 3 Credits **Fall**
Technical Math I (3+0)
This is an entry point course in mathematics. The student will review fractions, decimals, and algebra in the context of the "world of work." Applications of mathematics in the electrical, mechanical, and construction trades will be emphasized.

ITCO 111 3 Credits **Fall**
Technical Mathematics II (3+0)
This is a college level course in algebra with applications in the electrical and electronic fields. Subjects covered will include algebraic manipulations, simultaneous equations, determinants, exponents, radicals, and quadratic equation. (Prerequisites: Enrollment in Electrical or Electronics Technology Program or permission of instructor.)

ITCO 112 3 Credits **Spring**
Technical Math III (3+0)
This course will first apply graphing to real world situations. The student will then continue to develop algebraic skills in studies of angles, trigonometry, and logarithms as applied to the "world of work." Included is an introduction to analytic geometry. (Prerequisites: ITCO III or permission of instructor.)

ITCO 210 4 Credits **Fall**
Technical Mathematics IV (4+0)
This is a beginning level course in calculus. Techniques are studied which have the most direct use in electronics. The subject will apply calculus to realistic electronic problems. Calculus operations including the fundamentals of both differential an integral calculus will be developed. (Prerequisites: Technical Mathematics III, ITCO 112 or permission of instructor.)

ITCO 211 4 Credits **Spring**
Technical Mathematics V (4+0)
This is the second course in calculus with emphasis on applications in the electronics field. The techniques of differential and integral calculus are applied to trigonometry, logarithmic, and hyperbolic functions. Partial derivatives and higher order differentials and integrals are evaluated in the context of differential equations. (Prerequisites: Technical Mathematics IV, ITCO 210 or permission of instructor.)

ITCO 212 5 Credits **As Demand Warrants**
Technical Mathematics VI (5+0)
This is the final course in a six-semester sequence in applied mathematics. The course develops special techniques adapted to the needs of an engineering technician. These include graphical, numerical, statistical, and complex techniques. The student will apply these techniques to real world problems throughout the course. (Prerequisites: Technical Mathematics V, ITCO 211 or permission of instructor.)

Electrical Technology Core Courses:

ELCO 101 3 Credits **Fall**
Basic Electricity I (2+2)
This is the first course in a two-semester sequence in basic electrical theory. Both DC and AC concepts will be logically developed. This course will progress from the fundamental concepts of producing electricity, magnetism, and electro-magnetism through series LCR electric circuits. The student will concurrently complete concept-oriented lab projects.

ELCO 102 3 Credits **Spring**
Basic Electricity II (2+2)
This is the second course in a two-semester sequence in basic electrical theory. Both DC and AC concepts will be logically developed. This course will progress from series LCR electric circuits through electrical test equipment, power sources, and motors. The student will concurrently complete concept-oriented lab projects. (Prerequisites: ETCO 101 or permission of instructor.)

ELCO 103 6 Credits **Fall**
Basic Electricity (4+4)
This is a complete course in the basic concepts of electrical theory with emphasis on the electrical trades perspective. Both DC and AC concepts will be logically developed. This course will progress from the fundamental concepts of producing electricity, magnetism, and electro-magnetism through LCR electric circuits, test instruments and electric power sources and meters. The student will concurrently complete concept-oriented lab projects.

ELCO 104 3 Credits **Spring**
Applied Wiring (1+4)
This is an applied study of wiring methods, materials and techniques as related to all the electrical trades. Techniques for selecting proper wire type, size and form will be presented. Laboratory work will include splicing, soldering, application of mechanical connectors, boxes, devices, and fittings. Electrical safety will be emphasized throughout this course. (Prerequisites: Second semester standing in Electrical Service Technician Program or permission of instructor.)

ELCO 106 3 Credits **Spring**
Applied Motors and Generators (2+2)
This is an applied course in the electrical and mechanical aspects of motor and generator theory and hardware. Different types of DC and AC motors and their respective starters and controllers will be studied. Established maintenance and servicing techniques will be developed. The student will complete both electrical and mechanical projects on selected motors and generators. (Prerequisites: Second semester standing or permission of instructor.)

ELCO 109 2 Credits **Fall**
Electrical/Electronic Shop Practices (1+2)
This is a beginning level course that introduces the student to the shop environment in the electrical and electronic trades. The student will learn basic shop skills including: safety, metal working as related to chassis building, soldering, wire wrapping, cable and connector serving, and printed circuit board techniques.

ELCO 201 4 Credits **Fall**
Industrial Electricity (3+2)
A study of AC Electricity as applied to single and polyphase circuits, power supply and AC machinery requiring trigonometric solutions. A study of transform circuits and connections, rectifier circuits, instrumentation, single phase and polyphase motors and generators and other types of alternating equipment. (Prerequisites: Second year standing in Electrical Service Technology Program or permission of instructor.)

ELCO 202 3 Credits **Fall**
Basic Solid State Devices (2+2)
This is an applied course in solid state devices with emphasis on the needs of the electrical trades. The form and function of diodes, transistors, thyristors, and integrated circuits will be studied. Techniques for determining a defective device will be developed. The student will be introduced to the hardware by completing concept-oriented lab projects. (Prerequisites: Second year standing or permission of instructor.)

ELCO 203 4 Credits **Fall**
Introduction to Industrial Instrumentation (3+2)
This is an applied course in the basic concepts of industrial instrumentation as applied to the electrical, mechanical, and petrochemical trades. A qualitative study of tranducers and controls will be presented. Mechanical, hydraulic and pneumatic instrumentation will be studied. The student will complete concept-oriented lab projects concurrent with theory development. (Prerequisites: Second Year standing or permission of instructor.)

Electronic Service Technology and Electronic Engineering Technology Core Courses:

ETCO 101 6 Credits **Fall**
Electrical Fundamentals (4+4)
This is a beginning level course in electrical theory and concepts.

The course material is directed toward the needs of electronic professions. Both AC and DC will be logically developed. The student will complete concept-oriented lab projects to reinforce the classroom theory. (Prerequisites: Concurrent enrollment in ITCO 111 or permission of instructor.)

ETCO 102 4 Credits Spring
Electronic Fundamentals (3+2)
This is the beginning course in electronic theory and concepts. The student will expand electrical theory into electronic circuits and systems. Active devices, power supplies, amplifiers, oscillators, modulation techniques, transmitters, and various electronic systems will be studied. This course will provide the student with a broad qualitative prospective of the electronics field. The student will complete concept-oriented lab projects to reinforce the classroom theory. (Prerequisites: ETCO 101, ETCO 111 and concurrent enrollment in ITCO 112 or permission of instructor.)

ETCO 104 4 Credits Spring
Applied Semiconductor Devices (3+2)
This is an entry point course in discrete linear semiconductor devices. The student will be given an applied approach to setting up each of the devices to perform specified circuit functions. All types of semiconductor diodes, transistors, thyristors, and photo devices will be studied. The student will concurrently complete concept-oriented projects with each device. (Prerequisites: Second semester standing or permission of instructor.)

ETCO 105 3 Credits Fall
Digital Electronics Fundamentals (3+0)
This is a beginning course in digital theory and concepts. The student will study computer number systems and codes, locic and logical gates, flip flops and counters, and advanced logic techniques including implementation and Karnaugh mapping.

ETCO 106 4 Credits Spring
Digital Computer Fundamentals (3+2)
This is the first course in main frame computer hardware and organization. The main functional units of a computer will be logically developed. The CPU, control unit, memory and IO and their interrelationships will be studied. Examples of specific machine language programming techniques will be presented. Various computer systems and applications will be investigated. The student will perform assigned hardware and software projects on a functioning computer system. (Prerequisites: Second semester standing and ETCO 105, or permission of instructor.)

ETCO 111 1 Credit Fall
Electronic Dialogue (0+2)
This course will introduce the student to the electronics industry with emphasis on the different occupational specialties. The student will review the current technological and hardware developments in the industry and develop a "state-of-the-art" dialogue.

ETCO 201 4 Credits Fall
Applied Solid State Linear Circuits I (3+2)
This is an applied circuits course that emphasizes practical design techniques for bipolar transistors and integrated operational amplifiers multistage, direct coupling, feedback, and power amplifiers will be studied. The student will complete design-oriented lab projects concurrently with theory development. (Prerequisites: Second year standing, ETCO 104 or permission of instructor.)

ETCO 202 4 Credits Spring
Applied Solid State Linear Circuits II (3+2)
This is an advanced course in applied circuits. Practical design techniques for hybrid circuits will be developed. Discrete and integrated field effect transistors, thyristors, bipolar transistors, optical devices and operational amplifiers will be combined in functional circuitry. Students will complete design-oriented lab projects concurrently with theory development. (Prerequisites: Second year standing, ETCO 201 or permission of instructor.)

ETCO 203 3 Credits Fall
Electromagnetic Wave Transmission and Propagation (3+0)
This course develops the basic laws of electromagnetic wave transmission and propagation. Both qualitative and quantitative characteristics of electromagnetic waves will be developed in the context of transmission lines, antennas, and various propagation mediums. The concepts will be evaluated across the entire frequency spectrum with particular emphasis on the most commonly used bands. (Prerequisites: Second year standing or permission of instructor.)

ETCO 204 3 Credits Spring
Applied Automatic Control Theory (3+0)
This course introduces the student to basic analytical techniques employed to evaluate open and closed loop frequency response of circuits and systems. A nonmathematical approach to transforming from the time to the frequency domain will be employed. The student will be given a working knowledge of Laplace transforms, Bode diagrams, transient analysis, and Root Locus techniques. (Prerequisites: Second year standing or permission of instructor.)

ETCO 205 3 Credits Fall
Applied Microprocessor Systems (2+2)
This is an applied course in microprocessors. The student will study the most widely used as well as most recently developed microprocessors. Specific microprocessor specifications will be evaluated in terms of characteristics and applications. Both software and hardware techniques will be developed. The student will complete assigned projects having state-of-the-art microprocessors. (Prerequisites: Second year standing or permission of instructor.)

ETCO 206 3 Credits Spring
Applied Digital Systems Design (2+2)
An applied approach to digital systems design techniques is developed. A more comprehensive approach to minimization, analysis, and implementation of combinational and sequential circuits are presented. Techniques for digital-to-analog and analog-to-digital conversion are investigated. The student will complete lab projects demonstrative of the concepts being studied. (Prerequisites: Second year standing or permission of instructor.)

Electrical Service Technology Electives:

ELAP 100 1-10 Variable Open-entry, On Demand
Appliance Service Option
This is an applied shop-oriented course in home appliance servicing including refrigerators and freezers. The operating principles for different appliances are studied. The student will evaluate, disassemble, troubleshoot, and repair various manufacturers' appliances. Proper selection and utilization of technical data and test instruments will be emphasized. (Prerequisites: Enrollment in Electrical Service Technician Program or permission of instructor.)

ELAP 200 1-10 Variable Open-entry, On Demand
Appliance Service Option
This is an applied shop-oriented course in refrigerator and freezer servicing. The fundamental principles of refrigeration are developed. The operating principles for different home refrigeration systems are studied. The configuration of various refrigerators and freezers are examined. The student will evaluate, disassemble, troubleshoot, and repair various manufacturers' units. Proper selection and utilization of technical data and test instruments will be emphasized. (Prerequisites: Enrollment in Electrical Service Technician Program (second year standing) or permission of instructor.)

ELEN 110 1-12 Variable Open-entry, On Demand
Electrician Option
This course prepares the student for the electrician trade. The student will study blueprint reading, electrical planning, national electric code and wiring techniques. Proper selection and installation of materials and utilization of tools will be emphasized. The student will complete real-world projects which develop proficiencies of the electrician. (Prerequisites: Enrollment in Electrical Service Technology program or permission of instructor.)

ELEN 111 3 Credits Fall
National Electric Code Study (3+0)
The National Electric Code systematically studied. Types of wire cables, cabinets, outlets and circuits requirements. (Prerequisites: ELEN 113, ELCO 104 or permission of instructor.)

ELEN 113 3 Credits Fall
Electrical Planning and Blueprint Reading (3+0)
Problems in blueprint reading and wiring layout. Closely applied to code study and wiring laboratory work. Some association with appliances and motors. (Prerequisites: ELEN 111 concurrent enrollment or permission of instructor.)

ELEN 114 3 Credits Spring
Electrical Planning Commercial and Industrial (3+0)
A study of the electrical requirements, the electrical drawings and specifications, and the means to determine the equipment and supplies necessary for commercial and industrial installations. Closely allied to National Electric Code Study. (Prerequisites: ELEN 113.)

ELHA 120 1-10 Variable Open-entry, On Demand
Air Conditioning and Heating Option
This course develops applied procedures for selecting, installing and maintaining heating systems. Necessary heat flow and loss theory will be developed. Various types of heating systems will be evaluated. An in-depth study of oil burners will be presented. The student will evaluate, install, disassemble, and repair various heating systems and components throughout this course. (Prerequisites: Enrollment in Electrical Service Technology program or permission of instructor.)

ELHA 220 1-10 Variable Open-entry, On Demand
Air Conditioning and Heating
This course develops applied procedures for selecting, installing and maintaining air conditioning and refrigeration systems. The theory of basic thermodynamics and the refrigeration cycle will be studied. Various types of air conditioning and refrigeration units will be evaluated. The student will troubleshoot, disassemble, and repair a cross section of air conditioning and refrigeration systems. (Prerequisites: Second year standing in the Electrical Service Technology program or permission of instructor.)

ELVT 131 3 Credits Fall
Rural Electric Systems I (3+0)
The principles and application of controllers of motors, heating, and other electrical systems. The functions and circuitry of pressure, temperature, and other sensors and the controlled circuits. Laboratory work includes connecting various sensors and control circuits. (Prerequisites: ELEN 111, ETCO 102 and ITCO 109.)

ELVT 132 3 Credits Spring
Rural Electric Systems II (2+3)
The principles of operation and maintenance of typical water, sewage treatment, communication and alarm systems. Laboratory work includes connecting, troubleshooting, and operation of various circuits used. (Prerequisites: ELVT 133.)

ELVT 133 3 Credits Spring
Rural Electric Systems III (3+0)
The principles of operation and maintenance of diesel and gasoline engines. The operation and maintenance of electric generators and the operation of a small power station. (Prerequisites: ELCO 201 concurrent.)

ELEN 210 1-12 Variable Open-entry, On Demand
Electrician Option
This course prepares the student for the electrician trade. The students will study motor and temperature controls, wiring design and distribution systems. Proper selection and installation of materials and utilization of tools will be emphasized. The student will complete real-world projects which further develop proficiencies necessary in the electrician trade. (Prerequisites: Enrollment in Electrical Service Technology program with second year status or permission of instructor.)

ELEN 213 3 Credits Fall
Motor Controls (3+0)
The principles and application of electrical controllers. The function, circuitry, and connections, installation procedures and units tested requiring written laboratory reports for each installation. (Prerequisites: ELCO 104, ELEN 111 or permission of instructor.)

ELEN 214 3 Credits Fall
Applied Wiring Laboratory II (2+2)
Introduction to a comprehensive study of wiring methods, materials and techniques. Laboratory work including installation of boxes, devices, switches, controllers, conduit systems and fittings. Wiring installations using various approved wiring methods circuit sketching, circuit tracing and testing. (Prerequisites: Second year standing in Electrical Service Technician Program or permission of instructor.)

ELEN 215 3 Credits Spring
Temperature Controls (3+0)
A study of temperature controls for heating, air distribution and cooling of residential and commercial buildings. (Prerequisites: ELEN 213 or permission of instructor.)

ELEN 216 2 Credits Spring
Wiring Systems Design (2+0)
The study of modern illumination principles, calculation procedures and lighting installations. Types of design, factors in costs of electrical heating installations, including the design requirements of interior wiring systems of 600 volts or less. (Prerequisites: ELCO 104.)

ELEN 217 3 Credits Spring
Electrical Distribution (3+0)
A survey of electrical practice in the field of electrical power distribution. Electrical system arrangements, load planning and factors, transformer applications and the design of short lines. Mechanical arrangements described. (Prerequisites: ELEN 216.)

ELEN 218 3 Credits Spring
Electrical Planning and Estimating (3+0)
A study of the general procedures and methods used to make a cost estimate of materials and labor for an electrical wiring system of a commercial type of building working from a complete set of typical building plans. (Prerequisites: ELEN 114.)

Electronic Service Technology Electives:

ESTV 110 1-20 Variable As Demand Warrants
TV Service Option
This is an applied shop-oriented course in television service. The student will study the television transmitter-receiver as a system. The receiver operating principles and circuitry will then be developed. Both the black and white and color receiver will be studied from the onset. Familiarization with specific models and associated technical data and proper utilization of test instruments will be emphasized. The student will evaluate, troubleshoot, repair, and align sets throughout this course. (Prerequisites: Enrollment in E.S.T. Program or permission of instructor.)

ESTV 114 3 Credits As Demand Warrants
Beginning TV Servicing (2+2)
This course is designed to train persons with no previous electronics training. Servicing both black and white and color television will be developed. The student will be exposed to hundreds of television trouble symptoms with associated diagnosis and corrective action. Lab time is provided for demonstrations and projects covering the principles and procedures covered in class. (Prerequisites: Enrollment in E.S.T. Program or permission of the instructor.)

ESTV 115 3 Credits As Demand Warrants
Radio Servicing (2+2)
This course emphasizes servicing of solid state radio receivers. Techniques and theory for measurements, alignment, and troubleshooting AM and FM receivers, FM stereo receivers and amplifiers, and citizen's band transceivers. Lab time is provided for demonstrations and projects covering the principles and procedures covered in class. (Prerequisites: Current enrollment in E.S.T. Program or permission of the instructor.)

ESTV 116 3 Credits As Demand Warrants
Advanced Television Service (2+2)
This course provides a comprehensive study of television theory and servicing techniques for the student with an electronics back-

ground. Emphasis will be placed on circuit level theory and servicing. Lab time is provided for demonstrations and projects covering the principles and procedures covered in class. (Prerequisites: Current enrollment in E.S.T. Program or permission of instructor.)

ESAU 104 3 Credits As Demand Warrants
Automotive Electronics (2+2)
This is an applied course in automotive electronics. The starting system, ignition systems, lighting and signal system, sensor instrument and indicators, antiski braking system, emission control system, electronically controlled fuel injection, speed control, and solid state ignition systems will be studied. Lab time is provided for demonstrations and experiments covering the principles and procedures covered in class. (Prerequisites: Permission of the instructor or enrollment in E.S.T. Program.)

ESAD 120 1-20 Variable Open-entry, On Demand
Audio Servicing Option
This is an applied shop oriented course in audio reproduction and recording devices. The basics of acoustics are first developed. The operating principles and circuitry of specific audio equipments are then studied. Proper usage of technical data and test instruments is emphasized. The student will evaluate, troubleshoot, repair, and align various models of each class of audio equipment. (Prerequisites: Enrollment in E.S.T. Program or permission of instructor.)

ESAD 124 3 Credits As Demand Warrants
Acoustic Techniques for the Home and Studio (2+2)
This course develops the fundamental techniques for insuring the highest quality and fidelity in the recording and reproduction of sound. The physical aspects of sound will be emphasized. Lab time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class. (Prerequisites: Enrollment in E.S.T. Program or permission of instructor.)

ESTW 130 1-20 Variable Open-entry, On Demand
Two-Way Radio Service Option
This is an applied shop-oriented course in two-way radio service. FCC licensing is required in this field. The student will study the operating principles and circuitry of two-way, amateur, CB, and VHF-FM marine radio transceivers. Applicable FCC regulations and operating practices will be reviewed. The student will evaluate, troubleshoot, repair, and align various models of each type radio. Proper selection and utilization of technical data and test instruments will be emphasized. (Prerequisites: Enrollment in E.S.T. Program and 2nd Class FCC license; or permission of instructor.)

ESTW 134 3 Credits As Demand Warrants
FM Two-Way Radio (2+2)
This course orients the student with the field of two-way radio service. Theory and FCC regulations pertaining to FM two-way radio are studied. Lab time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class. (Prerequisites: Enrollment in E.S.T. Program or permission of instructor.)

ESRE 240 1-20 Variable Open-entry, On Demand
Radio Broadcast Engineer
This course is an applied study of AM-FM radio broadcasting principles. FCC licensing is required for this field of endeavor. The engineering fundamentals needed by a chief engineer or maintenance technician are developed. Equipment and station operations and maintenance will be studied. The student will get scheduled hands-on experience in a host station. (Prerequisites: Enrollment in E.S.T. program, pursuing F.C.C. license; or permission of instructor.)

ESTE 250 1-30 Variable Open-entry, On Demand
Television Broadcast Engineer
This course is an applied study of television broadcasting principles. FCC licensing is required for this field of endeavor. The engineering fundamentals needed by a chief engineer or maintenance technician are developed. Equipment and station operations and maintenance will be studied. The student will get scheduled hands-on experience at a host station. (Prerequisites: Enrollment in E.S.T. Program or permission of the instructor; and pursuing F.C.C. License.)

Electronic Engineering Technology Electives:

Electronic Engineering Technology:

ETAV 100 1-9 Credits Open-entry Competency Based Blocks
Avionics Systems Option
This course first introduces the student to the aircraft environment and pertinent FAA regulations. Structural and electrical aspects of the aircraft will be evaluated in reference to on-board avionics systems. Basic speed, altitude, and positioning systems and requirements will then be developed. (Prerequisites: Enrollment in E.E.T. Program and permission of instructor.)

ETAV 104 3 Credits As Demand Warrants
Introduction to Avionics (2+2)
This course is an overview of the avionics field. It is specially tailored for pilots, A & P's, and the first course for avionics repairmen. Aircraft electrical systems and the fundamental concepts of COM/NAV, ADF, marker beacon, transponders, glide slope, and DME will be studied. The course will emphasize practical applications of this technology in general aviation today. (Prerequisites: Permission of instructor.)

ETAV 200 1-9 Credits Open-entry Competency Based Blocks
Avionics Systems Option
This course gives the student an in-depth study of Avionics Systems. The operational and performance characteristics of both the on-board and ground equipment will be developed. The student will have the opportunity to apply the classroom technology to real-world Avionic Systems. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETBM 110 1-9 Variable Open-entry Competency Based Blocks
Bio-Medical Electronics Option
This course introduces the student to the physiology and generation of potentials within man. Measurement techniques are then developed for each of man's life support parameters. Standard and customized instrumentation techniques are evaluated. (Prerequisites: Enrollment in E.E.T. Program or permission of instructor.

ETBM 114 3 Credits As Demand Warrants
Introduction to Bio-Medical Electronics (2+2)
This is an introductory course in Bio-Medical Electronics with emphasis on servicing such equipment as EEG, EKG and ultrasonic instrumentation. All common biomedical equipment and associated circuitry will be evaluated. (Prerequisites: Permission of instructor or enrollment in E.E.T. Program.)

ETBM 210 1-9 Variable Open-entry Competency Based Blocks
Bio-Medical Electronics Option
This course presents and applied study of electrodes presently used to measure bioelectric events. Standard biomedical instruments are studied with emphasis on usage, accuracy, calibration and troubleshooting. (Prerequisites: Second year standing in E.E.T. or permission of instructor.)

ETBM 214 3 Credits As Demand Warrants
Bio-Medical Electronic Methods and Measurements (2+2)
This is an introductory course in bio-medical methods and measurement. This technology is developed for the cardiovascular, respiratory, and nervous systems in the context of equipment actually used today. Emphasis will be placed on equipment usage, calibration and troubleshooting. (Prerequisites: Second year standing or permission of instructor.)

ETCM 120 1-9 Variable Open-entry, On Demand
Communication Systems Option
This course develops the circuits, processes and basic philosophies of communication systems. A special emphasis is placed on grounding and noise considerations. Specialized circuits and techniques peculiar to communication systems are studied. These include modulation, transmission lines, antennas, wave propagation, and microwaves. The student will then evaluate selected communication systems in the context of communication theory and concepts. Supportive lab projects will be completed. (Prerequisites: Enrollment in E.E.T. Program or permission of instructor.)



ETCM 124 3 Credits Spring
FCC 2nd Class License Preparation (3+0)
Representative questions based on FCC exam for elements I, II, III, will be studied. Background information in communication theory in conjunction with the latest solid-state two-way communication equipment will be covered. FCC rules and regulations, operating practices and procedures will be covered, plus use of test equipment. Prerequisites: Enrollment in E.E.T. or consent of instructor.)

ETCM 220 1-9 Variable Open-entry, On Demand
Communication Systems Option
This is an advanced course in communication systems. Qualitative development of basic concepts, techniques, and problems that characterize information transfer via electrical signals will be evaluated in the framework of real-world limitations. Both analog and digital signal transmission will be studied. Probalistic theory and techniques will be developed and applied to appropriate communication areas. The student will apply learned theory and concepts to assigned lab projects. Prerequisites: Second year (fourth semester) standing in E.E.T. Program or permission of instructor.)

ETCM 224 3 Credits As Demand Warrants
Introduction to Communication Systems (2+2)
This course is an overview of the communications field. The course starts with a review of basic electronic fundamentals, then proceeds into specialized communications topics, including: modulation, sidebands, bandwidth, special circuits, antennas, etc. Both transmitting and receiving theory and procedures are studied. Lab time is provided for demonstrations and projects covering the principles and procedures covered in class. Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETCM 225 3 Credits As Demand Warrants
Introduction to Microwave systems (2+2)
This is an introductory course in microwave theory and measurements. Basic electromagnetic field theory, transmission lines, waveguides, microwave elements, components and devices will be evaluated. Lab time is provided for demonstrations and projects covering the principles and procedures covered in class. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETCM 226 3 Credits Spring
FCC 1st Class License Preparation (3+0)
This is a comprehensive course in broadcast communication with a thorough presentation of the theory and basic principles one needs to know to hold a responsible position as a communications engineer. Representative questions and answers for Element IV of FCC exam will be reviewed in this context. (Prerequisites: Second year standing or permission of instructor.)

ETAC 240 1-20 Variable Open-entry Competency
Automatic Control Theory Based Blocks
This course develops the tools needed to analyze and evaluate closed-loop systems. The Nyquist, Bode and root locus approaches will be studied. A practical approach to feedback systems will be developed with emphasis on their Nyquist-Bode-Nichols diagrams. The student will apply the classroom theory to lab projects. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETIN 150 1-9 Variable Open-entry Competency
Instrumentation Option Based Blocks
The student is given a working knowledge of measurement and calibration techniques with emphasis on instrument usage, accuracy and limitations. The student will use this as a base-line for developing a working knowledge of basic electronic process instrumentation. The form and function of transducers and controllers will be applied to real-world control loops. (Prerequisites: First year standing or permission of instructor.)

ETIN 154 3 Credits As Demand Warrants
Introduction to Fluid Power (2+2)
This course develops the basic physical laws governing fluids. The hardware used to design hydraulic circuits and systems in modern-day applications are evaluated. Lab time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class. (Prerequisites: Enrollment in E.E.T. Program or permission of instructor.)

ETIN 250 1-9 Variable Open-entry Competency
Instrumentation Option Based Blocks
The student is given a working knowledge of systems and circuitry utilized in electronic transmitters, transducers, and controllers. Commonly used analytical instruments used in continuous process applications will be evaluated. Chromatography, pH, conductivity, and mass-spectrophotometry are among those instrument types considered. Flow measurements and flow integration techniques will be developed in accordance with AGA and API standards. The student will then be introduced to remote control and telemetering. (Prerequisites: Second year standing [E.E.T.] Instrumentation Option; ETIN 150 or permission of instructor.)

ETLO 160 1-9 Variable Open-entry Competency
Laser Electro-Optics Option Based Blocks
This is the first course in the Laser Electro-Optics option. The student can progress from an applied understanding of laser fundamentals through geometrical optics. The student will complete projects in selected Laser Electro-Optics areas. (Prerequisites: First year standing or permission of instructor.)

ETLO 164 3 Credits As Demand Warrants
Introduction to Lasers (2+2)
This is a beginning-level course in lasers. Elements of a laser, operation of a helium-neon gas laser, laser physics, optical cavities, properties of laser light and a survey of laser systems. The student will be introduced to selected laser hardware in the lab.

ETLO 260 1-9 Variable Open-entry Competency
Laser Electro-Optics Option Based Blocks
This course gives the student a working knowledge of Laser Electro-Optic components and wave optics. The student will complete projects in Laser Electro-Optic systems and Electro-Optic devices. (Prerequisites: Second year standing or permission of the instructor.)

ETLO 264 3 Credits As Demand Warrants
Laser Applications (2+2)
This course is an applications-oriented course. Specific laser applications including: cutting, drilling, and welding, air pollution monitoring, data processing and display, optical memories, holographic non-destructive testing, medical applications, ranging and angle tracking, and optical communications systems. The student will be introduced to selected applications in the lab. (Prerequisites: Second year standing or permission of instructor.)

ETMD 280 1-20 Variable Open-entry, On Demand
Microprocessor Systems Development Option
This course develops the techniques for designing and debugging the software, hardware and interfaces for a microprocessor-based system. The student will evaluate, design, and build functional microprocessor-based systems. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETTL 170 1-9 Variable Open-entry, On Demand
Telecommunications Option
This is an applied course in the fundamental concepts of telephone systems. The student will be given a working knowledge of long line toll systems and techniques for handling and processing long-distance calls. Actual telephone equipment and systems will be worked with throughout this class. (Prerequisites: Enrollment in E.E.T. Program or permission of instructor.)

ETTL 174 3 Credits Fall
Telecommunications I (2+2)
A study of the basic electronic and mechanical principles of local telephone systems for metropolitan and rural areas. The course assumes no prior knowledge of telephone systems. (Prerequisites: ETCO 102, ETCO 101 or permission of instructor.)

ETTL 175 3 Credits Spring
Telecommunications II (2+2)
Introduction to the nationwide direct distance dialing network. Intensive study of trunk circuits; trunk signaling; switching systems; automatic message accounting and operator services; private line systems; and an introduction to data systems. Provides the student with a working knowledge of long line toll systems. Acquaints the student with the special problems involved and equipment used in handling and processing long distance calls. (Prerequisites: ETTL 174; ETCO 105; or permission of instructor.)

ETTL 270 1-9 Variable Open-entry, On Demand
Telecommunications Systems Option
This course is an applied study of the direct dial network with emphasis on modulation and multiplexing techniques. Microwave links for long-haul messages and television transmission are studied. Different types of switching systems and special purpose equipments are evaluated. The student will work with real-world systems throughout this course. (Prerequisites: Second year students in E.E.T. Program or permission of instructor.)

ETTL 274 3 Credits Fall
Telecommunications III (2+2)
A continuing exploration of the direct-dial network with emphasis on modulation, carrier multiplex, with emphasis on frequency division multiplex, time division multiplex, and pulse code modulations systems. An introduction to carrier signaling and basic telegraphy systems, with emphasis on their transmission by carrier. The introduction of wide-band broadcast program transmission. (Prerequisites: ETTL 175 or permission of instructor.)

ETTL 275 3 Credits Annually
Telecommunications IV (2+2)
A study of long-haul message and television transmission over microwave radio links. Various microwave systems are given a detailed analysis, including vacuum tube and solid state types. Communications utilizing orbiting spacecraft is introduced. (Prerequisites: ETTL 274, second year standing in E.E.T. Program or permission of instructor.)

ETTL 276 3 Credits Annually
Telecommunications V (2+2)
This is an in-depth study of telephone switching systems. Various types of switching systems in common use will be studied. Selected special purpose equipment will be evaluated. (Prerequisites: ETTL 275 and second year standing in E.E.T. Program or permission of instructor.)

ETIN 254 3 Credits As Demand Warrants
Applied Operational Amplifiers (2+2)
This is an integrated operational amplifier circuits course. The device's theory and specifications are expanded into the circuits environment. Various single and multistage circuits are evaluated. These include AC, DC, analog and digital applications. The student will build concept-related operational amplifier circuits in the lab. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETIN 255 3 Credits As Demand Warrants
Industrial Electronics (2+2)
This course presents a design-oriented approach to understanding electronic devices, circuits, and systems used in industry. All of the important solid state devices used in industry are presented in design situations with appropriate applications. Lab time is provided for demonstrations and experiments covering the principles and procedures covered in the class. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETIN 256 3 Credits As Demand Warrants
Applied Fluid Mechanics (2+2)
This is an applied course in the properties of static and dynamic fluids. Applications in the mechanical, chemical, and construction fields will be developed. Fluid storage distribution and open-channel flow will be studied. (Prerequisites: ITCO 111; ITCO 101/102 or permission of instructor.)

ETCS 130 1-9 Variable Open-entry, On Demand
Computer Operating Systems
This course gives the student a working knowledge of BASIC and Fortran IV programming. The hardware and software aspects of computer systems are then developed. The integrated approach to learning hardware and software is emphasized throughout. The student will complete both hardware and software-related tasks on a host system. (Prerequisites: Enrollment in E.T. Program or permission of instructor.)

ETCS 230 1-9 Variable Open-entry, On Demand
Computer Operating Systems Option
This course develops the hardware and software organization of social purpose, micro, and mini computers. A popular minicomputer such as the PDP-11 will be studied in detail. Machine language coding techniques are evaluated with emphasis on a selected host machine. Specific peripheral devices are then evaluated both within and outside the data processing field. The integrated approach to learning software and hardware is emphasized throughout. The student will complete both hardware and software-related tasks on a host system. (Prerequisites: Second year standing in E.E.T. Program or permission of instructor.)

ETSP 100 3 Credits As Demand Warrants
Survey of Electronics (2+2)
This is a general interest course in the concepts of applications of electronics. An elementary background in electronic theory and hardware is presented. Applications in home entertainment and appliances, business and industry will be quantitatively evaluated. Lab time is provided for demonstrations and experiments to help clarify the principles and procedures covered in class.

ETSP 289 1-20 Variable Open-entry, On Demand
Associate of Applied Science in Electronic Technology
This course provides an avenue for the qualified journeyman electrical or electronics technician to obtain an Associate of Applied Science Degree. He must meet all of the following requirements:

1. Have at least five years experience as a journeyman electrical or electronics technician or equivalent
2. Be certified by a professional, federal or state agency (FCC, FAA, ICET, CET, etc.)
3. Be unanimously approved by a committee of the Department Head of Electronics Technology and all full-time instructors
4. Complete the 15 credit hours of general University Associate Degree requirements or their equivalents
5. Complete a project and submit a technical report

(Prerequisites: Certification by a professional, federal or state agency (FCC, FAA, ICET, CET, etc.) and five years experience as a journeyman electrical or electronics technician.)

Engineering and Science Management

E.S.M. 401 Credits Arr. Fall
Construction Cost Estimating and Bid Preparation (3+0)
Compilation and analysis of the many items that influence and contribute to the cost of projects to be constructed. Preparation of cost proposals and study of bidding procedures.

E.S.M. 450 3 Credits Spring
Economic Analysis and Operations (3+0)
Fundamentals of engineering economy, project scheduling, estimating, legal principles, professional ethics, and human relations. (Not offered for credit toward the Master of Science in Engineering Management or Science Management. Prerequisites: E.S. 201 and senior standing in engineering or permission of instructor.)

E.S.M. 605 3 Credits Fall
Engineering Economy (3+0)
The science of fiscal decision-making. Graduate level studies in problems of replacement, economic selections, income tax accounting, engineering evaluation and introduction to the problems of depreciation.

E.S.M. 608 3 Credits Fall
Legal Principles for Engineering Management (3+0)
A course devoted to those aspects of law specifically related to technical management. Contracts, sales, real property, business organization, labor, patents, insurance. (Prerequisites: Graduate Standing.)

E.S.M. 611 3 Credits Fall
Accounting for E.S.M. (3+0)
Review of accounting principles; industrial accounting including cost accounting; business organization; business finance; emphasis on use of data in management rather than its generation.

E.S.M. 612 3 Credits Spring
Finance for E.S.M. (3+0)
Development of ability to seek out needed information, analyze it, and make recommendations over a wide range of managerial problems involving fiscal matters; cases involving capital acquisitions, profit maximization, methods improvement, pricing, modification of controls, and other management problems. (Prerequisites: E.S.M. 605, 611.)

E.S.M. 613 3 Credits Spring
Personnel for E.S.M. (3+0)
Human element in management; labor relations, human relations, personnel administration, industrial psychology, employee relations, and labor economics from the viewpoint of needs of a manager.

E.S.M. 621 3 Credits Spring
Operations Research (3+0)
Mathematical techniques for aiding managerial decision-making. Waiting line theory, inventory models, linear programming, transportation problem, dynamic programming, PERT/CPM, machine scheduling, and simulation. Emphasis on application of techniques to actual management situations.

E.S.M. 623 3 Credits Fall and Spring
Computer Programming for Engineering Managers (3+0)
A course in basic FORTRAN programming, with applications to engineering management problems. (Not offered for credit toward the Master of Science in Engineering Management or Science Management.)

E.S.M. 684 3 Credits Spring and Fall
Engineering Management Project (3+0)
Individual study of an actual engineering management problem resulting in a report which includes recommendations for action.

Engineering Science

E.S. 101 2 Credits Fall
Graphics I (0+6)
Correct use of drafting instruments. Lettering, geometric construction, orthographic projection, sketching dimensioning, perspective drawing, simple design project, introduction to computer graphics.

E.S. 102 2 Credits Spring
Graphics II (0+6)
Descriptive geometry, graphic solution of three-dimensional problems, design project, graphic solution of vector problems, perspective drawings by computer, graphs, charts and diagrams, graphical calculus. (Prerequisites: E.S. 101 or equivalent.)

E.S. 111 3 Credits Fall
Engineering Science (1+4)
Engineering problem solving with emphasis on the statics, kinematics, and dynamics of engineering systems. Conservation laws, fluid mechanics, and heat. (Prerequisite: Credit or registration in Math. 107-108.)

E.S. 201 3 Credits Fall and Spring
Computer Techniques (2+3)
Basic computer programming, in both FORTRAN and BASIC, with considerable applications from all fields of engineering. (Prerequisite: Math 107-108 or enrollment in Math. 200.)

E.S. 208 4 Credits Spring
Mechanics (3+3)
Statics, kinematics, dynamics. Both classical and vector methods are used. Graphical solutions, work and energy, impulse and momentum, virtual work. (Prerequisites: E.S. 111 or Phys. 105 and Math. 201.)

E.S. 301 3 Credits Fall
Engineering Analysis (3+0)
Application of mathematical tools to engineering with emphasis on the mathematical formulation of typical engineering problems. Selected topics from all fields of engineering. (Prerequisite: Math. 302.)

E.S. 307 3 Credits Fall
Elements of Electrical Engineering (2+3)
Electrical fundamentals; elementary circuits and theorems, natural, forced and steady state response; principles of electronics; circuit models and system parameters; characterictics of AC and DC machines. (Prerequisite: Math. 202, or permission of the instructor.)

E.S. 308 3 Credits Spring
Instrumentation and Measurement (2+3)
Instrumentation theory and concepts digital and analog; devices; transducers, data sensing transmission; recording, and display; instrumentation system; remote sensing; hostile environmental conditions. (Prerequisite: E.S. 307.)

E.S. 331 3 Credits Fall
Mechanics of Materials (2+3)
Theory and practice of structural material. Stress-strain relationships. Torsion. Shear and moment diagrams. Beams, columns, shafts. Connections, indeterminate analysis. (Prerequisite: E.S. 208, Math. 201.)

E.S. 341 4 Credits Fall
Fluid Mechanics (3+3)
Statics and dynamics of fluids. Basic equations of hydrodynamics, dimensional analysis, simple hydraulic machinery. (Prerequisites: E.S. 208, Math. 201.)

E.S. 346 3 Credits Spring
Basic Thermodynamics (3+0)
Systems, properties, processes, and cycles. Fundamental principles of thermodynamics (first and second laws), elementary applications. (Prerequisites: Math 201 and Phys. 211.)

