

**University of Alaska** 

# KEY TO LOCATIONS

- SERVICES BUILDING Maintenance facilities, Arts and Crafts Center, State Division of Mines and Geology.
- (2) ATKINSON BUILDING - Power plant.
- ALASKA RURAL SCHOOLS PROJECT (3)
- TOTEM POLE (4)
- (5) BUNNELL BUILDING — General administrative offices, classrooms, library, Schaible Lecture Hall, College of Arts and Letters.
- DUCKERING BUILDING Classroom, laboratories, College of Mathematics, Physical Sciences, and Engineering; College of Business, Economics, and Government; Institute of Marine Science, Institute of Arctic Environmental Engineering, Institute of Water Resources, Computer Center, State Highway Testing Laboratory.
- FOREST SCIENCES LABORATORY Institute of Northern Forestry of the U.S. Forest Service.
- BROOKS BUILDING . Classrooms, laboratories, College of Earth Sciences and Mineral Industry, Mineral Industry Research Laboratory.
- 191 MEMORIAL PLAZA
- FINE ARTS AND LIBRARY BUILDING Under construction. Library scheduled (10) for completion in summer of 1969.
- MUSEUM Upper floor houses music facilities. (11)
- (12) EIELSON BUILDING — Classrooms, laboratories, College of Behavioral Sciences and Education, Department of Evening Classes and Correspondence Study, Office of Summer Sessions.
- PUBLIC SERVICE BUILDING Administrative offices, Cooperative (13) Extension Service.
- UNIVERSITY COMMONS Dining facility for dormitory residents.
- (15)McINTOSH HALL - Dormitory.
- NERLAND HALL Dormitory. (16)
- STEVENS HALL Dormitory. LATHROP HALL Dormitory. (17)
- (18)
- [19] PATTY BUILDING — Department of Health, Physical Education, and Recreation facilities and offices, including gym, pool, and rifle range; Reserve Officers Training Corps (ROTC).
- CHAPMAN BUILDING Geophysical Institute (see No. 37). (20)
- (21) WICKERSHAM HALL - Dormitory.
- HESS HALL Dormitory, Student Housing Office. (22)
- (23) CONSTITUTION HALL (Student Union Building) - Visitor Information Center, Student Activities Office, Associated Students of the University of Alaska Office, snack bar and recreational facilities, bookstore, Alumni Services and Graduate Placement Office, KUAC-FM studios and offices.
  - (24)HEALTH SERVICE CENTER
  - FACULTY HOUSING (25)
  - (26)
- STUART HALL Faculty apartments.
  WALSH HALL Married students apartments. (27)
- (28)HARWOOD HALL - Married students apartments.
- (29) PRESIDENT'S RESIDENCE
- (30) SKARLAND HALL - Dormitory.
- BARTLETT HALL Dormitory under construction. (31)
- (32) MOORE HALL - Dormitory.
- LOOKOUT POINT (33)
- U.S. COAST AND GEODETIC SURVEY Observatory houses (34) seismograph installation.
- BIOSCIENCES BUILDING Classrooms, laboratories, College of Biological (35)Sciences and Renewable Resources, Institute of Arctic Biology, Alaska Cooperative Wildlife Research Unit.
- ARCTIC WATER LABORATORY (U.S. Department of the Interior) and ARCTIC HEALTH RESEARCH LABORATORY (U.S. Department of Health, Education, and Welfare).
- ELVEY BUILDING Geophysical Institute facilities under construction. (37)
- COLLEGE FARM Alaska Agricultural Experiment Station. (38)
- (39) COLLEGE INN BUILDING - Institute of Social, Economic, and
- Government Research (second floor). MUSK OX FARM - Station for musk ox domestication project, with viewing (40) platform along Yankovich Road for visitors.



The university's west ridge is the site of a rapidly expanding complex of buildings where research is devoted to the study of the far north environment. A new facility for the university's famed Geophysical Institute is under construction in the foreground.



New Bartlett Hall is rising between Moore and Skarland Halls. These modern residence halls will accommodate 782 students. A new dining facility is being added to this student housing complex.

# 1969-70 University Calendar

1969 Summor Sossian	
Short Session	June 10-27
Regular Session	July 1-Aug. 8
Post-Session	Aug. 11-15
1969 Fall Samaster	
Labor Day Residence Hall Rooms Open N Orientation and Guidance Testing for New Students 8 General Faculty Convocation 10 Faculty Meetings (academic colleges) 2:30 Faculty Meetings (departmental) 9:30 Counseling of Students by Advisers 1 Registration of All Students 8 a.m 9 p Commons Meal Tickets Effective Dim	Mon., Sept. 1
Residence Hall Rooms Open	oon, Mon., Sept. 1
Orientation and Guidance Testing for New Students 8	a.m., <u>Tues., Sept. 2</u>
General Faculty Convocation	a.m., Tues., Sept. 2
Faculty Mactings (academic coneges),	p.m., Tues., Sept. 2
Counciling of Students by Advisors 1.	a.m., wea., sept. s
Registration of All Students 8 a.m 9 n	.m., Thurs, Sept. 4
Commons Meal Tickets Effective Din	ner. Thurs., Sept. 4
Instruction Begins	3 a.m., Fri., Sept. 5
Registration Closes	p.m., Fri., Sept. 19
Last Day to Withdraw without Grades 5 Last Day to Make Up Incompletes 5	p.m., Fri., Sept. 19
Last Day to Make Up Incompletes 5	p.m., Fri., Oct. 17
Six Week Grade Reports	Mon., Oct. 20
Thankeriving Haliday	Thurs Nov. 25
Examination Study Day (no classes)	Tues Dec 16
Semester Examinations 8 a.m., Wed., Dec. 17 - No.	oon. Tues., Dec. 23
Final Grades on File with Registrar	on, Wed., Dec. 24
Six Week Grade Reports Last Day for Student-Initiated Withdrawals Thanksgiving Holiday Examination Study Day (no classes) Semester Examinations 8 a.m., Wed., Dec. 17 - No Final Grades on File with Registrar No End of Fall Semester 5 p	.m., Wed., Dec. 24
1970 Spring Somestor	
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Residence Hall Rooms Open	Joon, Sun., Jan. 11
Residence Hall Rooms Open	Noon, Sun., Jan. 11 a.m., Mon., Jan. 12 Mon. Jan. 12
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# Sources of Information MAIN CAMPUS

University of Alaska Main Campus Mailing Address College, Alaska 99701

Public Rolations, Nows Sorvice Director, University Relations Director of Admissions Admissions and Residence Hall Applications

Scholarships, Loans, Part-Time Employment Director, Student Affairs **Extra-Curricular Activities** Head, Student Activities

> Head, Student Housing Student Housing **Graduate Study** Vice President for Research

Summer Sessions, Off-Campus Dean, Division of Statewide Services

**Educational Programs** 

Head, Alumni Services **Alumni Association** and Graduate Placement

> Agriculture Director, Cooperative Extension Service

and Advanced Study

Dean, College of Earth Sciences Mining and Mineral Industry

Leader, Alaska Cooperative Wildlife Research Unit; Head, Wildlife Management Department Wildlife Management

# SOUTHCENTRAL REGIONAL CENTER

Southcontral Regional Center Mailing Address **Provost** 1820 W. Northern Lights Blvd. Anchorage, Alaska 99501

> Anchorage Community College 1820 W. Northern Lights Blvd. Anchorage, Alaska 99501

Program Director 1820 W. Northern Lights Blvd. Anchorage, Alaska 99501 Elmendorf-Fort Richardson **Evening Classes Unit** 

Kenai Peninsula Community College Resident Director Box 539 Kenai, Alaska 99615

> **Kodiak Community College** Resident Director Box 886 Kodiak, Alaska 99615

Mantanuska-Susitna Community College Resident Director Box 86 Palmer, Alaska 99645

# OFFICE OF PUBLIC SERVICE

Office of Public Service Mailing Address Vice President for Public Service University of Alaska College, Alaska 99701

Juneau-Douglas Community College Resident Director Fifth Street Building Juneau, Alaska 99801

Resident Director Ketchikan Community College Box 358 Ketchikan, Alaska 99901

Sitka Community College Resident Director Box 179 Sitka, Alaska 99835



Memorial plaza adoms the academic core of the university's main campus. Summertime visitors and students are impressed by the profusion of flowers and moderate climate at a campus located only 130 miles below the Arctic Circle.

# **General Information**

#### **HISTORY**

The university dates from July 4, 1915, when the Hon. James Wickersham, delegate to Congress from Alaska, laid the cornerstone on land set aside by Congress on March 14 for the support of a Territorial College and School of Mines. 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 the Hon. Charles E. Bunnell as president. The college became the University of Alaska by act of the Territorial Legislature July 1, 1935; the Board of Trustees became the Board of Regents. The university offered its first summer session in 1947. In 1949, Dr. Terris Moore succeeded President Bunnell, who became President Emeritus.

Dr. Ernest N. Patty, member of the first faculty of the Alaska Agricultural College and School of Mines and former Dean of the College, was inaugurated as the third president of the university in 1953 and named President Emeritus upon his retirement in 1960. Dr. William R. Wood became the university's fourth president at that time.

#### **OBJECTIVES OF THE UNIVERSITY**

Truly unique among institutions of higher learning in the United States, the University of Alaska serves, within the scope of its resources, all of the public educational needs beyond high school of an entire state.

When the Legislature established Alaska's state university, it joined with the national government to make it also a land-grant university with a fivefold function:

To instruct youth and adults seeking higher learning in the liberal arts, the sciences, and the professions.

To increase, and apply through research, knowledge of value to mankind and particularly to the residents of the state.

To serve the people throughout the 586,400 square miles of Alaska as an intellectual, scientific, and cultural resource.

To provide and to develop competent leadership for the people of Alaska in their continued improvement of the state as a good region in which to live.

To strive above all to develop in its students at all levels those qualities of mind and body that are necessary for life as a worthy human being in a democratic society.

#### **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 American Colleges, 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 Insterstate Commission for Higher Education.

The four-year curricula in Mining Engineering and Geological Engineering and five-year curricula in 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 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.

# CAMPUS BUILDINGS AND FACILITIES AT COLLEGE, ALASKA

## Administrative, Classroom, and General Use Buildings

The Bunnell Memorial Building, dedicated to the late Charles E. Bunnell, first president of the university, consists of general administrative offices, classrooms, laboratories, a large lecture hall, and the library. It also includes offices of the College of Arts and Letters.

The Brooks Memorial Mines Building provides space for classrooms, laboratories, offices of the College of Earth Sciences and Mineral Industry, and offices of the United States Geological Survey. 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 BioSciences Building, completed in the winter of 1966, provides offices, research facilities and laboratories for upper division classes of the College of Biological Sciences and Renewable Resources. It also houses the Institute of Arctic Biology.

The Eielson Memorial Building contains general classrooms, laboratories, offices of the College of Behavioral Sciences and Education and the offices of the Division of Statewide Services.

The William E. Duckering Building houses offices, classrooms and laboratories of the College of Mathematics, Physical Sciences and Engineering; the College of Business, Economics and Government; the Institute of Marine Sciences; laboratories of the State Division of Highways, and the Computer Center.

The Ernest N. Patty Building, dedicated to President Emeritus Ernest N. Patty, 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 Museum exhibits thousands of catalogued specimens of Eskimo and other artifacts in mineral, anthropological, ethnological, paleontological, botanical, and natural history fields.

The Sydney Chapman Building houses the Geophysical Institute and is a three-story structure containing facilities for research in Arctic and sub-Arctic natural phenomena and for graduate instruction in geophysics.

Constitution Hall was completed in 1955 and is the University Student Union Building. It houses dining, recreational, and co-curricular facilities. It was the site of the convention of territorial delegates which drafted the Constitution for the State of Alaska. This building provides temporary facilities for a variety of student services and activities. On the ground and main floors are an information booth, book store, game room, barber shop, coat room, and a lounge with television. The Snack Bar, which serves all members of the university community, occupies the entire second floor of Constitution Hall. Located on the third floor are offices of the student government, the student publications, the director of student activities, the radio station, and the alumni and graduate placement office.

The University Commons, completed during the summer of 1963, provides beautiful and functional dining, food preparation, and lounge facilities for all students living in residence halls. Although most meals are served cafeteria style, table service for as many as 570 people is provided on special occasions.

#### THE UNIVERSITY LIBRARY

The University Library is presently housed on three floors in the west wing of the Bunnell Building. The library collection consists of approximately 200,000 volumes, 3,500 periodical and serial titles, 4,500 reels of microfilm, and 226,000 microcards and microfiche. All holdings are available on open stacks for use during the 87 hours per week the library is normally open.

Materials are classified by the Library of Congress system and are checked out by McBee edged punch cards. Nine professional librarians serve the university complex. Faculty members assume the responsibility for those materials needed for their classes. The main floor of the library contains the circulation desk, the card catalog, the reserve book desk, the reference area, periodical and other indexes, the current periodicals, a lounge area where smoking is permitted, study tables for student use, the Acquisition Department, Reader Services Department, and the office of the Director of Libraries. A special collection of books on Alaska and the Polar Regions, known as the Skinner Collection, is also housed on the main floor.

Interlibrary loan service for graduate students and faculty is handled by the Reader Services Department. Books from which faculty may make special assignments are shelved in the reserve book section.

A noncirculating collection of college and university catalogs for use by students and faculty is located on the mezzanine. The Catalog Department and the bibliographic collection are also on this level.

The lower level provides individual study carrels and a microfilm room where microfilm, microcards, and microfiche holdings are available along with the necessary reading equipment for their use. Significant among the holdings are such items as the complete microfilm edition of The New York Times, the Records of the Russian-American Company 1802-1867, and the microfiche edition of the Human Relations Area File.

Back issues of local, national, and international newspapers are available on this level, as are facilities for photocopying printed material. A self-service coin operated copy machine is available for public use on the main floor. Equipment for headphone listening to the non-circulating phonograph record collection and the restricted collection of rare books are also located on the ground floor.

The Public Documents Collection, which includes publications of the U.S. Government (for which the library is a selective depository), Atomic Energy Commission, and other such governmental agencies, along with their indexes, is housed in the utilidor between Skarland Hall and Moore Hall and in the basement of Moore Hall. Access is through Moore Hall.

The manuscript collection and the archives, a depository for university and other Alaska historical records, are located in Room 15 of Bunnell Building. Both the archives and the documents area are open 8 a.m. until 5 p.m. week days.

While classes are in session, the following hours are maintained in the main library:

Monday through Friday	8	a.m.	to	10	p.m.
Saturday	8	a.m.	to	5	p.m.
Sunday	2	p.m.	to	10	p.m.

The new five-story library is planned for occupancy in the fall of 1969. Once again all sections of the University Library will be under one roof.

# THE UNIVERSITY RADIO STATION

The University of Alaska boasts the farthest north FM radio station, KUAC-FM. The station is owned and operated by the university, and has a twofold function — supplying quality programming for the Fairbanks-University community and training speech (broadcast option) majors in the various fields of radio operations.

In January, 1968, KUAC made the switch to stereo, and with the installation of new equipment increased the radiated power potential to 10,500 watts, bringing a "new sound" to a larger area of Interior Alaska.

A four-member professional staff supervises operation of the station which is handled wholly by students.

Of the approximately 330 FM educational radio stations in existence, most stations broadcast five days a week from noon to midnight. In comparison, KUAC operates from 6:00 a.m. to 12:15 a.m., for a total of 18 hours, 15 minutes a day, 7 days a week. While most university owned stations close operations during the summer months, KUAC operates on a year-round basis.

Programming runs the gamut from local productions to national and international. "Serious music" takes up large segments of programming. These segments include productions from The Chicago Symphony, The Boston Symphony, Library of Congress Chamber Music, Metropolitan Opera, International Music Festival, and many others.

FM radio has moved out of the realm of enrichment for the privileged minority and is now aiming at meeting the needs of a total society.

In a period of a few short years, KUAC-FM has become a recognized quality station, equalled by few educational stations throughout the nation.

#### **ALUMNI SERVICES**

The Office of Alumni Services is the headquarters for the Alumni Association and the Graduate Placement Service.

The University of Alaska Alumni Association was founded November 16, 1927. The Association promotes interests in the university among graduates and former students of the university in an effort to encourage continuing education among alumni, to advance the scholastic standing and the physical plant of the institution, and to preserve its history and traditions. There are independent branch chapters in Juneau, Seward, Anchorage, Fairbanks, Palmer, and Nome, Alaska, as well as two chapters in California and two chapters in Washington State. The Association has an office on campus in Constitution Hall. All correspondence should be addressed to: Executive Secretary, Alumni Association, University of Alaska, College, Alaska 99701.

All graduates and former students who have taken courses for credit at the University of Alaska, including any of its community colleges, are eligible to belong to the Association. There are no dues but members are asked to contribute to the Annual Fund each year. The Alaska Alumnus, a quarterly magazine, is published by the alumni office.

Graduate Placement Service is a student personnel service which operates as a division of the Office of Alumni Services. The service provides a central search for new or better positions. Employers may notify the office of their need for qualified, university-trained men and women. The office maintains a job research service which seeks to provide continuous, accurate information regarding current and anticipated employment conditions.

Students who desire positions in business or technical fields should register in the fall. Many companies conduct year-round recruitment programs. Education majors seeking teaching positions should register before the beginning of the second semester. Registration may be initiated at any time during the final year of study even though course work is not completed. All graduating seniors are urged to take advantage of this service.

# **ENROLLMENT SUMMARY 1968-69 First Semester**

	Men	Women	Total
Freshmen	466	294	760
Sophomores		123	364
Juniors		93	291
Seniors	163	71	234
Graduates	116	40	156
Without Class Standing		181	353
Transfers	11	14	25
Post Graduates	41	16	57
Totals	1408	832	2240

# **ENROLLMENT DISTRIBUTION 1968-69 First Semester**

Alaska	1022	684	1706
Other States and U.S. Possessions		135	476
Foreign Countries	45	13	58
P.			
Totals	1408	832	2240



Dr. R. Sage Murphy, director of the university's Institute of Water Resources, assists Ann Miller with a laboratory experiment.

# **Admissions**

#### **REQUIREMENTS FOR ADMISSION**

#### Admission as a Freshman

# High School Graduates — Baccalaureate Programs

#### Residents

An Alaskan high school graduate with an academic average of "C", or higher, is eligible for admission. An Alaskan whose high school grades averaged less than "C" will be considered for admission to the university only if his performance on a qualifying test demonstrates that he has the capacity to undertake successfully college academic work. The test required in such cases is prepared by the American College Testing Program. The ACT test is administered at testing centers throughout the country in November, February, April, and June of each year. Most Alaska high schools serve as ACT testing centers in November and/or February. Arrangements for taking the ACT test may be made through high school principals or guidance officers. The cost of the test to the student is \$4.

#### Non-Residents

A non-resident high school graduate with an academic average of "B", or higher, is eligible for admission. A non-resident whose high school grades averaged less than "B" will be considered for admission to the University only if his performance on a qualifying test demonstrates that he has the capacity to undertake successfully college academic work. The test required in such cases is prepared by the American College Testing Program. 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.

## **High School Subject Requirements**

A high school graduate offering the following pattern of studies will have no deficiencies in any program that he enters.

SUBJECT	nits
English	3
Mathematics:	
Algebra	2
Geometry	
Trigonometry	
One Foreign Language	
United States History	
Physics or Chemistry	
Natural or Social Science	
Elective	4
TOTAL	151/2

The specific entrance requirements for a high school graduate of the six colleges of the university are given below:

College 1	English	Mathe- matics	°°Foreign Language		or Social	Academic and Elective
College of Arts and Letters	3	Algebra-1 Geom1	2	1	2	5
College of Behavioral Sciences and Education	ı <b>:</b>					
Anthropology, Psychology and Sociology	3	2	2	1	4	5
Education and Home Economics	3	°2	0	1	2	7
College of Biological Sciences and Renew- able Resources	3	†Algebra-2 Geom1 Trig1/2	*	1	Physics or Chemistry— Biology or Elective—1	7
College of Business, Economics and Government	tı					
Business Administration	3	2	<b>‡</b>	1	2	7
Economics, History and Political Science	3	2	2	1	2	5
College of Earth Sciences and Mineral Industry	;					
Geology, Geological Engineering, Mining Engineering	3	Algebra-2 Geom1 Trig½	0	1	Physics or Chemistry—I	7½
Geography	3	2	2	1	4	5
College of Mathematics, Physical Sciences and Engineering	3	Algebra-2 Geom1 Trig1/2	0	1	Physics or Chemistry—	7½ 1

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

\*° Students who offer two units of a high school foreign language will normally enroll in second year language. See placement tests, page 36.