English

Note: In the list below, 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.

Engl. 067 3 Credits As Demand Warrants
Engl. 068 3 Credits As Demand Warrants
Elementary Exposition (3+0)
For students preparing for an associate degree. Development of reading comprehension. Instruction in written expression, with practical application (such as preparing technical work results, resumés, and business correspondence) as determined by the needs of the class.

Engl. 100 3 Credits Fall and Spring
Elementary English (3+0)
For students inadequately prepared for Engl. 111. Intensive practice in written comprehension. Frequent writing assignments. Not to be substituted for required courses.

Engl. 107 3 Credits As Demand Warrants
Technical Report Writing (3+0)
Instruction in the basic principles of writing, with special emphasis on the forms and techniques used in technical and industrial communication.

Engl. 111 3 Credits Fall and Spring
Methods of Written Communication (3+0)
Instruction in writing expository prose, including principles of order and clarity. Close analysis of appropriate texts. Introduction to research techniques.

Engl. 211 3 Credits Fall and Spring
Intermediate Exposition, with Modes of Literature (2+0+1)
Instruction in writing through close analysis of literature. Students write for weekly conferences. Research paper required. (Prerequisites: Engl. 111 and sophomore standing.)

Engl. 213 3 Credits Fall and Spring
Intermediate Exposition (2+0+1)
Instruction in writing through close analysis of expository prose from the social and natural sciences. Students write for weekly conferences. Research paper required. (Prerequisites: Engl. 111 and sophomore standing.)

NOTE: Neither English 211 nor English 213 is to be considered or is to be used as a prerequisite for any other course or for any particular course of study. Because both of these courses will be primarily courses in writing, either one of them will fulfill the second half of the requirement in written communication for the baccalaureate degree. A student who has taken one of these courses before declaring a major in which the other course may be considered more appropriate, or a student who changes major from a field in which one of these courses is considered more appropriate than the other, will not be required to take the other course.

Engl. 215 3 Credits Fall
Introduction to Poetry (3+0)
Analysis and appreciation of the various kinds of writing in verse (lyric, narrative, and other poetry), including the terminology used to describe poetic techniques.

Engl. 216 3 Credits Fall and Spring
Introduction to Fiction (3+0)
Analysis and appreciation of selected novels and short stories, including the terminology used to describe fictional techniques.

Engl. 217 3 Credits Spring
Introduction to Drama (3+0)
Analysis and appreciation of selected plays, including the terminology used to describe dramatic techniques.

Engl. 301 3 Credits Fall
Survey of World Literature: From the Ancient World Through the Renaissance (3+0)

Engl. 302 3 Credits Spring
Survey of World Literature: From the Age of Reason to the Present (3+0)
The study of literary, philosophical, and aesthetic ideas of western man as reflected in his/her literature.

Engl. 303 3 Credits Alternate Fall
Survey of British Literature: From Beowulf Through the Early Renaissance (3+0)
Comprehensive study of representative writers and works in Old and Middle English and in Modern English through the earlier work of Shakespeare. (Next offered: 1980-81.)

Engl. 304 3 Credits Alternate Fall
Survey of British Literature: From the Late Renaissance Through the Neoclassical Period (3+0)
Comprehensive study of representative British writers and works from the later work of Shakespeare to the end of the Eighteenth Century. (Next offered: 1979-80.)

Engl. 305 3 Credits Alternate Spring
Survey of British Literature: From the Romantic Period to the Present (3+0)
Comprehensive study of representative British writers and works from the publication of *Lyrical Ballads* (1798) to the present. (Next offered: 1979-80.)

Engl. 306 3 Credits Fall
Survey of American Literature: From the Colonial Period to the Civil War (3+0)
Comprehensive study of American thought as reflected in its major writers, including works representative of American Calvinism, Rationalism, Transcendentalism, and Romanticism.

Engl. 307 3 Credits Spring
Survey of American Literature: From the Civil War to the Present (3+0)
Comprehensive study of American thought as reflected in its major writers, including works representative of Realism, Naturalism, Stream-of-Consciousness, and Surrealism.

Engl. 311 3 Credits Fall and Spring
Advanced Exposition (2+0+1)
Instruction in writing for students who wish to develop proficiency in organizing and composing essays on factual material in which they have genuine interest. Research paper required. Course will fulfill the second half of the requirement in written communication (i.e., it may replace Engl. 211 or Engl. 213). (Prerequisite: Engl. 111, sophomore standing, and permission of instructor.)

Engl. 318 3 Credits Fall
Modern English Grammar (3+0)
Study of the structure of current English as seen through recent linguistic theory and the investigation of such related topics as regional and social dialects, functional varieties, usage, and dictionaries. Recommended for all students majoring in linguistics or in elementary education and for all students with a teaching major or minor in English.

Engl. 349 3 Credits Spring
Aleut, Eskimo, and Indian Literature of Alaska in English Translation (3+0)
Survey of the folklore of Alaska native peoples, including bibliography of published collections, systems of classifying the stories, and study and appreciation of selected stories representing all major native languages.

Engl. 350 3 Credits Fall
Frontier Literature of Alaska (3+0)
Study of representative works of fiction, verse, and non-fiction which deal with the "early days" of the Territory of Alaska.

Engl. 354 4 Credits Alternate Fall
Survey of Canadian History and Literature: 17th Century to 1867 (4+) (Same as Hist. 354)
History and literature of Canada from the 17th Century to Confederation taught jointly by staff members from the Departments of History and English. (Next offered: 1979-80.)

Engl. 355 4 Credits Alternate Spring
Survey of Canadian History and Literature: 1867 to the Present (4+0) (Same as Hist. 355)
History and literature of Canada from the Confederation to the present taught jointly by staff members from the Departments of History and English. (Next offered: 1979-80.)

Engl. 371 1-3 Credits Fall/Spring
Creative Writing (3+0)
Practice and guidance in writing fiction, poetry, drama, and essays. Students' work will be read and discussed in class and in conference with the instructor. Close study of the techniques of established writers. (Prerequisite: Engl. 111.)

Engl. 401 3 Credits Fall
World Literature: Selected Masterpieces From Homer Through Dante (3+0)
A study of the literature and ideas of the western world with emphasis on complete works by major writers, including Homer, the Greek dramatists, Sappho, Virgil, Catullus, Ovid, and Dante, among others.

Engl. 402 3 Credits Spring
World Literature: Selected Masterpieces From Cervantes to the Present (3+0)
A study of the literature and ideas of the western world with emphasis on complete works by major writers, including Cervantes, Goethe, Flaubert, Dostoevsky, Chekhov, and Kafka, among others.

Engl. 414 3 Credits Spring
Research Writing (3+0)
Technical, specialized exposition, documentation, and research. Concentration on language, style, and audience in scholarly articles. Papers in the students' fields prepared for conference. Students should have a definite project in mind before enrolling. (Prerequisite: Permission of the instructor.)

Engl. 421 3 Credits Alternate Fall
Chaucer (3+0)
Major poetry, with emphasis on *The Canterbury Tales*, and survey of Chaucerian criticism. (Next offered: 1980-81.)

Engl. 422 3 Credits Fall
Shakespeare: History Plays and Tragedies (3+0)
Major chronicle plays and tragedies, including significant criticism.

Engl. 425 3 Credits Spring
Shakespeare: Comedies and Non-Dramatic Poetry (3+0)
Major comedies and non-dramatic poems, including significant criticism.

Engl. 426 3 Credits Alternate Spring
Milton (3+0)
Major poetry and prose, and survey of Miltonian criticism. (Next offered: 1979-80.)

Engl. 444 3 Credits As Demand Warrants
European Literature (3+0)
Studies in major European writers and periods.

Engl. 445 3 Credits Alternate Fall
20th-Century Drama: From Chekhov to Ionesco (3+0)
The major dramatists and their achievements. (Next offered: 1980-81.)

Engl. 446 3 Credits Alternate Spring
20th-Century British and American Poetry (3+0)
The major achievements in modern poetry, including the work of Yeats, Eliot, Pound, Lowell, Roethke, and Stevens, among others. (Next offered: 1979-80.)

Engl. 447 3 Credits Alternate Spring
20th-Century British Literature, Exclusive of Poetry (3+0)
Fiction, drama, essays, and criticism of the major writers, including Joyce, Shaw, Woolf, Lawrence, and Orwell, among others. (Next offered: 1980-81.)

Engl. 448 3 Credits Alternate Fall
20th-Century American Literature, Exclusive of Poetry (3+0)
Fiction, drama, essays, and criticism of the major writers. Comprehensive readings in selected authors. (Next offered: 1979-80.)

Engl. 452 3 Credits Alternate Fall
The British Novel to 1900 (3+0)
Origin and development of the novel with concentration on significant novelists from Daniel Defoe to Thomas Hardy. (Next offered: 1979-80.)

Engl. 462 3 Credits As Demand Warrants
Applied English Linguistics (3+0)
Study of the linguistic basis for such practical language activities as teaching reading and spelling, teaching English as a second language or standard English as a second dialect, teaching composition, and literary criticism. After an initial overview, students will investigate a specific area of appliction. (Engl. 318 or a linguistics course is desirable, but not required.)

Engl. 472 3 Credits Spring
History of the English Language (3+0)
Origin and development of the English language from prehistoric times to the present. (Engl. 318 or a linguistics course is desirable, but not required.)

Engl. 481 3 Credits Alternate Fall
Craft of Poetry (3+0)
Intensive study of the forms and techniques used by poets, through analysis of selected poems and consideration of selected criticism. (Next offered: 1980-81.)

Engl. 482 3 Credits Alternate Spring
Craft of Fiction (3+0)
Intensive study of the forms and techniques used by novelists and short story writers, through analysis of selected fiction and consideration of selected criticism. (Next offered: 1979-80.)

Engl. 483 3 Credits Alternate Fall
Craft of Drama (3+0)
Intensive study of the forms and techniques used by dramatists, through analysis of selected plays and consideration of selected criticism. (Next offered: 1979-80.)

Engl. 484 3 Credits Alternate Spring
Craft of Non-Fiction Prose (3+0)
Intensive study of the forms and techniques used by biographers, essayists, and writers of other non-fiction literary prose, through analysis of selected works and consideration of selected criticism.

(Not a workshop. See Jour. 420 for a course in writing biography and autobiography, for which this course may serve as preparation.) (Next offered: 1980-81.)

Engl. 601 3 Credits Fall
Bibliography, Methods, and Criticism (3+0)
A study of the basic reference works for research in literature, the methods for conducting research, and the principles of literary criticism.

Engl. 603 3 Credits Alternate Fall
Studies in British Literature: Old and Middle English (3+0)
Variable subject matter in significant topics in Anglo-Saxon and Middle English literature. (Next offered: 1980-81.)

Engl. 604 3 Credits Alternate Fall
Studies in British Literature: Renaissance and 17th Century (3+0)
Variable subject matter in significant topics in 16th and 17th-Century British Literature. (Next offered: 1979-80.)

Engl. 607 3 Credits Alternate Spring
Studies in British Literature: 18th and 19th Centuries (3+0)
Variable subject matter in significant topics in British literature of the Augustan, Romantic, and Victorian periods. (Next offered: Spring 1980-81.)

Engl. 608 3 Credits Alternate Spring
Studies in British Literature: 20th Century (3+0)
Variable subject matter in significant topics in modern British literature. (Next offered: 1979-80.)

Engl. 609 3 Credits Alternate Fall
Studies in American Literature: Colonial Period and 19th Century (3+0)
Variable subject matter in significant topics in American literature to the end of the 19th Century. (Next offered: 1979-80.)

Engl. 612 3 Credits Alternate Fall
Studies in American Literature: 20th Century (3+0)
Variable subject matter in significant topics in modern American literature. (Next offered: 1980-81.)

Engl. 670 3 Credits Alternate Spring
Studies in Comparative Literature (3+0)
Variable subject matter in significant topics in comparative literature. (Next offered: 1980-81.)

Engl. 671 Credits Arr. Fall or Spring
Writers' Workshop
The writing of verse, fiction, drama, or non-fiction prose in accordance with the individual student's needs and the instructor's specialization. Depending on available staff, the workshop may be limited during any semester to work in a particular genre. May be taken twice for a maximum of six credits. (Prerequisites: at least two of these courses – Engl. 481, 482, 483, 484 – and permission of instructor; or, permission of the Head of Department of English and of instructor. Offered once annually.)

Environmental Quality Engineering

EQE 601 3 Credits Fall
Environmental Quality Science Measurements (2+3)
Theory and laboratory procedures for determining quality of water supplies. Natural water quality, pollution loads and water and waste-water treatment plant parameters. Familiarization with *Standard Methods for the Examination of Water and Wastewater.* Experiments on unit processes of treatment systems are included along with consideration for solid waste and air pollution monitoring. (Prerequisite: Permission of instructor.)

EQE 602 3 Credits Spring
Engineering Management of Water Quality (3+0)
Concepts, rationale, theory, institutions and engineering aspects of water quality management. Methods of water quality management; low flow augmentation, in-stream aeration; stream and estaurine analysis; ocean disposal systems; land disposal, control of thermal effluents, industrial discharges and arctic applications. (Prerequisite: Permission of instructor.)

EQE 603 3 Credits Fall
Solid Waste and Air Pollution (3+0)
Planning, collecting and disposing of refuse. Techniques of open dumping, land filling, sanitary land filling, composting, incineration, and resource recovery. Solid waste environmental relationships to water, air and land pollution. Economics and case studies are included. Air pollution topics will include quantity and quality of atmospheric emissions and their effects on man and his environment. Identification and location of sources, measurement of quality and standards. (Prerequisite: Permission of instructor.)

EQE 604 3 Credits Spring
Environmental Quality Evaluation (3+0)
Topics of environmental impact statements; environmental law (local, state and federal); and environmental quality. Impact from projects of mining, highways, airports, pipelines, industrial development, water, wastewater and solid waste, and others – theoretical considerations and case studies. (Prerequisite: Graduate standing or permission of the instructor.)

EQE 605 3 Credits Fall
Chemical and Physical Water and Wastewater Treatment Processes (3+0)
The theory and design of chemical and physical unit process utilizing the treatment of water and wastewater. Sedimentation and flotation, ion exchange, adsorption, coagulation, precipitation, filtration, disinfection, reverse osmosis and aeration theories will be studied. Design problems for all unit processes. (Prerequisite: Graduate standing or permission of the instructor.)

EQE 606 3 Credits Spring
Biological Treatment Processes (3+0)
Study of the theoretical and applied aspects of wastewater treatment by biological processes including activated sludge, trickling filters, lagoons, sludge digestion and processing, septic tanks; analysis and design; nutrient removal processes, biology of polluted waters, economics, state and federal regulations. (Prerequisite: Graduate standing or permission of the instructor.)

Eskimo

Esk. 101 5 Credits Fall
Esk. 102 5 Credits Spring
Elementary Yup'ik Eskimo (5+0)
Introduction to Central Yup'ik, the language of the Yukon and Kuskokwim deltas and Bristol Bay. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read, and write the language. Consideration give to dialect differences.

Esk. 108 3 Credits Spring
Yupik Literacy (3+0)
Literacy training for speakers of Yupik languages (Central Yup'ik, St. Lawrence Island Yupik, and Alutiiq). Learning to read and write the language.

Esk. 111 5 Credits Fall
Esk. 112 5 Credits Spring
Elementary Inupiaq Eskimo (5+0)
Introduction to Inupiaq, the language of Unalakleet, Seward Peninsula, Kotzebue Sound, and North Slope. Open to both speakers and nonspeakers. For speakers the course provides literacy and grammatical analysis. For others it provides a framework for learning to speak, read, and write the language. Consideration given to dialect differences.

Esk. 118 3 Credits Spring
Inupiaq Literacy (3+0)
Literacy training for speakers of Alaskan Inupiaq. Learning to read and write the language.

Esk. 201 4 Credits Fall
Esk. 202 4 Credits Spring
Intermediate Yup'ik Eskimo (4+0)
Continuation of Eskimo 101-102. Increasing emphasis on speaking, reading and writing.

Esk. 211 3 Credits Fall
Intermediate Inupiaq Eskimo (3+0)
Continuation of Elementary Inupiaq Eskimo, concentrating on development of conversational ability, with presentation of additional grammar and vocabulary. (Prerequisites: Completion of Elementary Inupiaq Eskimo 111 and 112 or permission of instructor.)

Esk. 415 3 Credits Fall
Advanced Yup'ik Eskimo (3+0)
Advanced study in Yup'ik Eskimo. A continuation of Esk. 202.

Esk. 417 3 Credits Spring
Advanced Inupiaq Eskimo (3+0)
Advanced study in Inupiaq Eskimo. A continuation of Esk. 112.

Fire Science Technology

F.S. 101 3 Credits Fall
Introduction to Fire Science (3+0)
An introduction to the Fire Service and Fire Protection; career opportunities in fire protection and related fields; history of fire protection; fire loss analysis; public, quasi-public and private fire protection services; specific fire protection functions; fire chemistry and physics.

F.S. 105 3 Credits Fall
Fundamentals of Fire Prevention (3+0)
Organization and function of fire prevention; inspections; surveying and mapping procedures; recognition of fire and life hazards, engineering a solution of a fire hazard; enforcing the solution of a fire hazard; public relations as affected by fire prevention.

F.S. 107 3 Credits As Demand Warrants
Fire Tactics and Strategy (3+0)
Principles of fire control through the utilization of manpower, equipment and extinguishing agents on the fireground.

F.S. 111 3 Credits As Demand Warrants
Fire Company Organization and Management (3+0)
Review of fire department organization; planning, organizing and supervising to meet the needs of the fire department, with emphasis on the company officer's role.

F.S. 115 3 Credits Spring
Fire Apparatus and Equipment (3+0)
Fire apparatus design, specifications and performance capabilities; effective utilization of apparatus in fire service emergencies.

F.S. 117 3 Credits As Demand Warrants
Rescue Practices (3+0)
Rescue problems and techniques; emergency rescue equipment; toxic gases; chemicals and diseases; radiation hazards; care of victims, including emergency childbirth, respiration and resuscitation, extrication and other emergency conditions.

F.S. 121 3 Credits As Demand Warrants
Introduction to Fire Chemistry and Physics (3+0)
A basic introduction to the nomenclature, principles, procedures of chemistry as it relates to fire problems. Supplemented by an introduction to basic mathematics and principles of physics as related to fire science.

F.S. 123 3 Credits Spring
Fire Investigation (3+0)
Determining cause of fires (accidental, suspicious and incendiary); types of fires; related laws; introduction to arson and incendiarism; recognizing and preserving evidence; interviewing witnesses and suspects; arrest and detention procedures; court procedures and giving court testimony.

F.S. 151 3 Credits Fall
Wildland Fire Control I (3+0)
A course designed to provide the employed fireman or fire science major with a fundamental knowledge of the factors affecting wildland fire prevention, fire behavior and control techniques.

F.S. 153 3 Credits As Demand Warrants
Wildland Fire Organization and Management (3+0)
A review of fire organization, the steps involved in organizing for suppression, and a study of management functions.

F.S. 155 3 Credits Spring
Fire Behavior I (3+0)
Course includes fire triangle, ignition temperatures, sources of heat, heat transfer, weather factors, forest fuel factors and topography, interplay of fuels, and prediction of fire behavior on our wildland fires.

F.S. 157 3 Credits As Demand Warrants
Air Operation Management (3+0)
Use of aircraft for suppression of wildland fires and support of air service function – emphasis on air safety.

F.S. 161 3 Credits Spring
Fire Service Functions (3+0)
Contains basic organization and procedures of the support function. Includes study of the service chief position and its subordinate positions.

F.S. 163 3 Credits Fall
Wildland Air Attack (3+0)
Proper use and management of aircraft as a tool in fire suppression, specifically the use of helicopters and fixed wing airtankers in air attack.

F.S. 202 3 Credits As Demand Warrants
Fire Hydraulics (3+0)
Review of applied mathematics; hydraulics laws as applied to the fire service; application of formulas and mental calculation to hydraulics and water supply problems.

F.S. 204 3 Credits As Demand Warrants
Hazardous Materials I (3+0)
An introduction to basic fire chemistry and physics. Problems of flammability as encountered by firefighters when dealing with fuels and oxidizers. Elementary fire fighting practices pertaining to hazardous materials in storage and transit.

F.S. 205 3 Credits As Demand Warrants
Hazardous Materials II (3+0)
A second semester course in Hazardous Materials covering handling, identification and firefighting practices involving explosive, toxic and radioactive materials in storage and transit.

F.S. 206 3 Credits As Demand Warrants
Building Construction for Fire Protection (3+0)
Fundamentals of building construction as it relates to fire protection. Classification by occupancy and types of construction with emphasis on fire protection features including: building equipment, facilities, fire resistive materials, and high rise considerations.

F.S. 208 3 Credits As Demand Warrants
Fire Service Records and Reports (3+0)
A course designed for all members of the fire service in the use of typical records and report systems. Involves knowledge and understanding of fire department records systems, principles of report writing, applications in the area of pre-fire survey, post-fire reporting, research and planning.

F.S. 212 3 Credits As Demand Warrants
Related Codes and Ordinances (3+0)
Familiarization and interpretation of national, state, and local codes, ordinances, and laws which influence the field of fire prevention.

F.S. 213 3 Credits As Demand Warrants
Wildland Fire Control II (3+0)
Course emphasizes problems and responsibilities in all fire suppression functions. Covers fire management, strategy planning, service and support, and fire and business management.

F.S. 214 3 Credits As Demand Warrants
Fire Protection Equipment and Systems (3+0)
A study of portable fire extinguishing equipment; protection systems for special hazards; sprinkler systems; and fire detection and alarm systems.

F.S. 252 3 Credits As Demand Warrants
Wildland Fire Prevention, Law Enforcement and Investigation (3+0)
The organization and functions of Fire Prevention; objectives and policy, education and enforcement, analysis and inspection techniques; public relations as affected by Fire Prevention; Fire investigations; basic law enforcement techniques.

F.S. 254 3 Credits As Demand Warrants
Wildland Fire Business Management (3+0)
A course covering the duties and responsibilities of a fire officer as they relate to fire management practices and programs. Promotes professionalism and effects a sound fire management program. Covers procedures required in identified finance jobs in a wildland organization, including the financial management of a large complex wildland fire.

F.S. 255 3 Credits As Demand Warrants
Fire Behavior II (3+0)
Intensive course in fire behavior designed for instructors and fire behavior officers.

F.S. 256 3 Credits As Demand Warrants
Wildland Fire Planning and Multiple Use Management (3+0)
Fire management and its role in a multiple use resource management program. Includes resource management, prescribed fire wildfire practices, environment, management goals and objectives, and fire planning.

F.S. 258 3 Credits As Demand Warrants
Prescribed Burning and Fuels Management (3+0)
Course analyzes different fuels and evaluates benefits and effect of management practices. Includes prescribed fire procedures and objectives.

F.S. 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.

F.S. 266 3 Credits As Demand Warrants
Wildland Fire Environmental Considerations (3+0)
Course covers ecosystems, erosion, soil properties and revegetation, fire ecology, fuel and the environment, fire control practices, and smoke management.

Food Service Technology

F.S.T. 101 1 Credit Fall and Spring
Introduction to Food Service (1+0)
An overall view of the industry; its history, its trends, its diversity and its methods of operation. Recognition of tools of the trade, discussion on the use of spices and herbs; garnishing and decorating.

F.S.T. 102 2 Credits Fall and Spring
Foods and Nutrition (2+0)
A general information course covering the chemical and biological aspects of food combined with the rudiments of nutrition.

F.S.T. 103 4 Credits Fall and Spring
Quantity Food Production (Foods) (1+10)
Basic preparation: Familiarization with all techniques of handling, combining and finishing of foods. This would include the various methods of cleaning, cutting, shaping, mixing, seasoning, and cooking.

F.S.T. 104 2 Credits Fall and Spring
Sanitation (1+5)
The techniques of ware and utensil washing; handling the disposal of wastes; housekeeping routines and methods; survey of health codes; elementary microbiology; rodent controls and public health considerations.

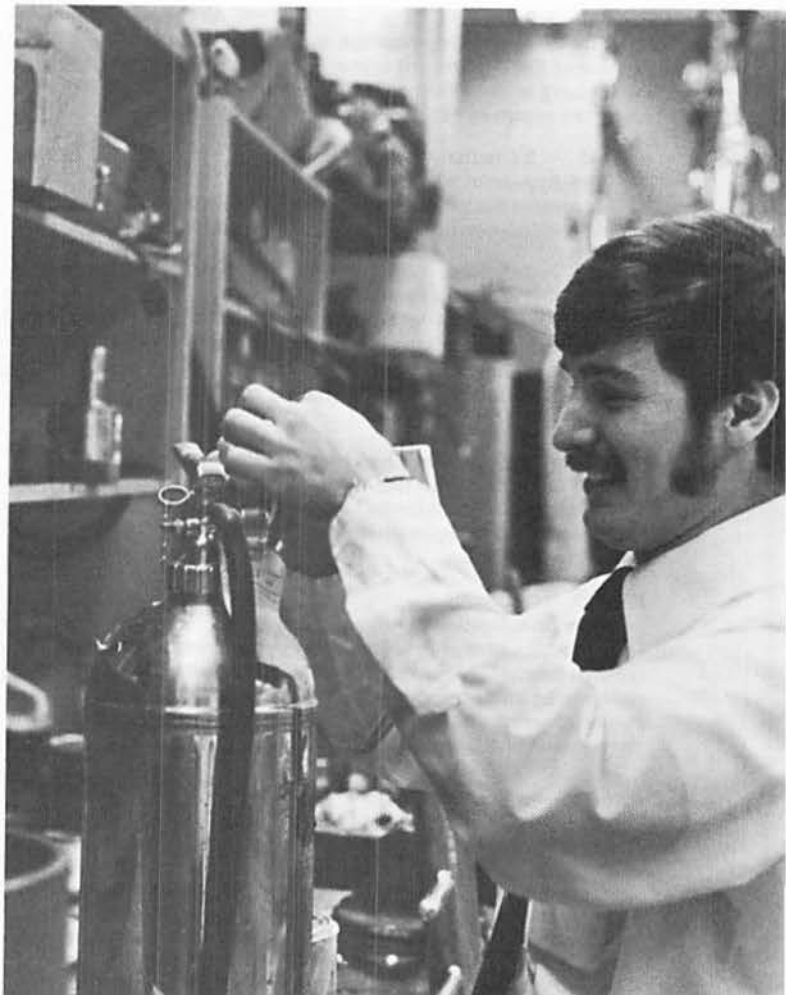
F.S.T. 105 1 Credit Fall and Spring
Introduction to Commercial Baking (1+0)
This course will introduce the student to the use of ovens, mixers, sheeters, scales, pans and all equipment used in commercial baking. The technical aspects of baking, scaling, mixing, make up, and sanitation as well as the use of formulas and recipes will be discussed.

F.S.T. 106 4 Credits Fall and Spring
Breads, Yeast Raised (1+10)
Introduces the student to the principles involved in making yeast breads of different kinds. White, wheat, rye, and pumpernickel breads, rolls, danish, sweet rolls, raised doughnuts, and yeast raised coffee cakes will be covered and the student will have the opportunity of making each of these bakery items himself.

F.S.T. 107 3 Credits Fall and Spring
Quick Breads (1+6)
Covers the making of baking powder products. The student will work under supervision on such items as bisquits, cornbread muffins, cake doughnuts, etc.

F.S.T. 108 3 Credits Fall and Spring
Cakes and Cookies (1+6)
Will introduce students to the techniques in making various types of cakes and cookies. Cakes, such as straight batter, sponge, chiffon, angel food, and pound, and cookies, as as drop, ice box, rolled, macaroon, and bar, will be covered.

F.S.T. 110 2 Credits Fall and Spring
Food Standards (2+0)
A thorough familiarization with qualitative and quantities measurements and other criteria in common use. Indoctrination will include weights and measures and the adulterants and additives; taste testing; can cutting; applications of color and texture as determinants of quality standards in foods.



F.S.T. 111 4 Credits Fall and Spring
Quantity Food Production (Bakery) (1+10)
Baking: The production of all bakery products.

F.S.T. 112 2 Credits Fall and Spring
Quantity Food Service I (1+5)
An examination of and instruction in the many ways food is served to the customer; e.g., cafeteria, table service, etc. This course would include dining room organization; waiter and waitress service, counter set-up and merchandising, table top topography; and related information.

F.S.T. 113 4 Credits Fall and Spring
Quantity Food Production (Meats) (1+10)
Meat Analysis; study of fabrication, cuts and their uses, and recognition of cuts and qualities. Beverages: control, purchasing, glassware, service, and legal consideration in handling of alcoholic beverages. Beverages as foods — coffee, tea, etc. are considered as a part of basic preparation.

F.S.T. 114 4 Credits Fall and Spring
Pastry I (1+10)
This course will introduce the student to the techniques used in making pie crust, puff paste, pat au chou, meringue, and sugar work. The student will have the opportunity to work with the manufacture of fillings and icings and to learn of their use.

F.S.T. 115 1 Credit Fall and Spring
Cake Decorating (1+10)
Introduces the student to the art of decoration of cakes and pastry. Utensils and equipment used for decorating will be demonstrated and the different types of icing used for specific decoration will be discussed.

F.S.T. 121 3 Credits Fall and Spring
Gourmet Cooking (1+4)
A course to improve cooking skills, using new and varied menus with the use of implements found in one's own kitchen. Through lecture and the practical application of tried and tested recipes, students will prepare foods which are truly a gourmet's delight. This course will consist of the basic sauces, gravies, soups, meat preparation, carving, serving and seafoods. Suggestions will be encouraged from students in planning menus.

F.S.T. 201 4 Credits Fall and Spring
Quantity Food Production (Specialization) (1+10)
Specialized Preparation, "Short Order" and small quantity preparation methods, such as pantry or broiler work. This includes set up and serving and meat cutting in a buffet.

F.S.T. 202 4 Credits Fall and Spring
Food Service Bakery Practicum (1+10)
Supervised student participation in food service industries approved by the Tanana Valley Community College. The student will work in the area of bakery 40 hours per week for five consecutive weeks.

F.S.T. 210 2 Credits Fall and Spring
Stewardship (2+0)
An area which includes purchasing and procurement, storeroom operation, organization, and record keeping, food specifications (based on "standards"), distribution and security.

F.S.T. 211 2 Credits Fall and Spring
Bakery Management (2+0)
This course will introduce the student to the aspects of bakery management. Buying, costing, layout and general rules to follow will be presented and discussed.

F.S.T. 212 1 Credit Fall and Spring
Leadership (1+0)
The application of management techniques at the supervisory level in the food service organization.

F.S.T. 213 2 Credits Fall and Spring
Facility Layout and Design (2+0)
Design of food service facilities to include equipment placement, time and motion studies in dining areas, kitchens, serving line areas, scramble and clean-up areas. Attention will also be given to building maintenance requirements for a food service facility.

F.S.T. 221 2 Credits Fall and Spring
Quantity Food Service II (1+5)
Banquet sales, service, and set up. Types of table service and methods. Preparation and service of brochett, chateaubriand, and double New York steaks. Preparation of flaming desserts.

F.S.T. 222 1 Credit Fall and Spring
Menu Making (1+0)
A study of the menu, its composition and its format; how it relates to sales, nutrition, diet, production, purchasing, and plant layout.

F.S.T. 223 3 Credits Fall and Spring
Advanced Foods — Laboratory Course (0+9)
Training in the more artistic aspects of the food service industry. The preparation and decoration of meats, poultry and seafood for use in a cold buffet as well as display pieces. (Prerequisites: F.S.T. 103 and F.S.T. 201.)

F.S.T. 231 4 Credits Fall and Spring
Intermediate Pastry (1+10)
Production of various fancy dessert items, including pastries, puddings, tiered cakes, petit fours and fancy cookies. (Prerequisites: F.S.T. 111 and F.S.T. 202.)

F.S.T. 232 2 Credits Fall and Spring
Advanced Pastry and Baking Art (1+5)
Marzipan modeling, candy making, show pieces, sugar work. Lattice work in chocolate and icings and inlaid sugar designs. (Prerequisites: F.S.T. 231.)

F.S.T. 189-289 1-6 Credits Fall and Spring
Cooperative Education/Food Service Practicum (0+9)
Individualized work experience. Credit is variable from one to six credits, depending on the quality and quantity of the experience.

Foreign Languages

F.L. 110 2 Credits Every Third Spring
How to Pronounce French, German, Italian, and Spanish (2+0)
Designed to meet the needs of students and others in radio, television, journalism, drama, music (esp. voice), etc. who want to pronounce French, German, Italian and Spanish correctly and with confidence. The method is practical and direct. Concrete examples are used. (Next offered: 1979-80.)

French

Fren. 101 5 Credits Fall
Fren. 102 5 Credits Spring
Elementary French (5+0)
Development of the four skills (listening comprehension, speaking, reading, and writing) with emphasis on oral work, practice in the language laboratory, basic grammar, and vocabulary.

Fren. 201 3 Credits Fall
Fren. 202 3 Credits Spring
Intermediate French (3+0)
Continuation of Fren. 102. Increasing emphasis on reading ability and culture material. Conducted in French. (Prerequisite: Fren. 102 or equivalent.)

Fren. 288 2 Credits Spring
Individual Study: Reading French
Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures; development of true reading skills; modern literary and/or non-literary texts. (Prerequisites: Fren. 201, equivalent training or permission of instructor. Recommended to be taken concurrently with Fren. 202.)

Fren. 301 **3 Credits** **Alternate Fall**
Fren. 302 **3 Credits** **Alternate Spring**
Advanced French (3+0)
Discussions and essays on more difficult subjects or texts; translations, stylistic exercises, special grammatical problems, systematic vocabulary building. Conducted in French. (Prerequisite: Fren. 202 or equivalent. Next offered: 1979-80.)

Fren. 387 **2 Credits** **Alternate Fall**
Individual Study: Semantics
Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. (Next offered: 1979-80.)

Fren. 432 **3 Credits** **Spring**
Studies in French Literature and Culture (3+0)
Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in French. Student may repeat course for credit when topics vary.

Fren. 487 **2 Credits** **Alternate Fall**
Individual Study: Translation of French Texts
Expansion of vocabulary and grammatical knowledge; emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language; literary and non-literary texts. (Next offered: 1980-81.)

Fren. 488 **3 Credits** **As Demand Warrants**
Individual Study: Senior Project
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.

Geography

Note: Geography 205, 339 and 401 are Natural Science courses; all others are Social Science courses.

Geog. 101 **3 Credits** **Fall**
Introductory Geography (3+0)
World regions; an analysis of environment, with emphasis on major culture realms.

Geog. 103 **3 Credits** **Spring**
World Economic Geography (3+0)
Study of the world's major economic activities: their physical and cultural bases, spatial growth and distribution patterns, and their significance in interregional and international development.

Geog. 202 **3 Credits** **Fall**
Geography of United States and Canada (3+0)
Regional geography of Anglo-America. Introductory systematic study of the area as a whole, followed by detailed study of the physical and cultural landscape forms, patterns, and associations of each major region in turn. Consideration of Anglo-America in current world economic and political geography.

Geog. 205 **3 or 4 Credits** **Spring**
Elements of Physical Geography (3+0 or 3+3)
Analysis of the processes that form the physical environment and the resulting physical patterns. Study of landforms, climate, soils, water resources, vegetation, and their world and regional patterns. Optional laboratory for one additional credit. (Prerequisite: Geog. 101 or 103.)

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 of data concerning the natural and man-made features of regional environments. Preparation and presentation of reports of findings and conclusions. (Next offered: 1980-81.)

Geog. 302 **3 Credits** **Fall**
Geography of Alaska (3+0)
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.

Geog. 305 **3 Credits** **Alternate Fall**
Geography of Europe (except U.S.S.R.) (3+0)
Regional, physical, economic and cultural geography of Europe, except U.S.S.R. (Prerequisite: An introductory geography course or permission of the instructor. Next offered: 1980-81.)

Geog. 306 **3 Credits** **Alternate Spring**
Geography of the Soviet Union (3+0)
The physical, cultural and historical geography of the U.S.S.R. with special emphasis on the geographic bases of the expansion of the Great Russians and the contemporary foundation of Soviet national power. (Prerequisite: Geog. 101 or 103 or 205 or permission of the instructor. Next offered: 1980-81.)

Geog. 309 **3 Credits** **Alternate Spring**
Cartography (1+6)
Graphic techniques for presenting geographic data through the construction of maps, projections and charts. (Admission by arrangement. Next offered: 1980-81.)

Geog. 311 **3 Credits** **Alternate Spring**
Geography of Asia (3+0)
Regional geography of Asia, exclusive of the Soviet Union. A study of the physical framework, natural resources, peoples, major economic activities and characteristic landscapes of the major regions of Japan, China, Southeast Asia, India-Pakistan and the Asiatic countries of the Middle East. (Prerequisite: Geog. 101 or 103 or 205 or permission of the instructor. Next offered: 1979-80.)

Geog. 315 **3 Credits** **Alternate Fall**
Geography of Africa (3+0)
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. (Next offered: 1979-80.)

Geog. 327 **3 Credits** **Spring**
Cold Lands (3+0)
The comparative physical, human and economic geography of cold regions, with particular attention to Siberia, Greenland, Scandinavia and Canada. Special attention is given to the different approaches which have been taken toward economic development in cold regions. (Prerequisite: Geog. 101 or 103 or 205 or permission of the instructor.)

Geog. 339 **3 or 4 Credits** **Alternate Fall**
Advanced Physical Geography (3+0) or (3+3)
Application of methodology of physical geography to analysis of regional landscapes. Optional laboratory for one additional credit. (Prerequisites: Geog. 101 or 103, 205. Next offered: 1979-80.)

Geog. 401 **3 Credits** **Alternate Fall**
Weather and Climate (3+0)
Introduction to the study of weather and classification of climates. (Prerequisite: Permission of the instructor. Next offered: 1979-80.)

Geog. 402 **3 Credits** **Fall**
Man and Nature (3+0)
The relationship of man with the land he occupies; study of the physical environment and human occupation of the world's major regions; consideration of the significance of cultural diversity, differing patterns of livelihood, settlement and population change.

Geog. 404 **3 Credits** **Alternate Spring**
Urban Geography (3+0)
A world survey of urbanization with particular emphasis on the accelerating urban revolution in modern times. Conditions favoring the rise of cities: locational and site factors; regional and interregional resource availability; 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 (Next offered: 1979-80.)

Geog. 405 3 Credits **Spring**
Political Geography (3+0)
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.

Geog. 408 3 Credits **Alternate Fall**
Quantitative Research Techniques (2+3)
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: 1979-80.)

Geological Engineering – See Mineral Engineering

Geoscience (Geology and Geophysics)

Geos. 101 3 or 4 Credits **Fall**
General Geology (3+0 or 3+3)
Introduction to physical geology; a study of the earth, its materials and the processes that effect changes upon and within it. Optional laboratory training in the use of topographic maps and the recognition of common rocks and minerals.

Geos. 112 4 Credits **Spring**
Historical Geology (3+3)
An introduction to geological principles and the development of the geologic time scale, the stratigraphic record and its interpretation, geosynclinal theories and plate tectonics, the fossil record and its utilization, biostratigraphy, and the evolution of the North American continent through geologic time. Laboratory work includes the reconstruction of geologic history of various regions through the use of geologic maps and structure sections and offers an introduction to invertebrate fossils. (Prerequisite: Geos. 101.)

Geos. 213 4 Credits **Fall**
Mineralogy (2+6)
Introduction to mineral chemistry, atomic structure, elementary crystallography and descriptive and determinative mineralogy. Includes introduction to instrumental determinative techniques (x-ray, spectograph), simple qualitative chemical tests. (Prerequisites: Geos. 101; Chem. 105 or concurrent registration in Math. 107-108.)