Entering freshmen whose background of training in English and mathematics appears to be deficient when measured by placement tests may be required to take Engl. I or Math. 105 or both. Achievement of a certain level of excellence in these subjects is essential to succeed in other areas of study. These basic English and mathematics courses are especially designed to assist the student in achieving these competencies.

When a student is deficient in specific subjects, but offers a satisfactory general record, he may enter with an entrance deficiency. The

<sup>†</sup> 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, such as graduate work, medicine, etc.

<sup>‡</sup> Two years of French, German, or Russian language highly recommended. See departmental curricula.

student must remove deficiencies during the freshman year. All courses taken to remove deficiencies must satisfy the department head concerned and must be in the subject in which the student is deficient.

# 2. Non High School Graduates — Baccalaureate Programs

Mature students, at least 21 years of age, residing in Alaska, who have not graduated from high school, or been awarded a high school diploma on the basis of GED military tests, or have not completed any previous college level work, may be admitted. Such students may be converted to "regular" status and become baccalaureate degree candidates after completion of not less than 30 collegiate semester hours of credit with at least a "C" average (2.00).

# 3. High School Graduates — Associate Programs

Any high school graduate is eligible for admission to all associate degree programs except electronics technology (see page 159).

#### **Admission of a Transfer Student**

Transfer students from other accredited institutions are considered for admission provided they have a 2.00 grade point average and honorable dismissal. The university will transfer credits from other accredited institutions when the grades of courses completed are "C" or above. Transfer credits are evaluated and equated by the Registrar and approved by the department head after a student is admitted to the university. The university reserves the right to reject work of doubtful quality or to require an examination before credit is allowed.

Transfer students with less than 30 acceptable credits are required to take the tests prepared by the American College Testing Program. 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.

Members of the Armed Forces who have taken USAFI courses may, upon presentation of credentials to the university's head of Evening Classes and Correspondence Study, receive credits as recommended in the Evaluation of Educational Experiences of the Armed Forces. College credit will not be allowed for the General Education Development Tests.

Credit for military service may be substituted for the ROTC and/ or physical education requirements.

#### **Admission of Post Graduate and Graduate Students**

Post Graduate — Students who hold a bachelor's degree but who have not defined their graduate program or declared the subject in which they wish to pursue their studies toward a higher degree may be admitted as "Post Graduates." Registering as a post graduate is

satisfactory for those who hold a bachelor's degree and who have the following or similar purposes:

- 1. Students who plan to take "interest" courses.
- 2. Students completing work for a teaching certificate.
- 3. Students completing a second undergraduate major and/or a second bachelor's degree.
- 4. Students 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.

Graduate — See page 31.

#### **Admission of Others**

Special Students — Mature students, at least 21 years of age, who have graduated from high school and/or attended college previously may be admitted without filing transcripts of high school or college work completed. Such students are limited to enrollment in two classes unless special permission is obtained. Special students are subject to the academic regulations of the university, but are not considered degree candidates until regular admission requirements are met and transcripts filed.

Auditors — Auditors are students who enroll for informational instruction only. They do not receive academic credit, have laboratory privileges, or submit papers for correction and grading. They must apply for admission, register formally on the designated registration dates, obtain approval of class instructors, and pay the required fees.

A course in which a student is registered as an auditor may not be completed for credit by examination at a later date.

High School Students - To facilitate the transition and adjustment from high school to college the university has made special provisions for students of varied background and ability. Qualified Alaskan high school seniors of advanced academic standing and ability are permitted to enroll, while attending high school, in certain University of Alaska classes taught by university faculty and to enroll in college courses which may be offered at authorized high schools. To qualify for admission to college classes while still attending high school, a high school senior must have the recommendation of his high school principal, the approval of his parents, and a satisfactory score on the usual testing program required for entering students. Credits earned in such college classes may not be applied to high school graduation, but will apply toward graduation from the university and may be transferred to other universities following graduation from high school, provided the grades earned are satisfactory. Seniors who are interested in participating in this program should contact their high school principal.

After enrollment at the university, a student may receive credit by presenting acceptable CEEB Advanced Placement Test Scores, or the equivalent, when test scores warrant it and may receive course credit by examination upon presentation of adequate justification.

## APPLYING FOR ADMISSION

# When to Apply

Seniors in high school should make application for admission during the last semester of their senior year, if they plan to enroll at the university during the next fall semester. Transfer students should apply after the completion of a semester or school year, so that a complete transcript can be sent. Graduate students should make application during their senior year of college. Applications for admission should be presented no later than August I for the fall semester and December 1 for the spring semester. Applications received after these closing dates may be considered for the following semester.

# How to Apply — Read Carefully

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

- 1. Application for Admission. The \$10 application fee must accompany the completed application for admission form.
- 2. Scholastic Records. A secondary school record form completed by the high school where the applicant finished his high school work should be mailed by the high school. Applicants are required to submit complete official transcripts of all high school and college credits. Secondary school records are not required of graduate student applicants and those transfer students who have completed more than one full year of college work elsewhere. If the work has been taken at two or more collegiate institutions, an original transcript from each college attended is required. These transcripts should be sent directly from the registrar of the college where the work was taken to the Director of Admissions and Registrar at the University of Alaska. The applicant is responsible for securing these scholastic records. An application for admission is not processed until all such records are on file. Any person who willfully refrains from transferring all of his scholastic records or giving full information concerning previous attendance at other institutions will not knowingly be accepted or retained as a student.
- 3. ACT Test. Results from the tests prepared by the American College Testing Program (ACT) or the Educational Testing Service (SAT) are required for all entering freshmen and those transfer students with less than 30 semester hours of transfer-

able credit. Test results must be on file with the office of the Director of Admissions and Registrar before an application can be accepted. It is the responsibility of the student to have the test results sent to this office.

It is suggested that whenever possible, applicants complete the ACT test since this is a registration requirement for all entering freshmen and transfer students with less than 30 semester hours of transferable credit.

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 ability to undertake graduate study and research.

## After Acceptance

After receiving and processing the above materials, the Registrars' Office will mail to the student a statement of acceptance. After the acceptance statement is received, the following items, where applicable, should be completed and mailed to the proper offices within the time limits suggested.

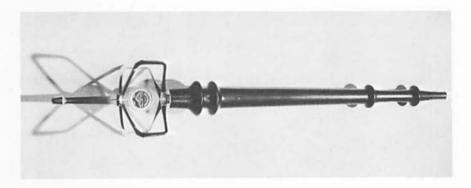
- 1. College Catalogs (transfer students only). Transfer students are responsible for having catalogs of colleges previously attended sent to the Director of Admissions and Registrar at least two months prior to the expected date of enrollment.
- 2. Medical and Physical Examination, Registration at the university is dependent upon the applicant having completed a recent physical examination which will confirm that his health is sufficient to enable him to undertake successfully the course of study for which he is applying. This requirement applies to all new students enrolling in seven credits or more, any students enrolling in seven or more hours for the first time, and to former students returning to the university after an absence of two or more semesters enrolling in seven or more credits. The physical examination is to be completed by the physician of the applicant's choice, and recorded on the university physical examination form, no earlier than five months before registration and no later than two weeks before registration. Evidence of smallpox vaccination within three years and results of a Tuberculin Test within the year (also of chest x-ray within the year if the test is positive) must be included. These all must be received by the University Nurse before registration may be completed. A physical examination form will be sent with the notice of acceptance.
- Residence Hall-Board Contract and Advance. All accepted single students will receive a residence hall-board contract with their acceptance notice from the Registrar's Office. In order to secure a room in the residence hall, this form should

be completed immediately and mailed to the Head of Student Housing, University of Alaska, with a \$35 room advance. For additional information on single student housing and/or married student housing, see the appropriate sections in this catalog.

## Conditional and Final Acceptance

Qualified applicants can be accepted for admission while currently enrolled in their last semester of high school or at another college. However, the acceptance is conditional upon receipt of an official transcript indicating the satisfactory completion of the work in progress at the time of acceptance and in the case of high school seniors and graduate applicants, the 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.



The University of Alaska ceremonial mace is carried by the Marshal of the University at the head of processionals and recessionals during annual baccalaureate and commencement exercises. The mace now in use was designed and fashioned of silver, jade, and rosewood by Ronald W. Senungetuk, assistant professor of design, on commission from the University of Alaska Alumni Association. At the apex of the mace, mounted back-to-back, are the seals of the university and the State of Alaska. The mace was presented to the university by the Alumni Association in 1967 — the golden anniversary year of the founding of the university.



Construction is being completed on the university's \$10.3-million library and fine arts center, a complex of four major buildings joined by a great hall. The five-story library, in the foreground, will hold 400,000 volumes.

# Fees and Expenses

Summary of Semester Charges		
Undergraduate Full-time Students:	Resident	Non-Rosidant
University Fee	\$100.00	\$250.00
Campus Activity Fee		26.00
Recreational-Athletic Fce\$ 4.50		
Associated Student Fee 16.50		
Campus Activity Center		
Construction Fee 5.00		
Health Service Fee	18.00	18.00
	\$144.00	\$294.00
Dormitory Rent (double room)	230.00	230.00
Meal Tickets (2nd sem. \$354.00)		349.00
Transition (and being 900 hos)		
Total Fees	\$723.00	\$873.00
Undergraduate Part-time Students (7 to 11 credit	hours):	
University Tuition Fee:	•	
7-credit hours	\$110.00	\$135.00
8-credit hours	•	160.00
9-credit hours		185.00
10-credit hours		210.00
11-credit hours		235.00
Campus Activity Fee	10.00	10.00
Associated Student Fee\$5.00		
Campus Activity Center Fee 5.00		
Recreational Athletic Fee (\$5.00)	(voluntary)	(voluntary)
Health Service Fee (\$18.00)	(voluntary)	(voluntary)
Dormitory Rent (\$230.00)	space	e available
Meal Tickets (\$350.00)	(voluntary)	(voluntary)
. All semester charges are payable each seme	ester upon	registration.

Undergraduate students normally will pay approximately the sums above at semester registration time. However, those taking less than seven semester credit hours pay \$18 per credit hour in lieu of the University Fee, and are not eligible for dormitory occupancy.

Other expenses at registration time will require extra funds for less predictable amounts, including personal and social expenses, textbooks, meals needed before meal tickets become effective, bus fare, athletic equipment, musical instruments, and other specialized classroom supplies which certain students may need.

#### **TUITION**

Undergraduate University Fee — Students registering for seven to eleven credit hours shall be charged a fee of \$110 per semester. Students registering for 12 or more credit hours shall be charged a fee of \$100 per semester. Residents and non-residents alike shall pay this fee.

Undergraduate Credit-hour Fee — Students registering for less than seven semester credit hours shall be charged a fee of \$18 per credit hour.

Residents — Persons 19 years or older who have established residence in Alaska for at least one year prior to the date set for registration shall be defined as Alaskan residents. The residence of those under 19 years of age is the residence of the parents or legal guardians as defined above. Students from Hawaii, the Yukon Territory, and the Northwest Territories may register on the same basis as Alaskan students.

Non-residents — Extra tuition shall be charged full-time, non-resident students carrying 12 or more semester credit hours, at \$150 per semester. Part-time, non-resident students carrying seven to eleven credit hours shall be charged extra tuition at the following rates:

7-credit hours \$ 25.00 8-credit hours 50.00 9-credit hours 75.00 10-credit hours 100.00 11-credit hours 125.00

Fee rates apply to students auditing any course in the same manner as for those taking it for credit.

**Graduate Fees** — Graduate and post-graduate students are subject to the following schedule of charges for 600-700 level courses:

Those taking a combination of undergraduate and graduate credit courses pay the appropriate full-time or part-time graduate-level University Fee or the separate credit hour fees, whichever is the lower. Graduate students subject to payment of any other fees pay such fees at the same rate as undergraduates.

### MISCELLANEOUS FEES

**Application Fee** — A fee of \$10 shall be paid at the time the application for admission is submitted.

Late Registration Penalty — Students registering later than the day designated for that purpose shall pay a late registration fine of \$5 for the first day, plus \$2 for each succeeding day allowing for late registration (excluding Saturday and Sunday).

Change of Registration — A penalty fee of \$1 shall be paid for each course added or dropped after the third day following the scheduled

date for registration. Changes necessitated by university cancellation or re-scheduling of classes are not subject to penalty.

Examination Fee — A minimum charge of \$3 shall be made for each examination required for removal of an incomplete, clearance of an entrance deficiency or credit by examination, plus an additional \$1 for each credit over three.

Late Placement and Guidance Test — A charge of \$5 shall be made for a placement and guidance test taken at a time other than the scheduled time.

Transcript Fees -- One certified transcript is issued free. A charge of \$1 shall be made for each additional transcript.

Graduate Placement Fee — The university charges \$10 for filing of credentials and one year of service. Thereafter, \$5 is charged for each year the file is used. There is no filing fee for students who file before graduation.

**Program Plan** — The Registrar's Office will provide without charge one plan for a schedule of courses leading to a degree. A fee of \$5 will be charged for each subsequent alternate plan.

Music Course Fees — All music fees shall be waived for students enrolled for seven or more credit hours and taking a major or minor in Music Education, as certified by the department chairman.

Residence Hall Room Change — A fee of \$10 shall be charged for every move within the halls after the first one if initiated by the student.

#### **CAMPUS ACTIVITY FEE**

Full-time undergraduate students carrying 12 or more semester credit hours or the equivalent, under 26 years of age, shall be charged the Campus Activity Fee totaling \$26 per semester. Each will receive an identification card entitling him to privileges in the following programs:

Recreation-Athletics Program — Use of Patty Building recreational facilities, including pool, admission to scheduled and tournament athletic events. This program is administered by the head of the Department of Health, Physical Education, and Recreation.

Associated Students Program — Participation in all student-managed, social, educational, and governmental activities, including receipt of student paper and yearbook, movies, scheduled social events, and student elections and administration of student government. This program is administered by elected and appointed student officials of Associated Students of the University of Alaska. Five dollars of this fee is designated for planning and design of a new Campus Activities Center building.

A deposit of \$2 will be required once each year of all students paying the \$26 Campus Activity Fee. This sum will be refunded at the time of taking the student's picture for the yearbook.

Part-time students carrying seven or more semester credit hours, including graduate students and those 26 years of age or older carrying 12 or more credit hours, shall be charged a Campus Activity Fee of \$10 per semester. Each will receive an identification card entitling him to all privileges of the Associated Students Program, except voting, holding office, the yearbook, and movies. Such students may purchase voluntarily privileges of the Recreational-Athletic Program at \$5 a semester.

#### STUDENT HEALTH SERVICE FEE

Undergraduate students under 26 years of age, carrying 12 or more semester credit hours or equivalent shall be charged a Student Health Service Fee of \$18 per semester, which includes use of Health Center and participation in a group medical plan to cover accidents and sickness.

The Student Health Program is administered by the Health Center under the direction of the Director of Student Affairs and the University Nurse. Hospital and medical treatment for common illnesses and injuries are provided, upon the authorization by the University Nurse, under limits of coverage set forth in the Student Health Plan. Each student will be supplied with a set of regulations outlining this plan.

Married students may secure additional coverage for spouse and children if desired. Rates for such coverage will be quoted at registration time.

#### **ROOM AND BOARD**

Contracts for room and board are binding from the date signed to the end of the academic year.

Room Advance — A \$35 dormitory application and reservation advance is required with the student contract. This is applied to the rent in the semester for which the room reservation was made. For students not enrolling at the university, refunds of this advance payment will be made as follows after registration, provided the Housing Office is notified in writing according to the dates specified:

By August 1, Fall semester - December 15, Spring semester\$	25.00
By August 15, Fall semester — January 1, Spring semester	15.00
By September 1, Fall semester - January 15, Spring semester	5.00

#### Room Rent -

Double Room per semester	\$230.00
Single Room per semester .	\$265.00

This rental covers all lounge, recreation room, storage, laundry room, and telephone privileges. Toll calls may not be made over floor phones in dormitories.

Meal Tickets — When registering, each dormitory occupant is required to buy a semester meal ticket for cafeteria meals.

First Semester Meal Ticket	\$349	.00
Second Semester Meal Ticket	354	.00

Meal tickets become effective at the evening meal, September 4, and the evening meal, January 13. Refunds are granted only with approval of the Director of Student Affairs upon formal withdrawal, for absence on university activities, or for extreme personal emergencies.

Semester meal tickets do not include vacation periods. Special meal tickets may be purchased before specified dates at the rate of \$3.50 per day. Those not possessing special meal tickets may buy meals during vacation periods at ala carte prices.

#### PAYMENT OF FEES

All charges, deposits, rent, and meal fees for the semester are payable in full. An installment contract may be arranged under which a 25 per cent payment is due upon registration and additional installments are payable for up to three months following the date of registration. The installment contract service fee is \$2 for the contract and \$2 for each additional payment. Delinquent payment of installments is subject to a \$2 fine for each occurrence.

Refundable Charges - Refunds of the University Fee, Tuition Fee, Music Course Fees, and Campus Activity Fee shall be made to withdrawing students upon formal withdrawal by or for the student, according to the following schedule:

Withdrawal within the first week — 90 per cent refund Withdrawal within the first 1/3 of term — 50 per cent refund Withdrawal after first 1/3 of term or semester — no refund Health Service and miscellaneous fees shall not be subject to refund

**Board** — The unused portion of a meal ticket, less a service charge equal to five days' meals, shall be refunded upon formal withdrawal.

Rent — Room rent is refundable, upon recommendation of the Director of Student Affairs, only in emergency cases. The amount of refund shall be determined by application of a charge equivalent to 10 per cent of the semester rent times the number of weeks of occupancy completed.

Financial Obligations - The university withholds delinquent students' diplomas pending their final payment of debts owed to the university. The Registrar also withholds grade reports and transcripts until debts to the university have been paid. No student owing the university money can receive honorable dismissal.

# TRANSPORTATION TO THE UNIVERSITY

The Alaska Railroad gives qualified students a round-trip ticket for the price of a one-way ticket. This applies to Summer Sessions and Home Economics Short Course students as well as those attending regular sessions. The student must request the special rate when purchasing his first ticket. Two days prior to departure on the return trip, the student must present his ticket receipt and identification to the Office of the Registrar for certification of student status.



Degrees were conferred on 368 students at the 47th Commencement Exercise of the university in 1969. The university's main campus enrollment is climbing at more than three times the average rate of universities nationally.

# **Degrees**

#### **DEGREES OFFERED**

The university offers programs leading to the following:

## **Undergraduate Degrees**

Associate of Arts, A.A.

Associate of Electronics Technology, A.E.T.

Bachelor of Arts, B.A.

Bachelor of Business Administration, B.B.A.

Bachelor of Education, B.Ed.

Bachelor of Engineering, B.E. (5 years)

Bachelor of Music, B. Mus.

Bachelor of Science, B.S.

## **Professional Degrees**

Engineer of Mines, E.M.

# **Graduate Degrees**

Master of Arts, M.A.

Master of Arts in Teaching, M.A.T.

Master of Business Administration, M.B.A.

Master of Civil Engineering, M.C.E.

Master of Education, M.Ed.

Master of Electrical Engineering, M.E.E.

Master of Fine Arts, M.F.A.

Master of Mechanical Engineering, M.M.E.

Master of Science, M.S.

Doctor of Philosophy, Ph.D.

# GENERAL REQUIREMENTS FOR UNDERGRADUATE DEGREES

To receive a degree from the university, a student must have earned the required number of credits as well as satisfied the special requirements of his curriculum. He must attain an average grade of 2.00 (C) in all work as well as in the major field and minor fields; transfer students must maintain a 2.00 (C) average in all work at the University of Alaska.

#### **BACHELOR'S DEGREES**

All physically qualified women students under 24 years and all physically qualified men students under 24 years entering the university for the first time, must enroll in physical education or Basic Course, R.O.T.C. This requirement of P.E. 100 for four courses or Basic Course, R.O.T.C. (see under Military Science) should be completed during the first two years of attendance at the university.

Transfer students must meet the requirements of the university with respect to military science or physical education, unless they have completed the requirements of the schools previously attended.

Students 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.

A regular student who has earned 60 academic credits is required to present a passing score on a library orientation test before registering again; or, in case of a transfer student with more than 60 credits, prior to his second registration at the University of Alaska.

An upper division student showing a marked English deficiency may have to pass a remedial course in English.

A maximum of 32 semester hours of work completed by correspondence may be accepted toward a baccalaureate degree. A maximum of 15 semester hours of work completed by correspondence may be accepted toward an associate degree.

A student enrolled in a bachelor's 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, providing there has not been a time lapse of more than seven years.

#### **GENERAL REQUIREMENTS FOR B.A. DEGREE**

English Composition and Literature, including Engl. 101-102	12	credits
Foreign Language — two years of collegiate work in one language 12 credits fulfill the requirement if all are above the 100 level.	12-16	
Social Science, including Hist. 101-102 and work in two other fields	15	
Mathematics and/or Natural Science, Math. 106-200 or Math. 121-122 or a year sequence in a laboratory science plus enough credits to total 12	12	
Major Specialty — (See Department Sections for specific requirements)	23-26	
If the major specialty is a natural or social science, electives in English or foreign languages may be substituted for the general degree requirements, if the program includes a major and at least one minor in these areas.		
Minor Specialties — two of 12-18 credits each, or a second major to be approved by petition	23-24	
Military Science or Physical Education	4-6	
Electives to bring total credit to 130 credits.		
Major Carriellias Assilable For D. A. Domes Anthonology, A.A. Dieles	~!1 C-	

Major Specialtics Available For B.A. Degree — Anthropology, Art, Biological Sciences, Chemistry, Economics, English, French, Geography, Geology, German, History, Journalism, Linguistics, Mathematics, Music, Physics, Philosophy, Political Science, Psychology, Russian, Sociology, Spanish, Speech.

Minor Specialtics Available For B.A. Degree — Anthropology, Art, Biological Sciences, Chemistry, Economics, Secondary Education, English, French, Geography, Geology, German, Home Economics, History, Journalism, Linguistics, Mathematics, Military Science, Music, Philosophy, Physics, Political Science, Psychology, Russian, Sociology, Spanish, Speech.

GENERAL REQUIREMENTS FOR B.B.A. DEGREE		
English Composition and Literature, including Engl. 101-102	12 credits 6	
Anthropology	9	
European History	6 6	
Economics, including Econ. 121-122, 321 and 324	18	
204 or Psy. 205	6	
101-102 or Phys. 103-104 or any eight hours combined from the above courses	8	
Military Science or Physical Education	4-6	
Departmental requirements and electives to bring total credits to 130.		
GENERAL REQUIREMENTS FOR B. ED. DEGREE		
For requirements for a B. Ed. in Elementary Education, see For requirements for B.Ed. in Secondary Education, see page		
GENERAL REQUIREMENTS FOR B. MUS. DEGREE		
For requirements for a B. Mus. degree, see page 79.		
GENERAL REQUIREMENTS FOR B.S. DEGREE (ENGINEERING SCIENCE)		
English Composition and Literature, including Engl. 101-102	12 credits 9	
Engineering Science, including E.S. 101, 102, 111, 207, 208, 331, 341, 346	24	
Mathematics, including Math. 106, 200, 201, 202, 302, 312	23	
Chemistry, including Chem. 201, 202	8	
Physics, including Phys. 211, 212	8	
Military Science or Physical Education	4-6	
Departmental requirements and electives to bring total credits to 130.		
Major Specialties Available For B.S. (Engineering Science) Degree — Cing, Electrical Engineering, Mechanical Engineering.	ivil Engineer-	
GENERAL REQUIREMENTS FOR B.S. DEGREE		
English Composition and Literature, including Engl. 101-102	12 credits	
A first year (101-102) or a second year (201-202) of a language approved by the department head. Students with two or three	0-10	
years of study of an approved language may petition to have this requirement removed by examination.		
Social Science	9	
Mathematics	8	
Physics	8	
Chemistry or Biology	8	
Military Science or Physical Education	4-6	
Departmental requirements, minor specialties, and/or electives to bring total credits to 130.		

Major Specialtics Available For B.S. Degree — Anthropology, Biological Sciences, Chemistry, Fisheries Biology, General Science, Geography, Geology, Geological Engineering, Home Economics, Mathematics, Medical Technology, Mining Engineering, Physics, Psychology, Sociology, Wildlife Management.

Minor Specialties Available For B.S. Degree — Refer to Departmental Section since some B.S. degree programs do not require minor specialties.

#### **ASSOCIATE DEGREES**

The associate degree is awarded upon the successful completion of a two-year technical or general 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.

#### **GENERAL REQUIREMENTS FOR A.A. DEGREE**

English	6 credits
American Government or American History	6
Speech	2
At least six credits in any three of the following areas:	18
Major Specialty (See Department Sections for specific requirements) Electives to bring total credits to 60.	20-30

Major Specialties Available For A.A. Degree — Liberal Arts, Office Administration, Police Administration, Science, Vocational Arts.

#### REQUIREMENTS FOR A.A. WITH MAJOR IN SCIENCE

Natural Science, Mathematics, or other.

A total of 60 credits required for graduation.

I. General Education

A.	Specific Requirements Engl. 67, 68 or 101, 102	_
	Engl. 67, 68 or 101, 102	6 credits
	Speech	2
	History of U.S. or American Government	U
В.	General Requirements	
	Humanities	6
	Social Sciences	6
	Six credits in one of the following:	R

II. Major in Science

Courses used to meet the General Education requirements may not be used to meet the requirements of the major.

Math. 121-122, Math. 106-200 or equivalent  A year's sequence course in Biology, Chemistry, Geology, or Physics, plus two semesters in area other than that chosen		
Approved Science elective (may include courses in Mathema-	14-16	
tics or Applied Science such as Engineering, Wildlife Management, etc.)	4-6	

#### **GENERAL REQUIREMENTS FOR A.E.T. DEGREE**

For requirements for A.E.T. see page 127.

# **GENERAL REQUIREMENTS FOR 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 experience, academic background, and aspirations. Earning an advanced degree entails more than the satisfactory completion of specified courses; the student must show promise and performance in productive scholarship.

#### **MASTER'S DEGREE**

As will be seen under departmental listings, programs leading to master's degrees are offered in the areas of anthropology, biology, botany, business administration, chemistry, civil engineering, creative writing, environmental health engineering, education, engineering management, English, fisheries biology, French, geology, geophysics, history, mathematics, mineral industry management, mineral preparation engineering, physics, psychology/counseling, wildlife management, and zoology. Students wishing to enroll for graduate study in any of these fields should obtain an application form from the Director of Admissions and Registrar's Office. The completed form and official transcripts of all previous college or university work should be returned to that office.

However, programs leading to master's degrees may be arranged on request in certain aspects of other subjects; for example, economics, land resources, linquistics, etc. Students interested in pursuing studies in one of these or any other discipline not listed should write directly to the Vice-President for Research and Advanced Study.

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, French, geology, history, mathematics and physics; the Master of Science in general science is offered with emphasis in biology, chemistry, geology, mathematics and physics; the Master of Science is offered in oceanography and ocean engineering. Students interested in obtaining more information about these degrees and their requirements should also write to the Vice-President for Research and Advanced Study.

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

Department 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. Applications from students whose projected programs do not fall within a department will be reviewed by a Committee for Admissions. Committee recommendations will be transmitted to the student by the Director of Admissions.

As soon as the student is accepted, an Advisory Committee of not fewer than three faculty members will be set up to assist the student in planning and carrying out his program.

The requirement for a master's degree is a minimum of 30 semester credits, of which a maximum of 12 may be devoted to the thesis. At least nine semester credits, in addition to those earned for the thesis, must be at the graduate level. No lower division courses (100 or 200) are applicable. A maximum of nine semester credits from another institution may be transferred to the University of Alaska and applied toward a degree if approved by the student's advisory committee and by the dean of the college in which the student is enrolled.

B is a minimum passing grade in courses not primarily for graduate students (300 or 400); C will be accepted in courses primarily for graduate students (600) provided a B average is obtained in graduate courses. Such standards are requisite for continuing study towards a master's degree.

A student may be admitted to candidacy for a specific master's degree after he has satisfied all the following requirements: 1) completed at least eight credits of graduate study at the University of Alaska; 2) demonstrated a reading ability of a foreign language, if required; 3) received approval of the provisional title of his thesis, if a thesis is required, and of his program of studies by the dean, if he is enrolled in a college, or by the Vice-President for Research and Advanced Study if he is not enrolled in a college.

The candidate must pass a final 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 one member of the faculty from outside the candidate's college appointed by the Vice-President for Research and Advanced Study.

All work toward the fulfillment of the requirements of a master's degree must be completed within seven years.

# **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 geophysics and geology, while students are commonly accepted in occanography, zoophysiology, zoology, wildlife management, and English.

Prospective candidates in these or other topics, should write to the Vice-President for Research and Advanced Study outlining in some detail their previous training and interests for future study. Each application is reviewed by an Admissions Committee both in light of the appli-

cant's qualifications and the faculty and facilities available on the campus relevant to the field of projected study.

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 the 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 Advisory Committee, such lines of study in related fields as are necessary for achievement of a thorough and scholarly knowledge of his subject. With approval of his Advisory Committee, the student prepares a program for the degree, which, including applicable and acceptable work transferred from other institutions, shall represent approximately three full years of study beyond the bachelor's degree.

A grade average of B must be maintained in graduate course work.

Reading ability in one foreign language appropriate to the student's discipline is required for the doctorate. German, French, or Russian are usually taken and the standard is set at the equivalent of three or four semesters study with at least one semester representing reading in the subject field.

Admission to graduate study does not imply admission to candidacy for a degree. The student should seek admission to candidacy approximately one year before he will have completed the requirements for his doctorate. A student may be accepted as a candidate by his Advisory Committee after 1) completing the equivalent of two academic years of graduate study, 2) completing at least one semester in residence at the University of Alaska, 3) meeting his foreign language requirement, 4) obtaining approval by his Advisory Committee of the title and synopsis of his dissertation, and 5) passing a qualifying examination set by his Advisory Committee.

The dissertation, which is expected to represent the equivalent of at least one full academic year's work at the University of Alaska, must be a contribution of knowledge.

After submitting the dissertation, the candidate must pass an oral examination supporting his dissertation. The examining committee will consist of a minimum of five members: the candidate's Advisory Committee supplemented by additional members appointed by the dean, when the student is enrolled in a college, and by the Vice-President for Research and Advanced Study.

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

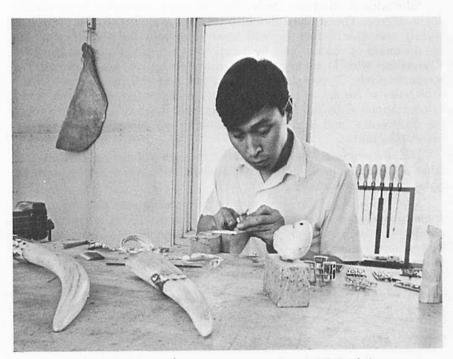
# THESES AND DISSERTATIONS

Two copies of the thesis or dissertation, typed and bound (original and first carbon), must be filed in the University Library. Departments

may require additional copies. All records of work done in connection with the preparation of thesis and dissertations are the property of the university and can be released with the permission of the head of the department and the Vice-President for Research and Advancd Study after having been reproduced by the university.

## **EXTENDED REGISTRATION FOR GRADUATE STUDENTS**

A student who is working toward a higher degree must be registered. A student whose only remaining requirement is the removal of a deferred grade in Thesis or Special Topics must request the Registrar to allow him Extended Registration, at no cost, at the beginning of each semester until the deferred grade is removed. With the request, the student must state the approximate time at which he expects to complete the work. Upon receipt of such a request, the Registrar refers the request to the chairman of the student's Advisory Committee. With his approval, the student is considered as enrolled in the current semester.



Native craftsman Mel Olanna demonstrates ivory-carving techniques during the university's annual Festival of Arts. Olanna is a student in the Extension Center in Arts and Crafts.

# **Academic Regulations**

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

Orientation and Placement Testing — All entering undergraduate students are required to participate in the orientation program conducted just before fall and spring semester registration. The purpose of this program is to acquaint the new student with the history, the customs, and the campus of the University of Alaska, and to aid him in the planning of a profitable college career.

Many entering freshmen will have taken the examination of the American College Testing Program during their senior year in high school. Those entering freshmen for whom the university has received ACT scores will not be required (or permitted) to repeat the examination during the orientation program. However, all new students who are entering the university with fewer than 30 hours of acceptable transfer credit and for whom the university has not received ACT scores will be required to take the test during orientation week and to pay a \$5 testing fee. The ACT and other placement and guidance tests must be taken before a new student with less than sophomore standing may complete his registration. On the basis of test scores, a student whose background of training appears to be deficient in areas such as English and mathematics may be required to take Engl. 1 or Math. 105 or both. In such cases, the student will be unable to complete the requirements of most curriculums in the minimum time.

A student continuing the study of a foreign language begun in high school will be required to take a placement test. If he fails to place at the level appropriate to the amount of his previous language study, he will be allowed to enroll for credit in a course that is one semester below this level. Work more than one semester below the normal level will be considered remedial and, although pre-requisite to further study, will carry no credit.

An additional fee of \$5 will be charged to students who take the placement and guidance tests at other than the scheduled times during orientation week.

Although transfer students are required to participate in the orientation program, they are not required to take the placement and guidance tests if they have at least sophomore standing. However, for the assistance which test scores may give the transfer student and his advisers in planning his educational program, it is recommended that he take the placement and guidance tests at the time they are administered to entering freshmen.

Advanced Placement — The University of Alaska will grant advance credit, with waiver of fees, on satisfactory performance in College Board Advanced Placement Tests or other national examinations declared acceptable by individual departments. Advanced placement may also be available, with waiver of fees, in some departments through departmental placement tests given at the time of the student's enrollment.

Such credit is available to enrolled students only after the students have completed one or more semesters at the university.

In the case of the College Board Advanced Placement Tests, a grade of "3" or higher is acceptable for placement. The level of performance required on other departmentally approved tests is determined by the specific department involved.

The instructor initiates a form for advanced placement credit, completes it, and forwards it through his department head and dean to the Registrar. The Registrar will record this credit on the student's permanent record with a "P" grade.

Attendance — Regular attendance is expected in all classes. Unexcused absences may result in a student's 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.

Class Standing — Class standing is determined on the basis of total credits earned.

Students are classified as:

Freshman	0-29 credits
Sophomore	
Junior	
Senior	

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.

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 with the approval of the Academic Council.

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

No student who has failed in any work may register for more than the number of credits tabulated in his curriculum until he has carried that number successfully for one semester. A full-time student is one who enrolls for 12 or more semester hours of credit. Any student who qualifies for entrance and registers for fewer than 12 credits will be classified as "part-time" regardless of his previous standing.

Any student registered in 12 or more credits must fulfill the requirements in military science or physical education.

Any student who does not follow a prescribed course of study or curriculum leading to a specific degree will be enrolled as "interim", whether he be a full-time or a part-time student.

All "special" students are considered to be "undeclared" without class standing.

Credit by Examination — An enrolled student is eligible to petition for permission to receive credit by examination if he can provide evidence of sufficient experience or previous study pertaining to the course in question. When permission is granted, the student is required to register immediately and pay the fees of the course which has been officially approved. A course in which a student has been registered as an auditor may not be completed for credit by examination.

Change of Curriculum — A student desiring to change his curriculum 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.

Change of Registration — A student is expected to complete the courses in which he is enrolled. He may, if circumstances warrant, withdraw without penalty during the first two weeks of the course; after that time a grade of "WP" is given only if he is doing passing work and a grade of "WF" is given if he is doing failing work. After the first month of the course, a student who wishes to withdraw must submit his request by petition, which shall include the reason for the request. Student initiated withdrawals are not permitted during the last month of the semester. Elective and non-sequence courses should be dropped first; withdrawals from deficiency courses or Engl. 101-102 may be made only upon petition. The fee for student initiated course changes is \$1 per course. A Change of Registration card must be obtained from the student's academic advisor.

**Grading System** — Only letter grades appear on the student's record and transcript. Attention is called to the following analysis:

- 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 and a performance definitely above the average.
  - C Indicates a satisfactory and average response to assignments.
- D The lowest passing grade; indicates work of poor quality and does not entitle the student to the recommendation of the university.

- P Indicates passing work and carries no grade point.
- F Indicates failure.
- S Indicates satisfactory completion, is used only for graduate theses and carries no grade points.
- I Given only in cases where additional work is necessary for the satisfactory completion of the course; not given unless the work already performed is grade C or better; may be given for unavoidable absence.

The grade for work that is incomplete (I) becomes a failure (F) if the work is not completed by the end of the sixth week following the student's next registration. At the option of the instructor and head of the department offering the course, the removal of the incomplete may be postponed until the next semester in which the course is regularly given.

- Def Indicates that for good cause, as determined by the instructor, the grade in certain courses, such as thesis, may be withheld, without penalty, until the requirements of the course are met within an approved time.
- WP Given when a student makes a regular withdrawal from a course while doing passing work.
- WF Given when a student makes a withdrawal from a course while doing failing work. It indicates failure and is so computed in the grade point average.

Grade Points — For the completion of grade points, each credit is multiplied by a grade factor: Grade A by 4, grade B by 3, grade C by 2, grade D by 1, and grade F or WF by 0. The record and transcript of the student show all grades received, together with all rulings on special petitions or authorized substitutions. A grade point average 2.00 is required for good scholastic standing.

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. Students who fail to raise their scholastic average after being placed on probation may be disqualified or, under unusual circumstance, 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 they have their program approved by the dean of their college. If a "C" or higher average is obtained in these two courses a student may again 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 re-enroll in any unit of the university for one or more semesters, and will be re-admitted only upon his presentation of evidence indicating a high probability that he 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 by correspondence.

Students who are academically disqualified from a baccalaureate degree program may, as high school graduates, enroll, after a lapse of three months, in associate degree programs at the university upon the recommendation of the dean who disqualified them and the acceptance of the dean of the college or the director of the community college to which he applies. If such a disqualified student transfers from a baccalaureate degree program to an associate degree program, he must complete the associate degree program before applying for re-admission to a baccalaureate degree program.

**Dismissal** — A student may be dismissed for cause at any time by the President of the university.

Honor Rolls — Students who earn at least a 3.5 semester grade point average for no less than 12 credit hours are listed by the Academic Vice President on the university's Honor Roll.

**Graduation** — The responsibility for meeting all requirements for graduation rests upon the student.

Graduation with Honors — 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.

In order to graduate with honors, students transferring from institutions must have been in attendance at the University of Alaska for at least four semesters with a minimum of 12 credits each semester.

**Graduate in Absentia** — It is a policy of the university that students who will not be present at Commencement submit written requests with justification to graduate in absentia.

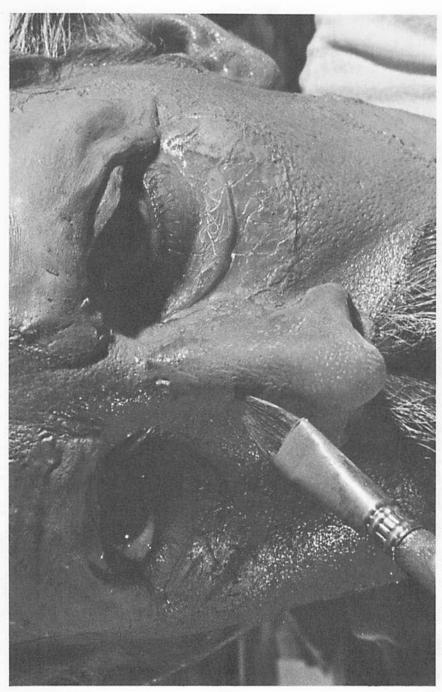
#### **AWARDS**

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.

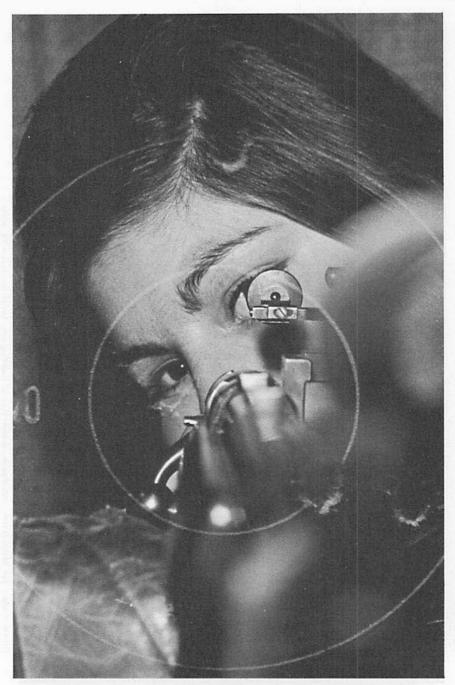
American Institute of Mining and Metallurgical Engineers, Alaska Section
American Society of Civil Engineers, Fairbanks Sub-Section of the Alaska
Section
Athletic Letters and Awards
Marion Frances Boswell Memorial Award
Chemistry Department Outstanding Freshman
Druska Carr Schaible Memorial Award
Fairbanks 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
Joel Wiegert Award



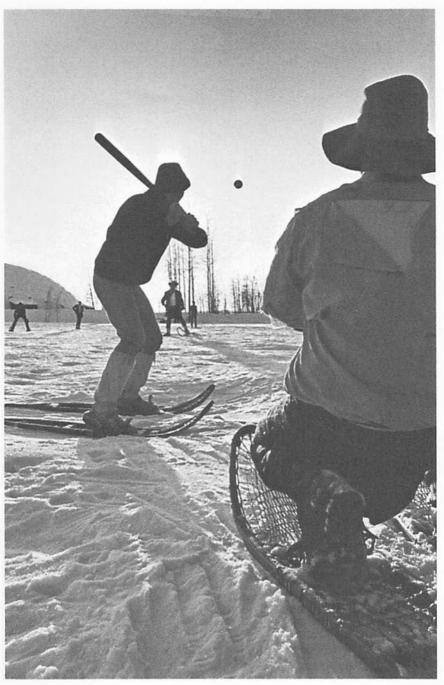
Ten-year-old "Pin" John from remote Arctic Village, 250 air miles north of Fairbanks, sits at the board of the university's Radio Station KUAC during his first trip outside his village — a trip sponsored by university students.