Geos. 214 3 Credits **Spring**
Petrology (2+3)
Review of common rock-forming minerals; systematic study of the origin, occurrence, and description of igneous, sedimentary, and metamorphic rocks. Laboratory work involves hand lens identification of representative rocks. (Prerequisites: Geos. 213.)

Geos. 261 3 Credits **Spring**
Geology for Engineers (2+3)
Introduction to applied geology; study of common rocks and minerals, landforms, erosion, transport and deposition of geologic materials, engineering applications of geology. (Prerequisite: Geology, science, and engineering majors, or permission of instructor.)

Geos. 302 3 Credits **Alternate Spring**
Marine Geology (3+0)
Survey of marine geology, including structure and composition of ocean basins and continental margins, chemical and physical properties of marine sediments, geological processes in the oceans, physical resources, and conservation/pollution concerns (Prerequisite: Geos. 101, 112, or permission of instructor. Next offered: 1980-81.)

Geos. 304 3 Credits **Fall**
Geomorphology (3+0)
Study of the Earth's surface features and the processes which create or modify them. Application to Quaternary history, environmental science, and related fields. (Prerequisite: Geos. 101.)

Geos. 314 3 Credits **Spring**
Structural Geology (2+3)
Origin and interpretation of primary and secondary geologic structures. Graphical solution of structural problems. (Prerequisite: Geos. 112, Geos. 214, Phys. 103 or 211.)

Geos. 321 3 Credits **Fall**
Sedimentation (2+3)
Broad survey of sediments, including origin, classification, composition, transportation, deposition and diagenesis. Laboratory instruction in methods of textural and compositional analysis. (Prerequisite: Geos. 213 or permission of instructor.)

Geos. 350 2 Credits **Spring/Summer**
Geologic Field Methods (1+8)
An introduction to geologic field techniques as a prerequisite to Field Geology (Geos. 351). The course is offered in two parts taught in sequence.
A. (1+0) Spring semester: Basic field geology techniques, library research, presentation of data and report writing.
B. (0+8) Summer: Offered in early May following commencement and prior to Field Camp (Geos. 351). Consists of seven days of intensive instruction in plane table surveying and mapping in the field.

Grades will be deferred until the second part of the course is completed. (Prerequisites: Junior standing in Geology or permission of instructor.)

Geos. 351 6 Credits **Summer**
Field Geology
Practical experience in the procedures employed in collecting and presenting the basic data obtained from the field. Includes field mapping of stratigraphic and structural problems on topographic maps, aerial photographs, plane table maps, and presentation of results in a professional report and finished geologic map. Students pay own transportation, subsistence and course tuition fee. Entrance by preregistration only. (Prerequisites: Junior standing in geology, Geos. 350 or equivalent and a course in surveying.)

Geos. 362 3 Credits **Fall**
Engineering Geology (3+0)
Application of geologic principles to engineering site exploration, foundation work and structural design. Rocks and soils; their properties and use as construction material. Special emphasis on the arctic environment. (Prerequisite: Geos. 261, or permission of instructor.)

Geos. 401 4 Credits **Fall**
Invertebrate Paleontology (3+3)
Study of the invertebrate phyla with fossil records. Emphasis on soft-part anatomy and classification, followed by study of hard-part anatomy of fossil groups and their classification. Recurrent emphasis on relevant biologic principles. Laboratory study on fossil materials, including a term project on an Alaskan fossil collection. (Prerequisites: Geos. 101 or by permission of instructor; Biol. 305 recommended.)

Geos. 402 4 Credits **Spring**
Stratigraphic Principles (4+0)
An introduction to physical stratigraphy, paleobiology, and biostratigraphy. Emphasis on the interpretation of past environments and correlation through the study of the sedimentary rock record and fossils. (Prerequisites: Geos. 101 or 261 and 401.)

Geos. 405 3 Credits **Alternate Spring**
Geochronology (3+0)
The application of the most commonly used radiometric dating methods to geologic problems. Fundamentals of the K-Ar, Rb-Sr, fission-track, U-Th-Pb and ^{14}C methods. Laboratory training in K-Ar and fission-track dating techniques. (Prerequisites: Upper division standing in geology or geophysics or consent of the instructor. Next offered: 1980-81.)

Geos. 407 4 Credits **Fall**
Geology of Mineral and Energy Resources (3+3)
Study of the occurrence and characteristics of metallic and nonmetallic minerals, coal, oil and gas, with emphasis on exploration and development. (Prerequisites: Geos. 213, Geos. 314, and Geos. 321 or Geos. 401 or permission of instructor.)

Geos. 408 2 Credits Spring
Map and Airphoto Interpretation (0+6)
Use of topographic maps, geologic maps, and aerial photographs in the analysis of geologic structures, landforms, and geomorphic processes. The basic techniques of map compilation using aerial photographs are introduced. (Prerequisite: Geos. 304 or permission of instructor.)

Geos. 416 4 Credits Spring
Optical Mineralogy and Petrography (2+6)
An introduction to optical mineralogy and a survey of basic petrographic methods. Petrographic study of representative igneous, metamorphic and sedimentary rocks, including recognition of the important rock-forming minerals and interpretation of diagnostic rock fabrics is stressed. (Prerequisite: Geos. 214.)

Geos. 417 3 Credits Fall
Introduction to Geochemistry (3+0)
Introduction to chemistry of the earth. (Prerequisites: Chem. 105, 106, or permission of instructor.)

Geos. 418 3 Credits Fall
Basic Geophysics (3+0)
The basic concepts and techniques of geophysics as applied on a global scale. Topics covered will include the origin of the earth, its structure and the large scale dynamic processes responsible for its surface features. Geophysical techniques including seismology, gravity, magnetometry and electrical methods will be discussed along with measurements of the earth's thermal structure, rotation rates and the effects of the tides. (Prerequisites: Permission of the instructor.)

Geos. 422 3 Credits Fall
Geoscience Applications of Remote Sensing (3+0)
The objective of the course is to provide an introduction to the scope of remote sensing and its applications to geologic and related investigations. The course includes the explanation of nomenclature, a review of the types of remote sensing systems used, and the study of the forms in which remote sensing data is available. Emphasis is placed upon the use of LANDSAT and radar imagery and multispectral photography. (Prerequisites: Geos. 101, Phys. 103 or 211, junior standing or consent of instructor.)

Geos. 430 3 Credits Spring
Statistics and Data Analysis in Geology (3+0)
An introduction to the use of the computer and statistics in geology and related sciences. The course stresses geologic applications of elementary statistics, Markov chains, time-series analysis, trend-surface analysis, factor analysis, cluster analysis, discriminant analysis and multiple regression. (Prerequisites: Math. 201, 203, A.S. 301, E.S. 201, senior standing or consent of instructor.)

Geos. 462 2 Credits Spring
Glacial Geomorphology and Geology (2+1)
Study of causes and processes of glaciation emphasizing deposits and landforms. Techniques of till analysis, relative-age dating, landform identification and mapping are stressed. (Prerequisite: Geos. 304.)

Geos. 482 1 Credit Fall
Geology Seminar (1+0)
A weekly seminar series designed to explore a geologic theme of current interest for a complete semester. (Prerequisite: Senior or graduate standing or permission of instructor.)

Geos. 490 0 Credits Fall-Spring
Colloquium

Geos. 603 3 Credits Fall
Geos. 604 3 Credits Spring
Surveys in Geophysics (3+0)
A survey of selected topics in the planetary sciences, including introductory material in each of the major research subject areas in geophysics. 603 covers earth science and 604 covers atmospheric and space science.

Geos. 606 2-4 Credits Fall-Spring
Advanced Snow, Ice, Permafrost and Glacier Studies (2-4+0)
A study of the properties of snow and ice in the environment. The material of the course consists of an in-depth study of the fundamental properties of snow, ice, glaciers, permafrost and frozen ground. Specific topics to be covered in different semesters include the fundamentals of snow and ice in the environment, properties and processes of snow and ice and properties and processes of frozen ground and permafrost. Each time the course is offered only one topic will be considered. (Prerequisites: Permission of instructor, senior undergraduate students will be considered for admission.)

Geos. 607 1-4 Credits Fall-Spring
Advanced Geophysics (1-4+0)
An advanced course providing a detailed treatment of various topics in geophysics. Specific topics to be covered in different semesters include geophysical data analysis, geomagnetism, seismology, volcanology, and geochronology. Each time the course is offered only one such topic will be presented. (Prerequisites: Geos. 418 or Minl. 405, or permission of instructor. Next offered: Fall 1979.)

Geos. 609 2-4 Credits Fall-Spring
Advanced Geomorphology (2-4+0-1)
An advanced course providing a detailed treatment of geomorphology and planetary geology. Specific topics to be covered in different semesters include quantitative geomorphology, astrogeology and planetology, quaternary geology, and periglacial geomorphology. Each time the course is offered only one topic will be considered. (Prerequisites: Geos. 304 or permission of instructor. Next offered: Spring 1980.)

Geos. 611 1-4 Credits Spring
Advanced Geology of Mineral and Energy Resources (1-4+0)
An advanced course providing a detailed treatment of the geology of mineral and energy resources. Specific topics will be considered in different semesters or sequentially within one semester. They include mineral exploration, regional metallogeny, classical mineral districts, and selected topics in petroleum geology. Only one topic will be presented at a time. (Prerequisites: Geos. 407 or permission of instructor.)

Geos. 612 3 Credits Alternate Fall
Geology of Alaska (2+3)
Study and interpretation of the geology of Alaska. Field trips. (Prerequisites: Geos. 112, 304, 314. Next offered: 1979-80.)

Geos. 613 3 Credits As Demand Warrants
Advanced Marine Geology (3+0)
A global study of the geology and structure of the ocean floors and continental margins. Geophysical signatures, including heat flow, seismicity, gravity, magnetics, and seismic structure of the major tectonic elements which make up oceanic crustal plates.

Geos. 621 3-4 Credits Fall-Spring
Advanced Petrology (2-3+3-6)
An advanced course providing a detailed treatment of various aspects of petrology. Specific topics to be considered in different semesters include metamorphic petrology, igneous petrology, and sedimentary petrology. Each time the course is offered only one topic will be presented. (Prerequisites: Geos. 214, 416)

Geos. 624 1-4 Credits Fall-Spring
Advanced Structural Geology (1-4+0)
An advanced course giving a detailed treatment of structural geology. Topics to be presented in different semesters include analytical structural geology and geotectonics. Each time the course is offered only one topic will be presented. (Prerequisites: Geos. 314 or permission of instructor.)

Geos. 631 1-3 Credits Fall
Advanced Geochemistry (1-3+0)
An advanced course providing an in-depth treatment of physical geochemistry. Specific topics to be presented in different semesters include crystal chemistry, thermodynamics, and phase equilibria. Each time the course is offered only one such topic will be presented. (Prerequisites: Geos. 417, or Chem. 331 or Chem. 402, or permission of instructor.)

Geos. 635 1-4 Credits Fall
Advanced Economic Geology (1-4+0)
An advanced course providing an in-depth treatment of various

aspects of economic geology. Specific topics will be considered in different semesters or sequentially within one semester. They include ore microscopy, industrial minerals, economics of minerals, and geochemistry of ore deposits. Only one topic will be presented at a time. (Prerequisites: Permission of instructor.)

Geos. 641 1-3 Credits Alternate Spring
Advanced Paleontology (1-3+0)
An advanced course providing a detailed treatment of various topics in paleontology. Specific topics to be presented in different semesters include vertebrate paleontology, invertebrate paleontology, micropaleontology, and paleobotany. Each time the course is offered only one such topic will be presented. (Prerequisites: Geos. 401 or permission of instructor. Next offered: 1980-81.)

Geos. 643 2-4 Credits Fall
Advanced Stratigraphy and Sedimentation (2-4+0)
An advanced course providing a detailed treatment of stratigraphy and sedimentation. Specific topics to be presented in different semesters include ancient and recent sedimentary environments, and physical processes of sedimentation. Each time the course is offered only one such topic will be presented. (Prerequisites: Geos. 321 and Geos. 402. Next offered: 1979-80.)

Geoscience (Space Physics and Atmospheric Sciences)

Geos. 465 3 Credits As Demand Warrants
Meteorology (3+0)
Instruments and observations. Introduction to mechanics and thermodynamics of the atmosphere. Weather analysis and forecasting. (Prerequisites: Phys. 104 or 212; Math. 202.)

Geos. 625 3 Credits As Demand Warrants
Aeronomy of Molecular and Particulate Pollutants (3+0)
Physics and chemistry of O_3, H_2O, NO, CO_2, and CH_4 and particulate matter in the atmosphere. Quantitative aeronomy of natural and anthropogenic pollutants in the lower atmosphere. (Prerequisites: Knowledge in the fundamentals of aeronomy. Next offered 1980-81.)

Geos. 636 3 credits Alternate Fall
Physics of the Lower Atmosphere (3+0)
Small-scale physical and chemical processes in the lower atmosphere, including micrometeorology, radiative transfer and cloud physics. Subjects to be covered include the transfer of solar and thermal radiation through the atmosphere, the radiation budget at the surface of the earth, the resulting energy, momentum, and mass fluxes near the ground, water vapor and its phase changes, and the nucleation and growth of cloud droplets and precipitation particles. (Prerequisites: Graduate standing in geosciences or permission of instructor. Next offered: 1980-81.)

Geos. 640 3 credits Alternate Spring
Auroral Physics (3+0)
The physical and chemical processes that underlie the formation of the aurora. The interaction of energetic particles with the atmosphere in producing various aurorally associated phenomena, optical emissions, ionization, x-rays, and chemical-ionic changes. Effects of aurora on the thermosphere, mesosphere and stratosphere. Effects of electric fields. The auroral energy budget. (Prerequisites: Graduate standing in geosciences or permission of instructor. Next offered: 1980-81.)

Geos. 646 3 credits Alternate Spring
Atmospheric Dynamics (3+0)
The response of the earth's atmosphere to mechanical forces and thermal energy sources, the governing equations and the appropriate boundary conditions. Mean zonal and meridional motion and general circulation in the lower atmosphere and the thermosphere. Oscillations and waves. High latitude energy and momentum sources and their effects. The atmosphere-ocean system. (Prerequisites: Graduate standing. Next offered: 1980-81.)

Geos. 650 3 Credits Alternate Fall
Aeronomy (3+0)
The physical and chemical processes that govern the response of planetary atmospheres to solar radiation, surface phenomena, and anthropogenic influence. Composition of the neutral and ionized gases. Chemical and ionic reactions in the thermosphere, mesosphere and stratosphere. Dynamical processes and upper air winds. The airglow. Electrodynamic processes and ionospheric currents. (Prerequisites: Graduate standing in geosciences or permission of instructor. Next offered: 1980-81.)

Geos. 656 3 Credits Alternate Spring
Atmospheric Circulation, Weather, and Climate (3+0)
The circulation of the atmosphere and the weather and climate produced by that circulation. The general circulation of the atmosphere, weather systems, air-sea and air-snow interactions, circulation types and climatic anomalies, and climatic change. (Prerequisites: Graduate standing in geosciences or permission of instructor. Next offered: 1979-80.)

Geos. 672 3 Credits Alternate Fall
Space Physics (3+0)
A comprehensive review of the present understanding of the origin and evolution of stars, the solar system and the earth. Interactions between a magnetized celestial body and a magnetized plasma. The magnetosphere of the earth, Mercury, and Jupiter. (Prerequisites: Graduate standing in geosciences or permission of instructor. Next offered: 1979-80.)

Geos. 673 3 Credits Alternate Spring
Space Physics (3+0)
A comprehensive review of relationships between solar disturbances and the resulting interplanetary disturbances and magnetospheric disturbances. Solar storms (solar flares), high speed solar streams, magnetospheric substorms, magnetospheric storms, origin of auroral particles. (Prerequisites: Graduate standing in geosciences or permission of instructor. Next offered: 1979-80.)

Geos. 674 3 Credits As Demand Warrants
Environmental Hydrodynamics (3+0)
Mechanics of fluids on a rotating earth. Navier Stoke's equations, boundary layer phenomena, turbulent flow, and applications of hydrodynamics to motion of stratified fluids such as the atmosphere and ocean. (Prerequisites: Graduate standing in Geosciences or permission of instructor.)

German

Ger. 101 5 Credits Fall
Ger. 102 5 Credits Spring
Elementary German (5+0)
Development of the four skills (listening comprehension, speaking, reading, and writing) with emphasis on oral work, practice in the language laboratory, basic grammar and vocabulary.

Ger. 201 3 Credits Fall
Ger. 202 3 Credits Spring
Intermediate German (3+0)
Continuation of German 102. Increasing emphasis on reading ability and cultural material. Conducted in German. (Prerequisite Ger. 102 or equivalent.)

Ger. 288 2 Credits Spring
Individual Study: Reading German
Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures; development of true reading skill; modern literary and/or non-literary texts. (Prerequisites: Ger. 201, equivalent training or permission of instructor. Recommended to be taken concurrently with Ger. 202.)

Ger. 301 3 Credits Alternate Fall
Ger. 302 3 Credits Alternate Spring
Advanced German (3+0)
Discussions and essays on more difficult subjects or texts. Translations, stylistic exercises, special grammatical problems, systematic vocabulary building. Conducted in German. (Prerequisite: Ger. 202 or equivalent. Next offered: 1980-81.)



Ger. 387 **2 Credits** **Alternate Fall**
Individual Study: Semantics
Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. (Next offered: 1979-80.)

Ger. 432 **3 Credits** **Alternate Spring**
Studies in German Literature and Culture (3+0)
Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in German. Student may repeat course for credit when topics vary. (Next offered: 1979-80.)

Ger. 487 **2 Credits** **Alternate Fall**
Individual Study: Translation of German Texts
Expansion of vocabulary and grammatical knowledge; emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language; literary and non-literary texts. (Next offered: 1980-81.)

Ger. 488 **3 Credits** **As Demand Warrants**
Individual Study: Senior Project
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.

History

Hist. 100 **3 Credits** **Fall**
Heritage of Alaska Natives (3+0)
The methodology of ethnohistory of Alaska Natives and consideration of cultural contacts, cultural breakdowns and interaction of Natives with other peoples.

Hist. 101 **3 Credits** **Fall**
Western Civilization (3+0)
The origins and major political, economic, social and intellectual developments of western civilization to 1500.

Hist. 102 **3 Credits** **Spring**
Western Civilization (3+0)
Major political, economic, social and intellectual developments of western civilization since 1500.

Hist. 115 **3 Credits** **Spring**
Alaska, Land and Its People (3+0)
A survey of Alaska from earliest days to present, its peoples, problems and prospects.

Hist. 121 **3 Credits** **Alternate Fall**
East Asian Civilization (3+0)
The Great Tradition. Origin and development of the civilizations of China, Japan and Korea from the beginning to 1800, with emphasis on traditional social, policital and cultural institutions. (Next offered: 1979-80.)

Hist. 122 **3 Credits** **Alternate Spring**
East Asian Civilization (3+0)
The Modern Transformation. East Asia from 1800 to the present with emphasis on patterns of social cohesion, transition, and revolutionary change. (Next offered: 1979-80.)

Hist. 131 **3 Credits** **Fall**
Hist. 132 **3 Credits** **Spring**
History of the U.S. (3+0)
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.

Hist. 221 **3 Credits** **Alternate Fall**
Hist. 222 **3 Credits** **Alternate Spring**
English History (3+0)
Fall semester: pre-Roman Britain to the end of the Puritan Revolution, emphasizing constitutional developments. Spring semester: from the restoration of 1660 to the present, emphasizing social and economic developments. (Next offered: 1980-81.)

Hist. 261 **3 Credits** **Alternate Fall**
Russian History (3+0)
Origins of Russia, Kievan Russia. The Mongol era and the rise of Muscovy. Modern Russia to the twentieth century. (Next offered: 1979-80.)

Hist. 302 **3 Credits** **Alternate Spring**
The French Revolution and Napoleon (3+0)
The political, social and economic structure of the old regime, intellectual developments in the eighteenth century, the revolution and the Napoleonic period; influence of France upon European development in the eighteenth century. (Prerequisite: Hist. 102. Next offered: 1980-81.)

Hist. 305 **3 Credits** **Alternate Fall**
Europe: 1815 to 1870 (3+0)
Political, economic, social and intellectual history. Development of industrial revolution, romantic movement and unification of Germany and Italy. (Prerequisite: Hist. 102 or permission of instructor. Next offered: 1979-80.)

Hist. 306 **3 Credits** **Alternate Fall**
Europe: 1870 to 1914 (3+0)
Continuation of Hist. 305. The rise of socialism, imperialism, outbreak of World War I. (Prerequisite: Hist. 102 or permission of instructor. Next offered: 1979-80.)

Hist. 315 3 Credits Alternate Spring
Europe 1914-1945 (3+0)
World War I, the Russian Revolution, the Paris Peace Conference, Fascism, Nazism, the Stalin Revolution, the Great Depression, World War II. (Prerequisites: Hist. 101, 102 or admission by arrangement. Next offered: 1980-81.)

Hist. 316 3 Credits Alternate Fall
Europe since 1945 (3+0)
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: History 101, 102 or admission by arrangement. Next offered: 1980-81.)

Hist. 330 3 Credits Alternate Fall
Modern China (3+0)
From 1800 to the present, with emphasis on resistance to change, rebellion, reform, revolution, and the rise of the People's Republic. (Next offered: 1979-80.)

Hist. 331 3 Credits Alternate Spring
Modern Japan (3+0)
From 1600 to the present with an examination of change within tradition, rise to world power, and the position of Japan in the modern world. (Next offered: 1979-80.)

Hist. 341 3 Credits Fall
History of Alaska (3+0)
The Russian background; acquisition, settlement and development of Alaska as an American territory and the 49th state. (Prerequisite: Junior standing.)

Hist. 344 3 Credits Alternate Spring
Twentieth Century Russia (3+0)
Origin and development of the Soviet Union from the Revolution of 1917 to the present day; stages of economic development; Soviet government and the Communist Party. (Prerequisites: Hist. 101, 102. Next offered: 1979-80.)

Hist. 350 3 Credits Alternate Fall
History of the People's Republic of China (3+0)
A survey of the history of the People's Republic of China, with particular attention being given to political, economic, and social developments, from 1949 to the present. (Next offered: 1980-81.)

Hist. 354 4 Credits Fall
Canadian History and Literature to 1867 (4+0)
(Same as Engl. 354)
History and literature of Canada to 1867 taught jointly by staff members from the Departments of History and English.

Hist. 355 4 Credits Alternate Spring
Canadian History and Literature: 1867 to the Present (4+0)
(Same as Engl. 355)
History and literature of Canada from 1867 to the present taught jointly by staff members from the departments of History and English. (Next offered: 1979-80.)

Hist. 375 3 Credits Alternate Fall
History of the Northern Pacific (3+0)
The historical development and interrelationships and problems of the North Pacific (Siberia, Canada, Alaska) from the 18th century to the present. (Next offered: 1979-80.)

Hist. 380 3 Credits Alternate Spring
Polar Exploration and its Literature (3+0)
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. (Next offered: 1979-80.)

Hist. 416 3 Credits Alternate Fall
The Renaissance (3+0)
Political, social, economic and cultural developments in the age of the Renaissance. (Prerequisites: Hist. 101, 102. Next offered: 1980-81.)

Hist. 417 3 Credits Alternate Spring
The Reformation (3+0)
The Protestant and Catholic reformations. Political, economic, social and religious conflicts. 1500-1600. (Prerequisites: Hist. 101, 102. Next offered: 1980-81.)

Hist. 430 3 Credits Alternate Fall
American Colonial History (3+0)
Early America; European settlement; economic and social development of the American community, establishment of political independence. (Prerequisites: Hist. 131, 132. Next offered: 1980-81.)

Hist. 435 3 Credits Alternate Spring
Civil War and Reconstruction (3+0)
Political, economic, social and diplomatic history from 1860-77; disruption and re-establishment of the Union. (Prerequisites: Hist. 131, 132. Next offered: 1980-81.)

Hist. 440 3 Credits Alternate Fall
The Westward Movement (3+0)
Westward migration; establishment of new states and political institutions. Influences of the West. (Prerequisites: Hist. 131, 132. Next offered: 1979-80.)

Hist. 450 3 Credits Alternate Spring
Twentieth Century America (3+0)
United States from the progressive movement to the present day, with emphasis on domestic developments. (Prerequisites: Hist 131, 132. Next offered: 1980-81.)

Hist. 460 3 Credits Alternate Spring
American Intellectual and Cultural History: Colonial Period to 1865 (3+0)
Lectures, readings, discussions. Examination of the development of American thought, including the transfer and modification of European ideas and the influence of American conditions on popular attitudes and culture. (Prerequisite: permission of instructor. Next offered: 1979-80.)

Hist. 475 3 Credits Fall
Hist. 476 3 Credits Spring
Historiography and Historical Method (3+0)
A two-semester sequence. Readings, lectures, and discussions on the nature of history, the history of historical study and writing, recent tendencies in historical scholarship, and methods of historical research. Lectures, etc., continue in the spring semester, which is devoted also to completion of two research papers begun in the fall. Lectures, discussion leadership, and direction of research papers are by the department staff.

Hist. 483 Credits. Arr. Alternate Fall
Senior Seminar
Various topics studied. (Next offered: 1979-80.)

Hist. 484 Credits Arr. Alternate Spring
Seminar in Northern Studies
An interdisciplinary seminar focusing on topics relating to the North with emphasis on the physical sciences, the peoples and the socio-economic and political aspects of the area. Specialists in the various fields will assign readings and conduct discussions. (Next offered: 1979-80.)

Humanities

Hum. 201 3 Credits Fall
Unity in the Arts (3+0)
Concentration on the interdependence of the visual arts, the performing arts and literature, as set against a specific social, political and cultural background of selected eras. (Prerequisite: Open to students beyond the freshman level or by permission of the instructor.)

Hum. 202 3 Credits Spring
Unity in the Sciences (3+0)
A detailed treatment of the scientific rudiments, methods and principles as they emerged from within a larger cultural context. Explanation of the roles of mathematics and logic in the structure of the scientific enterprise. (Prerequisite: Open to students beyond the freshman level or by permission of the instructor.)

Hum. 329 3 Credits Alternate Fall
The Modern Media: Man Speaks to Man (3+0)
Review of effects and trends in mass media relating man, media and culture. (Next offered: 1980-81.)

Hum. 332 3 Credits Alternate Spring
Varieties of Visual Expression: Art as Image and Idea (3+0)
Discussion of the visual elements of art, principles of visual organization, the process of artistic perception and its evaluation by the viewer. (Next offered: 1980-81.)

Hum. 342 3 Credits Alternate Spring
Synthesis in Musical Expression (3+0)
In-depth study of one of the classical composers to show culmination of generic efforts and inter-arts relationships. (Prerequisites: Mus. 123 or 124, or permission of instructor. Next offered: 1979-80.)

Hum. 411 3 Credits Alternate Fall
Dimensions of Literature (3+0)
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: 1979-80.)

Hum. 492 3 Credits As Demand Warrants
Senior Seminar (3+0)
Report by the instructor on the state of the humanities at the University of Alaska and on alternate approaches elsewhere. Oral presentation and defense by the student, of their humanities project paper. (Prerequisites: Open requirements, or by permission of the instructor.)

Japanese

Jpn. 101 3 Credits Fall
Jpn. 102 3 Credits Spring
Elementary Japanese (3+0)
Development of the four skills (listening comprehension, speaking, reading, and writing) with emphasis on oral work, practice in the language laboratory, basic grammar and vocabulary. Romanized Japanese text for grammar and conversation and standard Japanese text for reading.

Jpn. 201 3 Credits Fall
Jpn. 202 3 Credits Spring
Intermediate Japanese (3+0)
Continuation of Jpn. 102 with increasing emphasis on reading ability and cultural material. Standard Japanese texts for reading including selections from modern Japanese literature. (Prerequisite: Jpn. 102 or equivalent.)

Journalism and Broadcasting

J-B 101 3 Credits Fall
Introduction to Mass Communications (3+0)
A survey of the history and principles of mass communications and the role of the information media in American society. An introduction to various professional aspects of mass communications, including both print and broadcast media.

J-B 200 3 Credits Fall and Spring
Media Practicum (1+6)
Practical training in print and electronic communication. Participation at both an approved publication and broadcast station required. (Prerequisite: Permission of instructor.)

J-B 201 3 Credits Fall and Spring
Newswriting (2+2)
Fundamentals of newswriting, including news evaluation and news story structure. (Prerequisite: Ability to type is essential.)

J-B 203 3 Credits Fall and Spring
Basic Photography (2+2)
Theory and practice of picture-taking and processing; a solid college-level course in visual communication covering most of the basic principles of photography including preparation of pictures for publication.

J-B 212 3 Credits Fall and Spring
Editing (2+2)
Editing copy, writing headlines and captions, and cropping and sizing pictures. (Prerequisite: J-B 201; pre- or co-requisite, J-B 101.)

J-B 213 2 Credits Spring
Announcing (1+2)
Microphone techniques, role of the announcer in broadcasting. Fundamentals of announcing; their practical application. (Prerequisite: Sp.C. 111 or admission by arrangement.)

J-B 215 3 Credits Fall
Audio Production (2+3)
Basics of sound production for radio, television, film and stage amplifications. Emphasis on recording, control room techniques, editing.

J-B 216 3 Credits Spring
Television Productions (2+4)
Basic aspects of television production, floor directing, audio, camera, film chain, staging, lighting, switching. (Prerequisites: J-B 215 or permission of the instructor.)

J-B 300 3 Credits Spring
Intermediate Newswriting (2+2)
Writing and practical experience in all types of media. Responsible newswriting, editing, processing and delivery for broadcast and print media. Special emphasis on ethical considerations. (Prerequisites: J-B 201 or permission of instructor.)

J-B 301 3 Credits Fall
Reporting (2+1)
News gathering and writing techniques with emphasis on the vocabularies of public affairs reporting including local, state and national governments, police and the courts, labor and political party organizations. (Prerequisite: J-B 212.)

J-B 303 3 Credits Fall and Spring
Intermediate Photography (2+3)
Continuation of J-B 203 with emphasis on the picture story and freelance photography. (Prerequisite: J-B 203 or permission of instructor.)

J-B 311 3 Credits Fall and Spring
Magazine Article Writing (2+1)
Study and practice in writing articles for publication in national media. Students repeating the course limited to a total of six credits. (Admission by arrangement.)

J-B 317 3 Credits Fall
Writing for Radio and Television (3+0)
Preparation of announcements, commercials, interviews, music continuity, special events programs, documentaries, commentaries, news, and other basic broadcast continuity. Administrative aspects of production are included. (Prerequisite: J-B 300.)

J-B 320 3 Credits Spring
Journalism in Perspective (3+0)
Present problems and future trends in journalism examined in the light of their historical development. (Prerequisite: Junior standing.)

J-B 323 3 Credits Fall
Magazine Editing (3+0)
Principles and problems of magazine management and editing; content selection, design, editorial responsibility, economics of publishing. (Prerequisite: Junior standing.)

J-B 324 3 Credits Spring
Typography and Publication Design (2+2)
Theory and practice of typography, layout and design, coupled with a study of the methods of printing production.

J-B 326 3 Credits Spring
Principles of Advertising (3+0)
Theory and practice of advertising; including strategy, media use,

creation and production of advertisements and measurement of advertising effectiveness. Required for business administration majors; alternative to J-B. 324 for journalism majors.

J-B 331 3 Credits Alternate Fall
Retail Advertising (3+0)
Application of advertising principles to retail sales and production for the print and broadcast media. (Prerequisite: J-B 326 or permission of instructor. Next offered: 1979-80.)

J-B 372 3 Credits Alternate Fall
Methods of Instructional Broadcasting (2+4)
Studio practices and procedures for the production of instructional programs. Underlying educational philosophy and actual in-studio practice. (Prerequisites: J-B 215 or permission of the instructor. Next offered: 1980-81.)

J-B 400 3 Credits Fall and Spring
Advanced Media Practicum (1+6)
Practical training in print and electronic communication. Participation at both an approved publication and broadcast station required. (Prerequisite: Permission of instructor.)

J-B 402 3 Credits Fall and Spring
Advanced Photography (2+3)
Special techniques in a variety of areas of photography. Each student will concentrate on one or more of the following areas: color separations, freelance, staff, museum, studio or historical photography. (Prerequisite: J-B 303.)

J-B 403 3 Credits As Demand Warrants
Cinematography (2+2)
Filming and editing news and documentary movies for television and educational purposes. (Prerequisite: J-B 203 or instructor's permission. Next offered: Fall 1980.)

J-B 411 3 Credits Fall and Spring
Advanced Magazine Article Writing (3+0)
Study and practice in writing advanced articles for publication in national and international media. (Prerequisite: Permission of instructor.)

J-B 412 3 Credits Alternate Spring
Advanced Editing (2+2)
Development of sophisticated skills in copy editing and writing headlines. Includes news judgment and positioning, news flow and newsroom organization, page layout, use of pictures. (Prerequisites: J-B 301. Next offered: 1980-81.)

J-B 413 3 Credits Fall
Mass Communications Law (3+0)
Study of the common law, statutory law and administrative law that affects the mass media, including libel, slander, censorship, copyright, access to the media, constitutional problems, invasion of privacy, shield laws and broadcast regulations. (Prerequisite: J-B 201 or permission of the instructor.)

J-B 416 3 Credits Alternate Fall
Advanced Television Production (1+6)
An advanced course in Television Production where the student will be responsible for producing, directing, writing, set construction, and lighting of broadcast quality programs which will air on University of Alaska, Fairbanks, station. (Prerequisites: J-B 216; J-B 215; J-B 203, or by permission of instructor. Next offered: 1979-80.)

J-B 420 3 Credits As Demand Warrants
Book Writing (3+0)
Research and writing of biography, autobiography, and other books. May be repeated for credit with permission of instructor. (Next offered: Spring 1980.)

J-B 424 3 Credits Spring
Magazine Production (2+3)
Practical experience in all phases of magazine publication, including writing, photography, editing, design, layout, advertising and circulation. Students edit and produce the magazine, *Alaska Today*, under the supervision of journalism faculty members. (Admission by arrangement; editorial positions open to students who have completed J-B 323.)

J-B 433 3 Credits Fall
Public Relations (3+0)
Insights into the techniques, causes and consequences of influencing public opinion; propaganda, mass communication and public relations as instruments of economic, political and social change. (Prerequisites: J-B 201 or permission of instructor.)

J-B 444 3 Credits Spring
Public Affairs Reporting (1+6)
Study of government and public affairs at all levels, local to national, with emphasis on Alaska's state government. Concentration on investigative methods, information gathering, organization of material and reporting for all media. A practicum with six days of working with the executive, judicial and legislative branches in Juneau during the legislative session. (Prerequisites: Junior standing in Journalism and permission of instructor; reporting or other practical news experience.)

Justice

Just. 110 3 Credits Fall and Spring
Introduction to Justice (3+0)
Survey of various philosophies, functions, and methods of social control with emphasis on role of law and those involved in its admininstration – police, courts, and corrections organizations. Includes study of history, organization, processes, and problems related to law and justice agencies in a heterogeneous, democratic society.

Just. 150 3 Credits Spring
Police Administration (3+0)
Principles of police administration and organization as applied to staff and line units. An analysis of their functions and activities, including record keeping, report writing, and the application of the computer.

Just. 210 3 Credits Spring
Principles of Corrections (3+0)
An introduction to the basic concepts of probation and parole; the use of authority in corrective services, institutional treatment methods, a study of popular and professional concepts in corrections.

Just. 221 3 Credits Fall
Justice Organization and Management (3+0)
Survey of organization and management of police, court, correctional and legal institutions; justice agency roles, goals, structured arrangements and administrative practices; applicability of theory and research; techniques and instruments of organization and management; principles of change.

Just. 250 3 Credits Fall
Development of Law (3+0)
Study of underlying philosophy, development and structure of law with emphasis on law system of United States and Alaska. Includes "civil" precedents of such constitutional provisions as "due process" and "equal protection" in the United States Bill of Rights; criticisms of law; review of native law ways; procedures for changing law.

Just. 251 3 Credits Spring
Criminology (3+0)
The study of the major areas of deviant behavior and its relationship to society, law, and law enforcement, including the theories of crime causation. (Prerequisite: Soc. 101.)

Just. 252 3 Credits Fall
Criminal Law (3+0)
A study of the elements, purposes, and functions of the substantive criminal law; with emphasis upon historical and philosophical concepts.

Just. 254 3 Credits Spring
Procedural Law (3+0)
(Criminal Procedure)
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.

Just. 258 **3 Credits** **Fall**
Juveniles and the Law (3 + 0)
The role of agencies under the law in regard to the juvenile, with special attention to the role of law enforcement. Both theoretical and practical aspects will be studied.

Just. 259 **3 Credits** **Alternate Fall**
Administrative Concepts (3 + 0)
Exposition of basic theory; principles and practices of public administration, especially as it applies to municipal agencies. Theoretical aspects of factors such as policy-formation and decision-making in a public agency. (Next offered: 1979-80.)

Just. 320 **Variable Credit** **Spring**
Practicum
A research oriented course directed at the resolution of a specific problem within an agency of the criminal justice system. (May be repeated to a maximum of 6 credits.)

Just. 330 **3 Credits** **Spring**
Justice and Society (3 + 0)
The role and operation of justice institutions from the perspective of their utility to groups and societal interests. Justice institutions under stress such as during the Third Reich, McCarthy Era, Watergate, Vietnam War, Environmental Revolution, and War on Crime. Relationships between community and justice organizations.

Just. 360 **3 Credits** **Alternate Fall**
Justice Processes (3 + 0)
Study of processes and issues in police, court and correctional agency operations. Definition of goals; organizational design and development; organizing and managing financial, personnel and management processes; budget, union, communication, record; community-based programs; inspection; program assessment. Contemporary administrative process problems. (Next offered: 1979-80.)

Just. 451 **3 Credits** **Fall**
Research, Planning, and Policy Analysis (3 + 0)
Application of social science research methods and analytical tools to justice planning and policy problems; political and rational planning with such tools as modeling, sampling theory, queuing theory, Delphi, PERT/CPM, scenarios, and paradigms.

Library Science

L.S. 101 **1 Credit** **Fall and Spring**
Library Skills (0 + 0)
An independent study course in college library skills and some resources and facilities common to academic libraries in general and to the Rasmuson Library in particular. No class sessions are held; the student works at his individual rate and on his own time schedule.

L.S. 201 **2 Credits** **Spring**
General Bibliography (2 + 0)
Introduces elements and principles of information organization, finding and reporting in the humanities, sciences and social sciences, including surveys of major reference sources in these disciplines. Requires preparation of an annotated bibliography, and should be taken in conjunction with a course requiring an upperdivision term paper.



L.S. 202 3 Credits Fall
Introduction to Libraries (3+0)
Surveys the history of libraries and the preservation of written materials. The evolution of the modern library will be presented and possibilities for future development of information systems will be discussed. In addition to establishing the LTA's role in library operations, the course also presents aspects of library administration, including personnel supervision, library policy development, recordkeeping, budgeting, and relations with funding authorities.

L.S. 203 3 Credits Fall
Library Technical Processes I (3+0)
The theory and evolution of classification and classification systems, especially the Dewey Decimal System and the Library of Congress classification scheme. Methods of classifying and organizing public documents, periodicals, maps, pamphlets, microforms and a/v materials, and subsequent filing and card catalog maintenance procedures and physical preparation of newly acquired items.

L.S. 204 3 Credits Spring
Collection Building (3+0)
Principles of selection and evaluation of books and non-book materials. Appraisal of review materials and the technical procedures for ordering and receiving library materials. Maintenance of a book collection through repairs and commercial binding.

L.S. 206 3 Credits Spring
Public Services I (3+0)
Circulation systems and problems, reference services including public relations, interlibrary loan, the hardware of reader services, statistics and recordkeeping and other administrative responsibilities of reader services departments, including personnel supervision.