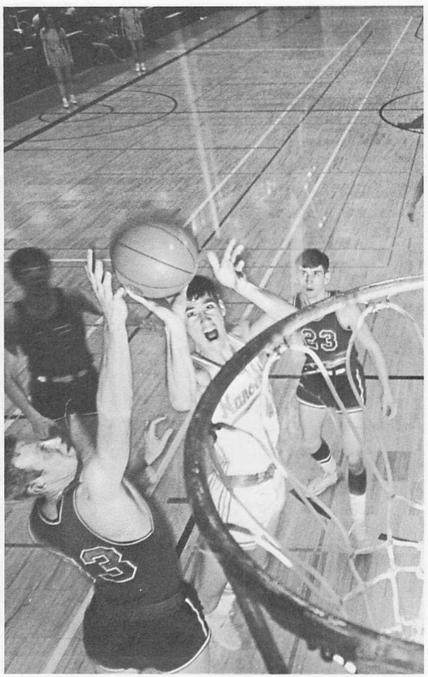
Drama student Joe Wooster uses moulage — a technique of building new facial features with rubber-like noses, chins, ears, and brows — for a Drama Workshop production.



Coed Barbara DeSpain, member of the university's nationally ranked varsity rifle team, is framed by a superimposed target as she practices for one of the team's matches.



Snowshoe softball games are a highlight of the university's annual Winter Carnival, a four-day event co-sponsored by students and the Fairbanks JayCees.



The university's "Nanooks" (Eskimo for polar bears) are the flyingest squad in intercollegiate basketball today. In 1968-69, the Nanooks logged more than 21,000 air miles in regular season play while posting an impressive record against the most rugged competition in the university's history.

## Office of Student Affairs

#### **GENERAL RESPONSIBILITIES**

The university provides services intended 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 are of prime importance. Mindful of its obligation to assist the total development of the student, the university continues to expand its student personnel facilities to meet the need for individualization in the educational process.

The Office of Student Affairs is responsible for coordinating and extending personnel services such as: a) orientation activities to assist new students adjusting to the privileges and responsibilities of membership in the university community; b) psychological testing to aid students in finding out more about their academic and vocational potentialities and capabilities; c) counseling with students relative to their personal or educational problems; d) financial assistance for students through the administration of scholarships, loans, and part-time jobs; e) medical attention for students with health problems; f) the assignment to, and the supervision of student residence halls; g) the guidance of student co-curricular activities and organizations; and h) the promotion of high standards of student conduct.

Recognizing the need to insure the privacy of individual records the university releases information only upon permission of students to agencies off campus. Records are available for legitimate on campus professional use on a need to know basis. Information on students is maintained by the following offices: Registrar for academics, Counseling for professional reference, Health Services for medical history, and Office of Student Affairs for disciplinary records and extra-curricular activities. Academic and personal information is released to other institutions or employers solely upon release by the student. General information only is discussed with governmental agencies conducting standard investigations.

It is recommended that students release information concerning their participation and performance in university activities for inclusion in their references. Otherwise reports are written indicating that there is no record of the students activities at the university which might be misleading. It is suggested that students encourage fellow students, staff, and faculty to forward personal references for the Office of Student Affairs to keep on file.

#### COUNSELING AND TESTING

The office provides professional counseling services and specialized testing services for all regularly enrolled students.

Educational Counseling — Each student who has declared a major is assigned a faculty adviser who assumes special responsibility for the student's welfare and helps him plan his academic program. The student who is uncertain of his choice of an academic major is assigned an interim adviser until a definite academic goal is chosen. Students who wish information or help with regard to the selection of a major academic field should avail themselves of the counseling and testing services offered by the university.

The Department of Counseling and Testing assists students who fail to meet the scholarship standards of the university, who need help to discover academic weaknesses, and who may need help in planning remedial programs.

Vocational Counseling — The counseling and testing staff assists students in self-appraisal of their unique interests and aptitudes and in their search for a vocational goal. Psychological and vocational interest tests are used as needed. A library of vocational information is maintained and each academic department has additional information pertinent to its field.

Personal Counseling — The student may meet with professionally trained and experienced counselors individually and/or in groups to discuss adjustment problems of a personal nature. All interviews are private and the discussions are kept confidential. The student may apply in person for these services. Student contacts with the counseling service are usually voluntary, although individuals may be referred to the office by faculty and other university personnel.

Testing — Some tests are required of all new students with less than sophomore standing. The required tests include the test battery prepared by the American College Testing Program, the English and Mathematics placement test, the library skills test, the reading survey test.

To assist students in self-appraisal, a number of other testing instruments are provided. Vocational interest inventories, scholastic aptitude tests, achievement tests, and personality inventories are available with interpretation given by members of the counseling staff.

In addition to the above services, special nationwide testing programs are administered by the Department of Counseling and Testing. Students who intend to proceed with advanced study and who are required to take the Graduate Record Examination, the Law Schools Admission Test, the Medical Schools Admission Test, or similar tests, may arrange for these tests in the Office of Counseling and Testing.

Language Testing for Foreign Students — Admission to the university is dependent upon competency in the use of English. Foreign students, whose primary language is other than English, are required to submit scores from the TOEFL (Test of English As a Foreign Language) prepared by the Educational Testing Service, Princeton, New Jersey, along with their application to the University of Alaska. This test is administered at specific times in centers located in most foreign countries.

#### STUDENT HOUSING AND FOOD SERVICE

Because the physical environment of the student during his college years is an important part of his educational experience, the university takes pride in providing the student with carefully planned and supervised modern facilities which help promote maximum educational and social development.

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 the 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 an interesting and meaningful social, governmental, and recreational program. All staff members have had considerable 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 drawer and closet space; it is his responsibility to provide all other furnishings, including bedding, pillow, and towels. Sleeping bags may not be used in residence halls.

In addition, each hall includes a public lounge for entertaining, relaxing, and recreational facilities. Regular custodial service is provided in common areas such as corridors, lounges, and bathrooms.

Only a limited number of headbolt heaters for automobiles are available.

Students bringing guns into the residence halls are required to store them in a central storeroom under staff supervision. There is absolutely no exception to this policy.

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, b) they have had previous community living experience of more than a year beyond the high school level, or c) they have special permission from the Dean of Students. Students of sophomore standing or higher may live in one of the halls if space permits. Full-time students will be given preference over part-time students in the assignment of hall accommodations. Upperclassmen are given preference over new students in the assignment of single rooms. Room assignments in general are made on a first come first serve basis provided application and deposit requirements are complete.

Harriet Hess Hall, constructed in 1938, provides double room accommodations for graduate students, and upperclassmen. The residence is named for the late Harriet Hess, secretary of the Board of Regents for many years.

Andrew Nerland Hall houses 98 men 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 98 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 99 women. It has 19 single rooms and 20 suites. Four women share each suite, which consists of two sleeping rooms, a study, and a lavatory. It is named for the late Judge and Mrs. James Wickersham. Judge Wickersham introduced the bill into Congress 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 structure with accommodations for 102 men in double and single rooms. The ground floor and first floor are reserved for graduate and upperclassmen who may receive cooking privileges in a central kitcheonette. This hall is named for Morton Stevens, who was president of the Board of Regents from 1921 until 1932.

Austin E. Lathrop Hall, a co-educational unit, houses 100 men in double rooms on its four floors, and upperclass 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 women. The study-bedrooms are located around a central core area containing lounge, sewing rooms, ironing rooms, T.V. lounge, and shower facilities. The hall is named for Ivar Skarland, long-time professor of Anthropology at the university.

Terris Moore Hall, a co-educational unit, the newest residence hall of the campus, 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, Skarland Hall. These two units comprise to date a living center on the hill for men and women to the west of the President's residence overlooking the Tanana Valley.

Married student housing is provided in several areas. Walsh Hall, completed in 1959, has accommodations for couples with no more than

one child. This spacious building contains 12 furnished apartments consisting of a 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 38 married student couples or families. All apartments are furnished except for personal items such as dishes, utensils, and bedding. The two-bedroom apartments are available for families with two or three children. One-bedroom apartments similar to those at Walsh Hall are assigned to couples without children, or with not more than one child. Still other quarters, without a separate bedroom, are assigned to couples without children.

**Application Procedures** — Applications for student housing will be mailed to all students with their notification of acceptance from the Registrar's Office. Student rooms cannot be reserved until the student is accepted by the university, through notification from the Registrar's Office. Continuing students may reserve rooms during the spring semester for the fall semester or during the fall semester for the next spring semester providing they have not been disqualified for scholastic or disciplinary reasons by the university. After being accepted and in order to secure student housing, the student should complete the housing-board contract and mail it immediately to the HEAD, STUDENT HOUSING, UNIVER-SITY OF ALASKA, COLLEGE, ALASKA 99701, with a \$35 room advance. Confirmation for student housing is not assured until the student receives his copy of the contract with a receipt for his advance. Specific room assignments will be available after August 1. Spring semester assignments are made as space becomes available. The contract for single student housing in undergraduate residence halls is for room and board. The contract for married student housing does not include board.

The housing-board contract is in effect from the date of signing to the end of spring semester, subject to terms indicated thereon. Students are expected to pay for the entire semester during registration; however, installment payments may be arranged.

Contracts are voided only if a student does not attend the university full-time, cancels his contract prior to August 1, or is released by the Director of Student Affairs upon the advice of the Housing Advisory Committee because of marriage, health reasons, finances, and for other emergencies as deemed appropriate.

Rent for double room approximates \$230 per semester and for a single room \$265 per semester. This rental covers all lounge, recreation room, storage room, laundry room, and local telephone privileges. Students may remain in the residence halls during vacation periods, but during the Christmas holidays they may be moved to one central location.

Med Tickets — Each occupant of an undergraduate residence hall is required to buy a five or seven day meal ticket for cafeteria meals. Meal tickets do not include vacation periods which occur during the semester. Full payment for a semester's meal ticket is required at registration time. The first meal covered by the meal tickets is the first day of upperclass registration.

All members of the undergraduate residence halls are required to contract for their meals both semesters at the University Commons. Breakfast, lunch, and dinner are served daily throughout the school year. Although meal service continues during the Thanksgiving, Christmas, and spring recesses for the benefit of those students who remain on the campus at those times, the cost of meals during such periods is not included in the board contract.

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 recommended by the Director of Student Affairs in cases of prolonged illness, university sponsored activities where meals are not provided, or other unavoidable absence.

#### STUDENT HEALTH SERVICE

Preventive and educational as well as protective health services are the concern of the university and are administered by the Student Health Service. Supervision and limited out-patient treatment during the day are the responsibility of the University Nurse at the Health Service. Physicians are available on campus two hours daily, Monday through Friday, for more extensive treatment. However, the Health Service does not attempt to provide complete medical care nor does it operate as an emergency medical center, although personnel are advised to keep the center informed. Only those students who have paid the student health fee are eligible for services of the Student Health Center.

In addition, the nurse reviews mandatory health examinations for new students, keeps records up-to-date on all students, does follow-up on medical conditions as needed, provides out-patient service during the day and advice for emergencies at night, and provides information concerning the health insurance coverage.

Full-time students receive special rates for mandatory health insurance which provides hospital, medical, and surgical benefits. The coverage is extensive, inexpensive, and compulsory for all students carrying 12 or more hours and under 26 years of age. For all other students it is optional up to the age of 35. It is designed to supplement, but not to replace Health Service care. Brochures containing details of the policy are available at the Health Service.

#### **FINANCIAL AIDS**

Three types of financial aid are available at the University of Alaska:

- 1. Grants (Scholarships)
- 2. Loan funds
- 3. Part-time student employment
- 1. Grants (scholarships). At the present time grants are awarded only to Alaska high school seniors and to currently enrolled university of Alaska students. Non-residents must successfully complete at least two semesters of academic work at the University of Alaska before they become eligible to apply for scholarship assistance. Students who are enrolled at any of the University's Community Colleges and who plan to continue their study on the main campus at College during a forthcoming semester are invited to apply.

A limited number of Talent Grants are awarded each year to students of extremely high capabilities and potential in the performing arts and athletics. Amounts awarded are \$1400 per year for Alaska residents and \$1700 for non-residents. Contributors to the program for 1968-69 include First National Bank, Pan American Petroleum, University of Alaska Alumni Association, Vinnell Corporation, Gold Hill Liquor Store, Alaska Redi-Mix, Alaska National Bank, Acme Electric Contractors, Alaska Architectural & Engineering, Burgess Construction Company, Fairbanks Builders Inc., M & O Auto Parts & Equipment Inc., Newline Building Inc., Quality Meat Inc., Rotary Club of Fairbanks, Sourdough Heating Inc., Mecca Bar & Tiki Cove, Tanana Clinic Pharmacy, and Market Basket.

The Educational Opportunity Grants Program of the Department of Health, Education, and Welfare was initiated at the University of Alaska in the Fall of 1966. These grants are awarded on the basis of acute need and are renewable.

Information regarding the Bureau of Indian Affairs Grant-In-Aid program may be obtained from the Juneau Area Office of the Bureau of Indian Affairs. Students should apply far enough in advance to know the amount of assistance available to them prior to arriving at the university.

Applications for the Alaska State Scholarship-Loan Program may be obtained from the high schools throughout the state. The purpose of this program, initiated this year, is to assist qualified Alaska students to secure a higher education in Alaska and to assist in retaining able students in Alaska for higher education and future leadership. Funds for this program, authorized by the Alaska State Legislature, may be used for tuition and book expenses, up to a maximum of \$500 per recipient per year.

Applications from currently-enrolled students are accepted twice each year, before March 1 and November 1. Applications from Alaska high school seniors are accepted once each year before March 1 and are re-

viewed only after the applicant's admission to the university has been approved and after his American College Test scores have been forwarded to the Office of Student Affairs. Requests coming in after this deadline will not be considered. No grants are available for the summer session.

These awards are based primarily on need. The amount of the grant is based upon information supplied on the College Scholarship Service Parents' Confidential Statement form. Entering students seeking financial assistance are required to submit a copy of the Parents' Confidential Statement (PCS) form to the College Scholarship Service, designating the University of Alaska as one of the recipients, by March 1 or November 1. The PCS form may be obtained from the university, secondary schools, or the College Scholarship Service, P.O. Box 176, Princeton, New Jersey 08540 or P.O. Box 1025, Berkeley, California 94704.

Although need is the primary basis upon which these grants are given, demonstration of academic competence, personal characteristics, and contributions to the university community are evaluated.

Recipients at the University of Alaska forfeit the entire grant which is to become effective in a forthcoming semester if they earn below a 2.0 grade point average in the current semester. Grants are automatically forfeited by recipients who do not enroll during a semester in which their grant is in effect, who enroll for less than a full-time program of studies without special arrangement with the scholarship program coordinator, who are placed on disciplinary probation, or who are suspended from the university for disciplinary reasons.

Questions concerning application forms, specific grants, or selection procedures should be directed to the Financial Aids Office.

Although numerous grants are awarded annually to students at the University of Alaska by various individuals and organizations, the list below includes only those which were administered by the University's Financial Aid Committee during the 1968-69 school year:

Namo of Scholarship	Number	Total Amount
AIME, Southwestern Alaska Section	One	\$ 400
Alaska Insurance Agency "Major George W.		,
Albrecht Memorial"	One	100
Alaska National Guard Officers Association	One	500
Alaska Native Scholarships	Varies	10,500
Alaska Scottish Rite of Freemasonry	One	300
Alaska State Employees Association "President	00	000
John F. Kennedy Memorial"	One	250
American Association on Indian Affairs	One	1,000
Covenant High School Alumni Association	0	2,000
"Stanton Oyoumick Memorial"	One	50
Educational Opportunity Grant	Varies	13,300
Fairbanks Kiwanis Club "Andy Anderson Memorial"	One	500
First National Bank of Fairbanks	Two	1,000
General Motors	Four	3,036
Harcourt Foundation	One	,600
Henderson Estate, John B.	Four	1,600
Hess Estate, Harriet	Two	880
Hess Estate, Luther	Three	1.200

Name of Scholarship	Number	Total Amount
Kennecott Copper Corporation	Two	1,000
Lathrop Estate, Austin E.	Varies	19,000
Leach Estate, Frank M.	One	100
Lewis Fund, Charles W. and Hortense W.	One	500
McIntosh Estate, Jessie O'Bryan	Varies	21,000
McKinnon Scholarship, Emma	One	400
National Bank of Alaska	Varies	2,000
National Electrical Contractors Association	One	500
Noel Wien Scholarship	One	500
Northern Commercial Company	Öne	500
Phipps, Margaret R.	Three	450
Presser Foundation	One	400
Radio Corporation of America	Two	800
Ralston Purina Company	Ône	500
Sears Roebuck Foundation (Home Economics)	One	300
		500
Sheppard Trading Company	One	
State Room Scholarships	Varies	25,000
Texaco Inc.	Two	1,000
Unalakleet PTA "Senator William E. Beltz Memorial"	One	150
United States Smelting, Refining and Mining Company	One	250
University of Alaska Alumni Association	One	300
Women's Athletic Association	One	100

2. Student Loan Fund. There are different types of loan programs:

Emergency Loans are available to all regularly enrolled full-time students whose financial need is modest and temporary. Although emergency loans require no co-signer, they are limited to \$100 for not more than 30 days and interest is in the form of a flat service charge of \$2 per loan or 50¢ if repayment is made within ten days of the date of the borrowing.

The University Loan Fund is available to regularly enrolled students who have successfully completed one semester as a full-time student. Loans are limited to \$500 and are payable prior to the forthcoming September 1. The interest rate on the money borrowed is 4% per annum. The loan requires a co-signer (not a fellow student), and will be made only for university expenses such as room, board, fees, and books.

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 Engineer
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)
Southern California Alumni (1963)
Arthur A. and Anne Shonbeek
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. & Mrs. Walter G. Culver (1959)
Verne E. Roberts Memorial (1960)
James Stanley Rodebaugh Memorial (1960)
James E. Nankervis Memorial (1961)
Herman Turner Memorial (1961)
Marianne Casson Memorial Fund (1965)
Ketchikan Communication
Committee (1966)
Lt. General Glenn R. Birchard
Memorial Fund (1967)

The National Defense Education Act loans are always available to a limited number of qualified students. Undergraduate students may borrow up to \$1,000 a year or \$500 maximum per semester, graduate students \$1,500 per year. Total funds available to a student for his undergraduate work are limited to \$5,000. These loans are repayable nine months after a student discontinues or completes his education or finishes his military obligation, service with the Peace Corps or VISTA. For those who become teachers, one-tenth of the amount borrowed is cancelled each year for five years, representing as much as 50% of the original loan. Interest rate is 3 per cent per annum. Loans must be paid within ten years.

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 up to \$300, under terms similar to those of the Student Loan Fund. The head of the Department of Wildlife Management administers these funds.

The Juneau Women's Club has a \$5,000 loan fund on deposit with the University of Alaska for the use of Greater Juneau Borough High School graduates.

Mr. Ralph R. Stefano, Consulting Engineer of Fairbanks, has established The Stefano Loan Fund for the purpose of furthering instruction in Mechanical Engineering. The dean of the College of Mathematics, Physical Science, and Engineering administers these student loans.

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 Aids Office.

- 3. Part-time Employment. Two types of work opportunities are available:
- a. Listings are available in the Financial Aids Office for both oncampus and off-campus jobs. Students interested may apply at the office for information but must apply for the position themselves. The university does not contract work for students although it may make recommendations to employers.
- b. The university actively participates in the work-study program of the Economic Opportunities Act. This program is designed to provide work opportunities for students with acute financial problems. The university determines student eligibility for this program on the basis of family income. Under this program students may work up to 15 hours a week during the school term and 40 hours per week in the summer. Most of the work opportunities are on-campus and can be related to a student's professional or vocational interest. A student may inquire about this program at the Financial Aids Office, Bunnell Building.

In most cases financial aids are combined so that a student's financial need may be met from several sources: for example, 1/3 from a grant or scholarship, 1/3 from loans or savings, and 1/3 from work.

#### CO-CURRICULAR ACTIVITIES

In coordination with the Associated Students of the University of Alaska, i.e., 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 co-curricular activities. These activities include special interest groups, departmental clubs, honoraries, religious organizations, military groups, governing bodies, and service organizations. ASUA specifically sponsors the yearbook, the newspaper, all campus social events, and the varied Student Union programs. Participation in all these activities is open to anyone interested. These programs are critical to the total university educational plan because of the cultural, social, and recreational environment they create and maintain on campus and for the opportunity they afford students of implementing in a responsible manner principles learned in the classroom.

To encourage students to maintain a proper balance between their curricular and co-curricular activities, and to protect the best interests of the university, the following code which determines eligibility for participation in all co-curricular activities and organizations has been adopted:

- All members of university organizations must be currently enrolled students at the university.
- Officers of co-curricular activities must maintain a cumulative grade point average of 2.00 or higher while carrying 12 or more semester hours of credit.
- 3. Additional eligibility requirements for members and officers in university organizations and co-curricular 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. The responsibility for enforcing eligibility regulations shall rest with the organization or department.

#### STUDENT BEHAVIORAL STANDARDS

Education at the university is conceived as training for citizenship as well as for personal self-improvement and development. When a student enrolls he acquires a special status and prestige and assumes commensurate responsibility as a citizen in the university community. As long as he remains a student he represents the university — whether on or off the campus.

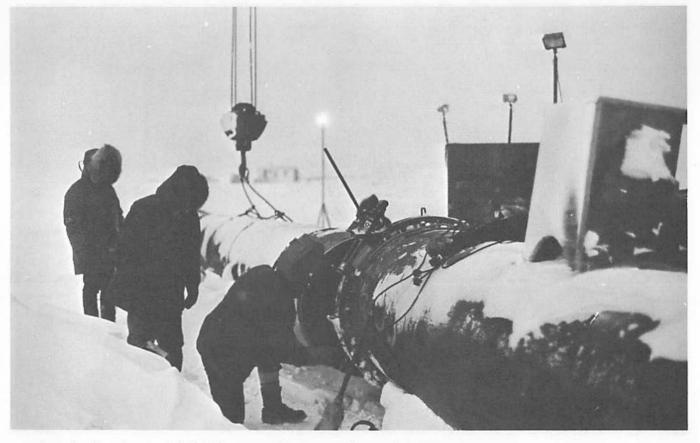
It is the university's policy to provide its students as much freedom of individual expression and action as is consistent with their maximum growth and with the welfare of the university. Students are expected, individually and collectively, to maintain this freedom by the exercise of that self-discipline which is imposed by a sense of social responsibility. Most students find it relatively easy to adjust to the privileges and responsibilities of the 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.

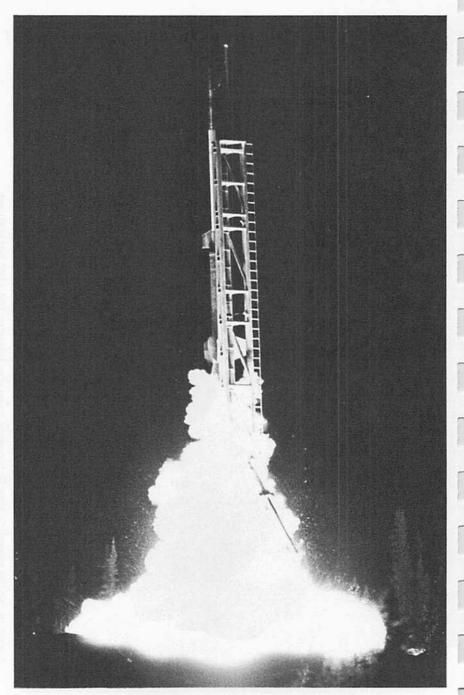
In order that new students become fully informed of the university's expectation, specific rules and regulations will be announced during the orientation sessions preceding registration for each semester. Printed copies of these rules and regulations are available for the guidance of students in the Office of Student Affairs. To those who live in university residence halls, manuals containing housing regulations will be distributed at the time rooms are occupied.

University regulations are designed to help the student work efficiently in his courses and develop a high standard of character and citizenship. They are not designed to ignore individuality, but rather to encourage students to formulate rules for their own guidance and develop methods of enforcing the rules.

These regulations, except for those based on State Law, have been developed jointly by staff and students. Students charged with infractions are advised in writing and given a full hearing with right of counsel and the opportunity to question witnesses or accusers before either elected or appointed student committees or for the more serious cases the joint student faculty appellate judicial board. The university subscribes to principles of due process and a fair hearing as prepared by the joint statement of the American Association of University Professors, National Student Association, and American Council of Education.



Researchers from the university's Arctic Environmental Engineering Laboratory laid 1,000 feet of 40-inch pipe at Point Barrow to learn the effects of the pipe on permafrost and of arctic cold on the pipe itself. Engineering data from the project will aid construction of the 800-mile Trans-Alaska Pipeline from the Prudhoe Bay oil fields to Valdez.



A two-stage Nike-Tomahawk research rocket roars aloft from the Geophysical Institute's Poker Flats launch site to assist scientists who study the aurora and upper atmosphere.

## Research and Advanced Study

The research programs of the University of Alaska take advantage of the university's unique location in the sub-Artic 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.

Alaska Agricultural Experiment Station — As a land grant institution, the university conducts an agricultural research program for the State of Alaska in cooperation with the United States Department of Agriculture. The office of the director is located on campus at College but, because of the wide range of environments occurring within the borders of Alaska, work is carried out at many sites.

The chief centers of activity are a research facility at Palmer and the Matanuska Experimental Farm seven miles to the west of Palmer, the College Experimental Farm one mile from the main campus, and the Petersburg Fur Farm in Southeastern Alaska. However, many plant, soil, and animal husbandry studies are accomplished in cooperation with farmers, homesteaders, and ranchers scattered througout the potential farming areas of the state.

Alaska Cooperative Wildlife Research Unit — The unit is one of several located at land grant colleges and universities. The Alaska 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 unit provides technical and professional training in wildlife management, research, education, and administration. The research program of the unit includes ecological and management investigations of big game, waterfowl, furbearers, and upland game species.

Graduate work leading to the advanced degree in wildlife management may be performed at the unit in cooperation with the Department of Wildlife Management.

Arctic Environmental Engineering Laboratory — The laboratory was established July 1, 1965, as a department of the College of Mathematics, Physical Sciences, and Engineering. The purpose of the laboratory is to (1) gather information necessary for the solution of Arctic and sub-Arctic engineering problems, (2) perform research where information is not otherwise available, (3) provide challenging problems and a stimulating

environment for graduate student research, and (4) assist in the development of the Arctic regions by providing engineering data and trained personnel for up-to-date economical applications of science to specialized human needs.

Geophysical Institute — The institute was opened on July 1, 1949, as a department of the university. The 79th Congress of the United States established the institute, and the 80th Congress appropriated funds for the construction of the present laboratory and associated houses. The Geophysical Institute has grown from a modest program of auroral observations begun in 1929 to present activities embracing many fields of Arctic and sub-Arctic research.

The institute's purpose is to advance knowledge of the earth and its environment in space. Emphasis is placed on studies of the upper atmosphere and the solar-terrestrial relationship using a network of ground stations and rocket-borne instruments. Programs are also established in meteorology, glaciology, seismology, vulcanology, and tectonic physics. In addition to the main office building located on the campus, the institute operates a number of field sites in Alaska and elsewhere, and participates in Antarctic research. The present staff numbers approximately 150, including some 30 graduate students who obtain their research training at the institute. Financial support is obtained mainly through federal grants and contracts.

The director of the Geophysical Institute is chosen by the Board of Regents upon the recommendation of the president of the university, subject to approval by the president of the National Academy of Sciences.

Institute of Arctic Biology — Following recommendations on its prospective national value by a committee of eminent biologists, the institute was established by the Alaska Legislature in 1963 for studies of life in the extreme climatic changes of Arctic and sub-Arctic regions. The Laboratory of Zoophysiology, the first component, began operation in 1962 and is now staffed by some 25 persons. It is located in the new Bio-Sciences Building with appropriate services and facilities for field and laboratory investigations on Alaskan animals. Facilities are in preparation for studies of man (human ecology) and plant (plant physiology) of Arctic and sub-Arctic environments. Visiting scientists are received in the laboratories to which their investigations pertain. Opportunities for predoctoral and post-doctoral studies are provided.

Institute of Marine Science — The institute was authorized in 1960 by the State Legislature. Its purpose is the advancement of knowledge of the sea, with particular emphasis on problems of the northern regions. A program of education and research in biological, chemical, geological and physical oceanography is included within this broad scope. Sea-going and laboratory facilities are available at the Douglas Marine Station, situated some five miles from Juneau. Campus activities are centered in a new laboratory, completed in January, 1963, and enlarged in 1968. The in-

stitute operates the Research Vessel Acona which will be enlarged and modernized in 1969 to 100 feet. Scientists are invited to request permission to work in residence.

Institute of Social, Economic, and Government Research — The institute was authorized by the State Legislature in 1961. Its purpose is to contribute to the advancement of knowledge in the Social Sciences, with particular emphasis on Alaska, the North Pacific, and Middle North. Much of the research is interdisciplinary in nature. Institute programs deal with economic development, community development, social problems, manpower development, state and local government, resources conservation and development, and other fields. The institute publishes the Alaska Review of Business and Economic Conditions and a variety of major special reports.

Institute of Water Resources — The institute was established in May, 1965, to encourage research in all phases of water resources.

The institute administers and coordinates many of the water resources projects which are carried out throughout the campus. The institute staff works closely with the other four institutes in addition to the departments of Biological Sciences, Chemistry, Geology, Environmental Health Engineering, Wildlife Management, etc.

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 aid in the further utilization of Alaska's mineral resources. Research is conducted in facilities of the university and is coordinated with graduate student academic programs.

Musk Ox Project — The University of Alaska has maintained since 1964 a breeding station for domestic musk oxen on a farm adjoining the university campus. The purpose of this project is to further a wider use of organic resources within the areas to which the musk oxen are naturally adapted.

The musk ox, native to the Artic regions, is able to maintain itself year round in a tundra environment, digging through the snow in winter for its food. Not a suitable animal for hunting, since it stands its ground, it is easily tamed and adapts readily to the routines of animal husbandry. Possessed of a thick blanket of qiviut, or underwool, which is on the order of cashmere, the musk ox offers strong possibilities of adding to the economies and cash income of the people of the tundra and coastal regions of Alaska.

A training program in herd management is carried out for persons selected by village councils and similar groups prior to the distribution of breeding stock. At the same time, the project's textile specialist teaches native women how to spin, knit, and weave qiviut for established mar-

kets. The breeding station and program are supported by the W. K. Kellogg Foundation through a grant to the university and in collaboration with the Institute of Northern Agricultural Research.

Naval Arctic Research Laboratory, Point Barrow — Under contract with the Office of Naval Research the university operates the Naval Arctic Research Laboratory. Laboratory facilities are maintained, and scientific teams from other universities and organizations carry on Arctic research problems there.

More than 300 scientists from many of the leading universities of the world made use of the extensive facilities at the laboratory last year.

# STATE AND FEDERAL AGENCIES ON CAMPUS — ASSOCIATED WITH THE UNIVERSITY OF ALASKA

Alaska Department of Fish and Game — The purpose of the Alaska Department of Fish and Game is to assist in fish and game protection, research, restoration, propagation, and their increase in the State of Alaska.

Until recently, several biologists of the department were stationed on the campus. Suitable facilities again are expected to be available for their use as a result of the university's current building program.

There is close collaboration between the university and the department both in research and teaching (see Alaska Cooperative Wildlife Research Unit).

State Division of Mines and Geology — The central headquarters and laboratory of the division are located on the campus in the Maintenance Warehouse (Services Building). A staff of 19 are located here, including mining geologists, engineers, and minerals laboratory analysts. The laboratory is for assay and analytical services to miners and prospectors. The geologists and engineers carry out economic geologic field mapping, examination of mining prospects, and technical advice and assistance to prospectors and mineral exploration companies. An active kardex file of mineral occurrences and mining claims is maintained. The division also works in close cooperation with faculty members in related fields to further encourage and assist the development of mineral resources in Alaska.

State Highway Testing Laboratory — The Alaska State Division of Highways operates a road 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.

Alaska Water Laboratory — This new 2.5 million dollar facility is a regional laboratory of the recently established Federal Water Pollution Control Administration (Department of the Interior).

Research and technical assistance on water pollution problems of particular concern to Alaska are being investigated. The effect of wastes discharged by communities, rural families, native villages, fisheries, lumber, mining, and paper and pulp industries on humans and aquatic life are problems being considered by the professional staff. This laboratory is a part of the growing Arctic Research Center on the campus of the University of Alaska.

Alaskan Geology Branch of the U.S. Geological Survey — This branch conducts a program of geological exploration and research in Alaska. Some of the functions are aerial 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 Geology Branch Office has a complete file of Alaskan maps and geological reports available to the public for use in the office.

Arctic Health Research Laboratory — The Arctic Health Research Laboratory (AHRL) of the Public Health Service, U.S. Department of Health, Education, and Welfare, was established in Anchorage in 1948 as the first and, to date, the only permanent research facility in North America devoted to the full-time study of health problems in low temperature environments on a year-round basis. During the summer of 1967 the AHRL moved into new quarters located on the West Ridge of the main campus.

The laboratory contains six major research sections: Entomology, Environmental Engineering, Epidemiology, Nutrition and Metabolic Disease, Physiology, and Zoonotic Disease. During the 20 years of its existence, the laboratory has pioneered in expanding knowledge of factors which influence human health and adaptation in northern latitudes and has gained international recognition for its contribution in many fields.

The AHRL includes a reference library containing over 30,000 cataloged items pertaining to the fields of public health, medicine, and related subjects.

The laboratory also maintains a field unit in Anchorage for continuing clinical investigations planned or underway in association with the Alaska Native Medical Center. A small field unit of the AHRL Epidemiology Section is located in Bethel.

Forest Service, U.S. Department of Agriculture — The Institute of Northern Forestry, a unit of the Pacific Northwest Forest and Range Experiment Station, maintains and operates a Forestry Sciences Laboratory on the campus. Research at this laboratory is focused upon the management, protection, and utilization of Alaska's boreal forests. Active programs are underway in the ecology and growth requirements of sub-Arctic forests, fire control methods, and forest entomology. Although field work is conducted throughout the boreal forest in Alaska the 12,500-acre Bonanza Creek Experimental Forest, 23 miles from the campus, has been and will

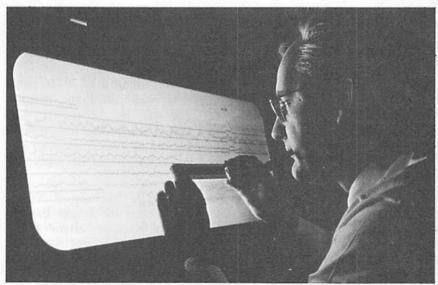
continue to be a convenient research facility for Forest Service and university scientists.

U.S. Coast and Geodetic Survey — The College Magnetic and Seismological Observatory is operated by the United States Coast and Geodetic Survey, with the main facility on the West Ridge of the university campus and an outpost facility on Grenac Road. Originally constructed in 1947, the observatory has expanded to 19 buildings and operates 28 instruments that continuously gather data for studies in the fields of geomagnetism and seismology.

The observatory monitors seismic activity 24 hours a day and is part of the Pacific Seismic Sea Way Warning System with headquarters in Honolulu, Hawaii, and the Alaska Seismic Sea Wave Warning System whose nerve center is at Palmer, Alaska. The facility plays a major part in keeping the people of Alaska informed of current earthquake activity and informing scientific organizations of the occurrence of major world magnetic events.

During the last several years the observatory has been participating in cooperative research projects with university scientists, (principally of the Geophysical Institute).

The observatory is also responsible for overseeing the operation of the Barrow Magnetic Observatory at Point Barrow in cooperation with the university's Naval Arctic Research Laboratory.



Geophysicist Eduard Berg interprets Alaska earthquakes by comparing seismic records from the Geophysical Institute's earthquake monitoring stations. Each line represents earth movements recorded at a particular station.

### **Public Service**

Through the Division of Statewide Services the university makes available to many residents of Alaska in their local communities, or through special training programs, academic credit courses, educational and training programs, and special services. The Division makes available many of the educational and training programs sponsored in part by the federal government through such legislation as the Economic Opportunity Act, State Technical Services Act, Higher Education Act, Manpower Development and Training Act, Education Professions Development Act, and the Smith-Lever Act.

Community Colleges — The Division administers the following community colleges: Juneau-Douglas Community College, Ketchikan Community College, and Sitka Community College.

Through these colleges the university offers collegiate courses for academic credit. The courses and instructors are approved and supervised by the university. All university courses carry resident credit. In addition, each community college offers vocational and interest courses under the sponsorship of the local school district. These courses do not carry university credit.

For detailed information write to the Resident Director of the Community College in which you are interested or the dean of the Division of Statewide Services, University of Alaska, College, Alaska.

Evening Classes — Resident academic credit courses are offered on the main campus during the evening, at military installations in the Interior of Alaska, and in other communities throughout Central, North, and Southeastern Alaska. Summer sessions are conducted at Eielson Air Force Base and Ft. Wainwright. Information is available prior to each semester from the Office of the Dean, Division of Statewide Services, University of Alaska, College, Alaska.

Correspondence Study — A limited number of academic credit courses are available through the correspondence study program. Alaskan courses are emphasized. Further information and catalogs are available by writing to Correspondence Study, University of Alaska, College, Alaska.

Summer Sessions — A wide range of courses are offered on the University campus at College for both graduate and under-graduate credit. Courses are grouped into three and six week sessions and are open to: (1) candidates for graduate or under-graduate degrees, or (2) unclassified students wishing to take special classes or desiring intellectual enrichment without reference to a degree. A maximum of seven hours of credit may be earned during the six week session, and three hours during the

three week session. A post session Workshop on Alaska includes subjects such as anthropology, education, history, natural resources, and other Alaskan topics.

Proposals for special summer institutes are prepared by university faculty members and submitted each year to various governmental agencies and private foundations for funding. Summer Institutes in Teaching of French, Counseling and Guidance, English, and the Teaching of Science and Mathematics have been held.

Summer Institutes are usually conducted for an eight week term, and participants may ordinarily earn eight hours of credit. Institutes are usually open to both residents and non-residents of Alaska.

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

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 Homemaker's Short Course.

An extensive recreation program is planned for summer session students. Typical recreational activities include trips to Eskimo and Indian villages, gold panning expeditions, hiking, dances, movies, and a riverboat excursion.

Further information is available by writing to the Office of Summer Sessions, University of Alaska, College, Alaska. A catalog listing courses to be offered is available after March 1 of each year.

Mining Extension Program — The Mining Extension Program, supported by state appropriations, consists of three short courses: a four week or five week basic prospecting course which emphasizes the various methods of prospecting; a two week geochemical prospecting course which emphasizes the use of chemical analysis in prospecting; and a two week geophysical prospecting course. These courses are offered each year in various communities in Alaska and are open to all persons without regard to previous training or academic qualifications.

The Mining Extension Courses are designed to give basic training in various phases of the mineral industry and to enable prospectors to find and explore ore deposits. An appropriate certificate is awarded to students who satisfactorily complete the respective course of study.

For additional information, contact the Mining Extension Program, Division of Statewide Services, University of Alaska, College, Alaska.

Fisheries Extension Program — Fisheries Short Courses, covering various aspects of commercial fishing, are held in commercial fishing centers throughout the state. These courses present information on fishing gear and materials, fisheries technology, hydrology, biology, and pollution. Courses taught in remote areas of the state include lectures and demon-

strations on fisheries biology, fish spoilage, proper care of fish, netting materials used by fishermen, and maintenance of equipment. An appropriate certificate is awarded to students who satisfactorily complete the course.

For information contact the Fisheries Extension Program, Division of Statewide Services, University of Alaska, College, Alaska.

Cooperative Extension Service in Agriculture and Home Economics — The program is a cooperative educational service of the university and the United States Department of Agriculture. District offices and field staff are located in Fairbanks, Palmer, Juneau, Homer, Anchorage, Nome, and Aniak. University Extension specialists and district Extension agents extend the results of research by the university and the USDA to the public. Local people are helped to identify and solve problems, and to apply the results of scientific research to the improvement of farms, homes, and communities. They work with young people through the 4-H and Youth Program.