L.S. 207 3 Credits Fall
Public Services II — Bibliography (3+0)
Reference services to a library's public including standard reference works for library services, instruction in the use of union lists, indexes, bibliographies, etc.; building and selecting for a reference collection, including government publications. Also includes a survey of reference services available in Alaska. (Prerequisites: L.S. 206 or permission of instructor.)

L.S. 212 3 Credits Spring
Media (3+0)
Selection, acquisition, maintenance, operation, storing and circulation of audio-visual materials in a collection, including some graphic production. Emphasis in selection and acquisition will be upon a/v materials for children and young adults.

L.S. 214 3 Credits Spring
Library Service to Children (3+0)
Designed to acquaint the student with services for children in the elementary or middle school library and in the public library. Procedures and techniques for working with children are emphasized. The course offers an introduction to authors and illustrators, and background knowledge of children's interests. Student may assist in the preparation of programs in both a school and a public library.

L.S. 288 1-3 Credits Fall and Spring
Library Internship
May grant from one to three credits based upon employment or intern experiences with appropriate breadth of learning experience and evaluation. Volunteers may be placed in any of several types of libraries — academic, public, school or special.

Linguistics

Ling. 101 3 Credits Alternate Fall
Nature of Language (3+0)
A begining course in the study of language: systematic analysis of human language and description of its grammatical structure, distribution and diversity.

Ling. 216 3 Credits Alternate Fall
Languages of the World (3+0)
A comprehensive survey of the world's languages -- both past and present. Topics to be covered include genetic relationships among languages, linguistic change, language universals, language classification and language families, as well as the interaction of culture and language.

Ling. 318 3 Credits Alternate Spring
Phonetics and Phonemics (3+0)
An introduction to scientific study of human speech sounds, the mechanism of their production, and the sound systems of languages. (Prerequisites: Upper division standing or permission of instructor. Next offered: 1979-80.)

Ling. 432 3 Credits Alternate Spring
Intro. to Syntactic Theory (3+0)
An introduction to the study of the principles and processes of sentence construction in language. (Prerequisites: Ling. 101 or its equivalent. Next offered: 1980-81.)

Living Skills

LVSK 119 2 Credits As Demand Warrants
Every Day Nutrition (2+0)
Is it possible to eat too much protein? How much is enough? What foods contain what kinds of proteins? Are carbohydrates and fats bad for you? When should you use vitamin supplements? These and other topics will be discussed with a view toward helping you make decisions about foods and diets.

LvSk 121 1 Credit As Demand Warrants
Nutrition Facts and Fiction (1+0)
Instruction in the nutritional value of popular dieting methods and processed foods. Additives, meal planning, unit pricing, nutrition labeling and low cost foods will be covered.

LVSk 142 1 Credit As Demand Warrants
Alaskan Home Interiors (1+0)
Course in designing an interior that is functional under the conditions of Alaskan summers and winters. Both design and economy will be included.

LvSk 211 2 Credits As Demand Warrants
Consumer Know-How (2+0)
Course covers a wide range of problems faced by consumers in purchasing goods and services. Sources of consumer information will be evaluated and programs for consumer protection will be analyzed.



Marine Biology

MBI 610 3 Credits Alternate Spring
Marine Biology (3+0)
Introduction: definition of terms, pelagic and benthic systems, major plant and animal groups of the sea. Physical, chemical, geological factors affecting marine organisms. The role of bacteria in the sea. Diatoms of the water column and the benthos. Zooplankton – biology of selected species, adaptations. Nekton – fishes and marine mammals: basic biology and adaptations of selected species. The benthos: shore biota – general biology, special adaptation, trophic roles; estuaries – adaptations of biota, trophic roles; microfauna and meiofauna – general biology and importance; shallow and deep sea benthic animals – adaptation and general biology; marine algae, kelp beds, seagrasses: biology of selected species, adaptations, interactions; coral reefs – species composition, basic biology of selected species, species interactions. Marine birds – feeding and breeding biology, adaptations. Pelagic and benthic system: major physical – chemical – geological – biological interactions; feeding and metabolism, recruitment and competition, special adaptations, community dynamics. (Prerequisites: Degree in Biology or permission of instructor. Highly recommended: Courses in Invertebrate Zoology, Ichthyology, Ornithology, Vertebrate Zoology. Next offered: 1979-80.)

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.

Math. 075 1-3 Credits Fall and Spring
High School Algebra I and II (3+0)
Basic concepts of algebra; solutions of linear and quadratic equations and inequalities. Computational aspects are particularly stressed. Variable credit, normally 1 to 3, may be repeated up to 6 credits.

Math. 103 3 Credits Fall
Concepts of Mathematics (3+0)
This course is designed to acquaint students, having a limited mathematical background, with mathematical thought and history. It emphasizes mathematical reasoning rather than formal manipulation. Topics may be chosen from number theory, topology, set theory, geometry, algebra and analysis. Not open to physical science majors and students having completed a course in calculus or beyond.

Math. 107 3 Credits Fall and Spring
College Algebra (3+0)
A study of algebraic, logarithmic, and exponential functions, together with selected topics from algebra. (Prerequisite: Math. 107 placement or higher.)

Math. 108 3 Credits Fall and Spring
Trigonometry (3+0)
A study of trigonometric functions and coordinate geometry. (Prerequisites: Math. 107 or concurrent registration in Math. 107.)

Math. 109 3 Credits As Demand Warrants
Analytic Geometry (3+0)
Rectangular coordinate system, the straight line, conic sections, transcendental curves, polar coordinates, parametric equations, and solid analytic geometry.

Math. 110 3 Credits Fall and Spring
Mathematics of Finance (3+0)
Simple and compound interest, discount, annuities, amortization, sinking funds, depreciation and capitalization. (Prerequisite: One year high school algebra or its equivalent.)

Math. 161 3 Credits Fall
Algebra for Business and Economics (3+0)
Functions of one and several variables studied with special attention given to linear, polynomial, rational, logarithmic, and exponential relationships. Geometric progressions as applied to compound interest and present value. Linear systems of equations and inequalities. All applications are from the fields of Economics and Business. (Prerequisites: Two years of high school algebra.)

Math. 162 4 Credits Spring
Calculus for Business and Economics (4+0)
Ordinary and partial differential calculus, Maxima and minima problems, including the use of Lagrange multipliers. A brief introduction to the integral of a function of one variable. Applications include marginal cost, productivity, revenue, etc., point elasticity of demand, competitive/complementary products, consumer's surplus, etc. (Prerequisites: Math. 161.)

Math. 171 4 Credits Fall
Mathematics for Life Sciences (4+0)
Algebraic, trigonometric, exponential, and logarithmic functions with applications to problems arising in the life sciences. (Prerequisite: Two years of high school algebra.)

Math. 172 5 Credits Spring
Introductory Calculus for Life Sciences (5+0)
Differentiation and integration with applications to the life sciences. Differential equations as models of life processes. Partial differentiation. (Prerequisite: Math. 171, or Math. 107, 108.)

Math. 200 4 Credits Fall and Spring
Math. 201 4 Credits Fall and Spring
Math. 202 4 Credits Fall and Spring
Calculus (4+0)
Techniques and application of differential and integral calculus, vector analysis, partial derivatives, multiple integrals and infinite series. (Prerequisites: Math. 107-108.)

Math. 203 4 Credits Fall
Finite Math. (4+0)
A finite mathematics course designed for non-math majors. Topics covered include; symbolic logic, partitions, binomial and multinomial theorems, probability, finite stochastic processes, linear algebra, Markov chains, linear programming, game theory. (Prerequisite: Math. 162, or 171, or 200.)

Math. 205 3 Credits Fall
Mathematics for Elementary School Teachers I (3+1)
Elementary set theory, numeration systems, algorithms of arithmetic, divisors, multiples, integers, introduction to rational numbers. (Prerequisites: one year high school algebra or its equivalent.)

Math. 206 3 Credits Spring
Mathematics for Elementary School Teachers II (3+1)
A continuation of Math. 205. Real number systems and sub-systems, logic, informal geometry, metric system, probability and statistics.

Math. 302 3 Credits Fall and Spring
Differential Equations (3+0)
Nature and origin of differential equations; first order equations, and solutions; linear differential equations with constant coefficients, systems of equations, power series solutions, operational methods, applications. (Prerequisites: Math. 202.)

Math. 303 3 Credits Fall
Introduction to Abstract Algebra (3+0)
Introduction to sets, groups, rings, and fields. (Prerequisite: Math. 202 or consent of instructor.)

Math. 304 3 Credits Spring
Topics in Algebra, Pure or Applied (3+0)
Topics to be announced at the time of registration. Possible topics include: finite state machines, coding theory, theory of algorithms, Galois theory, and group representations. (Prerequisite: Math. 202 or consent of instructor.)

Math. 305 3 Credits As Demand Warrants
Geometry (3+0)
Topics selected from such fields as Euclidean and non-Euclidean plane geometry, affine geometry, projective geometry, topology.

Math. 310 3 Credits As Demand Warrants
Numerical Analysis (3+0)
Direct and iterative solutions of systems of equations, interpolation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. (Prerequisite: Math. 302.)

Math. 314 3 Credits Spring
Linear Algebra (3+0)
Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations, characteristic values. Inner product spaces. (Prerequisite: Math. 201.)

Math. 321 4 Credits Fall
Intermediate Applied Mathematics (4+0)
Determinants and matrices, linear systems, eigenvalues and eigenvectors; vector calculus including Stoke's Theorem and divergence, gradient, and curl in orthogonal curvilinear coordinates; Fourier series and integrals. (Prerequisite: Math. 302 or concurrent enrollment in Math. 302.)

Math. 371 3 Credits As Demand Warrants
Probability (3+0)
Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions, and characteristic functions. (Prerequisites: Math. 202.)

Math. 401 3 Credits Fall
Math. 402 3 Credits Spring
Advanced Calculus (3+0)
A rigorous treatment of one and several dimensional calculus. Includes the study of mappings from n-space and their continuity, differentiability and integrability properties as well as sequences and series. (Prerequisites: Math. 314 or 321 for Math. 401; Math. 401 for Math. 402.)

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, test of hypotheses including various criteria for tests. (Prerequisites: Math. 371 and A.S. 301.)

Math. 410 3 Credits As Demand Warrants
Introduction to Complex Analysis (3+0)
Analytic functions. Cauchy's theorem. Sequences and series. (Prerequisite: Math. 324.)

Math. 422 4 Credits Spring
Intermediate Applied Mathematics (4+0)
Topics in multi-variate calculus, boundary value problems, solutions of partial differential equations of mathematical physics, complex functions. (Prerequisite: Math. 321.)

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: Math. 422.)

Math. 601 3 Credits As Demand Warrants
Math. 602 3 Credits As Demand Warrants
Complex Function Theory (3+0)
Analytic functions, singularities, analytic continuation, integration, Riemann surfaces, the logarithmic function, conformal representation. (Prerequisite: Math. 403 or admission by arrangement.)

Math. 605 3 Credits As Demand Warrants
Math. 606 3 Credits As Demand Warrants
Real Function Theory (3+0)
The Lebesgue integral on the line, metric spaces, Banach spaces, general theory of measure and integration. (Prerequisite: Math. 403 or admission by arrangement.)

Math. 608 3 Credits As Demand Warrants
Partial Differential Equations (3+0)
First and second order differential equations, boundary value problems, existence and uniqueness theorems. Green's functions, principal equations of mathematical physics. (Prerequisite: Admission by arrangement.)

Math. 609 3 Credits As Demand Warrants
Math. 610 3 Credits As Demand Warrants
Modern Algebra, Pure and Applied (3+0)
Topics to be announced at the time of registration. Possible topics include: groups, rings, fields, coding theory, advanced linear algebra, computation theory, formal languages, and automata.

Math. 611 3 Credits Alternate Fall
Math. 612 3 Credits Alternate Spring
Mathematical Physics (3+0)
(Same as Phys. 611, 612)
Advanced consideration of such topics as transform methods, asymptotic methods, Green's function, Sturm-Liouville theory, conformal mapping and calculus of variations with applications to problems arising in physics. (Prerequisite: permission of the instructor. Next offered: 1979-80.)

Mechanical Engineering

M.E. 150 1 Credit Fall
Aerodynamics for Pilots (1+1)
Nature of the atmosphere, elementary airfoil theory, drag and power requirements, performance computations, and introduction to stability. For those who desire a basic understanding of flight with minimum mathematical background. (Prerequisite: high school algebra and general science.)

M.E. 302 4 Credits Spring
Mechanical Design (3+3)
Kinematics and dynamics of mechanisms. Analysis and design of displacements, velocities, accelerations, and forces in linkages, cams, and gear systems by analytical, experimental, and computer methods. (Prerequisites: E.S. 208 and E.S. 201.)

M.E. 313 3 Credits Spring
Mechanical Engineering Thermodynamics (3+0)
Continuation of E.S. 346, including vapor power cycles (Rankine, reheat, binary, and regenerative cycles); flow through nozzles and diffusers; gas power cycles; gas mixtures and psychrometrics; vapor compression refrigeration cycles. (Prerequisite: E.S. 346.)

M.E. 321 3 Credits Spring
Industrial Processes (2+3)
Introductory course covering a wide spectrum of manufacturing processes used in modern industry; primary and secondary manufacturing processes; casting, hot and cold forming, machining, welding, and mass production tools and techniques as related to economic and efficient product design.

M.E. 403 4 Credits Fall
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. (Prerequisites: M.E. 302 and E.S. 331.)

M.E. 408 4 Credits Spring
Dynamics of Systems (3+2)
Response of mechanical, fluid, and thermal systems to internal, external, and control forces. Free and forced vibration, random vibration, self-excited vibration, control systems, and stability criteria. Non-linear systems. (Prerequisites: E.S. 201 and E.S. 301.)

M.E. 414 3 Credits Fall
Thermal Systems Design (3+0)
Introduction to the design of power and space conditioning systems; energy conversion, heating, ventilating, air conditioning, total energy systems; introduction to thermal system simulation and optimization. (Prerequisite: E.S. 346.)

M.E. 415 2 Credits Fall
Thermal Systems Laboratory (1+3)
Testing and evaluation of components and energy systems such as pumps, fans, engines, heat exchangers, refrigerators, and heating/power plants. (Prerequisites: E.S. 341 and M.E. 313.)

M.E. 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; heat exchangers. (Prerequisite: E.S. 346.)

M.E. 450 3 Credits As Demand Warrants
Theory of Flight (3+0)
Airfoil theory in subsonic and supersonic flow. Propulsion systems, stability, and performance of aircraft. (Prerequisite: consent of instructor.)

M.E. 487 3 Credits Spring
Design Project
A real or simulated engineering design project selected jointly by student and instructor. Emphasis on design of practical mechanical engineering systems and/or components which integrate students' engineering knowledge and skills. (Prerequisite: senior standing.)

M.E. 616 3 Credits As Demand Warrants
Space Conditioning (2+3)
Principles of heating, ventilating, air conditioning, and refrigeration with practical applications. (Prerequisite: M.E. 441.)

M.E. 617 4 Credits As Demand Warrants
Power Analysis (3+3)
Fundamentals of power generation including piping, pumps, fuels and combustion, steam generators, condensers, deareators, evaporators, feedwater treatment and heating, regeneration, fuel handling, heat balance, equipment, economics, and plant layout. Prerequisite: M.E. 313.)

M.E. 685 3 Credits Alternate Spring
Arctic Heat and Mass Transfer (3+0)
An introduction to the principles of heat and mass transfer with special emphasis on application to problems encountered in the Arctic such as ice and frost formation, permafrost, condensation, and heat loss in structures. (Prerequisite: C.E. 603. Next offered: 1979-80.)

Medical Science

Med.S. 201 3 Credits Fall
Factors in Health and Disease (3+0)
This course is offered to any interested student as an introduction to the phenomenon of human disease. Cases will be presented to demonstrate the manner by which the normal healthy state may be disrupted by either external or internal influences. The natural histories of major types of disease will be reviewed including bacterial, viral and parasitic infection, cancer, degenerative processes, mental illness, congenital disorders and environmental health factors. There will be a review of the social mechanisms which have been developed to maintain health and to care for the ill.

Med.S. 410 1 Credit Fall
Medical Preceptorship (0+4)
Students will spend one morning each week with a preceptor (practicing physician). During the Preceptorship, each student will become acquainted with the clinical application of basic science data, observe response of patients to disease and health care delivery system, experience some of the practical problems in medical practice and develop a rapport with practicing physicians and some of their patients. The objective of the Preceptorship is to allow each student to gain insight into the role of the practicing physician, to further kindle his enthusiasm for medical practice and to provide him with information which will be helpful in making decisions relative to his future career in medicine. (Prerequisite: Medical student status or special graduate student with permission of course chairman.)

Med.S. 413 2 Credits Fall
Clinical Medicine (2+0)
This course is designed to teach general interviewing skills, point out common sources of error in verbal communication and inquiry as well as sources of bias peculiar to medical interviewing, and enable the student to take and record selected portions of the medical history. Weekly practice sessions are held at Fairbanks Memorial Hospital. (Prerequisite: Medical student status or special graduate student with permission of course chairman.)

Med.S. 415 2 Credits Fall
Ages of Man (2+0)
In presenting the progression of the individual from conception to senescence and death, this course provides a conceptual framework which relates many areas of medical study. Included are selected aspects of normal somatic and psychologic development, as well as review of the stress peculiar to each age group, and the clinical abnormalities most prevalent at each stage of development. Field trips to specific institutions and interviews with patients and families provide clinical correlations with classroom concepts. (Prerequisite: Medical student status or Biol. 210 or permission of course chairman.)

Med.S. 423 2 Credits Spring
Behavioral Systems (2+0)
Introductory course designed to familiarize freshman medical students with concepts and data derived from behavioral sciences which are relevant to the work of a general physician. Organic, intrapsychic, interpersonal, social, and cultural determinants of human behavior are discussed within the context of the life cycle. Through lectures, audio visual presentations, assigned readings, and clinical illustrations utilizing material from various areas of the behavioral sciences an attempt will be made to enhance the students' appreciation of human behavior as a multidimensional testing. (Prerequisite: Medical student status or graduate student with permission of course chairman.)

Med.S. 433 2 Credits Spring
Rural Health (1+3)
The Alaskan situation is used to exemplify health problems and approaches to the delivery of health care in rural Alaska. Specific issues include behavioral and environmental factors affecting health, access and utilization of health care systems, compliance and motivation, responsibility for health care public policy, and health status in rural area. A field trip to rural areas is offered in conjunction with the course. (Prerequisite: Medical student status or permission of course chairman.)

Med.S. 435 2 Credits Spring
Clinical Medicine (2+0)
Continuation of Med.S. 413, Clinical Medicine offered fall semester. Upon completion of this course, student should be able to conduct the complete medical historical interview, perform the general physical examination, and record this data in the form of the "problem oriented medical record." Course will use both classroom work and practical exercises at Fairbanks Memorial Hospital. Patients will be examined by individual students in this course. (Prerequisite: Med.S. 413.)

Med.S. 453 1 Credit Spring
Nutrition in Medicine (1+0)
Nutritional aspects of medicine are presented through consideration of basic foodstuffs, their sources and preparation, deficiency states and malnutrition, diets for prevention and control of diseases, fad diets and food taboos. The physiology, physiologic chemistry and clinical aspects of nutrition will be stressed. (Prerequisite: Medical student status or consent of instructor.)

Med.S. 511 3 Credits Spring
Anatomy of the Trunk (2+2)
Gross anatomy and embryology of the thorax, abdomen, and pelvis, with special reference to commonly encountered anomalies, pathology, physical diagnosis, clinical correlation, and approach. Laboratories will involve dissection of human material, supplemented by prosection material and oral presentations by both faculty and students. (Prerequisite: Medical school freshman status or graduate student with consent of course chairman. Concurrent enrollment in Med.S. 512 and Med.S. 516 recommended because a knowledge of organ structure and function will be assumed.)

Med.S. 512 4 Credits Fall
Physiologic Mechanisms (4+0)
Presentation of a number of physiologic mechanisms applicable to various organ systems: excitability of membranes; muscle contraction; epithelial transport; and the action of neurotransmitters, hormones, and drugs on target organs. The principles of homeostasis and control of these basic mechanisms are illustrated in the discussions of reflexes, temperature regulation, gastrointestinal physiology, and endocrinology. Pathophysiology of these mechanisms is presented to illustrate relevance to clinical medicine. An introduction of pharmacology emphasizes how the basic mechanisms and concepts of drug action can be understood by applying physiological principles. This course presents concepts and physiological mechanisms prerequisite to the detailed study of physiology of various organ systems conducted in subsequent courses in the WAMI curriculum. (Prerequisite: Medical student status or undergraduate premedical courses in biology, chemistry and physics plus permission of course chairman. Concurrent enrollment in Med.S. 514, 516 is highly desirable.)

Med.S. 514 5 Credits Fall
Medical Biochemistry (5+0)
The first part of this course is an in-depth consideration of that portion of biochemistry dealing with molecular structure, special chemistry and physiological function of various classes of biomolecules such as carbohydrates, proteins, lipids, nucleic acids and vitamins. Enzymatic and hormonal control of metabolic pathways, coupling of oxidative metabolism to production of ATP and metabolism of specific tissues such as nerve and muscle is discussed. Certain diseases of man are included as examples of abnormal metabolic function.

In the final weeks of the course, fundamentals of nitrogen metabolism are presented and related to other metabolic pathways upon a framework of basic information on the four major classes of biomolecules: proteins, lipids, carbohydrates, and nucleic acids. Concepts describing replication, transcription and translation of genetic information are presented. The relation of these current ideas to cellular biology and the enzymatic control of metabolic pathways are emphasized throughout. (Prerequisites: Medical School Freshman status; one year of organic Chemistry or equivalent; permission of instructor.)

Med.S. 516 3 Credits Fall
Histology (2+3)
Light and electron microscopic structure and basic functional relationships of cells, tissues and organs. Pathological alteration will be employed to emphasize the structural and functional properties of normal components. The course will fulfill the need for a descriptive histology course. Elementary pathologic processes will be referred to for emphasis of normal structures and to acquaint students with the fundamental aspects of cellular response to injury. (Prerequisite: Medical school freshman status or consent of instructor. Basic knowledge of biological chemistry is highly recommended. Consent of instructor required because the student will be expected to know or concurrently acquire more knowledge of organic molecules and their arrangement in cells and tissues.)

Med.S. 519 1 Credit As Demand Warrants
Human Embryology (1+0)
Fertilization through parturition, with emphasis on development of systems pertaining to the understanding of gross anatomy and congenital malformations. Companion course to Med.S. 511. (Prerequisite: Medical school freshman status or concurrent enrollment in Med.S. 511 and consent of instructor.)

Med.S. 520 4 Credits Spring
Pathobiology (3+2)
Fundamental principles of pathobiology with special emphasis on pertinent clinical problems. Biochemistry, structural alterations and pathophysiologic mechanisms will be interrelated with specific coverage of cell injury, inflammation, tissue repair, neoplasia and immunopathology. Laboratory sessions will include microscopic and gross examination of normal and abnormal specimens as well as attendance at selected autopsy demonstrations. (Prerequisites: Medical student status or graduate student who has completed Med.S. 614, 616 or equivalent and with permission of course chairman.)

Med.S. 531 3 Credits Fall
Anatomy of Head and Neck (2+3)
Anatomy and pathology of structures in the head and neck, excluding brain. Laboratories will include human dissection, study of sterioscopic atlases of anatomy and study of pathology slides. Clinical cases, problem solving and physical examinations will be presented to illustrate anatomic principles. (Prerequisite: Medical student status or graduate student permission of instructor. This course will be integrated with Med.S. 632, Neural Sciences, and is designed to complement it, but the latter is not a prerequisite. Knowledge of general anatomic terms is required.)

Med.S. 532 5 Credits May and June
Neural Sciences (4+2)
A multidisciplinary approach to the control of behavior by the central nervous system. Initial discussions present the embryologic development of the nervous system and the anatomical organization and physiological operation of the spinal cord. Supraspinal sensory and motor function are approached as longitudinally organized systems which exert a hierarchical control over spinal mechanisms. Analyses of certain basic behaviors, such as the regulation of metabolism, sleep/wakefulness cycles, defense/attack behavior and reproduction, emphasize the integrated action of somatomotor, visceromotor, vicerosecretory, and endocrinologic mechanisms. Cortical lesions provide a basis for an understanding of such intellectual functions as learning, memory and speech. All seminar topics and laboratory exercises encompass neurophysiological, neuropathological, and neurological material. Videotapes of patients offer an opportunity to solve relevant clinical problems which illustrate lesions pertinent to the course material. This course employs a seminar format, and therefore emphasizes student initiative and instructor-student interaction. This course is offered as a block, five hours per semester. (Prerequisite: Medical student status or graduate student with permission of course chairman.)

Med.S. 534 2 Credits Spring
Medical Endocrinology (2+0)
Endocrine physiology and pathology are presented with a clinical orientation. Discussions include descriptions of control, hormone effects, and effector elements of the major endocrine systems. The role of the endocrine systems in normal homeostasis, development, and selected disease states will be emphasized. (Prerequisites: Med.S. 512 and 514 or permission of course chairman.)

Med.S. 621 5 Credits Spring
Infectious Disease (5+0)
The biology of medically important organisms will be presented. Properties of viral, bacterial, fungal, Rickettsial, protozoan and helminth agents of disease will be related to the characteristics, diagnosis, treatment and sequelae of the morbidity. Immunological principles will be elucidated. Prevention of infection and action of antimicrobial agents will be considered. (Prerequisite: Medical student status or graduate student with consent of course chairman, broad knowledge of biology and organic chemistry will be assumed.)

Med.S. 630 1 Credit Fall
Epidemiology (1+0)
This course elucidates the situation pertaining to health and disease in which investigation and quantification play important roles. It utilizes epidemiological concepts and mathematical models in the study of disease in human populations. (Prerequisite: Medical student status or graduate student with consent of course chairman.)

Military Science

Mils. 100, 200 1 Credit Fall and Spring
Outdoor Skills Laboratory (0+2)
Introduction to the fundamentals of various outdoor skills such as mountaineering, orienteering, marksmanship, arctic survival, skiing and snowshoeing. Emphasis is on practical work. The same skills are not taught both semesters. May be repeated for a maximum of 2 credits at each level.

Mils. 101 2 Credits Fall
Contemporary Leadership Problems (2+1)
Survey and analysis of current problems confronting the military leader including an introduction to the Army environment. The role of the soldier, the impact of the civilian environment, military training, discipline, and military justice are examined from various points of view. Laboratory consists of introduction to outdoor skills and Ranger orientation.

Mils. 102 2 Credits Spring
Map Reading and Orienteering (2+1)
Introduction to military and civilian topographical maps and their related informational content, use of the lensatic compass and map as navigational intruments. Practical exercises in orienteering complement academic instruction. Practicum includes rifle marksmanship and spring field exercises.

Mils. 201 2 Credits Fall
Implications of World Problems on the Military Leader (2+1)
A study of current world events and how they affect the military leader and defense structure. Historical as well as political events are studied to learn their relationships to the decision making processes. Geography is considered as an influential factor affecting the economic base of a nation, and both are considered in terms of socio-political influence on military thought. Current military strengths and weaknesses of power groups are discussed and analyzed. The course is team taught with the University faculty. Laboratory consists of practical leadership development.

Mils. 202 2 Credits Spring
Communications Arts for the Military Leader (2+1)
A study of the principles of public speaking and instructional techniques. Emphasis is upon the development of functional skills through rehearsed and unrehearsed presentations. Instructional techniques, to include the use of audio-visual aids, provides intensive practice in developing lesson plans and skill in presentation. Laboratory consists of practical leadership development.

Mils. 250 3 Credits Summer
Basic Camp
Six week practical field work to prepare students who did not take basic course for entrance into the advanced course. Camp prepares student in basic military skills and leadership experience. (Prerequisite: At least two years of schooling remaining upon completion of camp. Admission by arrangement with professor of military science.)

Mils. 300, 400 1 Credit Fall and Spring
Outdoor Skills Laboratory (0+2)
Advanced training in mountaineering, orienteering, marksmanship, arctic survival, skiing and snowshoeing. Students assist in giving instruction and in organizing and managing the lab. Emphasis is on practical work. May be repeated for a maximum of two credits at each level. (Prerequisite: Junior or senior standing in Military Science.)

Mils. 301 3 Credits Fall
Theory and Dynamics of Tactical Operations (3+1)
Detailed examination of the concepts, principles, and techniques applicable to the current doctrine of tactical operations. The course emphasizes the role of the small unit leader in planning, directing, and controlling the efforts of individuals and small units to accomplish offensive, defensive, and specialized combat operations. Practical application of performance objectives and the integration of support functions are emphasized. Laboratory consists of practical leadership development.

Mils. 303 3 Credits Spring
Advanced Leadership (3+1) (Same as B.A. 303)
An interdisciplinary approach to the study of effective leadership in the contemporary environment. Analysis of individual skills, organization structure and dynamics, and situational transactions emphasizing a behavioral approach to effective decision making. For ROTC cadets, class and laboratory includes preparation for advanced camp (Mils. 350).

Mils. 350 3 Credits Summer
Advanced Camp
Six week practical field work for students enrolled in the advanced course. Camp is structured as a leadership workshop allowing students to utilize leadership skills in a variety of situations in a military environment. (Prerequisite: must be enrolled as an advanced course cadet and have completed MS III.)

Mils. 351 2 Credits Summer
Army Orientation Training
Three week full-time leadership training and development. Serving in leadership positions with the Active Army. Applying leadership and management principles in real life junior officer situations/positions in a military environment. (Prerequisite: Must be enrolled as an advanced course cadet and completed MS III and Advanced Camp, Mils. 350.)

Mils. 401 3 Credits Fall
Seminar on Tactical Operations (3+1)
A study of the conduct of tactical operations from the time of Hannibal to the present. The course is designed to introduce the student to a wide variety of historical examples where application or violation of sound tactical principles, or various styles and types of leadership have produced success or failure. Laboratory consists of practical leadership roles and seminars.

Mils. 402 3 Credits Spring
Seminar in Leadership and Management (3+0)
A study and overview of management principles, management practices, and military justice. Emphasis is on the review of management principles and skills through advanced readings and case studies. Students will receive an orientation on the various administrative, training, logistical, and maintenance tools used in the military. Class includes preparation for commissioning.

Mineral and Petroleum Technology

M.P.T. 140 2 Credits As Demand Warrants
Introduction to Nondestructive Testing (2+0)
Introduction with emphasis on radiography testing, x-ray and gamma-ray techniques, and radiation safety measures.

M.P.T. 167 3 Credits As Demand Warrants
Petroleum I (3+0)
Introduction to geology of petroleum reservoirs and reservoir technology. History of petroleum in Alaska, recovery mechanisms and well-bore damage.

M.P.T. 168 3 Credits As Demand Warrants
Petroleum II (3+0)
Drilling for petroleum, casing design, cementing, drilling reports, forms, etc. Problems with permafrost and types of operations, both off-shore and on-shore techniques.

M.P.T. 175 3 Credits As Demand Warrants
Petroleum III (2+3)
Production of petroleum. Factors determining completion practices: vapor recovery, valves, wash water handling systems, field lab methods, and corrosion control.

M.P.T. 176 3 Credits As Demand Warrants
Petroleum IV (3+0)
Operations, transportation, manufacturing, and marketing. Field operation and maintenance, storage, transportation, and refining of petroleum.

M.P.T. 180 3 Credits As Demand Warrants
Introduction to Mineral and Petroleum Economics (3+0)
Elements of economics, resource economics and operational cost analysis applied to mineral and petroleum production.

M.P.T. 182 1 Credit As Demand Warrants
Field Trip
Field trip to observe exploration and operational functions in mineral and petroleum fields. Technical report required.

Mineral Engineering

Mining: Engineering:

Minl. 101 3 Credits Fall
Minerals and Man (3+0)
A general survey of the impact of the mineral industries on man's economic, political and environmental systems.

Minl. 102 1 Credit Spring
Introduction to Minerals Industry (1+0)
Fundamentals of the mineral industry.

Minl. 202 3 Credits Spring
Mine Surveying (2+3)
Surveying principles for surface and underground control of mining properties. Field and office procedures for preparation of maps and engineering data. (Prerequisites: Math. 107-108.)

Minl. 300 3 Credits Fall
Fundamentals of Mining (3+0)
A study of the theory and design of unit mining operations, namely: haulage, hoisting, drilling and blasting, ventilation, drainage and pumping, compressed air, and noise control. (Prerequisite: E.S. 208 and E.S. 341. E.S. 341 may be taken concurrently.)

Min. 320 0 Credits Spring
Seminar and Senior Field Trip
Mining field trip. Mines and districts, selected for exemplifying and providing instruction in geological principles, mining methods, metallurgical practices, and industrial economics. Seminar discussions cover operations and industries visited and current mineral industry problems. (Prerequisites: senior standing and permission of the instructor. Fee: field trip expenses to be paid by the student.)

Minl. 333 2 Credits Alternate Fall
Mining and Mineral Leasing Law (2+0)
History of the development of mining law; the essentials of mining laws of the United States and Alaska. Discussions and interpretation of important court decisions in mining litigation. (Next offered: 1979-80.)

Minl. 400 1 Credit As Demand Warrants
Practical Engineering Report
Twelve weeks of practical work in some industry or project related to the students' option, or equivalent. Performed during one or more of the summer vacations prior to the fourth year.

Minl. 403 3 Credits Fall
Operations Research in Mineral Industries (2+3)
The application of operations research techniques in mineral exploration, mineral economics, mine systems, and mineral preparation. (Prerequisite: senior standing or permission of the instructor.)

Minl. 406 3 Credits Spring
Mining Plant Engineering (3+0)
Principles of mine ventilation, haulage, hoisting, pumping and energy transmission system. (Prerequisites: Minl. 102, Phys. 212 and E.S. 341.)

Minl. 407 2 Credits Spring
Mineral Industry and the Environment (2+0)
Principles and practices with the origin and disposal of solid, liquid and gaseous wastes generated in the production of mineral commodities and the impact of regulations designed for their reduction or elimination. (Prerequisite: Minl. 313 or by permission of instructor.)

Minl. 408 4 Credits Spring
Mineral Valuation and Economics (3+3)
Theory of sampling techniques, deposit and reserve calculations and analysis of mineral economic problems. (Prerequisite: Minl. 102 or permission of the instructor.)

Minl. 410 3 Credits Fall
Surface Materials Handling Systems (2+3)
The techniques and design of systems to move ore, concentrates and waste materials in mining and milling operation. (Prerequisite: senior standing or permission of the instructor.)

Minl. 621 3 Credits Alternate Fall
Advanced Mineral Economics (3+0)
Economics of mineral exploitation and utilization. International trade, state and federal policies, financial control and research methods. (Admission by arrangement. Next offered: 1980-81.)

Geological Engineering:

Minl. 401 3 Credits Spring
Rock Mechanics (2+3)
Analysis of stress and strain. Physical properties of rock and fundamentals of rock behavior. Rock stresses in mining with design and layout of underground workings. (Prerequisite: E.S. 331 or concurrent registration.)

Minl. 405 4 Credits Spring
Exploration Geophysics (3+3)
Introduction to the theory and application of gravity, magnetic, electrical, electro-magnetic, radioactive and seismic methods as used for geophysical exploration. Some field work required. (Prerequisites: Math 200 and Phys. 211 or equivalent.)

Minl. 431 2 Credits Alternate Fall
Applied Ore Microscopy (1+3)
Preparation of polished sections of ores. Identification of ore minerals in reflected light by physical, optical, and chemical methods. Applications to ore genesis, drill core interpretation, beneficiation, and process control. (Prerequisite: Geos. 213 or permission of the instructor. Next offered: 1980-81.)

Minl. 435 3 Credits Spring
Exploration Design (3+0)
Geologic, engineering and economic considerations applied to the design and development of mineral exploration programs. (Prerequisites: Geos. 314 and Geos. 214 or permission of instructor.)

Minl. 440 3 Credits Alternate Spring
Slope Stability (3+0)
Slope design for open pit mining and other excavations. Stability analysis by various methods and on-site measuring and monitoring techniques. (Prerequisites: E.S. 331 or permission of instructor. Next offered: 1979-80.)

Mineral Preparation Engineering:

Minl. 304 3 Credits Alternate Fall
Introduction to Metallurgy (3+0)
Definitions and principles of basic science and engineering principles as applied to process and adaptive metallurgy. (Prerequisites: Chem. 211. Phys. 212. Next offered: 1979-80.)

Minl. 313 3 Credits Fall
Introduction to Mineral Preparation (2+3)
Elementary theory and principles of unit processes of liberation, concentration, and solid-fluid separation as applied to mineral beneficiations. (Prerequisite: Junior standing or permission of the instructor.)

Minl. 314 3 Credits Alternate Spring
Unit Preparation Processes (1+6)
Principles and practices involved in liberation and concentration by gravity, electro-magnetic and electrostatic methods. Analysis of costs and economics of mill operation. Flowsheets for different ores developed in the laboratory on a pilot plant scale. (Prerequisite: Minl. 313. Next offered: Spring, 1981.)

Minl. 418 3 Credits Spring
Emission Spectroscopy, X-Ray Spectroscopy, and Atomic Absorption (2+3)
Can be taken for any combination of parts A, B, C as demand warrants. (Admission by special arrangement.)

Minl. 418A – Theory and application of emission spectrography; two one-hour classes: one three-hour lab per week for five weeks. One credit.

Minl. 418B – Theory and application of x-ray spectography and diffractometer; two one-hour classes: one three-hour lab per week for five weeks. One credit.

Minl. 418C – Theory and application of atomic absorption spectrophotometry: two one-hour classes: one three-hour lab per week for five weeks. One credit.

Minl. 433 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: Minl. 313. Next offered: 1980-81.)

Minl. 601 3 Credits Fall
Froth Flotation (2+3)
Theory and application of bulk and differential froth flotation to metallic minerals, non-metallic minerals, and coal. (Admission by arrangement.)

Minl. 606 3 Credits Spring
Plant Design (1+6)
Selection, design and layout of equipment for erection and operation of mineral and coal beneficiation plants for specific custom and milling problems. (Admission by arrangement.)

Minl. 684 3 Credits Fall and Spring
Mineral Preparation Research (1+6)
Familiarizes students with the concept of basic research and its needs in the field of mineral beneficiation, including such research subjects as magnetic susceptibility, dielectric constants, and electrical conductivity of minerals; chemical theory and mechanism of bubble contact in flotation; the effect of ultrasonic vibration in unit processes. (Admission by arrangement.)

Petroleum Engineering:

Minl. 103 3 Credits Fall
Introduction to the Petroleum Industry (3+0)
A survey of the petroleum industry from exploration through refining.

Minl. 301 3 Credits Every Third Semester
Petroleum Drilling Engineering (3+0)
Fundamental principles of rotary oilwell drilling and the engineering principles used in actual field practice. Course will include field trip to observe drilling rig and related support equipment. (Prerequisites: Phys. 211, Math. 201 or permission of instructor. Next offered: Fall 1980.)

Minl. 302 3 Credits Every Third Semester
Oil Well Design and Production (3+0)
Fundamental principles underlying the analysis, design and engineering of petroleum production systems. (Prerequisites: Phys. 211, Math. 201 or permission of the instructor. Next offered: Fall, 1979.)

Minl. 305 3 Credits Every Third Semester
Petroleum Reservoir Engineering (3+0)
Quantitative study and behavior prediction of volumetric and water drive oil and gas reservoirs by material balance. (Prerequisites: Math. 201 and Phys. 212. Next offered: Spring 1980.)

Mineral Preparation – See Mineral Engineering

Mining Engineering – See Mineral Engineering

Geological Engineering – See Geosciences or Mineral Engineering

Music

Mus. 101 1 Credit Fall and Spring
Chorus (0+3)

Mus. 203 1 Credit Fall and Spring
Orchestra (0+3)

Mus. 205 1 Credit Fall and Spring
Concert Band (0+3)

Mus. 211 1 Credit Fall and Spring
"Choir of the North" (0+3)

Mus. 307 1 Credit Fall and Spring
Chamber Music (0+3)

Mus. 313 1, 2, 3 Credits Fall and Spring
Opera Workship (0+3, 6 or 9)

Mus. 317 1 Credit Fall and Spring
Arctic Chamber Orchestra (0+3)
Chamber Music.

Mus. 151 1 Credit Fall and Spring
Class Lesson (0+3)
Class instruction in piano, voice, or orchestral instrument. (Mus. 151 may be repeated for credit.)

Mus. 190 0 Credits Fall and Spring
Recital Attendance (1+0)
Recital and concert attendance.

Mus. 161, 162 2 or 4 Credits Fall and Spring
Mus. 261, 262 2 or 4 Credits Fall and Spring
Mus. 361, 362 2 or 4 Credits Fall and Spring
Mus. 461, 462 2 or 4 Credits Fall and Spring
Private Lessons
Private instruction in piano, voice, or instruments. 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. (Prerequisite: Admission by audition.)

Music Theory, Music History, and Music Education

Mus. 103 3 Credits Fall and Spring
Music Fundamentals (3+0)
Rudiments of music for students with little or no prior training in music reading.

Mus. 123 3 Credits Fall
Appreciation of Music (3+0)
A guide to the richer enjoyment of classical music through a study of the main periods, styles and composers from the time of the Gregorian chant to the present.

Mus. 124 **3 Credits** **Spring**
Music in World Cultures (3+0)
A survey of traditional and folk music around the world, with an emphasis on Oriental and African music. The course examines the different uses of music in various societies, and includes demonstration of unusual musical instruments.

Mus. 131 **2 Credits** **Fall**
Mus. 132 **2 Credits** **Spring**
Basic Theory (2+0)
First semester: Intensive training in Fundamentals of music, pitch and rhythm notation, scales, modes, traids, and techniques of harmonization. Second semester: Concentration upon acquisition of skills in harmonization and techniques of formal and harmonic analysis.

Mus. 133 **2 Credits** **Fall**
Mus. 134 **2 Credits** **Spring**
Basic Ear Training (1+2)
Intensive training in ear training skills including sight reading, sight singing, error detection, and dictation. Use will be made of programmed materials in a laboratory situation in addition to classroom instruction. Concurrent enrollment in Music 131 or 132 required unless exempted by music theory placement examination.

Mus. 153 ~~**1 Credit**~~ **Fall and Spring**
Functional Piano (1+0)
Instruction designed to help music majors obtain the performance, sight-reading, and harmonization-transposition skills needed to pass the Piano Proficiency Examination. It also provides non-music majors with an opportunity to study basic piano skills on a space-available basis. (Prerequisites: Music majors – Mus. 131 or equivalent or concurrent enrollment in Mus. 131; non-music majors: permission of instructor.)

Mus. 221 **3 Credits** **Fall**
Mus. 222 **3 Credits** **Spring**
History of Music (3+0)
Fall semester: Music before 1750. Spring semester: Music since 1750. (Prerequisite: Mus. 131-132 or permission of the instructor.)

Mus. 223 **3 Credits** ~~**Fall and Spring**~~
Native Alaskan Music (3+0)
A course to acquaint the student with the variety of Eskimo and Indian dance and song styles in Alaska. Emphasis is on the sound and purpose, unique to each. Open to all, the course covers collection methods, analysis, and the development of a broad musical perspective.



Mus. 231 **3 Credits** **Fall**
Mus. 232 **3 Credits** **Spring**
Advanced Theory (2+3)
Continued study, in depth, of harmony and musical form through analysis of representative works from the standard repertoire. The second semester will be devoted to study and synthesis of 20th century stylistic and harmonic idioms. (Prerequisites: Mus. 131, 132 or permission of instructor.)

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. (Prerequisites: Ed. 313 and prerequisites thereto.)

Mus. 315 **2 Credits** **Fall and Spring**
Music Methods and Techniques (1+3)
Instruction in voice and the basic instruments of band and orchestra.

Mus. 331 **3 Credits** **Fall**
Form and Analysis (3+0)
A detailed survey of 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.)

Mus. 351 **3 Credits** **Fall**
Conducting (3+0)
Principles of conducting and interpretation of vocal and instrumental ensembles. (Prerequisite: Mus. 232.)

Mus. 405 **3 Credits** **As Demand Warrants**
Methods of Teaching Music (3+0)
Methods and problems of teaching music in junior and senior high schools, with emphasis on the general music program. (Prerequisites: ~~100~~ credits, Ed. 332 and prerequisites thereto, and Mus. 232, or permission of the instructor.)

Mus. 421 **3 Credits** **Alternate Fall**
Music in the Baroque Period (3+0)
Style study of the music from about 1600 to 1750. Examination of style and performance practices in opera, oratorio, cantata, and other vocal forms of the period. Development of the keyboard instruments: organ, harpsichord, spinet, clavichord, virginals, and piano. Historic consideration of the instrumental evolution: strings, winds, and brasses. Cross-cultural influences: art, literature, and paintings. Intensive listening and reading of contemporary documents in translation. Consideration of modern performance of old music. (Prerequisite: Permission of the instructor. Next offered: 1978-79.)

Mus. 422 **3 Credits** **Alternate Spring**
Music in the Classical Period (3+0)
Musical styles from J.S. Bach through Beethoven, as exemplified by the works of Bach's sons, Haydn, Mozart, Beethoven, and others of the period. Examination of the development of sonata and concerto forms, as well as opera and chamber music. Style studies of representative examples from the works of Haydn, Mozart, and Beethoven. Musical developments in Italy, England, France, Germany and Austria. (Prerequisite: Permission of the instructor. Next offered: 1978-79.)

Mus. 423 **3 Credits** **Alternate Fall**
Music in the Romantic Period (3+0)
Study of 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: Permission of the instructor. Next offered: 1979-80.)

Mus. 424 3 Credits Alternate Spring
Music in the Twentieth Century (3+0)
Trends in music since 1900. Style studies of significant works from the modern repertoire. Hindemith, Bartok, Schoenberg, Stravinsky, the avant-garde, and others. (Prerequisite: Permission of the instructor. Next offered: 1979-80.)

Mus. 431 3 Credits Fall
Counterpoint (3+0)
Study of contrapuntal techniques by means of analysis and synthesis of pieces in contrapuntal idioms.

Mus. 432 3 Credits Spring
Orchestration and Arranging (3+0)
Principles and practices of instrumentation and arranging for vocal and instrumental ensembles.

Oceanography and Ocean Engineering
(MARINE SCIENCE)

OCN 111 3 Credits Alternate Fall
The Oceans (3+0)
This course examines in an introductory way the classic disciplines of ocean science beginning with important definitions and a general history of oceanography. Emphasis is on descriptive biological, physical, chemical and geological marine science. Additional topics of special interest including scuba, demonstrations of marine research instrumentation and films of current oceanographic topics such as coastal upwelling and polar oceanography, will supplement the lecture. (Next offered: 1980-81.)

OCN 411 3 Credits Alternate Spring
General Oceanography (3+0)
The scientific study of the ocean; including the processes that control its major features and the life in it. The course is divided into four major sections: Biological, Chemical, Geological and Physical Oceanography. Geological oceanography covers the geography and distribution of the land and sea, the geology of ocean basins, the deep sea floor, sediments and sedimentation, marine geophysics and continental drift. Biological oceanography covers the marine environment as an ecosystem, marine plankton, nekton, benthos and productivity of the ocean. Chemical oceanography also covers productivity along with the chemistry of sea water. Physical oceanography covers the energy balances in the ocean and overlying atmosphere, waves, tides, ocean circulation and coastal and esterarine oceanography. (Prerequisites: Senior or graduate standing in a disciplinary science, mathematics or engineering. Next offered: 1979-80.)

OCN 620 4 Credits Fall
Physical Oceanography (3+3)
Physical description of the sea, physical properties of sea water, methods and measurements, boundary processes, currents, tides and waves, regional oceanography. (Prerequisite: science or engineering degree, or permission of the instructor.)

OCN 630 3 Credits Spring
Geological Oceanography (3+0)
History of ocean exploration and development of methods and instrumentation for exploration of ocean floors. Sample retrieving and geophysical techniques. The topography of the ocean floor. The origin of ocean basins in relation to continental drift, plate tectonics and polar wandering. Age of the ocean basins. Major subdivisions of the ocean basins: nerarshore, shelf, slope and deep basin. Definition and classification of shorelines and coasts. Beach characteristics and cycle. Continental Shelves: their topography and sediments. Shelf origin, history interrelation with coast and beach. Slope characteristics and its origin. Deep sea floor features: marine valleys, deep channels, canyons, trenches, mounts, hills, range, fractures and faults. Deep ocean floors: the Atlantic, the Pacific, the Indian Oceans. The inland seas: Mediterranean etc. Ocean sediments: their characteristics and distributions. The sources and the distribution of pelagic sediments. Formation and distribution of biogenic sediments including reefs. Major types of sediments in the oceans: characteristic properties and distributions. Sediment transport systems in the oceans; waves, currents, tsunamies, submarine earthquakes and turbidity flows. (Prerequisites: Introductory college Geology or permission of instructor.)

OCN 640 3 Credits Alternate Spring
Fisheries Oceanography (3+0)
A description of marine processes supporting commercially important higher trophic levels (fishes and shellfish) including details of food webs and rates of organic matter transfer, natural mortality and recruitment schedules, competition and prey-predator relationships during early life history, and distribution and abundance related to specific physical, chemical, biological, geological and meteorological conditions in the sea. Examples taken from many of the world's commercial fisheries. (Prerequisites: OCN 650 or permission of instructor. Next offered: 1980-81.)

OCN 650 3 Credits Fall
Biological Oceanography (3+0)
A survey of biological processes emphasizing organic matter synthesis and transfer, including topics essential to a basic understanding of contemporary biological oceanography. Primary and secondary production, standing stocks, distribution, structure and dynamics of phytoplankton and zooplankton populations, the transfer of organic matter to higher trophic levels, food webs, nutrient cycling, especially but not exclusively nitrogen, phosphorus and silicon, microbiological process relevant to nutrient cycling, and heterotrophic production, benthic communities coastal ecosystems, the influence of organisms on the composition of seawater, particularly with reference to oxygen and carbon dioxide regimes. Aspects of regional oceanography. (Prerequisites: Introductory college biology and chemistry.)

OCN 660 3 Credits Alternate Spring
Chemical Oceanography (3+0)
Interface reactions, biological and non-biological reactions and how they combine with transport processes to influence the distribution of chemical variables in the ocean and the composition of seawater. Major elements, minor elements, stable and radioisotopes and the carbon dioxide system are treated in the above context (Prerequisites: Physical Chemistry (Chem. 331) or permission of instructor. Next offered: 1979-80.)

OCE 671 3 Credits Alternate Fall
Ocean Engineering (3+0)
A survey of engineering problems associated with human involvement in the ocean environment. Emphasis on fluid mechanics as related to hydrodynamics, waves, beach processes, structural design and aspects of ocean and coastal pollution. Alaska samples cited. (Prerequisites: Undergraduate Engineering or physics courses in fluid mechanics or permission of instructor. Next offered: 1979-80.)

OCE 674 3 Credits As Demand Warrants
Marine Hydrodynamics (3+0)
Mechanics of fluids on a rotating earth. Navier Stoke's equations, boundary layer phenomena, turbulent flow, and applications of hydrodynamics to motion of stratified fluids such as the atmosphere and ocean.

OCN 692 1 Credit Fall and Spring
Marine Sciences and Ocean Engineering Seminar (1+0)
This seminar is a forum to present and discuss aspects of current research and related marine subjects in a timely manner outside the scope of the classroom lecture. Guest speakers, the faculty, and students participate in formal presentations followed by open discussions. Subjects are advertised weekly campus wide.

Office Administration
(Also See Office Occupations)

O.A. 408 3 Credits As Demand Warrants
Methods of Teaching Business Subjects (3+0)
Organization and content of high school business education courses; equipping a business education department, including selection, care, and maintenance; methods in teaching bookkeeping, typewriting, shorthand, and transcription. (Admission by arrangement. Prerequisites: 100 credits, Ed. 332 and prerequisites thereto.)

Office Occupations

O.O. 51 3 Credits Fall/Spring/Summer
Economics I (2+2)
Equips the student with an understanding of the American economy so that he can function effectively as a worker, consumer and citizen.

O.O. 52 3 Credits Fall/Spring/Summer
Economics II (2+2)
A continuation of Economics I, to equip the student with an understanding of the American economy so that he can function effectively as a worker, consumer and citizen. (Prerequisite: O.O. 051.)

O.O. 62 1 Credit Fall/Spring/Summer
Alphabetic and Subject Filing (½+1)
To acquaint the student with the need to maintain effective filing systems and procedures; to develop basic skills in organizing and filing records and correspondence in alphabetic and subject systems.

O.O. 71 1 Credit Fall/Spring/Summer
Business English (½+1)
To equip the student with the basic skill he needs in applying grammar usage, and style principles to prepare written communications that meet business standards.

O.O. 72 1 Credit Fall/Spring/Summer
Business Correspondence and Reports (½+1)
To give the student the basic knowledge and skill necessary to write effective business letters, memos, and reports of various types. (Prerequisites: Business English or the demonstration of equivalent proficiencies.)

O.O. 73 1 Credit Fall/Spring/Summer
Spelling and Vocabulary (½+1)
To equip the student with a high level of skill in spelling correctly and using general and specialized terms in office occupations.

O.O. 81 1 Credit Fall/Spring/Summer
Recordkeeping (½+1)
To provide the student with entry-level skill in the procedures for keeping financial records; to acquaint the student with the use of unit record equipment for keeping financial records; to introduce the fundamental elements of accounting.

O.O. 82 1 Credit Fall/Spring/Summer
Clerical Accounting I (½+1)
To acquaint the student with the relationship between accounting and business; to develop an understanding of the steps in the accounting cycle; to develop an understanding of the principles and procedures involved in handling cash (including petty cash).

O.O. 83 1 Credit Fall/Spring/Summer
Clerical Accounting II (½+1)
To equip the student with an understanding of accounting systems — particularly cash receipts, cash payments, purchases and sales; to develop an understanding of control procedures; to develop competence in the use of special journals and subsidiary ledgers and in preparing financial reports; to develop an understanding of the end-of-period procedures and managerial use of accounting information. (Prerequisite: Clerical Accounting I.)

O.O. 84 1 Credit Fall/Spring/Summer
Clerical Accounting III (½+1)
To develop competency in various methods of handling, paying and recording payrolls and payroll taxes; to develop an understanding of negotiable promissory notes, the computation of interest, and how both are recorded and controlled; to develop competence in the use of a combination journal and journalless and ledgerless system. (Prerequisites: Clerical Accounting I and II.)

O.O. 87 1 Credit Fall/Spring/Summer
Advanced Clerical Accounting I (½+1)
To provide the student with a sound understanding of advanced accounting principles and procedures; to prepare the student to handle the financial activities of the typical small or medium-sized business office. (Prerequisites: Clerical Accounting I, II and III.)

O.O. 88 1 Credit Fall/Spring/Summer
Advanced Clerical Accounting II (½+1)
A continuation of advanced accounting principles and procedures. (Prerequisite: Advanced Clerical Accounting I.)

O.O. 100 3 Credits Fall/Spring/Summer
Rapidwriting (2+2)
Introduces the student to the principles of Rapidwriting, to develop the student's ability to read Rapidwriting outlines; take dictation on practiced and new matter materials at 60 to 80 words a minute. (Prerequisites: O.O. 103 and O.O. 105.)

O.O. 101 4 Credits Fall/Spring/Summer
Shorthand Principles (3+2)
Introduces the student to the principles of Gregg Shorthand including the shorthand alphabet, brief forms, phrasing and other abbreviating devices; to develop the student's ability to read shorthand and to take dictation on practiced material at 60 to 80 words a minute.

O.O. 102 4 Credits Fall/Spring/Summer
Beginning Dictation and Transcription (3+2)
Develops the student's ability to construct new outlines from dictation; to develop further the student's ability to construct outlines under stress of dictation at 80 to 100 words a minute; to develop further the student's ability to spell and punctuate. (Prerequisite: O.O. 101 and O.O. 103.)

O.O. 103 1-3 Credits Fall/Spring/Summer
Typing I: Beginning Typing (0-2+2)
To provide a strong foundation on which vocational typewriting can be built: (a) correct touch operation of the typewriter; (b) a skill of not less than 35 words a minute for 3 minutes within 3 errors, on paragraph copy.

O.O. 104 1 Credit Fall/Spring/Summer
Typing Skill Building (0+2)
Typing drills to improve speed and/or accuracy in straight copy typing. May be repeated up to three times for additional credit. (Prerequisite: Beginning typing skills are a minimum requirement.)

O.O. 105 3 Credits Fall/Spring/Summer
Intermediate Typing (2+2)
To achieve at least the minimal typing skill, experience and knowledge expected of the typist crossing the threshold of office employment: (a) the ability to type 45 or more words a minute for 5 minutes within 3 errors, on paragraph material of average difficulty. (Prerequisite: O.O. 103 or demonstration of equivalent proficiencies.)

O.O. 106 3 Credits Fall/Spring/Summer
Advanced Typing (2+2)
To achieve the level of typing skill, experience, knowledge, and production output that will assure successful typing performance in a business office position: (a) the ability to type 50 or more words a minute for 5 minutes within 3 errors on production material that must be arranged as it is typed. (Prerequisite: O.O. 105 or demonstration of equivalent proficiencies.)

O.O. 107 2 Credits Fall/Spring/Summer
Employment Test (and Civil Service Test) Preparation (1+2)
To enable the student to qualify, insofar as typewriting performance and immediately related knowledge are concerned, for entrance employment as a clerk-typist, a general office clerk, a stenographer, or a secretary when measured on standard tests used for civil service and/or business employment with the ability to type 50 or more words a minute for 5 minutes within 2 errors on paragraph copy. (Prerequisite: O.O. 106 or demonstration of equivalent proficiencies.)

O.O. 108 2 Credits Fall/Spring/Summer
Data and Statistical Typing (1+2)
To enable the student to qualify for employment as a statistical typist or as an office worker whose duties include much typing of tabulated material; ability to type 50 or more words a minute for 5 minutes within 2 errors on paragraph material. (Prerequisite: O.O. 106 or demonstration of equivalent proficiencies.)

O.O. 109 3 Credits Fall/Spring/Summer
Food Service Accounting (2+2)
Specialized course in restaurant accounting which will include inventory control and methods to arrive at cost.

O.O. 125 1 Credit Fall/Spring/Summer
Magnetic Card Executive Typewriter (0+2)
To introduce the student to the principles of the MCET and power typewriting; to help the student achieve employable skills on the MCET; record and playback, copy revision, card revision, form letters. (Prerequisite: O.O. 105.)

O.O. 126 1 Credit Fall/Spring/Summer
Executive Typewriter Operation (0+2)
Introduces the student to the principles of the executive typewriter and proportional spacing; to help the student achieve employable skills on the executive typewriter in all its capacities. (Prerequisite: O.O. 103.)

O.O. 127 1 Credit Fall/Spring/Summer
Dictation Transcription Machines (0+2)
To introduce the student to the use of cassette tape dictation transcription machines, correct machine transcription techniques and correct dictating techniques. (Prerequisite: O.O. 105.)

O.O. 129 1 Credit Fall/Spring/Summer
Memory Typewriter Operation (0+2)
To provide the student with an employable skill in the IBM Memory Typewriter. This will include recording and playing back at a high production rate, making revisions in the copy, producing repetitive letters, retrieving and storing materials and recording tabular materials. (Prerequisite: O.O. 105.)

O.O. 130 1 Credit Fall/Spring/Summer
Mag Card II (0+2)
To provide the student with an employable skill on the IBM Mag Card II Typewriter. This will include typing into memory, recording out of memory, reading into memory, revising in memory and playback. (Prerequisites: O.O. 103 and O.O. 105.)

O.O. 141 1 Credit Fall/Spring/Summer
Payroll Procedures (0+2)
To acquaint the student with the concepts and procedures necessary for the keeping of payroll records, legal requirements for deductions and the tax returns and forms the employer must file.

O.O. 142 3 Credits Fall/Spring/Summer
Introduction to Accounting I (2+2)
To equip the student with a thorough knowledge of the fundamental principles and basic accounting procedures performed in a service and trading business.

O.O. 143 3 Credits Fall/Spring/Summer
Introduction to Accounting II (2+2)
Prepares the student to handle the financial activities of a typical partnership; to develop a sound understanding of departmentalized, branch, and home office accounting procedures and the accrued basis of accounting and corporate accounting. (Prerequisite: O.O. 142.)

O.O. 144 3 Credits Fall/Spring/Summer
Fundamentals of Tax Preparation (2+2)
This course is designed to provide the student with a basic knowledge of individual Federal Income Tax Returns. The course will cover the elements (filing requirements, exemptions, income determination, tax credits, depreciation, gains and losses, small businesses, partnerships) that go into preparing a tax return as well as practice in actual preparation of returns. The successful completion of this course will help the student in preparing individual returns, but "No one course in itself could possibly be sufficient for any preparer." (Internal Revenue Service.)

O.O. 145 4 Credits Fall/Spring/Summer
Electronic Data Processing (3+2)
Develops entry-level competence in business computer programming. (Prerequisite: O.O. 146.)

O.O. 146 3 Credits Fall/Spring/Summer
Fundamentals of Data Processing (2+2)
To familiarize students with data processing terminology, the basic operations, and their relationships to data processing and the various devices, equipment, and media used in data processing.

O.O. 153 3 Credits Fall/Spring/Summer
Business Law (2+2)
Provides the student with a knowledge of the legal environment in which a business operates; to give the student a knowledge of legal principles that will enhance his performance as an office worker.

O.O. 154 2 Credits Fall/Spring/Summer
Human Relations (1+2)
To enable the student to gain insights into personal behavior; to develop in the student the human relations skills needed for getting along with others in the working world.

O.O. 155 3 Credits Fall/Spring/Summer
Business English and Correspondence (2+2)
Equips the student with the basic knowledge of grammar, usage, and style and the minimum skill in writing and speaking that he must have in order to communicate effectively and appropriately in business.

O.O. 156 1 Credit Fall/Spring/Summer
Business Mathematics (½+1)
Refreshes the student's knowledge of mathematics fundamentals and develops the ability to apply these fundamentals to office occupations.

O.O. 192 0-3 Credits Fall/Spring/Summer
Seminar in Office Occupations (Competency-Based) (0+0-6)
Instruction of a workshop nature in any one or a combination of subjects encompassed in the Office Occupations Program.

O.O. 200 1 Credit Fall/Spring/Summer
Shorthand Skill Building (½+1)
Improvement of skill in taking and transcribing Gregg shorthand. Materials are individualized to the skill level of the student. May be repeated up to three times for additional credit. (Prerequisite: Beginning typing and shorthand skills are a minimum requirement.)

O.O. 201 3 Credits Fall/Spring/Summer
Speed Dictation and Transcription (2+2)
To strengthen previously learned typing and shorthand skills to improve speed and accuracy of transcription and to develop a high degree of shorthand skill (100 to 120 words a minute). (Prerequisites: O.O. 102 and O.O. 106.)

O.O. 202 3 Credits Fall/Spring/Summer
Advanced Speed Dictation and Transcription (2+2)
To develop the student's shorthand skill to the expert levels of 120 to 160 words a minute; to increase the student's transcribing speed and accuracy; to familiarize the student with the vocabulary used in executive dictation; to teach students how to report meetings and conferences. (Prerequisites: O.O. 106 and O.O. 201.)

O.O. 203 3 Credits Fall/Spring/Summer
Calculating Machines (2+2)
To provide the student with basic operating knowledge of each type of machine; to develop mastery of the use of the machines to perform such business applications as discounting, amount and percent of change, prorating interest, proficiency in the use of the machines for initial job placement.

O.O. 204 3 Credits Fall/Spring/Summer
Medical Terminology — Dictation and Transcription (2+2)
To prepare the student for a secretarial position in the medical profession; to develop the student's skill in taking dictation at speeds from 100 to 120 words a minute and transcribe it accurately. (Prerequisites: O.O. 102 and O.O. 106.)

O.O. 205 3 Credits Fall/Spring/Summer
Technical Terminology — Dictation and Transcription (2+2)
To acquaint the student with technical terms, phrases, and abbreviations peculiar to each technical field; to develop the student's ability to take dictation at speeds from 100 to 120 words a minute and transcribe accurately. (Prerequisites: O.O. 102 and O.O. 106.)

O.O. 206 3 Credits Fall/Spring/Summer
Legal Terminology — Dictation and Transcription (2+2)
To acquaint the student with legal terminology; to develop the student's ability to take legal dictation at a rate of 100 to 120 words a minute and to transcribe it accurately. (Prerequisites: O.O. 102 and O.O. 106.)

O.O. 210 2 Credits Fall/Spring/Summer
Legal Typing (1+2)
To enable the student to qualify for employment as a specialist in legal typewriting; to be able to type 50 or more words a minute for 5 minutes within 2 errors on straight copy of legal passages. (Prerequisite: O.O. 106 or the demonstration of equivalent proficiencies.)

O.O. 211 3 Credits Fall/Spring/Summer
Medical Typing (2+2)
To enable the student to qualify for employment as an office worker (particularly as a forms typist, in a hospital or medical bureau or office) or to contribute to his/her qualifications as a medical assistant or secretary with the ability to type 50 or more words a minute for 5 minutes within 2 errors on straight copy of medical report-style copy. (Prerequisite: O.O. 106 or the demonstration of equivalent.)

O.O. 212 2 Credits Fall/Spring/Summer
Technical and Scientific Typing (1+2)
To enable the student to acquire the typewriting skills needed for employment as a secretary or a clerk in science-oriented offices with the ability to type 50 words or more a minute for 5 minutes within 2 errors on straight copy of scientific narrative. (Prerequisite: O.O. 106 or the demonstration of equivalent proficiencies.)

O.O. 213 3 Credits Fall/Spring/Summer
Professional Typing (2+2)
To enable the student to acquire and demonstrate the typewriting skill and judgement expected of an assistant to an office executive with the ability to type 50 or more words a minute for 5 minutes, with all errors corrected, on straight copy of office-administration narrative. (Prerequisite: O.O. 106 or the demonstration of equivalent proficiencies.)

O.O. 221 2 Credits Fall/Spring/Summer
Indexing, Filing and Records Management (1+2)
To acquaint students with the methods and procedures of maintaining business records of various types; to develop basic skill in implementing those methods and procedures in various practice situations.

O.O. 231 2 Credits Fall/Spring/Summer
Accounting Practice I (1+2)
To provide the student with a thorough understanding of more sophisticated accounting concepts dealing with assets and liabilities; to provide a sound understanding of corporate stock transactions. (Prerequisite: O.O. 143 or approval of the instructor.)

O.O. 232 4 Credits Fall/Spring/Summer
Accounting Practice II (3+2)
To provide the student with a thorough understanding of more sophisticated accounting concepts such as consignments, risk protection, deferred items, and fiduciary activities; to provide a sound understanding of financial activities of partnerships and mergers. (Prerequisites: O.O. 231 or approval of instructor.)

O.O. 241 3 Credits Fall/Spring/Summer
Administrative Secretarial Office Procedures (2+2)
To prepare students to analyze long-range projects, determine objectives and priorities, set up schedules, research information, and perform a wide range of secretarial responsibilities in executing the projects. (Prerequisites: O.O. 105 and O.O. 201.)

O.O. 242 3 Credits Fall/Spring/Summer
General Office Procedures (2+2)
To acquaint the student with the office world, the opportunities available to clerical workers and the general qualifications required for office work. (Prerequisite: O.O. 105.)

O.O. 243 3 Credits Fall/Spring/Summer
Legal Office Procedures (2+2)
To prepare students to handle legal dictation and transcription; maintain legal calendars, set up legal files and business records, and execute and follow through on legal forms and procedures relating to a wide variety of actions; to handle research assignments and other special duties involved in legal procedures. (Prerequisite: O.O. 105 and O.O. 201.)

O.O. 244 3 Credits Fall/Spring/Summer
Secretarial Office Procedures (2+2)
To equip the student with a knowledge of procedures and with the basic attitudes and skills (other than shorthand and typing) required of a secretary or stenographer in any type of office; to acquaint the student with the range of opportunities for secretarial advancement and help her/him prepare for job hunting. (Prerequisites: O.O. 105 and O.O. 201.)

O.O. 245 3 Credits Fall/Spring/Summer
Medical Office Procedures (2+2)
To prepare students to handle medical dictation and transcription, establish and maintain medical records for patients, maintain the doctor's appointment schedules, handle business and financial records. (Prerequisites: O.O. 105 and O.O. 201.)

O.O. 252 3 Credits Fall/Spring/Summer
Card-Punch Machine Operation (2+2)
To provide minimum skill for entry-level jobs as card-punch operators, to provide job information; to develop an understanding of how the punched card is used in accounting applications (Prerequisite: O.O. 103.)

O.O. 281 Variable (1-9) Credits Fall/Spring/Summer
Simulation and Projects
To provide the student with a culminating experience that permits him/her to apply in a fully integrated fashion the skill and knowledge required by a specific job. (Prerequisites: Instructor's permission and 12 credits *minimum* in Office Occupations.)

O.O. 282 3 Credits Fall/Spring/Summer
Cooperative Office Occupational Experience (2+2)
To provide for the student a culminating experience by providing a job opportunity for him to relate the knowledge learned in the classroom to the real world. (Prerequisites: Instructor's permission and 12 credits *minimum* in Office Occupations.)

Personal Finances and Investments

PFI 086 1 Credit Fall
Personal/Family Money Management (1+0)
A practical course dealing with the problems and opportunities which arise during the family financial cycle (earning income, the need for borrowing, acquired earning, consumer assets, planning retirement, and estate planning). Topics include insurance, consumer credit, budgeting, investment securities, checkbook balancing and interest computation.

Petroleum — See Mineral Engineering

Philosophy

Phil. 201 3 Credits Fall and Spring
Introduction to Philosophy (3+0)
Terms, concepts, and problems as reflected in writings of great philosophers. (Prerequisites: sophomore standing or permission of the instructor.)

Phil. 202 3 Credits Spring
Introduction to Eastern Philosophy (3+0)
Basic assumptions, problems and conclusions of the major philosophical traditions of the Far East. (Prerequisite: Phil. 201 or permission of the instructor.)

Phil. 204 3 Credits Spring
Introduction to Logic (3+0)
Principles of deductive and inductive logic, application of these laws in science and other fields; brief introduction to symbolic

logic and its application. (Prerequisite: sophomore standing.)

Phil. 320 3 Credits Alternate Fall
Axiology (3+0)
The nature of value theory, its history and its place in the contemporary world, the ideas and implications of subjectivity and objectivity in the sciences and humanities. (Next offered: 1979-80.)

Phil. 341 3 Credits Alternate Fall
Epistemology (3+0)
The nature of knowledge, truth and certainty. (Prerequisite: Phil. 201. Next offered: 1980-81.)

Phil. 342 3 Credits Alternate Spring
Metaphysics (3+0)
The nature of reality comprising both ontology and cosmology. (Prerequisite: Phil. 201. Next offered: 1980-81.)

Phil. 351 3 Credits Fall
History of Philosophy and Science (3+0)
Ancient and medieval periods. (Prerequisite: six credits in philosophy or social science.)

Phil. 352 3 Credits Spring
History of Philosophy and Science (3+0)
Renaissance, modern and recent periods. (Prerequisite: Six credits in philosophy or social science.)

Phil. 471 3 Credits Alternate Fall
Contemporary Philosophical Problems (3+0)
Ideological issues facing the modern world. (Prerequisite: Nine credits in philosophy or permission of the instructor. Next offered: 1980-81.)

Phil. 481 3 Credits Alternate Spring
Philosophy of Science (3+0)
Comparison and discussion of various contemporary methodological positions. (Prerequisite: Junior standing. Next offered: 1980-81.)

Phil. 482 3 Credits Alternate Fall
Comparative Religion (3+0)
Seven world faiths represent answers to questions of man's duty, his destiny and his nature. (Prerequisite: permission of the instructor. Next offered: 1979-80.)

Phil. 483 3 Credits Alternate Spring
Philosophy of Social Science (3+0)
Comparison and anlysis of various contemporary methodological positions in the social sciences. (Prerequisite: Junior standing. Next offered: 1979-80.)

Phil. 484 3 Credits Alternate Spring
Philosophy of History (3+0)
Critical examination of the nature of history and historical inquiry. (Prerequisite: Nine credits in philosophy or social science. Next offered: 1979-80.)

Photography – See Journalism and Broadcasting

Physical Education

P.E. 100 1 Credit Fall and Spring
Physical Activities and Instruction (0+3)
Instruction, practice and activity in a variety of physical activities, sports and dance in separate sections.

P.E. 105 1 Credit Fall and Spring
Progressions in Tumbling and Floor Exercise (0+3)
Tumbling as a safety skill and as a coordination skill, followed by progressive development into the competitive events of floor exercise and horse vaulting for men and women. Course is recommended but not required for Apparatus Gymnastics.

P.E. 109 1 Credit Fall and Spring
Fundamentals of Swimming and Water Safety (0+3)
Basic swimming skills for personal safety, recreation, and fitness training; basic principles and practice of water safety and rescue procedures.

P.E. 201 2 Credits Fall and Spring
Concepts and Activities in Physical Fitness (1+3)
Development of knowledge of the problems, methods of achievement, and maintenance of physical fitness in the modern world; assessment of personal fitness status, participation in selected fitness activities, and acquisition of skills in basic physical fitness activity.

P.E. 208 2 Credits Fall
Advanced Life Saving (1+3)
American Red Cross course, successful completion leading to certification by A.R.C. in Advanced Life Saving. (Prerequisite: Advanced swimming ability.)

P.E. 246 2 Credits Fall and Spring
Advanced First Aid (1+2)
Knowledge and skills necessary to provide efficient aid and treatment in emergencies. Progresses through the Basic, Standard, and Advanced First Aid packages of the American Red Cross. Successful completion of requirements leads to certification by the American Red Cross in Advanced First Aid.

P.E. 301 2 Credits Alternate 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. (Next offered: 1980-81.)

P.E. 304 2 Credits Alternate Spring
Techniques in Winter Sports (1+3)
Techniques for teaching, coaching and administering ice and snow sports, including cross-country skiing, alpine skiing, skating and curling. (Next offered: 1979-80.)

P.E. 307 2 Credits Alternate Fall
Techniques in Camping and Outdoor Recreation (1+3)
Techniques for participating in, and for teaching the knowledge and skills of camping and related outdoor recreation activities, including hiking, map and compass skills, orienteering, backpacking, ski touring, and survival. (Prerequisites: Permission of instructor. Next offered: 1980-81.)

P.E. 309 2 Credits Spring
Aquatic Instructor (1+3)
Completion of course satisfies requirements for American Red Cross certification in Basic Rescue and Water Safety, and certification as a Basic Swim Instructor (BSI) or Water Safety Instructor (WSI). (Prerequisites: P.E. 109 or permission of instructor.)

P.E. 310 2 Credits Alternate Spring
Techniques in Rhythms and Dance (1+3)
Techniques for teaching rhythms and dance, and for organizing recreation and educational dance groups. Next offered: 1980-81.)

P.E. 311 3 Credits Alternate Fall
Sport and Physical Activity in American Society (3+0)
Role of sport and physical activity in society from ancient to contemporary times; development of school programs; overview of scientific bases for physical performance; vocational opportunities in related fields; current issues in sport and physical education. (Next offered: 1980-81.)

P.E. 318 3 Credits Alternate Spring
Motor Development and Learning (3+0)
Motor skill and behavior development from prenatal life, infancy, early childhood, later childhood, adolescence, adulthood, and through old age; issues, programs, applications, curricula, and evaluation of motor development. Differences in motor development and motor learning according to sex, body type, age, and other individual differences. Principles of motor skills learning processes related to performance, and teaching models. Content intended for use by anyone involved in the care, growth, development, education, or recreation of children or adults. (Prerequisites: PSY 101 or permission of instructor. Next offered: 1979-80.)

P.E. 327 2 Credits Alternate Fall
Movement Activities for Children (1+2)
A practical background of sports, games, and fundamental movement activities appropriate for the child in the environment of the home, playground, or elementary school classroom or gymnasium. For parents, teachers, or others who work with children up to age 12. Course includes progressions in activities and participation in selected activities. (Prerequisites: Junior standing. Next offered: 1980-81.)

P.E. 328 2 Credits Alternate Fall
Physical Activities for Adolescents (1+2)
Sports, games, and physical activities appropriate for the needs of adolescent boys and girls and for the secondary physical education program. Lead-up activities, progressions, appropriate performance objectives, fundamental skills and knowledge of a variety of activities most likely to be included in secondary school physical education. (Prerequisites: Junior standing. Next offered: 1979-80.)

P.E. 400 2 Credits Alternate Fall
Judging and Coaching Gymnastics
Techniques for teaching, coaching, judging, and administering men's and women's gymnastics, including apparatus, tumbling, and floor exercise. (Next offered: 1979-80.)

P.E. 406 3 Credits Alternate Fall
Methods of Teaching Physical Education (3+0)
Philosophy, curriculum development, methods for facilitating learning and controlling behavior, measurement and evaluation, observations, and teaching laboratories in elementary and secondary school physical education. (Next offered: 1979-80.)

P.E. 408 2 Credits Alternate Spring
Aquatics Program Management (2+0)
Aquatic program planning and implementation; competitive swim team coaching and administration; management of swimming pools. (Next offered: 1980-81.)

P.E. 412 3 Credits Alternate Fall
Principles and Problems in Athletic Coaching (3+0)
Philosophy and objectives of athletic competition at various age levels; the roles and responsibilities of the athletic coach; problems of athletic coaching and management of athletes and their training. Content appropriate for those who plan to take leadership or coaching roles in any athletic programs, in schools or in community recreation. (Prerequisites: Junior standing. Next offered: 1980-81.)

P.E. 421 3 Credits Alternate Fall
Physiology of Exercise (2+3)
Physiological adaptations of the human body to muscular activity in exercise and sports; practical applications of physiological principles to training programs for fitness, competitive sports, and physical education. (Prerequisite: Biol. 210 or permission of instructor. Next offered: 1980-81.)

P.E. 425 3 Credits Alternate Fall
Administration in Physical Education and Athletics (3+0)
Principles and problems of planning, organizing, directing, and evaluating school programs in physical education, intramural sports, and interschool athletics. (Next offered: 1979-80.)

P.E. 432 3 Credits Alternate Fall
Biomechanics of Physical Performance (3+0)
Mechanical and muscular analysis of human movement patterns, especially in sport and physical education; anatomical concepts and physical laws applied to joint and muscular action. (Prerequisite: Biol. 201 or permission of instructor. Next offered: 1979-80.)

P.E. 437 3 Credits Alternate Spring
Adapted Programs of Physical Activity (3+0)
Theory and practical guidelines for developing adapted movement activities and programs for persons who are impaired, disabled, or handicapped; "mainstreaming" such individuals in to regular programs in physical education and recreation. (Prerequisites: PSY 101 or permission of instructor. Next offered: 1980-81.)

P.E. 440 3 Credits Alternate Spring
Prevention and Care of Athletic Injuries (3+0)
Prevention and care of injuries related to participation in sports and physical activity; theory and practice in taping and bandaging for preventive and rehabilitative purposes; techniques in pre-activity and post-injury conditioning; equipment safety. (Prerequisite: Biol. 201 or permission of instructor. Next offered: 1980-81.)