Extension's traditional audience has been rural people. Today, with no sharp dividing lines between rural and urban interests, Extension agents also serve consumer, marketing, and agri-business groups. They help citizens of the state to plan rural civil defense programs and to organize for broader economic and social development. Their teaching is carried out informally through television, radio, newspaper and newsletter media, publications, farm and home visits, special interest meetings, and short courses.

Audio-Visual Communications — The Department of Audio-Visual Communications is an all-university and statewide service which supports instruction.

The department has a large collection of educational films, filmstrips, tapes, and slides that are available to the university faculty, groups, and schools throughout the state.

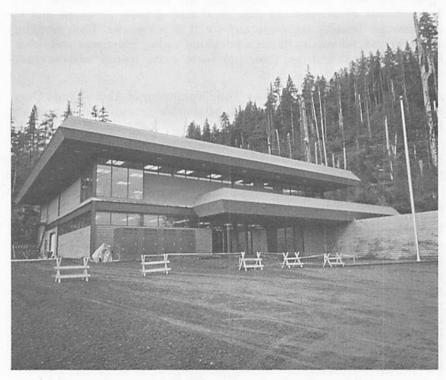
Requests for the film catalog should be mailed to the Department of Audio-Visual Communications, University of Alaska, College, Alaska.

Extension Center in Arts and Crafts — The Division operates a resident center on campus at College for artists and craftsmen who have potential for further development. Supported in part by grants from the Indian Arts and Crafts Board and the Alaska State Council on the Arts, young adults are given training in the use of new media such as wood, soapstone, and silver, and the development of new designs. Communication skills and basic business methods are also included in the nine-month training program. Further information is available from the Extension Center in Arts and Crafts, Division of Statewide Services, University of Alaska, College, Alaska.

Special Programs — Special programs of a continuing nature include classes and conferences in various civil defense subjects, an UPWARD BOUND Program, A Law Officers Training Program, and a Continuing Legal Education Program. A Headstart Regional Training Officer is employed to assist local headstart programs throughout the state.

Non-academic credit short courses, programmed in many areas according to need, are offered. Some of the recent short courses offered are swimming, fencing, upholstering, and private pilot ground school.

For information on these and related programs plus the handling of conferences on the university campus, contact the Director, Division of Statewide Services, University of Alaska, College, Alaska.



Enrollment at the university's Ketchikan Community College has swelled to more than 400 students. This new building on a hillside overlooking Ketchikan was dedicated in the Spring of 1969.

## Southcentral Regional Center

By action of the Board of Regents the Anchorage Regional Center, established on July 1, 1966, was expanded and re-designated as the South-central Regional Center on July 1, 1968.

The Southcentral Center, administered by the Office of the Provost, has responsibility for supervising and coordinating all University of Alaska educational programs in the area bounded roughly by Talkeetna and Glenallen on the north, Yakutat on the east, Dillingham on the west, and Adak to the southwest. In seeking to fulfill the University's responsibility for meeting public higher educational needs in the most populous area of the state, the Southcentral Regional Center operates several related programs.

Four community colleges, established cooperatively with local school districts under specific statutory authority, are a part of the center. The Kenai Peninsula Community College and the Matanuska-Sustina Community College (Palmer), both activated within the past decade, offer limited lower division academic courses each semester under the University of Alaska's authorization and a number of vocational-technical and interest courses under school district sponsorship. The Kodiak Borough Community College, activated in 1968, has started out with a number of credit courses and has the potential for an extensive vocational and technical program using facilities of the state Kodiak-Aleutian Vocational School. In all three of these community colleges classes are held in school district or rented facilities — usually on a late afternoon or evening basis.

The Anchorage Community College began operation in February, 1954. The college offers an extensive program of lower division academic programs including associate degrees, all carrying resident university credit. A broad range of vocational-technical and interest courses are offered under school district sponsorship. Extensive counseling and testing are provided.

The first five buildings of the Anchorage Community College campus complex will be available in September 1969. Classes will be operated from early morning until late evening in the facility, some school district facilities, and necessary rented space.

Each community college operates under the direct supervision of a director, either full-time or part-time, who is responsible to the Office of the Provost. In Anchorage a cadre of full-time instructors supplemented by qualified part-time lecturers serves the instructional needs while as yet other locations have only part-time instructors. Some upper division courses under the framework of the Southcentral Regional Center are placed at the various community college locations on a demand basis.

Since 1949, the university has provided evening class academic offerings at the Anchorage area military bases. Through the Elmendorf-Fort

Richardson Unit, operated under a program director, the offerings encompass lower division and upper division courses, including programs leading toward a bachelor's degree in the education, history, and business administration fields. Although the program largely serves military personnel and dependents, the adjacent civilian community also may enroll in the on-base programs and likewise military personnel can and do enroll through the Anchorage Community College.

The Southcentral Regional Center also has responsibility for credit course offerings at other military installations, including Wildwood Station, Kodiak Naval Station, and Adak Naval Station. Upper division and some graduate level courses, particularly for teachers, are extended to

various locations usually utilizing the Anchorage area staff.

A teacher education program in the Anchorage area includes provision for cadet teaching and completion of a bachelor's degree as well as meeting certification requirements. Graduate level courses are offered which, along with applicable upper division credits, enable persons to complete the master's degree program in Education through the Anchorage facilities. Courses are placed at the Elmendorf-Fort Richardson Unit and at the Anchorage Community College depending on space available and the persons to be served.

A full-fledged master's degree in Engineering Management can be earned in Anchorage. A resident engineering instructor, assisted by commuting instructors from the main campus covers the entire program.

Courses are held at the Anchorage Community College.

Two additional master's level programs were established for the Anchorage area in 1968-69 and response to both has been excellent. A small resident staff, supplemented by commuting staff from the main campus and well-qualified local lecturers, offers course work, practicum, and projects for master's degrees in Counseling Psychology and Business Administration. Classes are held at the Anchorage Community College or Elmendorf-Fort Richardson Unit.

All programs under the Southcentral Regional Center are operated under a trimester arrangement. The Southcentral Regional Center is building a full-time staff in each of the major disciplines to service the Anchorage area and some outlying needs. Part-time lecturers, each approved under university standards, supplement the full-time corps. All academic credit offered under the Southcentral Regional Center framework is considered resident University of Alaska credit.

The provost's office coordinates schedules and programs in the Southcentral area to afford full utilization of staff and resources. The provost, directly responsible to the president of the university, serves on the president's Administrative Council, Academic Council, and the Advanced Study Council. The provost provides liaison between the main campus and Southcentral Regional Center and provides for broadened public information and public involvement in all locations served by the Center.

Offices of the Southcentral Regional Center are located at 1820 W. Northern Lights Boulevard, Anchorage. The telephone number is 272-1424.

# Colleges of the University

**Arts and Letters** 

Behavioral Sciences and Education

Biological Sciences and Renewable Resources

Business, Economics, and Government

Earth Sciences and Mineral Industry

Mathematics, Physical Sciences, and Engineering



Noted pianist Jean-Paul Billaud of the university's Music Department carries a heavy schedule of student instruction in addition to presenting recitals throughout the state.

# College of Arts and Letters

## CHARLES J. KEIM — DEAN

I. General Education

The humanities diversify the quest for knowledge in an era of specialization. Examining what men have thought and expressed, they keep knowledge current, expanding, and general. Technique distinguishes them from subjects primarily using the empirical method of science, for there are truths which transcend verification. The study of languages breaks cultural fetters, directed reading builds appreciation, exposure to the fine arts quickens sensibility; and all language, literature, and the arts, collaborate to make knowledge prevail and discovery imminent.

UNDERGRADUATE DEGREES — The College of Arts and Letters offers the Associate of Arts degree with majors in Liberal Arts and Vocational Art, the Bachelor of Music degree, and the Bachelor of Arts degree with majors in Art, English, French, German, Journalism, Linguistics, Music, Philosophy, Russian, Spanish, and Speech (options in Public Address, Drama, and Broadcasting). The college also offers minors for the Bachelor of Arts in these subjects.

GRADUATE DEGREES — The College of Arts and Letters offers the Master of Arts degree in English and French and the Master of Fine Arts degree in Creative Writing, Students also may earn both degrees in other fields through an interdisciplinary program,

# REQUIREMENTS FOR AN ASSOCIATE OF ARTS DEGREE WITH A MAJOR IN LIBERAL ARTS

A. Specific Requirements	(14) 6	Credits
or P.S. 101-102 — Intro. to Amer. Govt Sp. 68 — Elem. Pub. Sp. I	6	
B. General Requirements At least six credits each in three areas below: Humanities		

Humanities	
Social Studies	
Natural Science	
Mathematics	
Other	

II. Major in Liberal Arts No course used to meet the General Education requirements may be used to meet the requirements of the major.

A. Specific Requirements	(14-20)
A. Specific Requirements	6-10
or	
Two years of one foreign language in high school. Speech (Public Speaking)	
Speech (Public Speaking)	2
Formal Humanities Course	40

B. Approved Electives .....(10-16) of which six must be in one department

A total of 60 credits is required for graduation.

### ART DEPARTMENT

HELMUT G. VAN FLEIN --- DEPARTMENT HEAD

DEGREES --- BACHELOR OF ARTS, ASSOCIATE OF ARTS IN VOCATIONAL ART

MINIMUM REQUIREMENTS FOR DEGREES:

A.V.A. — 60 CREDITS B.A. — 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.

# REQUIREMENTS FOR AN ASSOCIATE OF ARTS DEGREE WITH A MAJOR IN VOCATIONAL ART

I.	General Education	
	A. Specific Requirements(12)	
	English	
	American Government	
	American History	
	B. General Requirements(18)	
	At least six credits each in three areas below:	
	Humanities 6	
	Social Studies	
	Natural Science 6 Mathematics 6	
	Other 6	
II.	Major	
	No course used to meet the General Education requirements may be	used to
	meet the requirements of the major.	uscu to
	A. Specific Requirements	
	Art 55-56 Elementary Drawing 4	
	or	
	Art 105-106 — Freehand Drawing	
	Art 57-58 — Elementary Printmaking	
	Art 207-208 - Beginning Printmaking 4	
	Art 59-60 - Elementary Metalcraft	
	OF	
	Art 209-210 — Beginning Metalcraft	
	or	
	Art 211-212 — Beginning Sculpture	
	Art 63-64 — Elementary Oil Painting 6	
	or Art 213-214 — Beginning Oil Painting	
	Art 65-66 - Elementary History of World Arts	
	or	
	Art 261-262 — History of World Art	
	B. Electives(4-16)	
	A total of 60-75 credits numbered 50-299 are required for graduation	
	The Department of Art would prefer that the candidate for the Associate	of Arts

The Department of Art would prefer that the candidate for the Associate of Arts Degree in Vocational Art continue for at least a minimum of four credits, not exceeding a maximum of six credits in the area of his strongest interests and artistic inclinations.

### REQUIREMENTS FOR B.A. DEGREE WITH AN ART MAJOR

- 1. Complete general requirements for a B.A. degree as listed on page .....
- 2. Complete a minimum of 37 hours of credit in Art courses. A maximum of 54 hours of credit in Art courses may be counted toward the degree.
- 3. Complete the following courses in Art:

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- 4. 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.
- 5. The Department of Art advises Art students to use French or German to meet their foreign language requirements.

#### ART PROGRAM FOR TEACHERS

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

For course descriptions, see page 150.

### **ENGLISH DEPARTMENT**

JAMES R. WILSON - DEPARTMENT HEAD

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

1.	Complete general requirements for a B.A. degree as listed on page	28.
2.	Complete 33 credits in English beyond Engl. 101 and 102 including:	
	Engl. 201-202 — Masterpieces of World Literature Engl. 240 — Form and Technique of Fiction Engl. 423 — Elizabethan Drama	6
	Engl. 240 - Form and Technique of Fiction	3
	Engl. 423 - Elizabethan Drama	3
	or	
	Engl. 424 — Shakespeare	3
	Two courses (six credits) chosen from:	
	Engl. 421 — Chaucer Engl. 426 — Milton Engl. 472 — History of the English Language	3
	Engl. 426 — Milton	3
	Engl. 472 - History of the English Language	3

A MINOR IN ENGLISH REQUIRES 18 CREDITS BEYOND ENGL. 101-102, INCLUDING:	
Engl. 201-202 - Masterpieces of World Literature	6
Engl. 423 – Elizabethan Drama	3
or Engl. 424 — Shakespeare	3
Carrier Alars and Mark about from	J
One course (three credits) chosen from: Engl. 421 — Chaucer	3
Engl. 426 – Milton	š
Engl. 426 — Milton Engl. 472 — History of the English Language	3
For course description, see page 163.	
REQUIREMENTS FOR M.A. DEGREE IN ENGLISH	
1. A minimum of 30 credits of approved courses including Engl. 697-	698, Thesis
six credits. For course description, see page 163.	
2. Completion of the general graduate degree requirements listed on page	31.
3. Reading knowledge of a foreign language.	
4. Thesis	6
ACCUMENTATION TO BE A READER IN ARPAULT WRITING	
REQUIREMENTS FOR M.F.A. DEGREE IN CREATIVE WRITING	
1. Graduate creative writing courses	
2. English electives	
3. Interdisciplinary electives	
4. Thesis	6
5. Reading knowledge of a foreign language.	
REQUIREMENTS FOR M.A.T. DEGREE	
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Persons interested in this degree program should see the head of the department of t	enging pro- with words cation. well into a ics, wildlife aska media. NALISM of 30 hours
Persons interested in this degree program should see the head of the department of the degree program should see the head of the department of the degree program should see the head of the department of the degree program should see the head of the degree of the degree of programs.  MINIMUM REQUIREMENTS FOR DEGREE: 130 CREDITS  The journalism curriculum is designed to prepare students for a chall fession which calls for a high degree of proficiency in communicating and pictures — while being versatile enough to allow a broad general educant of the students with diverse interests frequently find that journalism fits joint educational program with such areas as broadcasting, home economical educational program with such areas as broadcasting, home economical educational program with such areas as broadcasting, home economical educational program with such areas as broadcasting, home economical educational program with such areas as broadcasting.  Emphasis on practical experience includes an intern program with Alexandre educational educational education of a B.A. degree listed on page 28.  Complete general requirements for a B.A. degree listed on page 28.  Complete a minimum of 21 hours of credit in Journalism. A maximum of credit in Journalism courses may be counted toward a degree.  Complete the following courses in Journalism:  Jour. 201 — Introduction to Journalism  Jour. 202 — Reporting of Public Alfairs	enging pro- with words cation. well into a ics, wildlife aska media. NALISM of 30 hours

4.	Complete six hours in the following courses:  Jour. 204 — Journalism Laboratory
	Jour. 303 – Advanced Photography
	Jour. 311 – Magazine Article Writing
	Jour. 320 – Journalism in Perspective
	Jour. 412 – Advanced Editing
	Jour. 432 – Advanced Editing
	Jour. 444 – Foreign Correspondence 3
	Jour. 493-494 — Special Topics3-6
5.	Work at least two semesters on a university or equivalent publication.

# LINGUISTICS AND FOREIGN LANGUAGES DEPARTMENT

BRUCE R. GORDON --- DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS, MASTER OF ARTS, MASTER OF ARTS IN TEACHING

### MINIMUM REQUIREMENTS FOR DEGREE:

B.A. — 130 CREDITS
M.A. — 30 ADDITIONAL CREDITS
M.A.T. — 30 ADDITIONAL CREDITS

In a shrinking world Americans increasingly need to communicate directly with other peoples in order to achieve mutual understanding. Whether it be Eskimo or English, the language of a people embodies its unique culture and 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 linquistics and of foreign languages and literature liberates the student from the confines of his own culture and also makes his own culture more meaningful to him.

# REQUIREMENTS FOR B.A. DEGREE WITH A FOREIGN LANGUAGE OR LINGUISTICS MAJOR OR MINOR

Majors are offered in French, German, Linquistics, Russian, and Spanish.

- Complete general requirements for a B.A. degree as listed on page 28, including foreign language requirement.
- 2. Complete 26 credits beyond first year in the major language.
- 3. Complete three credits in a Linguistics course.

A MINOR IN A FOREIGN LANGUAGE REQUIRES FOUR SEMESTER (12 CREDITS) OF STUDY IN THAT LANGUAGE BEYOND THE 102 LEVEL.

#### For a major in Linguistics:

- Complete general requirements for a B.A. degree as listed on page 28, including foreign language requirement.
- Complete four semesters (12-16 credits) in language other than that offered as a fulfillment of foreign language requirements toward the B.A. degree.
   Both languages must be chosen from French (or Latin or Spanish), Greek, German, or Russian.
- 3. Complete 15 credits in Linguistics courses.

#### A MINOR IN LINGUISTICS REQUIRES 12 CREDITS IN LINGUISTICS.

Audio-lingual practice in the Language Laboratory is an intergral part of all elementary and intermediate language courses.

#### REQUIREMENTS FOR M.A. DEGREE IN FRENCH

- 1. A minimum of 30 credits of approved courses including Fren. 697-698, Thesis.
- 2. Completion of the general graduate degree requirements listed on page 31.
- 3. Proficiency in a foreign language other than French.

### REQUIREMENTS FOR M.A.T. IN FRENCH

1. Thirty additional credits.

An interdisciplinary M.A. and an M.A.T. are also offered in other languages under certain conditions.

### MUSIC DEPARTMENT

CHARLES W. DAVIS — DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS, BACHELOR OF MUSIC

#### MINIMUM REQUIREMENTS FOR DEGREES: 130 CREDITS

The curriculums are designed to satisfy two principal objectives:

Culturally, to teach musical skills, knowledges, appreciations, and attitudes that in combination with the other arts and humanities contribute to an enriched life.

Professionally, to prepare teachers and musicians who, in addition to the above, are proficient in professional leadership.

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 degree offers intensive specialization for those desiring professional training in music — the vocal and instrumental major.

The various music organizations maintained by the department offer participation experiences for students in all colleges of the university. Performance in organizations (orchestra, band, choir) is required of all music majors in the area appropriate to their specializations.

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.

# REQUIREMENTS FOR B.A. DEGREE WITH A MAJOR IN MUSIC OR MUSIC EDUCATION

For a major in Music:

- 1. Complete general requirements for a B.A. degree as listed on page 28.
- 2. Complete 40 credits in Music including:

Mus. 131-132 - Basic Theory	6
Mus. 231-232 — Advance Theory	6
Mus. 321-322 — History of Music	6
Mus. 331-332 - Form and Analysis	4
Mus. 491-492 — Senior Seminar	2
Applied Music, to include eight credits of private lessons and	
eight credits of ensemble participation	16

3. Prior to graduation, satisfy an examination in piano proficiency.

For a major in Music Education:
1. Complete general requirements for a B.A. degree listed on page 28.
2. Complete 40 credits in Music including:
Mus. 131-132 — Basic. Theory 6
Mus. 231-232 — Advanced Theory
Mus. 321-322 — History of Music
At least six credits from:
Mus. 315-316 – Instrumental Methods
Mus. 415-416 – Instrumental Methods
Applied Music, to include six credits of private lessons and ten
credits of ensemble participation, to include two semesters of a
vocal ensemble 16
3. Complete a minor in Education, including either Mus. 309, or Mus. 405.
4. Prior to graduation satisfy an examination in piano proficiency.
REQUIREMENTS FOR A BACHELOR OF MUSIC DEGREE (INSTRUMENTAL)
English Composition and Literature, including Engl. 101-102 6
Humanities - Art, English, Foreign Language, Philosophy,
Journalism, and Speech11
Foreign Language6-10
Hist. 101, 102 plus six hours in another Social Science
Mathematics or Natural Science
Music:
Required Courses:
Mus. 151-362 — Piano Proficiency0-8
Mus. 161-462 — Applied Music (Major)
Mus. 101-203-205-211 — Ensemble
Mus. 123-124 — Intro. to Music
Mus. 131-132 — Basic Theory
Mus. 231-232 — Advanced Theory
Mus. 321-322 – History of Music
Mus. 431 – Counterpoint
Mus. 432 – Orchestration
Mus. 351 or 352 — Conducting
Spec. Top 403 – Lit. of Major Instrument
Physical Education or Military Science4-6
Electives — to bring total credit to 130 credits.
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 sat-
year. The student, in his graduation recital, must demonstrate ability to perform sat-
isfactorily in public a program of artistic merit.
REQUIREMENTS FOR A BACHELOR OF MUSIC DEGREE (VOCAL)
•
The requirements for the voice major are the same as above with these exceptions:
Foreign Language22-26
Mus. 331-332 — Form and Analysis2
Mus. 431 – Counterpoint
·
REQUIREMENTS FOR A BACHELOR OF MUSIC DEGREE (MUSIC EDUCATION)
English Composition and Literature, including Engl. 101-102 6
Humanities: Art, English, Foreign Language, Philosophy,
Journalism, and Speech
Foreign Language6-10
Hist. 101-102 - Western Civilization
Psy. 101 - Intro. to Psychology
-

Psy. 252 — Psychology of Adolescence	3
Mathematics or Natural Sciences	8
Education:	
Required Courses:	
Ed. 313 - Education Psychology	3 3
Ed. 332 - Test and Measurements	3
Ed. 405 - Methods of Teaching Music	3
Ed. 421 — Secondary Education Ed. 452 — Student Teaching	3 6
	U
Music:	
Required Courses:	0.0
Mus. 151-362 — Applied Music (Pinno Proficiency)	υ-0 1 <i>B</i>
Mus. 101-402 — Applied Music (Major)	8
Mus. 123-124 — Intro. to Music	
Mus. 131-132 - Basic Theory	6
Mus. 231-232 — Advanced Theory	6
Mus. 321-322 — History of Music	
Mus. 331 – Form and Analysis	2
Mus. 315-416 – Methods and Tech. in Voice, Brass, Woodwinds, Percussion, Strings	10
Mus. 351 or 352 — Conducting	2
Mus. 432 — Orchestration	
Physical Education or Military Science	
Electives — to bring total credits to 130 credits.	
Students who desire to meet certification requirements for teaching a clementary school level should consult with the head of the Music Department a petition to substitute required elementary level psychology as courses for similar courses in the Bachelor of Music (Music Education) cu	rtment con- nd methods
A MINOR IN MUSIC REQUIRES 12 HOURS OF MUSIC CREDIT IN ADDITION TO 6	CREDITS IN:
Mus. 131-132 — Basic Theory	6
Mus, 123-124 – Intro. to Music	6
	-
All music majors and minors are expected to attend all music departm and concerts.	ent recitals
All applied music students are expected to perform in student re	oitale anak
semester of study.	citais each
For course descriptions, see page 191.	
Lor course descriptions, see page ror.	