Physics

Phys. 103 4 Credits Fall
Phys. 104 4 Credits Spring
College Physics (3+3)
Unified classical and modern physics. (Prerequisite: high school algebra and geometry.)

Phys. 201 3 Credits Fall
Phys. 202 3 Credits Spring
Physical Science for Education Majors(3+0)
Preparation of education majors for teaching physical science concepts and the use of science materials (primarily grades one through six) that are presently being introduced in the Alaskan school systems. Subjects covered are astronomy, chemistry and physics.

Phys. 211 4 Credits Fall and Spring
Phys. 212 4 Credits Fall and Spring
General Physics (3+3)
Classical and modern physics using calculus and requiring at least concurrent registration in Math. 201. Intended for majors in mathematics, physical sciences, and engineering.

Phys. 275 3 Credits Alternate Fall
Phys. 276 3 Credits Alternate Spring
Astronomy (3+0)
Science elective for the general student. Fall semester: The solar system, laws of motion, nature of radiation, astronomical instruments, the earth, the moon, planets, comets and meteors, cosmogony. Spring semester: Stellar astronomy, physical properties and distribution of stars, interstellar matter, evolution of stars, galactic structure and cosmology. Evening demonstrations both semesters. (Prerequisite: sophomore standing; high school algebra and trigonometry; Physics 275 or Physics 276 or with permission of instructor. Next offered: 1979-80.)

Phys. 311 4 Credits Alternate Fall
Mechanics I (4+0)
Newtonian mechanics, motion of systems of particles, rigid body statics, moving and accelerated coorindate systems, and introduction to Lagrangian mechanics. (Next offered: 1979-80.)

Phys. 312 4 Credits Alternate Spring
Mechanics II (4+0)
Mechanics of deformable media, wave motion; acoustics, introduction to tensors, rigid body dynamics, and theory of small vibrations. (Next offered: 1979-80.)

Phys. 313 4 Credits Alternate Fall
Thermodynamics and Statistical Physics (4+0)
Thermodynamic systems, equations of state, the laws of thermodynamics, changes of phase, thermodynamics of reactions, kinetic theory, and introduction to statistical mechanics. (Next offered: 1980-81.)

Phys. 331 3 Credits Fall
Phys. 332 3 Credits Spring
Electricity and Magnetism (3+0)
Electrostatics, dielectrics, magnetostatics, magnetic materials, electromagnetism. Maxwell's equations, electromagnetic waves, radiation, physical optics and selected topics from electronics. (Prerequisites: Phys. 212 and Math. 202.)

Phys. 381 2 Credits — Alternate Fall
Phys. 382 2 Credits — Alternate Spring
Physics Laboratory (0+6)
Laboratory experiments in classical and modern physics. (Prerequisites: permission of the instructor. Next offered: 1980-81.)

Phys. 411 4 Credits — Alternate Fall
Phys. 412 4 Credits — Alternate Spring
Modern Physics (4+0)
Relativity, elementary particles, quantum theory, atomic and molecular physics, x-rays, and nuclear physics. (Prerequisites: Phys. 212 and Math. 302 or permission of the instructor. Next offered: 1979-80.)

Phys. 445 3 Credits — Alternate Spring
Solid State Physics and Physical Electronics (3+0)
Theory of matter in the solid state and the interaction of matter with particles and waves. (Prerequisites: Phys. 212, Math. 302 and 314; or permission of the instructor. Next offered: 1980-81.)

Phys. 611 3 Credits — Alternate Fall
Phys. 612 3 Credits — Alternate Spring
Mathematical Physics (3+0)
(Same as Math. 611-612)
Advanced consideration of such topics as transform methods, asymptotic methods, Green's function, Sturm-Liouville Theory, conformal mapping, and calculus of variations with applications to problems arising in physics. (Prerequisites: Math. 422 and permission of the instructor. Next offered: 1979-80.)

Phys. 621 3 Credits — Alternate Fall
Classical Mechanics (3+0)
Lagrange's equations, two-body problem, rigid body motion, special relativity, canonical equations, transformation theory and Hamilton-Jacobi method. (Admission by arrangement. Next offered: 1980-81)

Phys. 622 3 Credits — Alternate Spring
Statistical Mechanics (3+0)
Classical and quantum statistics of independent particles, ensemble theory, and applications. (Admission by arrangement. Next offered: 1980-81.)

Phys. 626 3 Credits — As Demand Warrants
Magnetohydrodynamics and Plasma Physics (3+0)
Fundamental equations of magnetohydrodynamics and magnetohydrodynamic waves. Invariants of the motion of a charged particle in a magnetic field. Dynamics of a plasma and plasma waves. (Admission by arrangement.)

Phys. 627 3 Credits — As Demand Warrants
Plasma Physics (3+0)
Wave propagation in hot, homogeneous plasmas; loss cone instabilities; advanced particle orbit theory; wave phenomena and instabilities in inhomogeneous plasmas with complex geometries including drift and flute modes; quasi-linear theory and plasma disturbance. (Admission by arrangement.)

Phys. 631 3 Credits — Alternate Fall
Phys. 632 3 Credits — Alternate Spring
Electromagnetic Theory (3+0)
Electrostatics, magnetostatics, Maxwell's equations, and potentials. Lorentz equations, field energy, gauge conditions, retarded potentials, waves, radiation, tensor formulations, and non-Maxwellian electrodynamics. (Admission by arrangement. Next offered: 1980-81.)

Phys. 651 3 Credits — Alternate Fall
Phys. 652 3 Credits — Alternate Spring
Quantum Mechanics (3+0)
Schrodinger's equations, operator formalism, correspondence principle, central force problems, perturbation theory, quantum-statistical mechanics and applications of quantum mechanics to collision problems, radiation and spectroscopy. (Admission by arrangement. Next offered: 1980-81.)

Phys. 677 Credits Arr. — As Demand Warrants
Phys. 678 Credits Arr. — As Demand Warrants
Atomic and Molecular Processes
Selected topics in collision theory, radiation theory, atomic and molecular structure and reactions, and experimental techniques of atomic and molecular physics. (Admission by arrangement).

Political Science

P.S. 101 3 Credits — Fall and Spring
P.S. 102 3 Credits — As Demand Warrants
Introduction to American Government and Politics (3+0)
Survey of American government, political processes, and contemporary issues, focusing on national institutions. Distribution and uses of power and the role of political values and beliefs. The constitution and federalism; interest groups, parties, and elections; Congress, the Executive, and the courts.

P.S. 201 3 Credits — Fall
Comparative Politics: Methods of Political Analysis (3+0)
Modern methods of analyzing political behavior and processes on a cross-national basis; emphasis is placed on the roles of executive, legislative and judicial systems, political parties and pressure groups, and current concepts of political development. Special application is made to European countries.

P.S. 202 3 Credits — Spring
Comparative Politics: Contemporary Doctrines and Structures (3+0)
Conflicting approaches to the solution of social and political problems are reviewed with particular emphasis on nations employing various forms of communism, socialism, Fascism, or contemporary concepts of "tutelary" or "controlled" democracy.

P.S. 211 3 Credits — Fall or Spring
State and Local Government (3+0)
Organization and politics of state and local government in the United States; the Alaska constitution; problems of statehood in Alaska.

P.S. 212 3 Credits — As Demand Warrants
Public Administration in the Political Process (3+0)
Techniques and problems of administering public policy. The changing role of the executive branch in the political process. (Prerequisite: P.S. 101 recommended.)

P.S. 263 3 Credits — Fall
Alaska Native Politics (3+0)
An introduction to the political development, organization, interests and activities of Alaska Natives; treatment of the history of white-Native contact, the evolution of Native leadership, village and regional government, and the role of Native brotherhoods culminating in the Alaska Federation of Natives.

P.S. 315 3 Credits — Fall
The American Political Tradition (3+0)
The origin, nature and development of basic ideas that constitute the mainstream of the American political tradition. Debates of the constitutional Convention; nature of the Union; the Progressive movement. Present trends in American political thought. Effects of legislative and judicial decisions. (Prerequisites: History 131-132 strongly recommended.)

P.S. 321 3 Credits — Fall
P.S. 322 3 Credits — Spring
International Politics (3+0)
Introduction to the international political process; an appraisal of the nation-state, the evolution of the international system, and the dynamics of foreign policy formation; a survey of international relations theory, including classical, geopolitical and behavioral approaches. Second semester continuation with special attention to international law and organization, international political integration, and arms control and disarmament.

P.S. 401 3 Credits — Fall
Political Behavior I: Macro-level (3+0)
Behavior of organizations and groups in the political process; analysis of political parties, labor unions, business and ethnic associations; leadership and change of organization, formation of coalitions, bargaining and violence. (Prerequisites: P.S. 101-102.)

P.S. 402 3 Credits — Spring
Political Behavior II: Micro-level (3+0)
Behavior of individuals: examination of the learning and transmission of political attitudes, beliefs and values; study of voting behavior and public opinion. Optional class research project in political socialization. (Prerequisites: P.S. 101-102.)

P.S. 411 3 Credits Fall
Political Theory I: Classical (3+0)
Analysis of the political thought of ancient, classical and medieval theorists, focusing on works of Plato, Aristotle, Cicero, Augustin and Aquinas.

P.S. 412 3 Credits Spring
Political Theory II: Modern (3+0)
Discussion and critical analysis of the political-social theories of Machiavelli, Hobbes, Locke, Rousseau, Tocqueville, Hegel, Marx and Lenin.

P.S. 415 3 Credits As Demand Warrants
Political Theory III: Contemporary (3+0)
Analysis of the works of major contemporary theorists concerning the topics power, authority, liberty, equality, justice, rights, revolution and obligation.

P.S. 435 3 Credits Fall
Introduction to Constitutional Law (3+0)
Growth and development of the United States Constitution as reflected in decisions of the Supreme Court. Federal system; executive legislative and judicial powers; nature of the judicial process; regulation of commerce, taxation. (Prerequisite: P.S. 101.)

P.S. 436 3 Credits Spring
The Courts and Civil Liberties (3+0)
Origin and development of civil and political liberties; responsibility of the branches of government and the people for their maintenance. Cases and literature bearing on protection of constitutionally guaranteed rights with particular reference to the period since 1937. (Prerequisite: P.S. 101.)

P.S. 475 3 Credits Fall and Spring
Internship in Public Affairs (3+0)
Designed to give carefully selected undergraduates and/or graduates the opportunity to do practical and meaningful work with governmental agencies or civil action groups. Admission by permission of the instructor.

P.S. 480 3 Credits Fall
The United Nations and International Administration (3+0)
A course designed to acquaint the student with the history, organization functions and procedures of the U.N. and to prepare the student for participation in the 1977 Model United Nations of the Far West and for possible employment by the U.N. after graduation. The course also acquaints the student with International Administration, i.e. policies and procedures essential to maintain efficiency and morale in a staff recruited from the four quarters of the globe. (Prerequisites: Permission of the instructor.)

Psychology

Psy. 101 3 Credits Fall and Spring
Introduction to Psychology (3+0)
Fundamentals and basic principles of general psychology emphasizing both the natural science orientation and the social science orientation including the environment, heredity, and psychological basis for integrated behavior; visual perception and its sensory basis; audition and the other senses; motivation and emotion; basic processes in learning, problem solving, and thinking; personality; psychological disorders; and the prevention, treatment, and therapeutic strategies.

Psy. 102 3 Credits Spring
Advanced General Psychology (3+0)
The theory and methods of psychology including the scope and limitations of the science. Major emphasis in the areas of experimental, statistical, physiological, clinical, and social analysis of behavior. (Prerequisite: Psy. 101.)

Psy. 240 3 Credits Alternate Fall
Developmental Psychology (3+0)
An intradisciplinary approach to the study of the psychology of development in the human species from birth to death. Emphasis will focus on critical stages of development particularly those stages which involve the greatest change biologically and psychologically especially where related to the greatest psychological impact. (Prerequisites: Psy. 101. Next offered: 1979-80.)

Psy. 250 3 Credits Spring
Introductory Statistics for Behavioral Sciences (3+0)
(Same as Soc. 251)
Introduction to the purposes and procedures of statistics; calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means. (Prerequisite: Psy. 101.)

Psy. 260 3 Credits Spring
Experimental Psychology (2+3)
Introduction to the field of experimental psychology. Emphasis will be placed upon research methods and techniques which are important in experimental psychology. Students will conduct experiments involving human and animal subjects. (Prerequisites: Psy. 101 and Psy. 250. Psy. 250 and Psy. 260 may be taken concurrently.)

Psy. 320 3 Credits Alternate Fall
History and Systems of Psychology (3+0)
An introduction to the history of psychology, followed by a survey of recent approaches to psychology from psychoanalysis to behaviorism and ethology. The theoretical and historical relationships among the various approaches will be explored. (Prerequisites: Psy. 101. Next offered: 1979-80.)

Psy. 330 3 Credits Alternate Spring
Social Psychology (3+0)
(Same as Soc. 302)
An analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and the various aspects of collective behavior on group and person. (Prerequisites: Psy. 101 or Soc. 101 or Junior Standing. Next offered: 1980-81.)

Psy. 340 3 Credits Fall
Abnormal Psychology (3+0)
Abnormalities of human behavior. (Prerequisites: Psy. 101.)

Psy. 350 3 Credits Spring
Comparative Psychology (3+0)
An integrated multidisciplinary behavioral approach to the study of comparative psychology emphasizing the basic premises, causal factors, functional consequences and interrelationships, and synthesis of animal behavior and ethology in the development and maintenance of behavioral patterns extant within both individual organisms and social groups. (Prerequisites: Biol. 107, Psy. 101, or permission of instructor.)

Psy. 360 3 Credits Alternate Fall
Psychological Tests and Measurements (3+0)
Standardized psychological tests in various applied areas; administration, scoring, and interpretation of established tests. (Prerequisites: Psy. 101, 250. Next offered: 1980-81.)

Psy. 370 3 Credits Alternate Fall
Drugs and Drug Dependence (3+0)
(Same as Soc. 370.)
A multidisciplinary approach to the study of drugs and drug abuse emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological aspects of drug abuse, psychological and sociological causes and manifestations of drug abuse, recommended drug education alternatives and plans, and the treatment and rehabilitation of acute and chronic drug users. (Prerequisites: Biol. 107 or Psy. 101 or Soc. 101 or permission of instructor. Next offered: 1980-81.)

Psy. 380 3 Credits Alternate Fall
Human Behavior in the Arctic (3+0)
A study of human behavior as it relates to cold climates. Emphasis will be placed on living systems in Alaska, and behavioral characteristics that have to do with stress and isolation. Material will include structural design as related to behavioral research. (Prerequisites: Psy. 101. Next offered: 1980-81.)

Psy. 410 3 Credits Alternate Spring
Theories of Personality (3+0)
Current psychological theories, with a critical examination of the different approaches used in theory construction. (Prerequisites: Psy. 101. Next offered: 1980-81.)

Psy. 420 3 Credits Alternate Fall
Motivation (3+0)
Survey of theory and research on reinforcement, punishment, frustration, preference, instinctual mechanisms, and other factors "controlling" the performance of organisms. (Prerequisites: Psy. 101. Next offered: 1979-80.)

Psy. 430 3 Credits Spring
Clinical Psychology (3+0)
Elementary course in methods of clinical psychology with consideration of psychological assessment and psychological approaches to treatment. (Prerequisite: Psy. 101.)

Psy. 440 3 Credits Alternate Spring
Learning (3+0)
Survey of theory and research on the fundamentals of learning. Topics to be covered include: animal learning, classical conditioning, instrumental learning, discrimination learning, biological constraints on learning, and memory. (Prerequisites: Psy. 101. Next offered: 1980-81.)

Psy. 450 3 Credits Alternate Spring
Human Memory and Language (3+0)
Survey of theory and research in the general areas of human memory and the psychology of language. Topics to be covered include: human learning, memory, cognitive processes, verbal learning, psycholinguistics, and language learning. (Prerequisites: Psy. 101. Next offered: 1979-80.)

Psy. 460 4 Credits Alternate Fall
Physiological Psychology (3+3)
An integrated multidisciplinary approach to the study of physiological psychology – neuroanatomy and neurophysiology – emphasizing the basic principles, cortical and subcortical organization, functional mechanisms, and the physical-chemical foundations extant in the physiological bases of behavior, with special reference to such disciplines as neuroanatomy, neurochemistry, electrophysiological measures employed in the study of behavior and brain activity, research methods and techniques, and extensive exploration into areas of current research interest, including brain dynamics, the neural bases of learning, the neural substrates of emotion and motivation, states of consciousness, and stress and psychosomatic relationships. (Prerequisites: Biol. 107, Psy. 101, or permission of instructor. Next offered: 1979-80.)

Psy. 470 3 Credits Alternate Fall
Sensation and Perception (3+0)
An integrated psychophysiological inquiry into the study of sensation and perception emphasizing the essential principles, functions and organization, fundamental mechanisms, and the structural complexity extant in the sensory physiology of the special sensory processes – audition, gustation, kinethesis, olfaction, proprioception, somesthesis, and vision – as well as an examination of the theoretical models and systems of perception with special reference to the biological, developmental, hereditary, physiological, psychological, and social effects on the interpretation of perceptual and sensory phenomena. (Prerequisites: Biol. 107, Psy. 101, or permission of instructor. Next offered: 1980-81.)

Psy. 480 3 Credits Alternate Spring
Clinical Neurology (3+0)
A multidisciplinary survey approach to the study of clinical neurology, with emphasis on clinical diagnosis, pathogenesis, and particularly, treatment of the myriad neurological disorders which comprise about 60% of the complaints of patients visiting the physician's office. An evaluation of treatments. (Prerequisites: Biol. 107, Psy. 101, or permission of instructor; Psy. 460: Physiological Psychology is recommended, but not required. Next offered: 1979-80.)

Russian

Russ. 101 5 Credits Fall
Russ. 102 5 Credits Spring
Elementary Russian (5+0)
Development of the four skills (listening comprehension, speaking, reading, and writing) with emphasis on oral work, practice in the language laboratory, basic grammar, and vocabulary.

Russ. 201 4 Credits Fall
Russ. 202 4 Credits Spring
Intermediate Russian (4+0)
Continuation of Russ. 102. Increasing emphasis on reading ability and cultural materials. Conducted in Russian. (Prerequisite: Russ. 102 or two years of high school Russian.)

Russ. 288 2 Credits Alternate Spring
Individual Study: Reading Russian
Emphasis on expanding passive vocabulary and recognizing basic grammatical structures; modern Soviet texts. (Prerequisites: Russ. 201, equivalent training or permission of instructor. Recommended to be taken concurrently with Russ. 202. Next offered: 1979-80.)

Russ. 301 3 Credits Alternate Fall
Russ. 302 3 Credits Alternate Spring
Advanced Russian (3+0)
Discussions and essays on more difficult subjects or texts; translations, stylistic exercises, special grammatical problems; systematic vocabulary building. Conducted in Russian. (Prerequisite: Russ. 202 or instructor's permission. Next offered: 1980-81.)

Russ. 322 3 or 4 Credits Alternate Fall and Spring
Studies in Russian Literature in English Translation (3+0 or 3+0+1)
Choice of authors, genres, or periods of Russian literature for intensive study. Conducted in English. For interested students with a knowledge of Russian, an extra unit of credit will be offered; students will be required to read works in Russian; weekly meetings will be scheduled to discuss (in Russian) the linguistic and stylistic aspects of the works covered in the lectures. Courses may be repeated for credit when topic varies. (Next offered: 1979-80.)

Russ. 387 2 Credits Alternate Fall
Individual Study: Semantics
Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. (Next offered: 1979-80.)

Sociology

Soc. 101 3 Credits Fall and Spring
Soc. 102 3 Credits Fall and Spring
Introduction to Sociology (3+0)
An introduction to the science of man as a social animal, emphasizing the social processes which give rise to and shape man's language, experiences, perception, meaning and behavior. An attempt is made to construct an interaction framework to be used in understanding and predicting human behavior. (Prerequisite: Soc. 101 for Soc. 102.)

Soc. 103 3 Credits Fall
Introduction to Social Work (3+0)
Introduction to the profession of social work and the social service delivery system. Examines the historical development of social work with emphasis on the knowledge, values and skills utilized by the social worker. Designed to help the student test social work as a possible career choice. (Prerequisites: Psy. 101 and Soc. 101.)

Soc. 201 3 Credits Fall
Social Problems (3+0)
Problems of contemporary society; analysis of factors giving rise to them.

Soc. 242 3 Credits Spring
The Family (3+0)
A study of the contemporary patterns of marriage and family relationships in the U.S.A. Social psychological approach to fac-

tors associated with the life cycle of the family, including mate selection, marital interaction and adjustment, parent-child relationships, and the later years of married life.

Soc. 251 3 Credits Spring
Introductory Statics for Behavioral Sciences (3+0)
(Same as Psy. 250.)
Introduction to the purposes and procedures of statistics; calculating methods for the description of groups (data reduction) and for simple inferences about groups and differences between group means. (Prerequisite: Soc. 101.)

Soc. 302 3 Credits Spring
Social Psychology (3+0)
(Same as Psy. 330.)
An analysis of inter-group relationships in terms of process and value orientation, their influences on the personality, and the various aspects of collective behavior on group and person. (Prerequisites: Soc. 101, 102.)

Soc. 304 3 Credits Fall
Culture and Personality (3+0)
An examination of cultural value systems and social institutions as they bear on the formation of personality. Types of behavior patterns relevant to personality formation. (Prerequisites: Soc. 101, 102.)

Soc. 305 3 Credits Fall
Social Welfare (3+0)
The how and why of the emergence of social welfare as a basic institution in contemporary society; the roots and current dynamics of poverty, inequality and insecurity in America. Analysis of the structure and functioning of social welfare policies and programs. (Prerequisites: Soc. 103 or consent of instructor.)

Soc. 306 3 Credits Spring
Social Welfare: Policies and Issues (3+0)
Social policies and how they effect the delivery of social services. Factors that have influenced the development of the current social service system and its place in the total social structure. Analysis of the dilemmas which develop in a welfare system attempting to deal with rapid social change. Exploration of alternative approaches to the solution of social problems and possible future developments in the social service system. (Prerequisite: Soc. 305.)

Soc. 307 3 Credits Spring
Population Problems (3+0)
The demographic structure of population and its implications, with a section on Alaska population dynamics.

Soc. 309 3 Credits Alternate Fall
Urban Sociology (3+0)
Growth and development of urban communities with reference to migration patterns, differentiation of functions, ecological patterns of land use, social control, secondary group associations of metropolitan magnitude. (Prerequisites: Soc. 101, 102. Next offered: 1980-81.)

Soc. 310 3 Credits Alternate Spring
Sociology of Later Life (3+0)
A comparative analysis of the social status and role of the aging in various societies with emphasis on problems of aging in contemporary U.S. (Prerequisites: Soc. 101 and 102. Next offered: 1980-81.)

Soc. 342 3 Credits Fall
Human Behavior in the Social Environment (3+0)
This course presents theoretical frameworks considered useful for organizing knowledge about the understanding of personality development and social behavior of individuals. The course will encompass the study of the life cycle, including the processes that shape individual differences. (Prerequisites: Soc. 103 and 305 or instructor's consent.)

Soc. 343 3 Credits Fall
Sociology of Deviant Behavior (3+0)
A study of the social etiology of deviant behavior, both criminal and noncriminal with an emphasis on the nature of group interaction, and an examination of the institutions involved. (Prerequisites: Soc. 101, 102.)

Soc. 347 3 Credits Alternate Fall
Sociology of Religion (3+0)
The study of the historical development and functional significance of religion, values, and norms of institutions, groups and reform movements and their influence on social organization. (Prerequisites: Soc. 101, 102. Next offered: 1979-80.)

Soc. 361 6 Credits Spring
Intermediate Social Work Methods and Practice I
Intermediate social work methods. Knowledge and skills previously learned applied to student's own practice within the agency setting. Focus on worker's tasks in assessing the problems, negotiating contracts, planning and implementing interventions, evaluating effects and terminating efforts. Beginning application of knowledge gained about individual and group behavior, including his own and his colleagues in the agency. Student attends seminar class three hours weekly and completes 80 clock hours of direct practice in an approved agency under the supervision of a field instructor appointed by the university. (Prerequisite: Soc. 103, 305, 306.)

Soc. 362 6 Credits Spring
Intermediate Social Work Methods and Practice II
Continuation of Soc. 361 with more extensive application of the knowledge and skills of the social work method. The seminar will emphasize the analysis and evaluation of a case example of one step in the problem-solving process which the student presents from his field agency practice. Student attends seminar class three hours per week and completes 80 clock hours of direct practice in an approved agency under the supervision of a field instructor appointed by the university. (Prerequisites: Soc. 361 or consent of instructor.)

Soc. 363 3 Credits Fall
Social Stratification (3+0)
The study of the differential distribution of social power, privilege and life chances in class and caste as the basis for social organization. Emphasis on occupational, educational and other correlates which determine social structure. Also includes a comparative study of class and caste in India and the United States. (Prerequisites: Soc. 101, 102.)

Soc. 370 3 Credits Alternate Fall
Drugs and Drug Dependence (3+0)
(Same as Psy. 370.)
A multidisciplinary approach to the study of drugs and drug abuse emphasizing acute and chronic alcoholism, commonly abused drugs, law enforcement and legal aspects of drug abuse, medical uses of drugs, physiological aspects of drug abuse, psychological and sociological causes and manifestations of drug abuse, recommended drug education alternatives and plans, and the treatment and rehabilitation of acute and chronic drug users. (Prerequisites: Biol. 107 *or* Psy. 101 *or* Soc. 101 *or* permission of instructor. Next offered: 1980-81.)

Soc. 402 3 Credits Spring
Theories of Sociology (3+0)
Major sociological theories and theorists of Western civilization; review of important contributions and approaches of various "national schools" with emphasis on current American and European trends. (Prerequisite: Permission of instructor.)

Soc. 405 3 Credits Alternate Spring
Social Change (3+0)
Social change in long-time perspective, with emphasis on social movements and the influence of technology. (Prerequisites: Soc. 101, 102. Next offered: 1979-80.)

Soc. 406 3 Credits Alternate Spring
Human Ecology (3+0)
Modern industrial and centralized society; institutional structure of community life – political, economic, religious – with reference to internal structure and external sources of control and domination, with some emphasis on the nature of ruralism. (Prerequisite: Permission of instructor. Next offered: 1980-81.)

Soc. 407 3 Credits Alternate Spring
Formal Organization (3+0)
Theory and analysis of large-scale, complex, modern organizations, their coordination, role and status interrelationships, and

their publics. (Prerequisite: Soc. 101. Next offered: 1979-80.)

Soc. 408 3 Credits Alternate Spring
American Minority Groups (3+0)
Present status of ethnic, religious and national minorities and their changing sociological, economic, and political status. (Next offered: 1980-81.)

Soc. 461 6 Credits Spring
Advanced Social Work Methods and Practice I
Advanced social work methods, continuation of 362. Focus here is on the student's mastery of the knowledge and skills needed for successful intervention in one particular social problem over a period of time to accomplish fulfillment of client-worker contract. Student presents in class for analysis and evaluation a case example of a completed client-worker contract. Student attends seminar class three hours weekly and completes 80 clock hours of direct practice in an approved agency under the supervision of a field instructor appointed by the university. (Prerequisites: Soc. 362 or consent of instructor.)

Soc. 462 6 Credits Spring
Advanced Social Work Methods and Practice: Administration
Seminar in Current Issues in Social Work Practice. An examination of an integrated approach to major systems of social service delivery and their effect on individual consumers. Student presents in class for analysis and evaluation a case example of an agency attempting to design its structure, services, and intervention methods for the alleviation of specific social dysfunctions. Student attends seminar class three hours weekly and completes 80 clock hours of direct practice in an approved agency under the supervision of a field instructor appointed by the university. (Prerequisite: Soc. 461 or consent of instructor.)

Soc. 463 6 Credits Spring
Advanced Social Work Methods and Practice: Community Organization (3+7)
An advanced course focusing on methods and practice of community organization and development. The course explores an array of techniques, skills, and methods for use in community organizational practice. Students are concurrently placed in selected social service agencies and accept social service assignments under the supervision of competent agency personnel. (Prerequisites: Soc. 461.)

Soc. 473 3 Credits Fall
Social Science Research Methods (3+0)
Techniques of social research; sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments; attitude scaling. (Prerequisite: Psy. 250 or Soc. 251.)

Soc. 492 2 Credits As Demand Warrants
Seminar in Human Behavior (2+0)
Integrated behavioral approach emphasizing the major sociological and psychological theories with special attention to current literature. (Prerequisite: Senior standing in psychology or sociology.)

Space Physics and Atmosphere Sciences –

See Geosciences (Space Physics and Atmospheric Sciences)

Spanish

Span. 101 5 Credits Fall
Span. 102 5 Credits Spring
Elementary Spanish (5+0)
Development of the four skills (listening comprehension, speaking, reading and writing) with emphasis on oral work, practice in the language laboratory, basic grammar, and vocabulary.

Span. 201 3 Credits Fall
Span. 202 3 Credits Spring
Intermediate Spanish (3+0)
Continuation of Span. 102. Increasing emphasis on reading ability and culture material. Conducted in Spanish. (Prerequisite: Span. 102 or equivalent.)

Span. 288 2 Credits Spring
Individual Study: Reading Spanish
Emphasis on rapid expansion of passive vocabulary and immediate recognition of frequent idiomatic expressions and grammatical structures; development of true reading skill; modern literary and/or non-literary texts. (Prerequisites: Span. 201, equivalent training or permission of instructor. Recommended to be taken concurrently with Span. 202.)

Span. 301 3 Credits Alternate Fall
Span. 302 3 Credits Alternate Spring
Advanced Spanish (3+0)
Discussions and essays on more difficult subjects or texts, translations, stylistic exercise, special grammatical problems, systematic vocabulary building. Conducted in Spanish. (Prerequisite: Span. 202 or equivalent. Next offered: 1980-81.)

Span. 387 2 Credits Alternate Fall
Individual Study: Semantics
Systematic expansion of passive and active vocabulary through analysis of word fields, series of synonyms and antonyms, principles of word formation, derivation, composition, etc. (Next offered: 1979-80.)

Span. 432 3 Credits Spring
Studies in Hispanic Literature and Culture (3+0)
Intensive study of authors, literary movements, periods, and/or genres. Analysis of cultural material other than texts. Conducted in Spanish. Student may repeat course for credit when topics vary.

Span. 487 2 Credits Alternate Fall
Individual Study: Translation of Texts
Expansion of vocabulary and grammatical knowledge; emphasis on understanding precise shades of meaning, stylistics, artistic expression and cultural values in language; literary and non-literary texts. (Next offered: 1980-81.)

Span. 488 3 Credits As Demand Warrants
Individual Study: Senior Project
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.

Speech Communication

Sp.C. 111 3 Credits Fall and Spring
Fundamentals of Oral Communication (3+0)
An introduction to the processes of interpersonal and group communication patterns, focusing on the affective elements of language and culture.

Sp.C. 211 3 Credits Fall
Voice and Diction (2+2)
Development of fluency and clearness in the voice; study and practice to improve speech and eliminate faults of articulation and pronunciation; phrasing, inflection, and emphasis, including individual analysis and tape recording. (Prerequisite: Sp.C. 111 or admission by arrangement.)

Sp.C. 235 3 Credits Fall and Spring
Discussion and Small Group Process (3+0)
An approach to understanding the process of the small group; emphasizing self-evaluation, the role of conflict, the observation and diagnoses of group behavior, and the value of T-group training and the encounter group as an approach to learning.

Sp.C. 241 3 Credits Fall and Spring
Public Speaking (3+0)
Theory and practice of exposition and persuasion and platform speaking situations.



Sp.C. 311 3 Credits Alternate Fall
Introductory Phonetics (3+0)
Use of International Phonetic Alphabet; broad transcription use in acting, teaching, speech improvement. (Next offered: 1980-81.)

Sp.C. 320 3 Credits Fall
General Semantics (3+0)
An examination of the role of language and meaning in human communication.

Sp.C. 321 3 Credits Every Third Fall
Nonverbal Communication (3+0)
An examination of the role of non-lexical behavior on human interaction with a special emphasis on human social behavior. Includes a treatment of the roles of space and the environment, physical appearance and dress, physical non-lexical behavior (Kinesics and phonemics), affect displays, and cultural behavioral differences in human communication. (Prerequisites: Junior standing or permission of instructor. Next offered: 1981-82.)

Sp.C. 330 3 Credits Every Third Year
Intercultural Communication (3+0)
Deals with both culture and communication as integrated systems of human behavior. The course addresses itself to gaining an understanding of sources of static in communication when peoples of different cultures interact. Topics covered will include social time, the management of space, non-verbal aspects of human interaction and the ways verbal language are used, as they relate to human communication. Students will be expected to participate in field work projects examining aspects of intercultural communication in Alaska. (Next offered 1981-82.)

Sp.C. 335 3 Credits Every Third Year
Communication in Organizations (3+0)
The study of human communication in social organizations: family, school, business, and government. (Prerequisites: Sp.C. 235 is recommended although not required. Next offered: 1981-82.)

Sp.C. 341 3 Credits Spring
Persuasion (3+0)
Theory of the persuasive process, focusing on the nature of attitude change, aspects of the source, the receiver and the persuasive message. Exploration of ethical questions, and of applied persuasion in contemporary society.

Sp.C. 342 3 Credits Every Third Year
Advanced Public Speaking (3+0)
The course includes sophisticated methods of argumentation and organization, public speaking in special settings and with opinionated audiences. (Prerequisites: Sp.C. 241 or consent of instructor. Next offered: 1981-82.)

Sp.C. 351 3 Credits Fall
Argumentation and Debate (3+0)
Theory of argumentation and debate applied to contemporary issues. Practice in briefing and presenting arguments, testing evidence, and detecting fallacies.

Sp.C. 361 3 Credits Spring
Oral Interpretation (2+2)
Interpretative reading based on textual analysis of literary forms and careful study of principles of effective reading. (Prerequisite: Sp.C. 111 or admission by arrangement.)

Sp.C. 371 3 Credits Fall
Speech Problems for the Classroom Teacher (3+0)
Speech development in the child. Common classroom speech disorders; articulation, delayed speech, stuttering. Classroom procedures in speech improvement.

Sp.C. 425 3 Credits Every Third Semester
Communication Theory (3+0)
Study of human communication as a system of behavior, and as interaction within specific contexts. Focus is on the philosophical bases of communication theory, acquisition of communicative skills, intrapersonal processing, interaction, social influence and communication, and communication as culture. (Next offered: Fall 1979.)

Sp.C. 443 3 Credits Spring
Rhetorical Communication (3+0)
An examination of a number of approaches to human communication with an emphasis on developing an understanding of purposeful human communication behavior.

Theater

Thr. 101, 201
Thr. 301, 401 1-3 Credits Fall and Spring
Theater Practicum (0 + Var.)
Participation in Drama Workshop or lab production as performer or technical staff member. Graded pass/fail only. (Credit in this course may not be applied to a major program in theater.)

Thr. 211 3 Credits Fall
Introduction to the Theater (3 + 0)
History of theater with emphasis on dramatic form, architecture, and standards of criticism.

Thr. 221 3 Credits Fall
Acting I (1 + 4)
Principles of acting developed through pantomime, improvisation, and sense-memory.

Thr. 241 3 Credits Fall
Basic Stagecraft (1 + 4)
Materials of scene construction and painting and their use.

Thr. 321 3 Credits Alternate Spring
Acting II (1 + 4)
Building a character; role study and performance of small scenes. (Prerequisites: Thr. 221, or admission by arrangement. Next offered: 1980-81.)

Thr. 325 3 Credits Alternate Fall
Theatre Speech (2 + 2)
Vocal techniques for actors. Standard stage diction and foreign dialects. (Next offered: 1979-80.)

Thr. 331 3 Credits Alternate Fall
Directing (1 + 4)
Direction of short plays for drama lab productions. (Prerequisites: Thr. 221 or admission by arrangement. Next offered: 1980-81.)

Thr. 341 3 Credits Spring
Intermediate Stagecraft (1 + 2)
An examination of the less common scenic materials with methods and techniques for their use. Particular attention will be given to the use of dye in painting backgrounds and projection slides, vacuum formed plastics, molded polyurethane foam, etc. (Students will spend approximately $40 for materials.)

Thr. 343 3 Credits Alternate Fall
Scene Design (3 + 0)
Principles and techniques of theatrical scene design. The student will design projects directed at solving particular scenic problems or working in a specific scenic style with specific physical limitations. (Prerequisite: Thr. 241 or permission of the instructor. Students will spend approximately $40 for materials. Next offered: 1980-81.)

Thr. 347 3 Credits Alternate Spring
Lighting Design (3 + 0)
Principles and techniques of theatrical lighting design. The student will conduct practical experiments and design projects applying the experience gained from the experiments. (Prerequisites: Thr. 343 or permission of the instructor. May be taken concurrently with Thr. 343. Students will spend approximately $40 for materials. Next offered 1980-81.)

Thr. 351 3 Credits Spring
Makeup for Theater (1 + 4)
Theatrical makeup for actors, teachers, directors, and other theater workers; makeup materials and use; straight and character makeup, illusory and plastic relief; national types, influence of lighting. (Students will spend approximately $50 for materials.)

Thr. 355 3 Credits Alternate Spring
History of Stage Costume (3 + 0)
Stage costume and contemporary dress of the major theatrical periods. Emphasis will be placed on the process of selection of costumes for representative plays of each period. (Next offered: 1980-81.)

Thr. 411 3 Credits Alternate Spring
Theatre History (3 + 0)
An intensive examination of theatrical form, practice and literature from its origins in storytelling and ritual through the modern theatre movements of the 1970s. (Prerequisites: Junior standing and Thr. 211 or permission of instructor. The students should have some prior knowledge of theatre practice and/or dramatic literature and be prepared to undertake the reading and research required of the course. (Next offered: 1979-80.)

Thr. 421 3 Credits Alternate Spring
Period Styles of Acting (2 + 2)
The acting techniques required for the performance of period plays ranging from Greek Drama through Absurdist Theatre. (Prerequisites: Acting I plus Acting II or permission of instructor. Next offered: 1979-80.)

Thr. 435 3 Credits As Demand Warrants
Directing (3 + 0)
Directorial analysis of a major dramatic work for public presentation. (Prerequisite: senior majors with 3.00 G.P.A. in speech.)

Thr. 481 3-5 Credits As Demand Warrants
Senior Project (3-5 + 0)
An extensive individual project to be undertaken only by senior theatre majors who have substantially completed the prescribed curriculum. The student must apply for senior project one full semester prior to the semester in which it is to be undertaken. Complete information, application format, etc., may be obtained from the department office. Admission to senior project requires approval of the full theatre faculty. (Prerequisites: Senior standing with prescribed theatre curriculum substantially completed at the time project is to be undertaken. Student must be able to draw upon the full range of his theater training and experience.)

Wildlife and Fisheries

W.F. 301 3 Credits Spring
Principles of Animal Population Dynamics and Management (2 + 2)
History of wildlife and fisheries laws and regulations; role and wildlife management philosophies of state and federal wildlife management agencies, and population management of single species of fish and wildlife. Population growth potential; determination of survival, birth and death rates; life table construction; and determining levels of exploitation based on age and sex structure, previous harvest rates, habitat alteration, and predator manipulation. (Prerequisites: Biol. 271 and A.L.R. 101.)

W.F. 333 2 Credits Fall
Literature of Ecology and Resource Management (1 + 2)
Standard and modern approaches to utilization of biological literature; introduction to information retrieval problems and techniques. Thorough acquaintance developed with periodical and other literature in student's special interest field.