# PHILOSOPHY DEPARTMENT

RUDOLPH W. KREJCI - DEPARTMENT HEAD

**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.

# REQUIREMENTS FOR B.A. DEGREE WITH A PHILOSOPHY MAJOR OR MINOR

- 1. Complete general requirements for a B.A. degree as listed on page 28.
- 2. Complete a year sequence in mathematics.

3. Complete 30 credits in Philosophy, including Phil. 201 — Introduction to Philosophy Phil. 204 — Introduction to Logic Phil. 351-352 — History of Philosophy Phil. 471 — Contemp. Philosophical Problems Phil. 493 or 494 — Special Topics	3 3 6 3 3
Choose two courses out of the following:  Phil. 321 — Aesthetics	3 3 3 3
Choose two of the following: Phil. 481 — Philosophy of Science Phil. 482 — Comparative Religion Phil. 484 — Philosophy of History	3 3 3
, MINOR IN PHILOSOPHY REQUIRES 18 CREDITS OF APPROVED PHILOSOPHY C LUDING:	OURSES IN-
Phil. 201 — Introduction to Philosophy Phil. 351-352 — History of Philosophy Phil. 471 — Contemp. Philosophical Problems	3 6 3
Choose six credits from the following:	
Phil. 204 — Introduction to Logic Phil. 321 — Aesthetics Phil. 332 — Ethics Phil. 341 — Epistemology Phil. 342 — Metaphysics Phil. 481 — Philosophy of Science Phil. 482 — Comparative Religion Phil. 484 — Philosophy of History	3 3 3 3 3 3 3 3 3 3

For course descriptions, see page 197.

# SPEECH, DRAMA, AND RADIO DEPARTMENT

LEE H. SALISBURY - DEPARTMENT HEAD

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 behavorial 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 university, as the embodiment of all the fields of human endeavor, has the responsibility to disseminate its accumulated and expanding knowledge to the state and to the world. The department of Speech, Drama, and Radio through its related disciplines is an important part of this communication process.

The Department offers elective courses leading to a major or minor in Speech with options in Public Address, Drama, and Broadcasting.

RE	QUIREMENTS FOR B.A. DEGREE WITH A SPEECH MAJOR	
1.	Complete general requirements for B.A. degree as listed on page 28.	
2.	Complete 24 credits in Speech beyond Sp. 111, including:  Sp. 221 — Introduction to Theater  Sp. 231 — Introduction to Broadcasting  Sp. 315 — Phonetics  Sp. 316 — Voice and Diction	3 3 2 2
3.	A Speech major may elect to take an option in Public Address by addir the following courses to those specifically required in No. 2 (above):  Sp. 212 — Public Speaking II	2 2 2 3
4.	following courses to those specifically required in No. 2 (above):  Sp. 223 — Acting I  Sp. 325 — Theater Production  Sp. 327 — Makeup for Theater  Sp. 425 — Directing  or	3323 333
5.	A Speech major may elect to take an option in Broadcasting by adding the following courses to these specifically required in No. 2 (above):  Sp. 237 — Announcing Sp. 333 — Writing for Radio and Television Sp. 334 — Radio-Television Advertising or Sp. 433 — Radio-Television News	2 3 3 3
A A	MINOR IN SPEECH REQUIRES 12 CREDITS OF APPROVED SPEECH ELECTIVES.	-

# College of Behavioral Sciences and Education

### WENDELL W. WOLFE — DEAN

The College of Behavioral Sciences and Education provides students an opportunity to develop an understanding of man in relation to his social, psychological, and cultural background. Such knowledge serves to broaden the student's concept of life and conditions of society and to provide a foundation for service in specific professional fields.

UNDERGRADUATE DEGREES — The college has programs that lead to Bachelor of Arts degrees in Anthropology, Psychology, and Sociology. The Bachelor of Education degree is awarded to students majoring in Education. The Bachelor of Science degree is awarded to students majoring in Anthropology, Home Economics, Psychology, and Sociology.

GRADUATE DEGREES — Programs leading to the Master of Arts in Anthropology, the Master of Education, and the Master of Arts in Teaching are offered to qualified students.

## ANTHROPOLOGY DEPARTMENT

ERNA GUNTHER - DEPARTMENT HEAD

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 Department offers undergraduate level courses in Anthropology and some opportunities for undergraduate research. 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.

# REQUIREMENTS FOR B.A. DEGREE OR B.S. DEGREE WITH AN ANTHROPOLOGY MAJOR

- 1. Complete general requirements for a B.A. or B.S. degree as listed on page 28-29.
- 2. Complete 25 credits in Anthropology exclusive of Anth. 101, including:

Anth.	203 —	World Ethnography	3 Credits
Anth.	204	World Ethnography: New World, Pacific	3
Anth. 2	214 —	Archaeology	4
Anth. 3	303 -	Culture History	3
Anth.	423 -	Social Structure	3
		Primitive Religion	
Anth, 4	402 -	Human Biology	4
Anth.	498 -	Thesis or Project	2

3. Complete the following:

Psy. 101 – Introduction to Psychology	3
or	
Soc. 101 - Intro. to Sociology	3
Geol. 101 or 102 - General Geology	4
or	

# REQUIREMENTS FOR M.A. DEGREE WITH AN ANTHROPOLOGY MAJOR

The graduate program allows for specialization in two broad fields of Anthropology: (1) social and cultural anthropology; (2) archeology. Students who wish to add linguistics may do so by taking courses in the Department of Linguistics and Foreign Languages by special arrangement.

Requirements for the degree: The Master's degree requires 30 semester hours of Anthropology and related subjects, which are divided as follows:

12 credit hours of graduate courses in Anthropology

6 credit hours for thesis

12 credit hours in related subjects

Of these credit hours a maximum of nine may be transferred from another institution.

Language: The language requirement consists of demonstrating to the satisfaction of the faculty a reading knowledge of French or German by examination, of the extensive use of one of these languages in the writing of the thesis. Exceptions may be made in response to a petition if another language is eminently necessary for the student's current or projected work. This language should have a written literature.

Examination: The candidate will take a comprehensive written examination after the completion of the course work, and after completion of the thesis be called for a brief defense of the methods involved in its writing and the basis for its facts.

# **EDUCATION DEPARTMENT**

FRANK DARNELL --- DEPARTMENT HEAD

DEGREES — BACHELOR OF EDUCATION, MASTER OF EDUCATION,

# MASTER OF ARTS IN TEACHING MINIMUM REQUIREMENTS FOR DEGREES:

B.ED. — 130 CREDITS

M.ED. — 30 ADDITIONAL CREDITS

M.A.T. — 30 ADDITIONAL CREDITS

The Education Department 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.

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 grant-

ed by 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 head of the Education Department 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 Teacher Education. Students should consult with the head of the Education Department at the beginning of their sophomore year to secure procedure for formal application for admission to the Teacher Education Program. Enrollment in education courses in no way implies admission to the Program of Teacher Education.

# REQUIREMENTS FOR B. ED. DEGREE WITH AN ELEMENTARY EDUCATION MAJOR

1.	Military Science of Physical Education (two years)	6-4
2.	Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)	20
	a. Required Courses: Engl. 101-102 — Composition & Modes of Literature Engl. 318 — Modern Grammar	6
	b. Recommended Courses: Engl. 213 – Advanced Exposition	- 3
3.	Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)	24
	a. Required Courses: Hist. 101-102 — Western Civilization	6
	131-132 – History of the U.S P.S. 101-102 – Introduction to American Government and	
	Political Science	3
	b. Recommended Courses: Econ. 121-122 — Principles of Economics Anth. 101 — The Study of Man Anth. 342 — Anthropology of the Natives of Alaska Geog. 101 — Introductory Geography Hist. 341 — History of Alaska Soc. 101-102 — Introduction to Sociology	3
4.	Mathematics	
5.	Natural Sciences (Anth. 402, Biological Sciences, Chemistry, Geog. 201-401, Geology, Physics)	6
6.	Education (students must maintain a 2.00 average in all education courses)	30
	a. Required Courses: Ed. 313 — Educational Psychology Ed. 332 — Tests and Measurements Ed. 409 — The Teaching of Reading *Ed. 452 — Student Teaching Candidates who have taught successfully two years in the public elementary schools may petition to be excused from Ed. 452.	3
	b. Nine credits from the following courses: Ed. 301 — Social Studies for Elementary Teachers Ed. 302 — Language Arts for Elementary Teachers	3

	Ed. 304 — Literature for Children  Ed. 306 — Teaching of Science in Elementary Schools  Ed. 307 — Teaching of Arithmetic  Ed. 311 — Audio Visual Methods and Materials  Ed. 323 — Small Schools  c. Six credits from the following courses:  Ed. 345 — Sociology of Education  Ed. 348 — History of Education in the U.S.  Ed. 422 — Philosophy of Education  Ed. 426 — Principles and Practices of Guidance  Ed. 446 — Public School Organization, Control & Support	. 3 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
7.	A total of 36 credits (including 12 upper division credits) in any two lowing fields, with a minimum of 12 credits in either field:	o of the fol-
	Anthropology Art Biological Sciences Chemistry Economics English French Geography Geology German History  Anthropology Linguist Mathem Music Physics Physics Political Propolitical Psycholo Russian Spanish Spech History Sociology	cs ntics hy Science gy
	Credits earned in fulfillment of (2), (3), (4), and (5) above may be approurses listed in (7) above.	plied toward
8.	Forty-eight credits of upper division courses, 24 of which must be cathe University of Alaska.	ompleted at
9.	Sufficient free electives to total 130 credits.	
DE	EQUIREMENTS FOR B. ED. DEGREE WITH	
Α	SECONDARY EDUCATION MAJOR	
A 1.		.6-4
	Military Science or Physical Education (two years)	
1.	Military Science or Physical Education (two years)	20
1.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses: Engl. 101-102 — Composition & Modes of Literature	20
1.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition	20 6 3
1.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses: Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses: Engl. 213 — Advanced Exposition Phil. 201 — Introduction to Philosophy	20 6 3 3
1.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I	20 6 3 3 2
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I  or     Sp. 316 — Voice and Diction	20 6 3 3 2
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I      or     Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)	20 6 3 3 2 2
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I     or     Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)  a. Required Courses:     Hist. 101-102 — Western Civilization	20 6 .3 .3 .2 .2 .2
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses: Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses: Engl. 213 — Advanced Exposition Phil. 201 — Introduction to Philosophy Sp. 111 — Public Speaking I  or Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology) a. Required Courses:	20 6 3 3 2 2 2 2
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses: Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses: Engl. 213 — Advanced Exposition Phil. 201 — Introduction to Philosophy Sp. 111 — Public Speaking I  or Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)  a. Required Courses: Hist. 101-102 — Western Civilization  or Hist. 131-132 — History of the U.S. P.S. 101-102 — Introduction to American Government and Political Science	20 6 3 3 2 2 2 24 6 6 6
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I     or     Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)  a. Required Courses:     Hist. 101-102 — Western Civilization     or     Hist. 131-132 — History of the U.S.     P.S. 101-102 — Introduction to American Government and Political Science Psy. 101 — Introduction to Psychology	20 6 3 3 2 2 2 2 24 6 6 6 6 6 3
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I     or     Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, II.E. 236, Political Science, Psychology, Sociology)  a. Required Courses:     Hist. 101-102 — Western Civilization     or     Hist. 131-132 — History of the U.S.     P.S. 101-102 — Introduction to American Government and Political Science     Psy. 101 — Introduction to Psychology     Psy. 352 — Adolescence  b. Recommended Courses:	20 6 3 3 2 2 2 24 6 6 6 6 3 3
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses: Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses: Engl. 213 — Advanced Exposition Phil. 201 — Introduction to Philosophy Sp. 111 — Public Speaking I  or Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)  a. Required Courses: Hist. 101-102 — Western Civilization or Hist. 131-132 — History of the U.S. P.S. 101-102 — Introduction to American Government and Political Science Psy. 101 — Introduction to Psychology Psy. 352 — Adolescence  b. Recommended Courses: Anth. 101 — The Study of Man Anth. 342 — Anthropology of the Natives of Alaska	20 6 3 3 2 2 2 24 6 6 6 6 3 3 3
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses:     Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses:     Engl. 213 — Advanced Exposition     Phil. 201 — Introduction to Philosophy     Sp. 111 — Public Speaking I     or     Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History,     H.E. 236, Political Science, Psychology, Sociology)  a. Required Courses:     Hist. 101-102 — Western Civilization     or     Hist. 131-132 — History of the U.S.     P.S. 101-102 — Introduction to American Government and     Political Science     Psy. 101 — Introduction to Psychology     Psy. 352 — Adolescence  b. Recommended Courses:     Anth. 101 — The Study of Man     Anth. 342 — Anthropology of the Natives of Alaska     Econ. 121-122 — Principles of Economics	20 6 3 3 2 2 2 24 6 6 6 6 3 3 3 3
1. 2.	Military Science or Physical Education (two years)  Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech)  a. Required Courses: Engl. 101-102 — Composition & Modes of Literature  b. Recommended Courses: Engl. 213 — Advanced Exposition Phil. 201 — Introduction to Philosophy Sp. 111 — Public Speaking I  or Sp. 316 — Voice and Diction  Social Sciences (Anthropology, Economics, Geography, History, H.E. 236, Political Science, Psychology, Sociology)  a. Required Courses: Hist. 101-102 — Western Civilization or Hist. 131-132 — History of the U.S. P.S. 101-102 — Introduction to American Government and Political Science Psy. 101 — Introduction to Psychology Psy. 352 — Adolescence  b. Recommended Courses: Anth. 101 — The Study of Man Anth. 342 — Anthropology of the Natives of Alaska	20 6 3 3 2 2 2 24 6 6 6 6 3 3 3 3

4.	Mathematics and Natural Sciences (Anth. 402, Biological Sciences, Chemistry, Geog. 201-401, Geology, Physics	8	
5.	Education (students must maintain at least a 2.00 average in all education courses)		
	a. Required Courses: Ed. 313 - Educational Psychology Ed. 332 - Tests and Measurements Ed. 402 or 404 or 405 or 406 or 407 or 408 - Methods  *Ed. 452 - Student Teaching  *Candidates who have taught successfully two years in the public	3	
	secondary schools may petition to be excused from Ed. 452.  b. Six credits from the following courses:     Ed. 345 — Sociology of Education     Ed. 348 — History of Education in the U.S.     Ed. 421 — Secondary Education     Ed. 422 — Philosophy of Education     Ed. 429 — Philosophy of Education     Ed. 446 — Public School Organization, Control and Support c. Three credits of education electives selected from the following:     Ed. 311 — Audio Visual Methods and Materials     Ed. 323 — Small Schools	3	
6.	Ed. 426 — Principles and Practices of Guidance	3	in
	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 divi-		

Option B.

Complete an integrated teaching major-minor of 51 approved credits. See advisor.

## MAJOR OR MINOR (Option A)

sion. See advisor.

Art
Biological Sciences
Business Education
Chemistry
English
\*Foreign Language
History

Home Economics
Mathematics
Music
Physical Education
Physics
Speech

# MINOR ONLY (Option A)

°°°Economics
°Geography
Journalism
°Political Science
°Sociology

<sup>\*</sup>Approved for History major only.

<sup>°°</sup>Confer with Head of the Department of Education

<sup>• • •</sup> See page 29 for requirements for B. Ed. degree with a major in Physical Education.

<sup>\*\*\*\*</sup>Approved for History and Business Education Teaching majors only. Credit carned in fulfillment of (2), (3), and (4) above may be applied toward the teaching major and teaching minor. The student is responsible for obtaining and keeping current his copy of the courses required for his teaching major and minor. Any deviations from the specified courses must be approved by written petition to the head of the Education Department.

# **INTEGRATED MAJOR-MINOR (Option B)**

General Science Social Science Earth Sciences

- Forty-eight credits of upper division courses, 24 of which must be completed at the University of Alaska.
- 8. Sufficient free electives to total 130 credits.

# SECONDARY TEACHING CERTIFICATES FOR MAJORS IN OTHER DEPARTMENTS

All majors in other departments who wish to obtain an Alaskan secondary teaching certificate should confer with the head of the Education Department in their freshman year to obtain course requirements and application procedures for admission to Teacher Education. It is essential that the student have the necessary prerequisites and admission to Teacher Education for placement in student teaching in the public schools. The following courses should be taken at the indicated times:

FALL	SEMESTER	SPRING SEMESTER
Sophomore Junior	°Ed. 313	*Psy. 352 *Ed. 332
Senior	°Ed. 421 °Ed. 402, 404,	°Ed. 452 405, 406, 407, or 408

<sup>\*</sup>Students must maintain a 2.00 average in these courses.

#### REQUIREMENTS FOR ADMISSION TO STUDENT TEACHING

- Elementary School kindergarten through eighth grade:
  - a. Prior and current full acceptance to Teacher Education.
  - b. A formal application on file with the director of Student Teaching by November 1 for student teaching in the following spring semester and by March 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, Psy. 351, six hours in Mathematics, Ed. 313, Ed. 332, Ed. 409, and two other elementary methods and materials courses.
  - f. A minimum G.P.A. of 2.00 in all required psychology and all education courses attempted, including a minimum G.P.A. of 2.00 in all elementary methods and materials courses attempted.
  - g. Approval of Committee on Admission to Teacher Education to enter student teaching.
- 2. Secondary Schools seventh grade through twelfth grade:
  - a. Prior and current full acceptance to Teacher Education.
  - b. A formal application on file with the director of Student Teaching by November 1 for student teaching in the following spring semester and by March 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.
  - c. 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, Psy. 352, Ed. 313, and Ed. 332 with a minimum G.P.A. of 2.00 in Psy. 352, Ed. 313, and Ed. 332.
  - g. A minimum G.P.A. of 2.00 in all education courses attempted.
  - h. Approval of Committee on admission to Teacher Education to enter student teaching.

### REQUIREMENTS FOR M. ED. DEGREE IN EDUCATION

A person must make application for admission to graduate study and submit acceptable scores on a graduate entrance examination before he will be considered for admission to the M.Ed. program.

The M.Ed. 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 head of the Department of Education. In addition, the head of the Department of Education should be contacted concerning the procedure to be followed in applying for admission to graduate study and taking the graduate entrance examination.

In general the requirements for the M.Ed. degree are as follows:

- 1. A satisfactory score on a graduate entrance examination.
- 2. Completion of minimum of 30 credits of approved courses including Ed. 627, Educational Research.
- 3. One year of satisfactory teaching experience or administrative experience or reasonable equivalency.
- 4. The equivalent of an undergraduate major in Education.
- 5. Passing a comprehensive examination.
- 6. Completion of the general graduate degree requirements listed on page 31.

#### REQUIREMENTS FOR MASTER OF ARTS IN TEACHING

The Master of Arts in Teaching is designed to serve the following groups of students:

- 1. Baccalaureate graduates with a good general education and with majors or equivalent majors in subjects commonly taught in high school who wish to prepare for a career in secondary school classroom teaching.
- 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.
- 3. Baccalaureate graduates who have or who can academically 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.