W.F. 401 3 Credits Fall
Wildlife Management Techniques (2 + 3)
Methods of collecting, analyzing and disseminating data, either for a research project or for implementing wildlife management plans. A brief discussion of the usefulness of a technique will precede its description or application. Techniques for determining sex, age, food habits, movements, distributions, reproductive history, physical condition, population size, and habitat status, for collecting, organizing and analyzing field observations, and for public information and education will be considered. (Prerequisites: W.F. 301 and A.S. 301.)

W.F. 402 2 Credits Fall
Advanced Wildlife Biology and Management (1 + 3)
Extends the single-species emphasis of W.F. 301 to more complex management situations dealing with two or more sympatric species. Examines the management of predator-prey groups and groups of competing or otherwise interrelated species. Provides extensive discussion of habitat and ecosystem management in situations ranging from small sanctuaries to large federal areas or areas of regional scale largely in private ownership. (Prerequisites: W.F. 301, Biol. 476, A.S. 301.)

W.F. 403 2 Credits Spring
Problems in Wildlife Management (2+0)
Two or three current, controversial wildlife management problems in Alaska will be critically examined to (1) determine their genesis, (2) evaluate their current status and (3) explore possible actions leading to their resolutions. The perception of, and suggested solutions to, the problems by (1) the non-Alaskan public, (2) the Alaskan public, (3) sport hunters, (4) wildlife biologists and (5) wildlife managers will be assessed. Means of resolving the conflicts in both perception and suggested solutions will be developed. (Prerequisites: W.F. 301, 401 and 402.)

W.F. 411 Credits Arr. As Demand Warrants
Fisheries Field Trip
A trip to acquaint students with some of the principal fisheries of the state and problems involved in their management. (Prerequisite: major in fisheries biology or admission by arrangement.)

W.F. 417 2 Credits Alternate Spring
Wildlife Management — Forest and Tundra (2+0)
Description of tundra and northern forest ecosystems with emphasis on interactions of climate, vegetation, and wildlife populations. Effect on wildlife populations of land use practices including: development of petroleum resources, creation of transportation networks, mining, timber cutting, damming, and prevention of fire. Major emphasis on research and management of wildlife populations under private, state, and federal administration. Field trip to coastal southcentral Alaska. (Prerequisites: Biol. 425 and Biol. 426 or permission of the instructor. Next offered: 1980-81.)

W.F. 419 2 Credits Alternate Fall
Wildlife Management — Wetlands (2+0)
Description, administration, and management of wildlife populations in arctic coastal habitats, subarctic tundra and forest habitats, north temperate coastal habitat, prairie potholes, artificial ponds, and reservoirs; swamps and both freshwater and salt ponds, marshes, and lakes. Habitat management techniques including: pothole blasting, water level manipulation, diking, ditching, planting, fencing, and burning. Population management of furbearers, of waterfowl on species and flyway basis, of shorebirds, and of marine birds. Field trips to Interior Alaska, and one to coastal southcentral Alaska. (Prerequisites: Biol. 426 or permission of the instructor. Next offered: 1980-81.)

W.F. 423 3 Credits Fall
Liminology (2+3)
Physical, chemical, and biological characteristics of fresh water, emphasizing ecological aspects important to fish and other organisms. (Prerequisites: Chem. 106 and Biol. 271, or permission of the instructor.)

W.F. 429 3 Credits Fall
General Fisheries Biology (2+3)
The general biology of fishes in relation to their management. Methods of collecting, analyzing and interpreting field and laboratory data. (Prerequisites: Biol. 271, 222, 305 and A.S. 301.)

W.R. 430 3 Credits Spring
Fisheries and Their Management (3+0)
Major commercial and recreational fisheries of the world, with emphasis on the North Pacific. Biological, economic, and political considerations in the use and management of aquatic resources. Nonmajors encouraged.

W.F. 435 2 Credits Alternate Fall
Problems in Water Pollution Biol. (2+0)
Effects of man-caused environmental stresses on the composition and dynamics of aquatic communities. Changes in diversity and matter and energy transfer. Biological indices. Water quality, standards and use classifications. (Prerequisites: Biol. 271, W.F. 423 or permission of the instructor. Next offered: 1979-80.)

W.F. 436 2 Credits Alternate Spring
Advances in Aquaculture (2+0)
An overview of the rapidly developing field of aquaculture including salmon, trout, and catfish hatcheries, and oyster and other shellfish farming. This will include the theory as well as some practice, and discussions of biological and economic problems. (Prerequisites: W.F. 429. Next offered: 1979-80.)

W.F. 603 2 Credits Spring
Problems in Wildlife Management (2+0)
Graduate students, through literature searches and interviews with knowledgeable individuals in resource agencies and private groups, will obtain information, by design from the perspective of a specific interest group, on the various facets of several current Alaskan wildlife management controversies. That information will be presented orally to the class and serve as the basis for class discussion. When the information for all interest groups has been presented, specific courses of action leading to resolution of the problems will be presented and critically examined. (Prerequisites: Equivalent of W.F. 301 and 402.)

W.F. 611 Credits Arr. As Demand Warrants
W.F. 612 Credits Arr.
Wildlife Field Trip
Trips to wildlife areas to acquaint students with principal animals of the state and problems involved in their management. (Admission by arrangement.)

W.F. 621 3 Credits Spring
Vertebrate Population Dynamics (2+3)
Assessing, describing, and interpreting the characteristics and dynamics of wild populations. Estimates of survival, mortality, and recruitment rates, and of population size, and assessment of population trends and welfare using data from sources such as hunter-kill samples, composition counts, marking and recapturing, predation, and various types of surveys. Students will proceed from simplified artificial data sets to complex real ones. Both analytic and simulation techniques will be used. (Prerequisites: admission by arrangement: minimal preparation, equivalent to Biol. 271, Math. 200 and A.S. 301.)

W.F. 624 2 Credits As Demand Warrants
Problems in Fisheries Management
Selected readings and discussions relating to major fisheries of the world, their problems, and the methods of attack on these problems. (Admission by arrangement.)

W.F. 625 3 Credits Alternate Fall
Fishery Ecology (2+3)
The dynamics of aquatic systems, emphasizing community structure, energy flow, trophic relationships, and secondary and tertiary production. Applications to fish and invertebrate fisheries management. (Prerequisites: OCN 411 or W.F. 423, and W.F. 429. Next offered: 1979-80.)

W.F. 627 3 Credits As Demand Warrants
Invertebrate Fisheries Biology (2+3)
The taxonomy, structure, physiology, and life histories of some commercially important marine shellfishes. Larval development, behavior, reproductive and feeding biology. Interrelationships of marine animals. (Prerequisite: Biol. 305.)

W.F. 628 3 Credits As Demand Warrants
Fin-fish Fisheries Biology (2+3)
The taxonomy, structure, and life history of some commercially important marine fishes. Distributions and seasonal movements; behavior and feeding biology. Techniques of aging and estimating stock size and productivity. (Prerequisites: Biol. 423 or permission of the instructor.)

W.F. 629 2 Credits Alternate Fall
Sampling in the Marine Environment (1+3)
An evaluation of classical and current methods for sampling some biological and biologically related parameters (physical, chemical, geological) or marine systems. Demonstration and use of field and laboratory techniques. Problems in calibration and interpretation of data. (Prerequisite: permission of the instructor. Next offered: 1980-81.)





Register

Regents

Hugh B. Fate, Jr., D.M.D., President (1969-1985)
P.O. Box 1111, Fairbanks, 99701 – 456-5600

Edward B. Rasmuson, Vice President (1975-1981)
P.O. Box 600, Anchorage, 99501 – 265-2927

Don Abel, Jr., Secretary (1975-1981)
R.R. 6, Box 3491A, Juneau 99803 – 789-7639

Mildred Banfield, Treasurer (1976-1983)
Box 920, Auke Bay 99821 – 789-7390

Sam Kito, Jr. (1975-1983)
2518 Tulane, Anchorage, 99504 – 274-5595

Margaret J. Hall (1975-1983)
P.O. Box 1668, Kodiak 99615 – 486-5275

Conrad G. B. Frank (1976-1979)
c/o Ghemm Co., Box 507, Fairbanks 99707 – 452-5191

Jeff Cook (1977-1983)
P.O. Box 2134, Fairbanks 99707 – 456-5070/452-1646

John Schaeffer (1977-1979)
c/o NANA Regional Corporation, Inc., P.O. Box 49, Kotzebue 99752 – 442-3301

Charles R. Webber (1977-1985)
1824 Forest Park Drive, Anchorage 99503 – 277-6840

Sharilyn Mumaw (1978-1980)
Student Services, K-106A, University of Alaska, Anchorage, 99501 – 272-5522

Emeriti

William R. Cashen, Professor of Mathematics and Marshal of the University, Emeritus. University of Alaska '37, B.S.; University of Washington '48, M.A. (1942-1974)

Bettie H. Clark, Head, Alumni Services and Career Planning and Placement, Emeritus, University of Alaska '35, B.S. (1962-1972)

Vena A. Clark, Associate Professor of Home Economics, Emeritus. Cotner College '25, A.B.; Iowa State University '33, M.S. (1953-1967)

Don M. Dafoe, Executive Vice President, Emeritus. Valley City State College '37, B.A.; University of Idaho '48, M.S.; Stanford University '61, Ed.D. (1966-1976)

Frank Darnell, Director, Center for Northern Educational Research and Professor of Education, Emeritus. Colorado State University '51, B.S.; University of Alaska '62, M.Ed.; Wayne State University '70, Ed.D. (1966-1978)

Lydia Fohn-Hansen, 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)

Robert B. Forbes, Professor of Geology, Geophysical Institute, and Department of Geology, Emeritus. University of Washington '50, B.S.; '59, Ph.D. (1959-1977)

Bruce R. Gordon, Head, Department of Linguistics and Foreign Languages, and 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)

Victor P. Hessler, Professor of Geophysics, Emeritus. Oregon State University '26, B.S.; Iowa State University '27, M.S.; '34, Ph.D. (1955-1968, 1968-)

Donald W. Hood, Professor of Marine Science, Institute 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)

Laurence Irving, 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, 1975-)

Laura Jones, Director of Admissions and Registrar, Emeritus. University of Denver '41, B.A. (1956-1971)

Charles J. Keim, Professor of Journalism and English, Emeritus. University of Washington '48, B.A.; '50, M.A. (1954-1977)

James R. Leekley, Senior Scientist in Charge, Petersburg Fur Farm, Emeritus. Oregon State University '38, B.S. (1941-1972)

Charles E. Logsdon, Associate Director and Professor of Plant Pathology, Agricultural Experiment Station (Palmer Research Center), Emeritus. University of Kansas City '42, B.A.; University of Minnesota '54, Ph.D. (1953-1978)

Orlando W. Miller, Professor of History, Emeritus. Muhlenberg College '47, B.A.; Columbia University '48, M.A.; '66, Ph.D. (1957-1978)

Terris Moore, 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-)

James E. Morrow, Head, Department of Biological Sciences and Professor of Zoology and Museum Research Associate, Emeritus. Middlebury College '40, A.B.; '42, M.S.; Yale University '44, M.S.; '49, Ph.D. (1960-1977)

Dorothy H. Novatney, Professor of English, Emeritus. Pomona College '28, B.A.; Claremont College '30, M.A.; Teachers College '38, Ed.D. (1943-1945, 1956-1963)

Kenneth M. Rae, Vice President for Research and Professor of Marine Science, Emeritus. University College, London '35, B.Sc.; '58, Ph.D. (1961-1976)

Charles Sargent, 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)

Herman E. Slotnick, Professor of History, Emeritus. University of Idaho '39, B.A.; University of Washington '58, Ph.D. (1955-1978)

Agnes S. Sunnell, Associate Professor of Extension, Emeritus. University of Washington '31, B.S.; Washington State University '44, M.S. (1960-1970)

Lola Cremeans Tilly, Professor of Home Economics, Emeritus. University of Illinois '20, A.B.; '21 M.S.; University of Alaska '63, D.Hum. (1929-1937, 1942-1963)

Minnie Wells, Professor of English, Emeritus. University of Missouri '25, B.S.; New York University '38, Ph.D. (1945-1971)

William S. Wilson, 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)

William R. Wood, President Emeritus. Illinois College '27, A.B.; '60, LL.D. (Hon.); University of Iowa '36, M.A.; '39, Ph.D. (1960-1973)

Faculty Register

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.

Abrahams, Sherry Lynn – 1964 – Associate Professor of Library Science (1975). Bowling Green State University '58, B.A.; University of Illinois '59, M.S.L.S.

Aigner, Jean S. – 1978 – Professor of Anthropology (1978). University of Wisconsin '64, B.A.; University of Wisconsin, '66, M.A.; University of Wisconsin '69, Ph.D.

Akasofu, Syun-Ichi – 1958 – Professor of Geophysics (1964), Geophysical Institute. Tohoku University '53, B.S.; '57, M.S.; University of Alaska '61, Ph.D.

Albert, Thomas F. – 1977 – Visiting Scientist, NARL. Pennsylvania State University '58, B.S.; University of Pennsylvania '62, V.M.D.; Georgetown University '72, Ph.D.

Aldrich, Diann M. – 1975 – Women's Basketball Coach (1975). Utah State University '74, B.S.

Alexander, Barbara – 1977 – Assistant Professor of Art History and Humanities (1977). Gymnasium Oldenburg '65, B.A.; University of Zürich '74, M.A.; '75, Ph.D.

Alexander, Vera – 1962 – Professor of Marine Science (1974), Institute of Marine Science. University of Wisconsin '55, B.A.; '62, M.S.; University of Alaska '65, Ph.D.

Allison, Carol Wagner – 1970 – Curator, Museum, Paleontological and Geological Collections (1970). University of California, Berkeley '53 B.A.; '63, M.S.; '70, Ph.D.

Allison, Richard C. – 1968 – Professor of Geology (1975). University of Washington '57, B.S.; '59, M.S.; University of California '67, Ph.D.

Alves, William R. – 1977 – Assistant Professor Regional Planning and Economics (1977). Massachusetts Institute of Technology '65, B.S.; University of Washington '74, M.A.; '76, Ph.D.

Ammu, Lynne – 1978 – Instructor of Education and Field Coordinator of Cross-Cultural Education Development Program, School of Education (1978). University of Wyoming '67, B.A.; '73, M.A.

Andresen, Patricia A. – 1967 – Associate Professor of Mathematics (1977). University of Illinois '55, B.S.; University of Missouri '58, M.A.; University of California at Santa Barbara '76, Ph.D.

Aspnes, John D. – 1978 – Associate Professor Electrical Engineering (1978). University of Wisconsin '65, M.S.; University of Montana '76, Ph.D.

Atamian, Sarkis – 1962 – Professor of Sociology Psychology (1974). University of Rhode Island '50, B.S.; Brown University '54, M.A.

Atcheson, Gordon F. – 1978 – Assistant Professor of Military Science (1978). St. Marys University '75, B.B.A

Bailey, Ray P. – 1976 – Assistant Professor of Medical Science (1976). University of California '66, B.A.; California State '69, M.A.; Johns Hopkins '73, Ph.D.

Barber, W. E. – 1976 – Assistant Professor of Fisheries (1976). Arizona State University '65, B.A.; '68, M.S.; Michigan State University '70, Ph.D.

Barnhardt, Raymond J. – 1970 – Director of the Center for Cross-Cultural Studies, School of Education (1978), Associate Professor of Education (1974). North Dakota State University '65 B.S.; Johns Hopkins University '67, M.Ed.; University of Oregon '70, Ph.D.

Baron, Mary K. – 1978 – Assistant Professor of English (1978). Brandeis University '69, A.B.; University of Michigan '71, A.M.; University of Illinois '73, Ph.D.

Barsdate, Robert J. – 1962 – Professor of Marine Science (1972), Institute of Marine Science. Allegheny College '59, B.S.; University of Pittsburgh '64, Ph.D.

Bartlett, Thomas E. – 1974 – Assistant Professor of Accounting (1974). Southwestern at Memphis '67, B.A.; Emory University '69, M.B.A.; State of Georgia '73, C.P.A.; State of Alaska '78, C.P.A.

Bates, Howard F. – 1952 – Professor of Geophysics (1970), Geophysical Institute. Oregon State College '50, B.S.; '56, M.S.; University of Alaska '61, Ph.D.

Bedford, Jimmy – 1965 – Professor of Journalism (1968). University of Missouri '50, A.B.; '51, B.J.; '52, M.A.

Behlke, Charles E. – 1950 – Dean, School of Engineering (1967); Professor of Civil Engineering (1965). Washington State University '48, B.S.; '50, M.S.; Stanford University '57, Ph.D.; P.E.

Behrisch, Hans Werner – 1969 – Associate Professor of Zoochemistry (1973). University of British Columbia '64, B.S.; Oregon State University '66, M.A.; University of British Columbia '69, Ph.D.

Beistline, Earl H. – 1946 – Dean, School of Mineral Industry (1949); Professor of Mining Engineering (1946). University of Alaska '39, B. Min. Engr.; '47, E.M.; '69, LL.D. (Hon.); P.E.

Belon, Albert E. – 1952 – Associate Director for Operations (1977) and Professor of Physics (1969), Geophysical Institute. University of Alaska '52, B.S.; University of California, Los Angeles '54, M.A.

Benesch, Walter J. – 1963 – Professor of Philosophy (1973); University of Denver '55, B.A.; University of Montana '56, M.A.; Leopold Franzens Universität, Innsbruck '63, Ph.D.

Bennett, F. Lawrence – 1968 – Assistant to the Chancellor (1977). Head, Department of Engineering Management, and Professor of Engineering Management (1974). Rensselaer Polytechnic Institute '61, B.C.E.; Cornell University '63, M.S.; '66, Ph.D.; P.E.

Benson, Carl S. – 1960 – Professor of Geophysics and Geology (1969). University of Minnesota '50, B.A.; '56, M.S.; California Institute of Technology '60, Ph.D.

Bernet, John W. – 1959 – Professor of English (1975). State University of Iowa '51, B.A.; University of North Dakota '57, M.A.; Stanford University '69, M.A.; '69, Ph.D.

Biswas, Nirendra N. – 1971 – Associate Professor of Geophysics (1975), Geophysical Institute. Indian Institute of Technology, India '55, B.Sc.Hons.; M. Tech; University of California, Los Angeles '70, Ph.D.

Bligh, John – 1977 – Director, Division of Life Sciences and Professor of Physiology (1977). University College, London '50, B.S.; University of London '52, Ph.D.; '77, D.S.

Blix, Arnoldus S. – 1976 – Assistant Professor of Zoophysiology (1977). University of Oslo '73, Cand. Real.; University of Tromsø '75, dr. philos.

Boelts, Norman R. – 1970 – Assistant Professor of Business Administration (1973). University of Nebraska '67, B.S.; Texas Christian University '68. M.B.A.

Boslet, Maurice D. – 1968 – Part-time Instructor.

Bowkett, Norma S. – 1972 – Assistant Professor of English (1975). San Francisco State College '53, B.A.; '53, M.A.

Bowling, Sue Ann – 1970 – Assistant Professor of Geophysics (1972), Geophysical Institute. Radcliffe '63, A.B.; University of Alaska '67, M.S.; '70, Ph.D.

Brenckle, Carol A. – 1972 – Assistant Professor of Library Science (1975). Marymount Manhattan College '63, B.A.; University of California, Berkeley, '71, M.L.S.

Brenckle, Joseph J., Jr. – 1971 – Associate Professor of Russian (1977). Brown University '62, A.B.; Stanford University '65, M.A.; '71, Ph.D.

Brody, Arthur W. – 1967 – Assistant Professor of Art (1977). Harvey Mudd College '65, B.S.; Claremont Graduate School '67, M.F.A.

Brown, Edward J. — 1975 — Visiting Assistant Professor (1977). University of Minnesota '70, B.S.; University of Wisconsin '73, M.S.; '75, Ph.D.

Brown, Neal — 1966 — Range Supervisor (1971), and Assistant Professor of Geophysics (1969), Geophysical Institute. Washington State University '61, B.S.; University of Alaska '66, M.S.

Brown, Robert W. — 1967 — Head, Dept. of Mathematics (1967-77), and Professor of Mathematics (1967). Pacific University '50, B.S.; Oregon State University '52, M.S.; '58, Ph.D.

Brundage, Arthur L. — 1968 — Professor of Animal Science (1968), Agricultural Experiment Station (Palmer Research Center). Cornell University '50, B.S.; University of Minnesota '52, M.S.; '55, Ph.D.

Bungart, Sandra E. — 1974 — Community College Teacher, Office Occupations/Business Supervision (1974). Western Michigan University '72, B.S.; University of Alaska '78, M.Ed.

Burdick, John L. — 1960 — Head, Department of Civil Engineering, and Professor of Civil Engineering (1969). Rensselaer Polytechnic Institute '47, B.S.C.E.; Massachusetts Institute of Technology '48, S.M.; P.E.; L.S.

Burke, Janet G. — 1975 — Instructor of Library Science (1975). Washington State University '71, B.A.; University of Hawaii '72, M.L.S.

Burrell, David Colin — 1965 — Professor of Marine Science (1975), Institute of Marine Science. Nottingham University '61, B.Sc.; '64, Ph.D.

Burton, Wayne E. — 1963 — Professor of Agricultural Economics (1975), Agricultural Experiment Station. University of Wyoming '58, B.S.; Texas A&M University '60, M.S.; Montana State University '68, Ph.D.

Buske, Frank E. — 1977 — Assistant Professor of English (1978). Yale University '48, B.A.; Arizona State University '70, M.A.; University of California, Davis '76, Ph.D.

Button, Don K. — 1964 — Professor of Marine Science (1973), Institute of Marine Science. Wisconsin State College '55, B.S.; University of Wisconsin '61, M.S.; '64, Ph.D.

Cannon, P. Jan — 1974 — Assistant Professor of Geology (1974), University of Oklahoma '65, B.S.; '67, M.S.; University of Arizona '73, Ph.D.

Carlson, Robert F. — 1965 — Director, Institute of Water Resources (1972) and Professor of Hydrology (1974). University of Wisconsin '61, B.S.; '63, M.S.; '67, Ph.D.; P.E.; P.L.S.

Chao, Jih-Kwin — 1963 — Post-Doctoral Fellow in Geophysics (1977). National Taiwan University '62, B.S.; University of Alaska '65, M.S.; Massachusetts Institute of Technology '70, D.Sc.

Chapin, F. Stuart III — 1973 — Associate Professor of Plant Physiological Ecology (1978). Swarthmore College '66, B.A.; Stanford University '73, Ph.D.

Choy, Terence Tin-Ho — 1970 — Associate Professor of Art (1976). San Francisco State College '65, B.A.; University of California, Berkeley '67, M.A.

Clutts, Joan B. — 1961 — Director, Instructional Services, School of Education (1978), and Professor of Education (1972). Colorado College '51, B.A.; University of Missouri '58, M.Ed.; '69, Ed.D.

Cole, James W. — 1973 — Head, Center for Health and Counseling (1976), and Assistant Professor of Education. Chico State College '64, B.A.; Oregon State University '67, M.Ed.; University of North Colorado '71, Ed.D.

Colonell, Joseph M. — 1976 — Professor of Ocean Engineering (1976), Institute of Marine Science. University of Colorado '58, B.S. (C.E.); Washington State University '62, M.S. (C.E.); Stanford University '66, Ph.D.

Converse, E. Leanne — 1977 — Adjunct Assistant Professor of Medical Science (1977). University of Colorado '69, B.A.; '73, M.D.

Cook, Donald J. — 1953 — Professor of Mineral Beneficiation (1965). University of Alaska '47, B.S.; '52, E.M.; Pennsylvania State University '58, M.S.; '60, Ph.D.; P.E.

Cook, Jeffry J. — 1969 — Lecturer in Business Administration (1969). University of Oregon '66, B.B.A.; '68, M.B.A.

Coon, E. Dean — 1974 — Associate Professor of Education, Center for Cross-Cultural Studies, School of Education (1974). University of Northern Colorado '49, B.A.; University of Nebraska '51, M.A.; University of Denver '73, Ed.D.

Cooney, R. Theodore — 1970 — Associate Professor of Fisheries and Marine Science (1976). University of Washington, '64, B.S.; '67, M.S.; '71, Ph.D.

Cornwall, Peter G. — 1971 — Head, Department of History and Associate Professor of History (1973). University of Toronto '62, B.A.; University of Michigan '63, A.M.; '70, Ph.D.

Cridge, Edmund S. — 1977 — Assistant Professor Library Science (1977). State University of New York, Oswego '62, B.S.; State University of New York, Buffalo '66, M.S.; '71, M.Ed.; '77, Ed.D.

Crook, James R. — 1976 — Professor of Medical Science (1976). University of Utah '58, B.S.; '59, M.S.; '64, Ph.D.; University of Medical Sciences, Siriraj '67, D.T.M.; University of Liverpool '67, D.Sc.; SEATO Medical Research Program, Manilla '68, Certificate in Epidemiology.

Currier, Russell L. — 1970 — Associate Professor of Cross-Cultural Communications (1975). University of Rochester '55, B.A.; University of Hawaii '69, M.A.

Cutler, Howard A. — 1976 — Chancellor and Professor of Economics (1976). State University of Iowa '40, B.A.; '41, M.A.; Columbia University '51, Ph.D.

Davis, Charles W. — 1963 — Head, Department of Music and Professor of Music (1969). State University of Iowa '37, B.A.; '48, M.A.

Davis, T. Neil — 1952 — Professor of Geophysics (1965), Geophysical Institute. University of Alaska '55, B.S.; California Institute of Technology '57, M.S.; University of Alaska '61, Ph.D.

Dean, Frederick C. — 1954 — Professor of Wildlife Management (1966) and Program Leader, Biology and Resource Management, Cooperative Park Studies Unit (1972). University of Maine '50, B.S.; '52, M.S.; State University of New York '57, Ph.D.

DeCorso, Theodore — 1974 — Associate Professor of Music (1978). University of Connecticut '65, B.S.; The Juilliard School '67, M.S.; University of Connecticut '77, Ph.D.

Deehr, Charles S. — 1964 — Associate Professor of Geophysics (1969), Geophysical Institute. Reed College '58, B.A.; University of Alaska '61, M.S.; '68, Ph.D.

Degen, Vladimir — 1969 — Associate Professor of Physics (1974), Geophysical Institute. University of Toronto '58, B.A.; '60, M.A.; University of Western Ontario '66, Ph.D.

DeWitt, James P. — 1976 — Lecturer in Business Administration (1978). University of Oregon '72, B.S.; Northwestern University School of Law '75, J.D.

Dickason, O. Eugene — 1976 — Associate Professor of Environmental Quality Engineering (1976). Princeton University '59, B.S.E.; Stanford University '61, M.S.E.; '70, Ph.D.

Dieterich, Robert A. — 1967 — Professor of Veterinary Science (1967), Institute of Arctic Biology. University of California '61, B.S.; '63, D.V.M.

Dinkel, Donald H. — 1968 — Professor of Plant Physiology (1974), Agricultural Experiment Station (College Research Center). University of Minnesota '54, B.S.; '60, Ph.D.

Distad, Jack — 1955 — Professor of Mathematics (1974). Montana State University '53, B.S.; '55, M.S.

Dixon, Mim H. — 1977 — Adjunct Assistant Professor of Medical Science (1977). Washington University (St. Louis) '70, B.S.; Northwestern University '72, M.A.; '74, Ph.D.

Donnelly, Richard D. — 1975 — Cook/Chef, Food Service Technology (1975), Tanana Valley Community College.

Drahn, Theodore L. — 1968 — Associate Professor of Sociology (1974). University of Oregon '56, B.S.; Portland State University '65, M.S.W.

Drew, James V. — 1976 — Dean, School of Agriculture and Land Resources Management and Director, Agricultural Experiment Station, and Professor of Agronomy (1976). Rutgers University '52, B.S.; '57, Ph.D.

Dubbs, Patrick J. — 1968 — Assistant Professor of Education and Field Coordinator of Cross-Cultural Education Development Program, School of Education (1977). University of Notre Dame '60, B.A.; Michigan State University '75, Ph.D.

Duncan, June — 1965 — Professor of English (1974). Southwestern State College '55, B.A.; University of Oklahoma '62, M.A.; '65, Ph.D.

Dunlap, Lawrence I. — 1973 — Adjunct Associate Professor of Medical Science (1975). University of Oregon '54, B.S.; University of Oregon Medical School '55, M.D.

Eaton, Frank D. — 1978 — Post-Doctoral Fellow in Geophysics (1978). University of Arizona '65, B.S.; Utah State University '69, M.S.; '75, Ph.D.

Egan, Robert H. — 1967 — Head, Career Planning and Placement (1974) and Assistant Professor of Psychology (1976). University of Montana '60, B.A.; California State College at Long Beach '65, M.A.

Elder, Sarah M. — 1973 — Instructor and Cinematographer (1976), Center for Cross-Cultural Studies, School of Education. Sarah Lawrence College '69, B.A.; Brandeis University '72, M.F.A.

Elsner, Elizabeth F. — 1974 — University Physician (1976) and Affiliate Assistant Professor of Medical Science (1977). Mount Holyoke College '45, A.B.; Yale University School of Medicine '48, M.D.

Elsner, Robert — 1973 — Professor of Marine Science (1973). New York University '50, B.A.; University of Washington '55, M.S.; '59, Ph.D.

Ensign, Walter G., Jr. — 1969 — Head, Department Speech and Drama, Associate Professor of Theatre and Drama (1975). University of Denver '66, B.A.; '67, M.A.

Failoni, Daniel D. — 1975 — Affiliate Assistant Professor of Medical Science (1975). Western Reserve University '61, The Ohio State University '65, M.D., M.S.

Falk, Marvin W. — 1975 — Assistant Professor of Library Science (1976). University of Minnesota '65, B.A.; University of Massachusetts '66, M.A.; University of Iowa '76, Ph.D.

Fay, Francis H. — 1970 — Associate Professor of Marine Science (1974). University of New Hampshire '50, B.S.; University of Massachusetts '52, M.S.; University of British Columbia '55, Ph.D.

Feder, Howard M. — 1970 — Professor of Marine Science and Zoology (1970). University of California at Los Angeles '48, A.B.; '51, M.A.; Stanford University '56, Ph.D.

Feist, Carol F. — 1972 — Assistant Professor of Microbiology (1974). University of Cincinnati '60, B.A.; Rice University '63, M.S.; University of California, Berkeley '68, Ph.D.

Feist, Dale D. — 1971 — Associate Professor of Zoophysiology, Institute of Arctic Biology (1974). University of Cincinnati '60, A.B.; University of California, Berkeley '69, Ph.D.

Fenton, Ray J. — 1975 — Assistant Professor of Speech (1975). Illinois State University '67, B.S.; '68, M.S.; Washington State University '74, Ph.D.

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Pulpan, Hans – 1968 – Assistant Professor of Geophysics (1968), Geophysical Institute. Montainistische Hochschule Leoben, Austria '61, Dipl. Eng.; University of Illinois '64, M.S.; '68, Ph.D.

Rao, Nagabhushana M. S. – 1970 – Associate Professor of Sociology, and Head, Department of Psychology and Sociology (1975). Chairman, Asian Studies (1974). University of Mysore '57, B.A. (Hon.); '58, M.A.; Washington State University; '74, Ph.D.

Rao, Pemmasani Dharma – 1966 – Professor of Coal Technology (1976), Mineral Industry Research Laboratory. Andhra University '52, B.Sc.; '54, M.Sc.; Pennsylvania State University '59, M.S.; '61, Ph.D.

Raugust, Richard – 1976 – Affiliate Assistant Professor of Medical Science (1977). Washington State University '63, B.S.; University of Washington '67, M.D.

Ray, Charles K. – 1957 – Dean, School of Education (1976) and Professor of Education (1960). University of Colorado '51, B.A.; Columbia University '55, M.A.; '59, Ed.D.

Redding, Wendy J. – 1978 – Instructor, Education and Program Development Specialist in Cross-Cultural Education Dev. Program, School of Education (1978). State University College of New York, Buffalo '75, B.S.; Harvard University, Graduate School of Education '78, M.Ed.

Reeburgh, William S. – 1968 – Professor of Marine Science (1977), Institute of Marine Science. University of Oklahoma '61, B.S.; Johns Hopkins University '64, M.A.; '67, Ph.D.

Reem, Richard – 1973 – Adjunct Assistant Professor of Medical Science (1975). University of Minnesota '59, B.A.; '62, M.D.

Rees, Manfred H. – 1958 – Professor of Geophysics (1975). West Virginia University '48, B.S.E.E.; University of Colorado '56, M.S.; '58, Ph.D.

Reichardt, Paul B. – 1972 – Associate Professor of Chemistry (1975). Davidson College '65, B.S.; University of Wisconsin '69, Ph.D.

Renner, Louis L. – 1965 – Professor of German (1975). Gonzaga University '50, A.B.; '51, M.A.; University of Santa Clara '58, M.S.T.; University of Munich '65, Ph.D.

Reynolds, James B. – 1978 – Unit Leader, Alaska Cooperative Fishery Research Unit (1978). Utah State University '61, B.S.; Iowa State University '63, M.S.; '66, Ph.D.

Rice, Elbert F. – 1952 – Professor of Civil Engineering (1957). University of Idaho '48, B.S.; Oregon State College '49, M.S.; '55, Ph.D.

Roberts, Thomas D. – 1966 – Professor of Physics and Electrical Engineering (1974). University of Alabama '59, B.S.; Oregon State University '65, Ph.D., P.E.

Robinson, E. Thomas – 1974 – Assistant Professor of Accounting (1974). University of Wisconsin '67, B.B.A.; '71, M.S.; C.P.A.

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Rosenberg, Donald H. – 1964 – Associate Professor of Marine Science (1972) and Director of Alaska Sea Grant Program (1975). Oregon State University '60, B.S.; '63, M.S.

Royer, Susan B. – 1970 – Assistant Professor of Mathematics (1975). Salem State College '61, B.S.; Texas A&M University '66, M.S.; '69, M.S.

Royer, Thomas – 1969 – Associate Professor of Marine Science (1975), Institute of Marine Science. Albion College '63, B.A.; Texas A&M University '66, M.S.; '69, Ph.D.

Ryberg, H. Theodore — 1963 — Director of Libraries and Professor of Library Science (1963). Gettysburg College '55, A.B.; Western Reserve University '57, M.S.

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Sager, Rochelle — 1975 — Assistant Professor of Library Science (1975). University of Illinois, Urbana '66, B.A.; '69, M.S.L.S.; Loyola University '75, M.Ed.

Salisbury, Lee H. — 1955 — Professor of Speech and Theatre Arts (1967). New York University '49, B.S.; Columbia University '50, M.A.

Salter, Paul S. — 1976 — Dean, College of Arts and Sciences and Professor of Geography (1976). Massachusetts State College '50, B.S.E.; Indiana University '51, M.A.; University of North Carolina '65, Ph.D.

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Schorr, Alan E. — 1973 — Assistant Professor of Library Science (1976). City University of New York '66 B.A.; Syracuse University '67, M.A.; University of Texas at Austin '73, M.L.S.

Schroeder, Radene A. — 1969 — Community College Teacher, Office Administration (1969). University of North Dakota '67, B.S.; '69, M.S.

Scollon, Ronald T. — 1978 — Assistant Professor of Linguistics, Alaska Native Language Center (CCERE) (1978). University of Hawaii '71, B.A.; '72, M.A.; '74, Ph.D.

Scott, Michael J. — 1975 — Assistant Professor of Economics (1975). Washington State University '70, B.A.; University of Washington '71, M.A.; '75, Ph.D.

Scott, G. Richard — 1973 — Associate Professor of Anthropology (1978). Arizona State University, Tempe '68, B.A.; '73, Ph.D.

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Senungetuk, Ronald W. — 1961 — Director, Native Arts Center (1965). School for American Craftsmen, Rochester Institute of Technology '60, A.A.S. and B.F.A.; Statens Håndvaerks og Junstindustriskole, Oslo, Norway '61, Diploma.

Shapiro, Lewis H. — 1971 — Assistant Professor of Geology (1971), Geophysical Institute. South Dakota School of Mines and Technology '62, B.S.; University of Minnesota '71, Ph.D.

Sharma, Ghanshyam Datt — 1963 — Associate Professor of Marine Science (1969). 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 — Associate Professor of Marine Science (1976). University of California, Los Angeles '67, B.S.; Harvard '69, A.M.; '71, Ph.D.

Sheehan, Patricia T. — 1970 — Assistant Professor of English (1970). Kansas State University '66, B.A.; Southern Methodist University '69, M.A.

Sheridan, J. Roger — 1964 — Professor of Physics (1971). Reed College '55, B.A.; University of Washington '64, Ph.D.

Shields, Gerald F. — 1975 — Assistant Professor of Zoology (1975). Carroll College '66, B.A.; Central Washington State College '70, M.S.; University of Toronto '74, Ph.D.

Shinkwin, Anne D. — 1971 — Associate Professor of Anthropology (1977). University of Connecticut '60, B.A.; George Washington University '64, M.A.; University of Wisconsin '75, Ph.D.

Simpson, Glen C. — 1969 — Associate Professor of Art (1976). Rochester Institute of Technology '68, B.F.A.; '69, M.F.A.

Sims, John F. M. — 1977 — Associate Professor, School of Mineral Industry (1977). Durham University '56, B.S.; University of the Witwatersrand '69, Ph.D.

Sivjee, Gulamabas G. — 1972 — Associate Professor of Geophysics (1976), Geophysical Institute. University of London '63, B.S.; Johns Hopkins University '70, Ph.D.

Skubi, K. Byron — 1977 — Affiliate Assistant Professor of Medical Science (1977). University of Washington '67, B.A.; '71, M.D.

Slaughter, Charles W. — 1970 — Affiliate Professor of Water Resources (1976). Washington State University '62, B.S.; Colorado State University '68, Ph.D.

Smelcer, Charles — 1977 — Head, Department of Military Science and Professor of Military Science (1977). University of Alaska '61, B.B.A.; '74, M.B.A.

Smith, G. Warren — 1968 — Professor of Chemistry (1977). Grinnell College '62, B.A.; Cornell University '66, Ph.D.

Smith, Jewel Busch — 1967 — Community College Teacher (1976). University of Wisconsin '46, B.S.; University of New Mexico '57, M.A.

Smith, R. London — 1965 — Head, Department of Political Science (1976) and Professor of Political Science (1974). College of St. Joseph '54, B.A.; University of Oklahoma '55, M.A.; American University '64, Ph.D.

Smith, Ronald L. — 1968 — Associate Professor of Zoology (1974). Occidental College '64, B.A.; University of Miami '67, M.S.; '68, Ph.D.

Smith, Thomas E. — 1973 — Associate Professor of Geology (1975). Stanford University '65, M.S.; University of Nevada '71, Ph.D.

Smith, William H. — 1964 — Associate Professor of Library Science (1969). Iowa State College '58, B.S.; Simmons College '60, M.S.I.S.

Smith, William Leonard — 1967 — Assistant Professor of Physical Education (1967). Western State College '54, B.A.; '58, M.A.

Solie, Richard J. — 1970 — Head, Department of Economics (1970). Wisconsin State University '55, B.S.; University of Tennessee '65, Ph.D.

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Stamnes, Knut H. — 1978 — Post-Doctoral Fellow in Geophysics (1978). University of Oslo '69, Cand. Mag; '72, Cand. Real; University of Colorado '78, Ph.D.

Stark, David A. — 1971 — Assistant Professor of English (1975). University of California, Los Angeles, '65, B.A.; University of California, Irvine, '69, M.F.A.

Stech, David A. — 1972 — Assistant Professor of Music (1974). University of Minnesota '67, B.S.; The Ohio State University '69, M.A.; Michigan State University '76, Ph.D.

Stenard, Richard A. — 1976 — Assistant Dean of Students and Assistant Professor of Education (1976). State University of New York, Albany '65, B.S.; '66, M.S.; Florida State University '75, Ph.D.

Stephens, Dennis J. – 1978 – Assistant Professor of Library Science (1978). Portland State University '69, B.A.; University of Denver '75, M.A.L.

Stinson, Lillian Powers – 1972 – Associate Professor of Education (1974). University of Illinois '58, B.S.; '64 M.Ed.; '70, Ed. D.

Stockholm, Kendall R. – 1974 – Assistant Professor and Director, Justice Program (1974). Lamar University '71, B.S.; Sam Houston State University '72, M.A.

Stone, David B. – 1966 – Professor of Geophysics (1977) and Head, Geology/Geophysics Program (1976), Geophysical Institute. University of Keele '56, B.A.; University of Newcastle Upon Tyne '63, Ph.D.

Stringer, William J. – 1965 – Assistant Professor of Applied Science (1976). New Mexico State University '62, B.S.; University of Alaska '71, Ph.D.

Sullivan, Robert A. – 1964 – Assistant Professor of Mathematics (1967). St. Bonaventure University '52, B.S.; '61, M.S.; University of Illinois '69, M.A.

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Svenningson, Allen R. – 1967 – Associate Professor of Physical Education (1967). Winona State College '58, B.S.; Colorado State College '61, M.S.

Swartz, L. Gerard – 1958 – Professor of Zoology (1968). University of Illinois '53, B.S.; '54, M.S.; '58, Ph.D.

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Tabbert, Russell – 1972 – Associate Professor of English (1975). University of Iowa '63, B.A.; '69, Ph.D.

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Terry, Joseph M. – 1976 – Instructor in Economics (1976). Stanford University '67, A.B.; University of Washington '72, M.A.; University of California, Santa Barbara '72, C.Phil.

Thomas, Bruce I. – 1975 – Affiliate Professor of Mining Engineering (1975). University of Alaska '35, B.S.

Thomas, Monica E. – 1971 – Assistant Professor of Economics (1977). Miami University '63, A.B.; Washington State University '70, M.A.

Thomas, Wayne C. – 1971 – Associate Professor of Economics (1975), Agricultural Experiment Station. California State Polytechnic College '65, B.S.; University of Nevada '67, M.S.; Washington State University '71, Ph.D.

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Tilsworth, Timothy – 1970 – Associate Professor of Environmental Quality Engineering (1974). University of Nebraska '66, B.S.C.E.; '67, M.S.C.E.; University of Kansas '70, Ph.D.

Tinsley, Ronald – 1976 – Affiliate Assistant Professor of Medical Science (1977). Illinois State University '58, B.S.; Meharry Medical College '60, M.D.

Tisdel, Myron A. – 1974 – Program Manager KUAC-TV (1977). San Diego State University '66, B.S.

Tomczak, Theresa Helen – 1966 – Associate Professor of Physical Education (1972). State University College of New York '61, B.S.; Syracuse University '66, M.S.

Triplehorn, Don M. – 1969 – Professor of Geology (1977). Ohio Wesleyan University '56, B.A.; Indiana University '57, M.A.; University of Illinois '61, Ph.D.

Turner, A. John L. – 1966 – Associate Professor of Education (1970). McMurry College '51, B.S.; North Texas State University '55, M.Ed.; New Mexico State University '66, Ed.S.

Turner, Donald L. – 1970 – Associate Professor of Geology (1970), Geophysical Institute. University of California, Berkeley '60, A.B.; '68, Ph.D.

Turner, Patricia – 1967 – Community College Teacher, Office Occupations (1975). Southern Methodist University '51, B.B.A.; North Texas State University '54, M.B.E.

Tussing, Arlon – 1965 – Adjunct Professor of Economics (1977), Institute of Social and Economic Research. University of Chicago '50, A.B.; Oregon State College '52, B.S.; University of Washington '65, Ph.D.

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Van Cleve, Keith – 1967 – Professor of Forestry (Soils) (1976). University of Washington '58, B.S.; University of California, Berkeley '60, M.S.; '67, Ph.D.

Van Ness, Howard A. – 1974 – Assistant Professor of Education (1974). Goddard College '65, A.B.; Harvard University '72, Ed.M.

Van Veldhuizen, Philip A. – 1963 – Professor of Mathematics (1974). Central College '52, B.A.; State University of Iowa '60, M.S.

Vorkink, William – 1975 – Affiliate Assistant Professor of Medical Science (1975). Southern Utah State College '67, B.S.; University of Arizona '72, Ph.D.

Walker, Cynthia L. – 1977 – Assistant Professor, English (1977). Denison University '70, B.A.; Purdue University '72, M.A.; '74, Ph.D.

Weeden, Robert B. – 1967 – Professor of Resource Management (1976). University of Massachusetts '53, B.S.; University of Maine '55, M.S.; University of British Columbia '59, Ph.D.

Weller, Gunter E. – 1968 – Associate Director for Planning (1977) and Professor of Geophysics (1973), Geophysical Institute. University of Melbourne '62, B.S.; '64, M.S.; '67, Ph.D.

Wendler, Gerd – 1966 – Associate Professor of Geophysics (1970), Geophysical Institute. University of Innsbruck '64, Doktor der Philosophie.

Wentink, Tunis, Jr. – 1970 – Professor of Physics (1970), Geophysical Institute. Rutgers University '41, B.S.; Cornell University '54, Ph.D.

Wescott, Eugene – 1958 – Professor of Geophysics (1974). Geophysical Institute. University of California, Los Angeles '55, B.A.; University of Alaska '60, M.S.; '64, Ph.D.

West, George C. – 1963 – Director, Biome Center (1970), and Professor of Zoophysiology (1968), Institute of Arctic Biology. Middlebury College '53, A.B.; University of Illinois '56, M.S.; '58, Ph.D.

West, Sharon M. – 1973 – Assistant Professor of Library Science (1975). Southern Colorado State College '69, B.S.; University of Denver '70, M.A.

Whipple, Bruce G. – 1978 – Affiliate Assistant Professor of Medical Science (1978). Wheaton College '61, B.S.; University of Washington '65, M.D.

White, Robert Gordon – 1970 – Associate Professor of Zoophysiology and Nutrition (1975), Institute of Arctic Biology. University of Melbourne '62, B.Agr.S.; University of New England '68, M.Rur.S.; '73, Ph.D.

Whitehead, John S. – 1978 – Associate Professor, History (1978). Yale '67, B.A.; '69, M.A.; '71, Ph.D.; University of Cambridge '72, M.A.

Wiese, Craig S. – 1977 – Instructor of Marine Science (1977), Alaska Sea Grant Program. Oregon State University '66, B.S.; '74, M.S.; '76, M.B.A.

Wiggins, Linda E. – 1976 – Instructor of Cross-Cultural Communications (1976). University of Kentucky '72, B.A.; '74, M.A.

Williams, Darrell D. – 1968 – Adjunct Associate Professor of Medical Science (1976). University of Missouri '60, B.A.; '62, M.A.; '65, Ph.D.

Winford, George M. – 1976 – Assistant Professor of Journalism (1976). Louisiana State University '64, B.A.; '76, M.J.

Wilson, Charles R. – 1951 – Professor of Physics (1971), Geophysical Institute. Case Institute of Technology '51, B.S.; University of New Mexico '56, M.S.; University of Alaska '63, Ph.D.

Wilt, John B. – 1973 – Acting Head, Department of Military Extension (1978) and Assistant Professor of Military Extension (1976). Kansas State '68, B.A.; '70, M.A.; University of Alaska '73, A.A.

Woldseth, Mark E. – 1978 – Ski Coach (1978). Pacific Lutheran University '70, B.A.; University of Colorado '75, M.S.

Wolf, Aron S. – 1975 – Adjunct Assistant Professor of Medical Science (1976). Dartmouth College '59, B.A.; University of Maryland Medical School '63, M.D.

Wolf, Bruce J. – 1976 – Affiliate Assistant Professor of Medical Science (1977). Washington State University '63, B.S.; University of Washington '67, M.D.

Wolff, Ernest N. – 1966 – Professor of Mineral Exploration (1971) and Associate Director, Mineral Industry Research Laboratory (1970). University of Alaska '41, B.S.; University of Oregon, '59, M.S.; '65, Ph.D.; P.E.

Wooding, Frank – 1970 – Associate Professor of Agronomy (1975), Agricultural Experiment Station. University of Illinois '63, B.S.; Kansas State University '66, M.S.; '69, Ph.D.

Workman, Jolene J. – 1975 – Coordinator, Office Occupations/ Office Administration (1975). Utah State University '64, B.S.; '67, M.S.; Brigham Young University '77, Ed.D.

Workman, William G. – 1973 – Assistant Professor of Economics (1973). University of Wyoming '69, B.S.; Utah State University '72, M.A. '72, Ph.D.

Worrall, Joseph A., Jr. – 1973 – Adjunct Assistant Professor of Medical Science (1975). Stanford University, A.S.T.P.; Cornell University Medical College, M.D.

Wreggit, John D. – 1976 – Adjunct Assistant Professor of Medical Science (1976), University of Michigan Medical School '64, M.D.

Wright, Gordon Brooks – 1969 – Associate Professor of Music (1974). College of Wooster '57, B.M.; University of Wisconsin '61, M.A.

Zach, Howard L. – 1970 – Associate Professor of Business Administration (1974). Colorado State University '64, B.S.; '66, M.S.

Zarling, John P. – 1976 – Head, Department of Mechanical Engineering and Associate Professor of Mechanical Engineering (1976), Michigan Technological University '64, B.S.M.E.; '66 M.S.E.M.; '71 Ph.D.E.M.

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Anderson, James H. – 1970 – Research Associate in Plant Ecology (1976), Institute of Arctic Biology. University of Washington '63, B.S.; Michigan State University '70, Ph.D.

Angaiak, Andrew P. – 1978 – Head, Student Orientation Services (1978). Washington State University '76, B.A.; University of Washington '78, M.S.W.

Appel, Frank B. – 1977 – Business Manager, Naval Arctic Research Laboratory (1977). Central Washington University '64, B.A. Seattle University '78, M.B.A.

Arobio, Edward L. – 1977 – Research Associate in Economics (1977). University of Nevada, Reno '73, B.S.; '76, M.S.

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Bowkett, Gerald E. – 1971 – Director, Informational Services (1978). San Francisco State College '52, B.A.

Bradbury, John A. – 1970 – Facilities Supervisor-Glassblower, Institute of Marine Science (1975).

Brancheau, James C. – 1977 – Administrative Systems Programmer/Analyst (1977). Michigan State University '72, B.S.

Brewster, Dorothy T. – 1967 – Executive Officer, Institute of Marine Science (1978).

Brogan, Judith S. – 1974 – Editor and Production Coordinator (1978), AEIDC. University of Alaska '73, B.A.

Brown, Carol W. – 1975 – Operations Coordinator, Wood Center (1975).

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Causey, George D. – 1976 – Director of Engineering, KUAC (1976).

Chadwick, Amelia B. – 1977 – General Accountant, General Ledger (1978). New Hampshire College of Accounting '69, B.B.S.

Chanar, David J. – 1976 – Counselor, SOS (1976). University of Alaska '74, B.Ed.

Chappell, Mark A. – 1978 – Post Doctoral Research Associate (1978), Naval Arctic Research Laboratory. University of California, Santa Cruz '73, B.A.; Stanford University '77, Ph.D.

Clement, Ruth A. – 1976 – Assistant Director of Statewide Personnel (Trainee) (1978).

Cole, Henry P., Jr. – 1969 – Senior Research Assistant (1969), Geophysical Institute. Williams College '59, B.A.; Michigan State University '63, M.S.

Crevensten, Daniel C. – 1963 – Administrative Consultant to the Director, Geophysical Institute (1977).

Crouse, John R. – 1978 – Staff Pilot, Naval Arctic Research Laboratory (1978). University of California, Sacramento '73, B.S.

Crowe, Ronald G. – 1972 – Editor, ISER (1973). University of Alabama '58, B.A.; University of Alaska '78, M.F.A.

Cuccarese, Sal V. – 1976 – Wildlife Biologist (1976). Southwestern '73, A.S.; San Diego State University '75, B.S.

Cutler, Howard A. – 1976 – Chancellor and Professor of Economics (1976). State University of Iowa '40, B.A.; '41, M.A.; Columbia University '51, Ph.D.

Delana, Brett S. – 1973 – Project Engineer (1975), Geophysical Institute. Oregon State University '71, B.S.E.E.; University of Alaska '73, M.S.

Demmert, Dennis – 1974 – Director, Native Studies (1974). Harvard University '72, Ed.M.

Demmert, Jane P. – 1975 – Staff Assistant to President (1978). Jackson College '72, B.A.; Tufts University '72, M.Ed.

Dhingra, Ashok K. – 1976 – Director, Budget Development (1977). Panjab University, India '68, B.S.C.E.; University of California, Los Angeles '70, M.B.A.

Dickey, Terry P. – 1973 – Coordinator, Museum Exhibits and Educational Programs (1976). University of Tulsa '66, B.A.

Diebold, Foster F. – 1976 – President, University of Alaska, Statewide System (Dec. 1977). Monmouth College '60, B.S.; Seton Hall University '66, M.A.

Dieter, Emma R. – 1962 – Marine Superintendent (1975), Institute of Marine Science. DePaul University '59, B.S.

Dixon, E. James – 1975 – Curator of Archeology (1975), University of Alaska '70, B.A.; '72, M.A.

Dronenburg, Ray B. – 1977 – Marine Operations Supervisor, Naval Arctic Research Laboratory (1977). Seattle University '62, B.S.

Dwight, Linda Perry – 1973 – Hydrologist and Information Services Supervisor (1975), AEIDC. Colgate University '71, B.A.

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Emmert, Reginald A. – 1969 – Cinematographer in charge of motion picture, video, and still picture services (1969). Michigan State University '67, B.S.; Central Michigan University '77, M.A.

Ernst, Rolf – 1974 – Director of Auxiliary Services (1976). Idaho State University '68, B.S.

Estes, Steven A. – 1975 – Research Associate, Geophysical Institute (1978). University of Hawaii '72, B.S.E.E.; '74, B.S.; University of Alaska '78, M.S.

Evans, Charles D. – 1972 – Resource Biologist, AEIDC (1972). University of Minnesota '48, B.S.; '51, M.S.

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Flesher, Ted R. – 1976 – Logistics Coordinator, Geophysical Institute (1977). Arizona State University '70, B.A.

Follmann, Erich H. – 1976 – Research Associate, Naval Arctic Research Laboratory (1976). Loyola University, Chicago '65, B.S.; Southern Illinois University '68, M.A.; '73, Ph.D.

Fox, Patricia J. M. – 1974 – Statistical Analyst (1974). University of Washington '73, B.S.

Frol, Anthony B. – 1968 – Director of Administrative Services (1976). University of Washington '42, B.A.; '51, M.B.A.

Fullam, Timothy J. – 1975 – Manager, Academic Services, University of Alaska Computer Network (1975). Cornell University '65, B.A.; University of Washington '67, M.S.; '69, Ph.D.

Garrison, Kenneth D. – 1976 – Director, Facilities Planning and Construction (1976). University of Washington '51, B.A.

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George, Robert – 1974 – Pub Manager, Wood Center (1978). University of Alaska '78, B.A.

George, Thomas H. – 1973 – Applications Specialist, Geophysical Institute (1976). Oregon State University '73, B.S.

Gillman, Wendell W. – 1970 – Job Analyst (1970).

Greiner, Ida B. – 1974 – Head of Financial Aid (1974).

Gruenig, Thomas B. – 1974 – University Counsel (1974) and Assistant to the President for Personnel Relations (1978). California State University, San Jose '60, B.S.; University of California at Berkeley '63, J.D.; '68, M.A.; '71, Ph.D.

Gumm, Richard G. – 1976 – Upward Bound Coordinator/SOS Counselor (1976). University of Alaska '75, B.A.

Hadley, Raymond S. – 1969 – Assistant Director, Alaska Sea Grant Program (1978). Springfield College '65, B.S.; University of Alaska '69, M.S.

Hall, George E. – 1964 – Science Coordinator, Naval Arctic Research Laboratory (1977). University of Alaska '67, Assoc. in Arts.

Hallsten, John G. – 1977 – Staff Counselor, HS&S (1977). Gustavus Adolphus '54, B.A.; University of Northern Colorado '75, M.A.; '78, Ph.D.

Hansen, Cydney A. – 1975 – Supervisor, Data Management, Institute of Marine Science (1978). University of Colorado '72, B.A.

Hanson, Howard L. – 1971 – Student Loan, Bond and Endowment Accountant (1978). University of Washington '70, B.A.

Hartman, Charles W. – 1967 – Executive Officer, School of Agriculture and Land Resources Management (1978). Rutgers University '64, B.A.; University of Alaska '67, B.S.

Hassler, Thomas J. – 1978 – Technical Director, University of Alaska Computer Network (1978). Indiana University of Pennsylvania '67, B.A.; University of Pittsburgh '68, M.L.S.

Hermes, Dorothy J. – 1969 – Office Manager, Chancellor's Office (1976).

Hickok, David M. – 1970 – Director, Arctic Environmental Information and Data Center (1972). Syracuse University '47, B.S.

Holleman, Dan Foy – 1969 – Radiobiologist (1969), Institute of Arctic Biology. Howard Payne College '61, B.S.; New Mexico Highlands '65, M.S.; Colorado State University '66, M.S.; '69, Ph.D.

Human, Judson D. – 1977 – Manager of Administrative Systems (1977). Southern Methodist University '64, A.B.; University of Dallas '74, M.B.A.; '77, Certified Data Processor.

Jacobson, William C. – 1971 – Special Assistant, Grants and Contracts (1978). University of Alaska '58, B.B.A.

Jensen, Kathryn P. – 1974 – Station Manager/Program Director KUAC-FM (1976). University of Alaska '74, B.A.

Joy, Barbara S. – 1978 – Payroll Accountant (1978). University of Alaska '73, B.B.A.

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Kamerling, Leonard J. – 1971 – Project Coordinator (1974), Center for Cross-Cultural Studies, School of Education.

Kassel, Karl W. – 1975 – Program Coordinator, Wood Center (1978). SUC Brockport, New York '74, B.S.

Keyes, W. Ronald – 1972 – Head, Wood Center and Student Activities (1972). Oregon College of Education '66, B.S.; Oregon State University '69, M.S.

Killewich, Lois A. – 1977 – Research Associate, Alaska Sea Grant Program (1977). Raymond College '72, B.A.; Columbia University '77, Ph.D.

Klebesadel, Leslie J. – 1957 – Research Leader and Research Agronomist, Agricultural Experiment Station (Palmer Research Center), (1968). University of Wisconsin '55, B.S.; '56, M.S.; '58, Ph.D.

Knoop, Rita A. – 1978 – Environmental Educator, AEIDC (1978). Elementary Education '73, B.A.; Environmental Education '77, M.S.

Konigsberg, Charles – 1977 – Historian (1977). Harvard '49, A.B.; Princeton '60, M.P.A.; '60, M.A.; '66, Ph.D.

LaBelle, Joseph C. – 1974 – Geomorphologist, AEIDC. University of Massachusetts '69, B.S.

Lake, Joseph B. – 1969 – Manager Accounting and Business Operations, Administrative Services (1977). University of Michigan '52, B.A.; Indiana University '62, Accounting Certificate.

Langston, Ann Lizbeth – 1978 – Librarian III, Naval Arctic Research Laboratory (1978). University of California, Berkeley '75, A.B.; University of California, Los Angeles '77, M.L.S.

Larsen, Dinah Wolfe – 1967 – Assistant Professor and Curator (1976), Museum. State University of Iowa '61, B.A.; University of California, Los Angeles '75, M.A.

Laughlin, Winston M. – 1949 – Soil Scientist U.S.D.A., Agricultural Experiment Station (Palmer Research Center) (1949). University of Minnesota '41, B.S.; Michigan State University '47, M.S.; '49, Ph.D.

Laursen, Gary A. – 1976 – Assistant Director for Science, Naval Arctic Research Laboratory (1976). Western Washington State College '65, B.A., B.S.; University of Montana '70, M.S.T.; Virginia Polytechnic, Institute and State University '75, Ph.D.

Leary, William C. – 1972 – Assistant Fire Chief (1972).

Leask, Linda E. – 1977 – Research Associate, ISER (1978). University of Wyoming '73, B.A.

Leonard, Leroy E. – 1972 – Research Associate in Engineering, Geophysical Institute (1976). University of Alaska '72, B.S.E.S.

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Lyons, Robert H. – 1977 – Systems Programmer, University of Alaska Computer Network (1977). Michigan State University '74, B.S.C.P.S.

Machetanz, Fred – 1963 – Distinguished Associate in Art (1963). Ohio State University '30, B.A.; '35, M.A.; University of Alaska '73, D.F.A. (Hon.).

MacKeith, Peter L. C. – 1976 – Research Assistant (1976), Geophysical Institute. Cambridge University '71, B.A.; Imperial College, London University '74, M.Sc.; D.I.C.; Cambridge University '75, M.A.

MacTaggart, Terrence J. – 1977 – Acting Dean, School of Summer Sessions and Continuing Education (1978). Canisuis College '67, B.A.; St. Louis University '70, M.A.; '76, Ph.D.

Mansell, Nancy A. – 1974 – Staff Accountant (1977). University of Washington '47, B.A.

Martin, Kenneth K. – 1963 – Head, Institutional Studies and Testing (1976), Admissions and Records and Associate Professor of Education (1966). North Texas State University '52, B.S.; '53, M.Ed.; University of Denver '63, Ph.D.

Massay, Glenn – 1974 – Campus President (1974). California State College, Pennsylvania '59, B.S.; West Virginia University '62, M.A. and '70, Ph.D.

Mather, Keith B. – 1961 – Vice Chancellor for Research and Advanced Study (1976). Adelaide University '42, B.Sc. (Eng.); '44, M.Sc.; University of Alaska '68, (Hon.) D.Sc.

McGary, Mary Jane – 1973 – Editor, Alaska Native Language Center (1977). Reed College '68, B.A.

McHenry, Susan I. – 1972 – Head Counselor, Student Orientation Services (1973). University of Alaska '70, B.A.; '76, M.Ed.

McIntosh, Douglas J. – 1976 – Research Associate in Marine Chemistry (1976), Institute of Marine Science, University of California, Berkeley '61, B.S.

McKendrick, Jay D. – 1972 – Assistant Professor of Agronomy (1972), Agricultural Experiment Station, Palmer Research Center. University of Idaho '63, B.S.; '66, M.S.; Kansas State University '71, Ph.D.

McLaughlin, Laurel – 1976 – Assistant Director of Personnel Services (1976). Towson State College '55, B.S.; Johns Hopkins University '59, M.Ed.

Melteff, Brenda R. – 1974 – Project Coordinator for Extension and Education, Alaska Sea Grant Program (1978). Beverly School of Business '59.

Metz, Paul A. – 1975 – Assistant Econ. Geologist, MIRL (1975). Michigan Tech University '68, B.S.; University of Alaska '72, M.B.A.; '75, M.S.

Metzner, Ronald C. – 1970 – Design Engineer (Project Support Group Geophysical Institute) (1976). Trinity University '69, B.A.; '70, B.S.; University of Alaska '75, M.S.

Miller, John M. – 1958 – Senior Applications Engineer, Geophysical Institute (1977). University of Alaska '60, B.S.; '68, M.S.; P.E.

Million, Wayne – 1978 – Assistant Fire Chief, University Fire Station (1978).

Mitchell, Michael, Jr. – 1978 – Geologist, AEIDC (1978). Alaska Methodist University '64, B.A.

Mohr, Lawrence E. – 1977 – Staff Counselor, HS&S (1977). University of Iowa '70, B.S.; '75, Ph.D.

Muchewicz, Melissa – 1970 – Nursery School Supervisor (1970). University of Alaska '70, B.S.

Mueller, George J. – 1970 – Manager, Seward Station and Museum Curator (1978). Western Washington State College '69, B.A.; '70, M.S.

Myers, Donald E. – 1976 – Acting Associate Director, Institutional Studies (1977). Indiana Central College '67, B.A.; University of Dayton '69, M.S.; Nova University '72, Ph.D.

Nava, Joseph – 1967 – Executive Officer, Division of Life Sciences (1975), Institute of Arctic Biology. University of Alaska '65, B.S.; '70, M.S.

Nebert, David L. – 1971 – Oceanographer (1971), Institute of Marine Science. Portland State University '65, B.S.; University of Alaska '72, M.S.

Nebesky, William E. – 1978 – Research Associate, AEIDC (1978). University of Massachusetts '76, B.B.A.; University of Wisconsin '78, M.S.

Neubert, Gerald V. – 1974 – Associate Director for Planning (1976). University of Detroit '70, B.Arch.

Nickles, John E. – 1973 – Associate Director of Construction. University of Alaska '54, B.S.C.E.

Olmsted, Coert D. – 1975 – Supervisor of Programming and Data Processing Group, Geophysical Institute (1978). Harvard '64, B.A.

Paul, Augustus J. – 1971 – Oceanographer, Institute of Marine Science (1977). University of Massachusetts '69, B.S.; University of Alaska '73, M.S.

Pennell, Stetson H. – 1977 – Librarian, AEIDC (1978). New York State University, College at Cortland '68, B.A.; Long Island University, C. W. Post College '73, M.L.S.

Peterson, John W. – 1977 – Communications Engineer, Geophysical Institute. Western Washington State College '67, B.A.

Phelps, Shirley A. – 1975 – Systems Accountant (1977). University of Alaska '74, B.B.A.

Philip, Kenelm W. – 1965 – Research Associate in Taxonomy, Institute of Arctic Biology (1975). Yale University '53, B.S.; '58, M.S.; '63, Ph.D.

Philo, Lee M. – Research Veterinarian, U.S. Army (1975). Wilkes College '68, A.B.; University of Pennsylvania School of Veterinary Medicine '72, V.M.D.

Plaskett, David C. – 1977 – Research Associate in Archeology, (1978). University of Alaska '74, B.A.; '77, M.A.

Pollock, Kenneth G. – 1977 – Executive Director, University of Alaska Computer Network (1977). McMaster University '61, B. Engr. (Hon.); '67, Ph.D.

Ragle, Richard H. – 1977 – Assistant Director for Operations, Naval Arctic Research Laboratory (1977). Middlebury College '52, A.B.; Dartmouth College '58, M.A.

Reed, D. Bradford – 1975 – Coordinator, Aviation Technology (1975).

Reed, Eugene E. – 1970 – Executive Officer, College of Arts and Sciences (1971). Purdue University '67, B.A.; '70, M.A.

Reed, Irene E. – 1969 – Director, Alaska Native Language Center, CCERE (1976). University of Washington '61, B.A.; University of Alaska '72, M.A.

Rensenbrink, Willy E. – 1961 – Executive Officer, Arctic Environmental Information and Data Center (1972).

Restad, Sigmund H. – 1958 – Assistant Director (1978), Agricultural Experiment Station (Palmer). University of Minnesota '53, B.S.; '54, M.S.

Richardson, Dorothy V. – 1963 – Chief, Grants and Contracts (1977). CPS, '72; University of Alaska '74, B.B.A.; '76, Alaska C.P.A.

Roberts, Jo – 1976 – Post Doctoral Fellow (1977), Institute of Marine Science. University of Alaska '68, B.A.; '69, M.S.; '76, Ph.D.

Robertson, Betsy R. – 1968 – Microbiologist, Institute of Marine Science. Hartwick College '65, B.A.

Robinson, Mark S. – 1975 – Assistant Economic Geologist (1975). Lakewood St. Jr. College '70, Associate of Arts; University of Alaska '73, B.S.; '75, M.S.

Rodda, Thomas C. – 1978 – Senior Budget Analyst (1978). University of Wyoming '64, B.S.; Washington State University '78, M.B.

Roth, Stephen E. – 1971 – Placement Coordinator, Career Planning and Placement, Student Affairs (1977). University of Alaska '73, B.A.; University of Vermont '75, M.A.; University of Alaska '77, M.Ed.

Rowinski, Ludwig J. – 1957 – Director of the University Museum and Associate Professor of Museum Science (1968). Cornell '51, B.S.; University of Alaska '58, M.S.

Russell, Timothy L. – 1977 – Director, Accounting Services (1977). San Jose State '66, Accounting.

Schell, Donald M. – 1969 – Post Doctoral Fellow (1977), Institute of Marine Science. Southeastern Massachusetts University '62, B.S.; University of Alaska '64, M.S.; '71, Ph.D.

Schutt, Merry Tuten – 1976 – University Land Manager (1976). University of California '76, B.A.; University of Michigan '78, M.S.

Scoles, Roger G. – 1978 – Research Associate (1978), Alaska Sea Grant Program. Ohio State University '74, B.S.; University of Delaware '77, M.S.

Scott, Mary M. – 1973 – Programmer/Analyst (1973). Emory University '67, B.B.A.

Scroggin, Tom J. – 1977 – Operation Manager (1977), University of Alaska Computer Network.

Seifert, Morna W. – 1970 – Programmer/Analyst (1977). Westchester State College '70, B.S.

Seifert, Richard D. – 1973 – Research Hydrologist (1973). Westchester State College '70, B.A.; University of Alaska '73, M.S.

Senungetuk, Ronald W. – 1961 – Head, Dept. of Art (1978). School for Am. Craftsmen, Rochester Institute of Technology '60, A.A.S. and B.F.A.; Statens Håndvaerks og Junstindustriskole, Oslo, Norway '61, Diploma.

Shaffer, Cody A. – 1978 – Director of Security (1978). University of Alaska '77, A.A.; '78, B.A.

Shechter, William T. – 1970 – Fire Chief, University Fire Station (1978).

Shelton, Harris W. – 1971 – Dean of Students (1974 and Assistant Professor of Education (1971). University of South Florida '65, B.A.; '67, M.A.; Florida State University '71, Ph.D.

Skaistis, Mark – 1977 – Programmer/Analyst (1977). Western Michigan University '73, B.A.

Smith, Constance K. – 1970 – Coordinator, Community Interest Programs, Tanana Valley Community College (1976). Grinnell College '63, B.A.; Cornell University '67, M.S.

Smith, Steven L. – 1976 – Producer-Director, KUAC (1976). University of Iowa '73, B.G.S.

Sokolov, Barbara J. – 1977 – Librarian, AEIDC (1977). University of Washington '57, B.A.; Rosary College '73, M.A.L.S.; University of Connecticut '78, M.B.A.

Spencer, David L. – 1976 – Wildlife Biologist (1976), AEIDC. Pennsylvania State University '37, B.S.; University of Michigan '40, M.F.

Spencer, Margaret A. – 1971 – Public Affairs Coordinator (1978). Baylor University '68, B.A.

Spengler, Steven G. – 1975 – Assistant Director, Tanana Valley Community College (1975). Olivet College '61, A.B.; University of Alaska '66, M.Ed.; '70, Ed.S.

Spooner, Marlene W. – 1956 – Assistant Director of Admissions and Records (1974). University of Alaska '74, B.A.

Stilkey, Neta J. – 1966 – Business Manager, Geophysical Institute (1973).

Stockholm, Helen K. – 1974 – Director of Publications (1974), Institute of Marine Science. Lamar University '72, B.S.

Stoker, Samuel W. – 1975 – Research Associate (1977). University of Oklahoma '61, B.A.; University of Alaska '73, M.S.; '77, Ph.D.

Stricks, James L. — 1972 — Planning Coordinator in Cross-Cultural Education Development Program, School of Education (1974). Cornell University '71, B.A.; University of Alaska '74, M.A.T.

Strohmaier, Judith A. — 1970 — Head, Department of Conferences and Institutes (1978), and Assistant Professor (1970). University of Wisconsin '57, B.A.; University of Alaska '75, M.A.

Sweet, Fran C. — 1974 — Editor, Alaska Sea Grant Program (1976). Washington State University '63, B.A.

Sweet, Larry R. — 1966 — Executive Officer to the Vice Chancellor for Research and Advanced Study (1975). Washington State University '63, B.S.; University of Alaska '72, M.S.

Taylor, Roscoe L. — 1951 — SEA Location Leader, Research Agronomist, U.S.D.A. Agricultural Experiment Station (Palmer) (1968). South Dakota State University '48, B.S.; Iowa State University '51, M.S.

Taylor, Sally R. — 1966 — Admissions Counselor (1976). Marshall University '59, B.A.; California State College at Long Beach '63, M.A.

Theophilus, Donald R. — 1969 — Dean, School of Summer Sessions and Continuing Education (1978), and Professor of Education (1969). University of Idaho '53, B.A.; Harvard University '58, M.B.A.; University of Michigan '67, Ph.D.

Thompson, Eldon — 1964 — Electrical Engineer (1975), Geophysical Institute. University of Alaska '64, B.S.E.E.

Torgerson, Lester J. — 1963 — Director of Personnel, UAF, (1977). University of Idaho '47, B.S.; Humboldt State University '71, M.A.

Tremarello, Ann — 1957 — Director of Admissions and Records (1974). University of Alaska '57, B.B.A.

Trudgen, David E. — 1977 — Wildlife Biologist (1977), AEIDC. Michigan State University '76, B.S.

Tucker, Juanita M. — 1976 — Writer/Producer, KUAC (1976). University of Arkansas, '65, B.S.B.A.; University of Alaska '75, B.A.

Turner, Kenneth R. — 1966 — Master, R/V Acona (1967), Institute of Marine Science.

Underwood, Larry S. — 1973 — Environmental Physiologist (1976), AEIDC. University of Kansas '59, B.A.; Syracuse University '67, M.S.; Pennsylvania State University '71, Ph.D.

Van Baak, Thomas L. — 1976 — System Software Manager (1976).

Van Nieuwenhuyse, Erwin E. — 1976 — Biologist (1978), AEIDC. Michigan State University '76, B.S.

Vincente, Susan F. — 1974 — University Nurse (1974). Ft. Lewis College '69, B.S.; Miami Valley Hospital School of Nursing '71, Diploma.

Wallace, Charles H. — 1972 — Superintendent, Preventive Maintenance and Custodial Services (1972). Texas Technological College '56, B.S.

Walls, Larry W. — 1977 — Chief Pilot, Naval Arctic Research Laboratory (1978). Central Texas College '73, A.A.

Walstad, David L. — 1971 — Chief Engineer, KUAC (1976).

Walters, Evelyn "Evy" D. — 1975 — Director of Alumni Relations (1975). University of Wisconsin '60, B.A.

Washburn, Richard H. — 1950 — Research Entomologist, U.S.D.A. Agricultural Experiment Station (Palmer Research Center). Michigan State College '41, B.S.; Cornell University '48, Ph.D.

Weber, Florence — 1959 — Distinguished Lecturer in Geology (1964). University of Chicago '43, B.S.; '48, M.S.

Weimar, Leonard C. — 1967 — Support Engineer (1967), Institute of Marine Science.

West, C. Eugene — 1977 — Curatorial Assistant in Archeology (1978). Dickinson State College '60, B.S.; University of Denver '70, M.S.; University of Alaska '78, M.S.

Westman, Carl R. — 1975 — Director, Statewide Personnel (1978). Syracuse University '51, B.S.; '54, M.B.A.; Rutgers University '63, Urban Fellow.

Wilson, James R. — 1978 — Research Associate, Sea Grant (1978). Texas A&M '73, B.A.; Virginia Polytechnic Institute '77, M.S.

Wilson, William J. — 1974 — Fisheries and Wildlife Biologist (1974), AEIDC. Gonzaga University '69, B.S.; Oregon State University '73, M.S.

Wise, James L. — 1975 — Climatologist (1976), AEIDC. Kent State University '53, B.S.; Florida State University '68, M.S.

Wolfer, Susan M. — 1978 — Research Associate (1978). Portland State University '75, B.S.

Worl, Rosita — 1978 — Social Anthropologist (1978), AEIDC. Alaska Methodist University '72, B.A.; Harvard University '75, M.A.

Yamada, Jo Ann M. — 1973 — Financial Aid Advisor (1973). University of Hawaii '71, B.Ed.

Zimmerman, Lloyd W. — 1960 — Staff Pilot (1978), Naval Arctic Research Laboratory.





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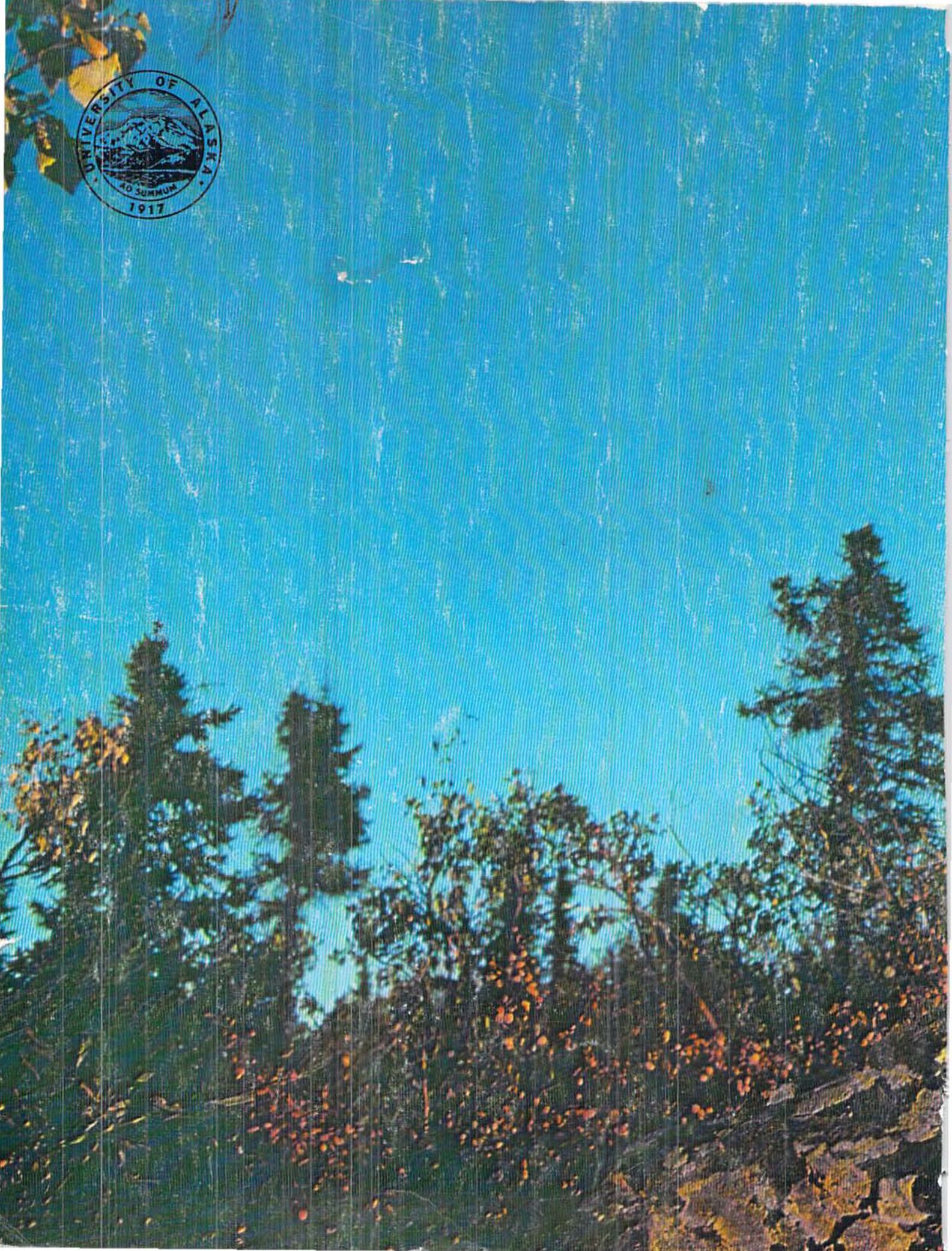
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