Interested persons in the first two categories should contact the head of the Education Department for additional information; interested persons in the third category should contact the head of the department of their teaching major.

# HEALTH, PHYSICAL EDUCATION, AND RECREATION DEPARTMENT

JOHN C. GILMORE — DEPARTMENT HEAD

DEGREE - BACHELOR OF EDUCATION

#### MINIMUM REQUIREMENTS FOR DEGREE: 130 CREDITS

The professional curriculum in physical education is designed to prepare qualified students to teach physical education, to coach athletic teams and to direct recreational programs according to the needs of the State of Alaska. The curriculum provides for either a major or a minor in physical education to be coupled with the requirements of the Department of Education's Teacher Education Program.

# REQUIREMENTS FOR B. ED. DEGREE WITH A PHYSICAL EDUCATION MAJOR

- 1. Complete the general requirements for a B.Ed. degree as follows:
  - a. Military Science: six credits, or Physical Education Activities (P.E. 100): four credits.

	b.	Physical Education: Women majoring in P.E. will complete two credits of P.E. 100. Men majoring in P.E. are exempt from required P.E. 100.	
	c.	Humanities: 14 credits. Art 201 or Mus, 123; Engl. 101-102; Phil. 201; Sp. 111.	
	d.	Social Sciences: 18 credits. Anth. 342; Econ. 121; Hist. 341; Psy. 101-352, Soc. 101.	
	e.	Mathematics, Natural Science, Physical Science: 16 credits. Biol. 105-201-202; Chem. 104; Math. 121.	
	f.	Education: 18 credits. Educ. 313-332-406-426.	
2.	Con	uplete the following required professional courses:	
	P.E. P.E. P.E. P.E. P.E. P.E.	. 212 — Fundamentals of Sports — Recreational Activities . 213 — Fundamentals of Sports — Swimming . 214 — Fundamentals of Sports — Swimming . 215 — Fundamentals of Sports — Tumbling and Gymnastics (men) . 216 — Fundamentals of Sports — Rhythms . 217 — Fundamentals of Sports — Tumbling and Apparatus Gymnastics (women) . 301 — Techniques in Physical Education — Basketball (men) . 302 — Techniques in Physical Education — Track and Field . 303 — Techniques in Physical Education — Team Sports (women) . 400 — Techniques in Physical Education — Tumbling and Gymnastics . 401 — Techniques in Physical Education — Aquatics and	111111122
	P.E	Rhythms	2 1
3.		ching minor (will depend upon minor chosen).	
4.	Elec	ctives to total 130 credits.	
	OMP	NOR IN PHYSICAL EDUCATION REQUIRES PLETION OF THE FOLLOWING COURSES:	
	P.E P.E P.E P.E	. 311 — Principles of Physical Education	4 2 3 3
	P.E P.E.	(men)  211 — Fundamentals of Sports — Volleyball and Soccer	2 1 1
	P.E.	. 216 — Fundamentals of Sports — Rhythms	1
	P.E. P.E. P.E.	. 301 — Techniques in Physical Education — Basketball (men) . 302 — Techniques in Physical Education — Track and Field . 303 — Techniques in Physical Education — Team Sports	22
	P.E.	(women)	ĩ

### HOME ECONOMICS DEPARTMENT

# ANN L. WALSH --- DEPARTMENT HEAD

### DEGREE - BACHELOR OF SCIENCE

#### MINIMUM REQUIREMENTS FOR DEGREE: 130 CREDITS

This curriculum strives to provide for preparation in professional careers in Home Economics and to offer students a sound background in nutrition, textiles, child development, foods, and clothing as well as experiences in the liberal arts.

### HOME ECONOMICS CURRICULUM

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR 16 Credits	15 Credits
Engl. 101—Comp. & Modes of Lit	Engl. 102-Comp. & Modes of Lit.       3         H.E. 241-Home Mgt. Res.       3         H.E. 113-Cloth. Const. & Sel.       3         H.E. 122-Related Art       2         P.E. 100-Physical Ed. Activities       1         Soc. 101-Intro. to Soc.       3
SECOND YEAR 16 Credits	16 Crodits
Psy. 101—Intro. to Psy.       3         P.E. 100—Physical Ed. Activities       1         H.E. 211—Textiles       3         Biol. 105—Fund. of Biol.       4         English Elective       3         Electives       2	H.E. 236-Marriage & Fam. Life       3         P.E. 100-Physical Ed. Activities       1         H.E. 302-Advanced Foods       3         Sp. 111 - Public Speaking       2         English Elective       3         * Electives       4
THIRD YEAR 16 Credits	17 Credits
Econ. 121-Prin. of Econ. 3 H.E. 312-Adv. Clothing 3 P Electives 10	II.E. 304—Nutrition       3         II.E. 351—Child Develop       5         * Electives       9
FOURTH YEAR 17 Crodits	17 Credits
H.E. 441-Family Health       2         H.E. 445-Home Mgt       3         Electives       12	H.E. 446—House Plan. & Furn 3 * Electives

Science requirements — a minimum of 12 credits in Natural or Physical Sciences is required.

\*All electives must be approved by the head of the department. Approximately sixty hours must be liberal, including natural and social sciences and the humanities.

**TEACHING CERTIFICATES** — Home Economics graduates may qualify for teaching Vocational Home Economics. They may obtain an Alaskan teaching certificate by completing Ed. 407, Methods of Teaching Home Economics, and meeting the other requirements of the State Department of Education.

A MINOR IN HOME ECONOMICS REQUIRES A MINIMUM OF 12 APPROVED CREDITS IN HOME ECONOMICS.

### MILITARY SCIENCE DEPARTMENT

#### LT. COL. EDMUND J. KENNEDY, III - DEPARTMENT HEAD

The mission of the Reserve Officers Training Corps is to produce junior officers who by their education, training, and inherent qualities are suitable for continued development as officers in the United States Army; to give students such basic military training as will be of benefit to themselves and to the military service; and to assist in qualifying students for positions of leadership in industries and professional careers.

The program of instruction prescribed by the Department of the Army for Senior Division R.O.T.C. is divided into the Basic Course for freshmen and sophomores and the Advanced Course for juniors and seniors.

BASIC COURSE — All regularly enrolled, physically fit male students, without previous military training, who are citizens of the United States and are between the ages of 14 and 23 years, are eligible to take the Basic Course R.O.T.C.

ADVANCED COURSE — Those students who successfully complete the Basic Course may apply for enrollment in the Advanced Course. Candidates must be physically qualified, recommended by the PMS and approved by the university president. Veterans may be allowed credit for prior active Federal Service in lieu of the Basic Course for the purpose of admission into the Advanced Course.

A contract, signed by the students who enroll in the Advanced R.O.T.C. courses, makes satisfactory completion of these courses a prerequisite for graduation.

FLIGHT TRAINING — Department of the Army sponsors an Army Flight Training program for senior R.O.T.C. cadets at the University of Alaska. This training program consists of 73 hours of instruction at a civilian flying school in the Fairbanks area. Successful completion of the course qualifies the student for a private pilot's license. Prerequisites: completion of the junior year of R.O.T.C. and approval of the PMS and Academic Vice-President. Applicants must also pass the Army Flight Training physical examination and aptitude test.

Necessary texts, flying clothes, cost of lessons and transportation are furnished by the Department of the Army.

UNIFORMS AND EQUIPMENT — Members of the Basic and Advanced Course are furnished uniforms and texts by the United States Army.

Regulation gymnasium shoes, available through the University Book Store, are required to be worn during Leadership Laboratory (drill). These shoes must be purchased by the individual student.

**ALLOWANCE** — Advanced Course students receive a subsistence payment that amounts to approximately \$1,000.00 for the two-year period.

**ACADEMIC MINOR** — Eighteen credits in Military Science may be accepted by an academic advisor as fulfilling the graduation requirements for a minor.

AWARDS — Awards are made annually for outstanding achievement in R.O.T.C. band, drill team, rifle team, ski team; for best individual, squad, and platoon in drill; to the outstanding cadet in each class.

R.O.T.C. RIFLE TEAM — The R.O.T.C. rifle team competes in shoulder matches with both civilian and military teams in the state. Each year the team fires in Intercollegiate Match in competition with west coast schools. Postal matches are fired against university and college teams throughout the United States. The finest target rifles, shooting coats and gloves, targets, and ammunition are available to all R.O.T.C. cadets at no cost. Varsity letters are awarded.

R.O.T.C. BAND AND DRILL TEAM — The R.O.T.C. band and drill team participate in the Annual Winter Carnival in Fairbanks, at formations of the R.O.T.C. Cadet Corps, and at functions on campus.

TRANSFER STUDENTS — Transfer students with less than sophomore standing are eligible to enroll in Military Science. Transfer students and others who have not completed the Basic Course may apply for enrollment in the two-year program. In order to qualify for this program, students attend a basic camp prior to their junior year.

**DEFERMENT FROM DRAFT** —Students, upon successful completion of the first semester Basic Course, and continued enrollment in R.O.T.C., may be deferred from induction under the provisions of the Universal Military Training and Service Act.

# PSYCHOLOGY AND SOCIOLOGY DEPARTMENT

# LEWIS E. HAINES — ACTING DEPARTMENT HEAD DEGREES — BACHELOR OF ARTS, BACHELOR OF SCIENCE

### MINIMUM REQUIREMENTS FOR DEGREES: 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 is also helpful in preparing for other career fields.

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 option: a concentration in social services is offered which 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.

### REQUIREMENTS FOR B. A. DEGREE OR B. S. DEGREE WITH A PSYCHOLOGY MAJOR

	Complete general requirements for a B.A. or B.S. degree as listed on p	age 28-29.
2.	Complete 32 credits in Psychology beyond Psy. 101-102, including:	
	Psy. 201 – Advanced General Psychology Psy. 261 – Introduction to Experimental Psychology	3
	Psy. 261 — Introduction to Experimental Psychology	3
	Psy. 271 — Introductory Statistics for Behavioral Sciences (Soc.)	3
	Psy. 301 — History and Systems of Psychology	3
	Psy. 301 – History and Systems of Psychology Psy. 492 – Seminar in Human Behavior (Soc.)	2
3.	And six credits from the following courses:	
	Psy. 362 - Intermediate Experimental Psychology	3
	Psy. 373 – Psychological Testing	š
	Psy. 465 – Comparative and Physiological Psychology	3 3
	The 470 — Comparative and Physiological Tsychology	ာ
	Psy. 473 - Social Science Research Methods (Soc.)	3
4.	And six credits from the following courses:	
	Psy. 406 - Theories of Personality	3
	Psy. 407 - Motivation	3 3
	Psy. 464 – Learning	3
	Psy. 466 – Perception	ິງ
_		3
5.	And six credits from the following courses:	
	Psy. 302 - Social Psychology (Soc.)	3
	Psy. 351 - Child Development (II. E.)	3 5 3
	Psy 352 - Adolescence (Soc.)	3
	Psy. 352 – Adolescence (Soc.) Psy. 433 – Clinical Psychology	ž
_		
в.	And in consultation with advisor, it is recommended that one coursehosen from Anthropology, Philosophy, and Sociology.	e each be
	MINOR IN PSYCHOLOGY REQUIRES 15 APPROVED CREDITS IN PSYCHOLOLGY B I-102.	EYOND PSY.

## REQUIREMENTS FOR B. A. DEGREE OR B. S. DEGREE WITH A SOCIOLOGY MAJOR

1. Complete general requirements for a B.A. or B.S. degree as listed on page 28-29.

2.	Complete 32 credits in Sociology beyond Soc. 101-102, including:	
	Soc. 205 - Group Processes in Modern Society	3
	Soc. 271 — Introductory Statistics for Behavioral Sciences (Psy.)	3
	Soc. 302 - Social Psychology (Psy.)	3
	Soc. 309 - Urban Sociology	3
	Soc. 402 - Theories of Sociology	3
	Soc. 473 — Social Science Research Methods (Psy.)	3
	Soc. 492 — Seminar in Human Behavior (Psy.)	2

- 3. And 12 credits of Sociology electives.
- 4. And in consultation with advisor it is recommended that one course each be chosen from Anthropology, Philosophy, and Psychology.

A MINOR IN SOCIOLOGY REQUIRES 15 APPROVED CREDITS IN SOCIOLOGY BEYOND SOC. 101-102.

### **SOCIOLOGY OPTION**

# REQUIREMENTS FOR A SOCIOLOGY MAJOR B.A. OR B.S. DEGREE WITH A CONCENTRATION IN SOCIAL SERVICES

- 1. Complete general requirements for a B.A. or B.S. degree as listed on page 28-29.
- 2. Complete 32 credits beyond Soc. 101-102 and Psy. 101-102. Required in the 32 credits are:

	nequired in the 62 creates are,	
	Soc. 201 - Social Problems	
	Soc. 271 — Introductory Statistics for Behavioral Sciences (Psy.)	3
	Soc. 333 - Social Welfare as a Social Institution	3
	Soc. 336 - Social Work Methods	ā
	Soc. 383 – Field Observation	
	Soc. 492 — Seminar in Human Behavior (Psy.)	~~~
	Soc. 492 — Seminar in Human Benavior (Psy.)	z
3.	And 12 credits from the following courses:	
	Soc. 242 — The Family	3
	Soc. 302 - Social Psychology (Psy.)	Š
	Soc. 304 - Culture and Personality	ž
	Soc. 004 — Guitale data Tersonality	ž
	Soc. 309 — Urban Sociology	သွ
	Soc. 343 — Sociology of Deviant Behavior	3
	Soc. 408 — Ethnic Minorities	3
4.	And 3-5 credits from the following courses:	
	Psy. 338 - Abnormal Psychology	3
	Per 351 — Child Dayslanment (H.E.)	Ĕ
	1sy, out — Gilla Development (11.12.)	ž
	rsy, 552 — Adolescence (56c.)	ပ္
	Psy. 433 - Clinical Psychology	3

And in consultation with advisor it is recommended that one course each be chosen from Anthropology, Economics, and Political Science.

# College of Biological Sciences and Renewable Resources

### **BRINA KESSEL — DEAN**

Biology is an area of science in which many disciplines come to bear; in fact, biology is in large part the summation of these various disciplines. A thorough knowledge of biology, in both its pure and applied phases, is fundamental to the welfare of mankind. With these axioms in mind, the programs in the College of Biological Sciences and Renewable Resources are designed to give students an introduction to the humanities and social sciences, a background in mathematics and the physical sciences, a firm foundation in basic biological sciences, and advanced training in specialized fields. For more details, students should read descriptive materials in the departmental sections below — Biological Sciences Department, Land Resources and Agricultural Science Department, and Wildlife Management Department.

UNDERGRADUATE DEGREES — Bachelor of Arts in Biological Sciences; Bachelor of Science in Biological Sciences, Fisheries Biology, Medical Technology, Wildlife Management.

GRADUATE DEGREES — Master of Science in Botany, Biology, Fisheries Biology, Wildlife Management, Zoology. Master of Arts in Teaching.

# **BIOLOGICAL SCIENCES DEPARTMENT**

JAMES E. MORROW — DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS, BACHELOR OF SCIENCE, MASTER OF SCIENCE, MASTER OF ARTS IN TEACHING

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 Department 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 a B.S. degree may have majors in biological sciences. A major in medical technology is also available for B.S. degree candidates. The B.A. degree includes fewer credits in the major field, but gives greater emphasis in the fields of social sciences and humanities and allows a greater breadth of subject matter in the curricula. The B.S. degree includes a foundation in the basic sciences as well as a stronger major within the Biological Sciences Department. Candidates who expect to teach in public secondary schools must be sure that Education requirements are met.

# REQUIREMENTS FOR B.A. DEGREE WITH A MAJOR IN BIOLOGICAL SCIENCES

1. Complete the general requirements for a B.A. degree as listed on page 28.

2. Complete the following courses:

Biol. 105-210-302-303 and at least 16 additional credits in biology, a majority of which should be at the upper division level."

Chemistry — one year Mathematics - one year

A MINOR IN BIOLOGICAL SCIENCES REQUIRES 14 CREDITS OF BIOLOGY.

### REQUIREMENTS FOR B.S. DEGREE WITH A MAJOR IN BIOLOGICAL SCIENCES

- 1. Complete the general requirements for a B.S. degree as listed on page 29.
- 2. Complete the following courses:

Biol. 105-210-302-303 and at least 21 additional credits in biology, a majority of which should be at the upper division level. Mathematics — one year °°

Chem. 101-102

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Phys. 103-104

Organic Chemistry — one semester

Foreign language or Introductory Linguistics — one year \*\*\*

- Students preparing to enter professional schools (medical, dental, veterinary, etc.) may substitute up to eight credits in the B.A. program or 12 credits in the B.S. program of approved chemistry courses for some of these additional credits.
- °° Suitable mathematics sequences include Math. 121-122, Math. 107-108-109, Math. 106-200.
- ••• Linguistics allowed only when students have had at least the equivalent of two years of high school foreign language. Students having three or four years of a language in high school may, with advisor's approval, fulfill this requirement in the humanities area.

### REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE WITH A MAJOR IN MEDICAL TECHNOLOGY

To receive a Bachelor of Science degree in Medical Technology, a student must have six semesters of collegiate training at an accredited college or university, three of which must be at the University of Alaska with a G.P.A. of at least 2.00 and he must fulfill all requirements of the university for the Bachelor of Science degree, plus the basic requirements as set forth by the Registry of Medical Technologists. The student then becomes a candidate to enter an affiliated school of Medical Technology, and, if accepted, registers for Biol. 401 at the University of Alaska and spends a 12-month internship, at the affiliated school. The university is affiliated with three ASCP-approved, non-denominational schools of medical technology — St. Luke's Hospital School of Medical Technology, Spokane, Washington; Tacoma General Hospital School of Medical Technology, Tacoma, Washington; and The Swedish Hospital School of Medical Technology, Seattle, Washington. Upon the satisfactory completion of Biol. 401 and the other above-mentioned university requirements, the student is eligible to receive a Bachelor of Science degree from th University of Alaska. He also is eligible to take the registry examination as a Medical Technologist under standards set by the Board of Registry of the American Society of Clinical Pathologists. Upon registration, the graduate is privileged to add the initials M.T. (ASCP) To receive a Bachelor of Science degree in Medical Technology, a student must gists. Upon registration, the graduate is privileged to add the initials M.T. (ASCP) after his name.

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR 15 or 15 1/2 Credits	15 or 151/2 Credits
Biol. 105-Fund. of Biology 4	Biol. 106-Fund. of Biology 4
Engl. 101—Comp. & Modes of Lit 3	Engl. 102-Comp. & Modes of Lit 3
Chem. 101—General Chem 4	Chem. 102-General Chem 4
P.E. 100 or Mil. Sci 1 or 1½	P.E. 100 or Mil. Sci 1 or 1½
Mathematics 3	Mathematics 3

SECOND YEAR       16 or 17½ Credits         Biol. 201—Elem. Vert. Anatomy       3         or       3         Biol. 217—Comp. Anat. Verts.       4         Eng. 213—Adv. Exposition       3         P.E. 100 or Mil. Sci.       1 or 1½         Approved Chem. Elective       4         Soc. Sci. Elective       3	16 or 17½ Credits   17½ Credits   210—General Physiology   4   23   24   25   25   25   25   25   25   25
THIRD YEAR  Biol. 341—Gen. Microbiology	Biol. 342—Gen. Microbiology

Organic Chemistry recommended.

# PREPARATORY CURRICULUM — MEDICINE, DENTISTRY, NURSING, VETERINARY MEDICINE

Students planning to become medical doctors, dentists, nurses, or veterinarians may enroll in the Biological Sciences Department. Most of the professional schools in these fields require one to three or four years of collegiate work before a student will be admitted. These years of preliminary academic work are offered by the Biological Sciences Department, where the student will follow a sequence of courses planned to meet the requirements of the particular professional field in which he is interested.

Most pre-medical students plan on four preliminary years. Usually these students follow a curriculum leading to a Bachelor of Arts degree with a major in Biological Sciences and/or Chemistry or 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 bachelor's requirements and who have earned at least 100 hours of pre-professional work with a C.P.A. of 3.00 or better, may, upon the completion of certain course requirements, and upon the satisfactory completion of a year of medical school, petition to receive a bachelor's degree from the University of Alaska.

Pre-nursing students register as non-majors in the College of Biological Sciences and Renewable Resources. Course work is selected to meet the specific needs of individual students. In general, high school students interested in nursing should apply directly to an institution offering a full curriculum in nursing; those wishing to attend the University of Alaska should plan to transfer to an institution with a nursing program after one year.

#### STUDENTS FROM OTHER DEPARTMENTS

Students who wish a minor in the Department of Biological Sciences must have courses approved in advance by the head of Department of Biological Sciences.

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 for B.A. degree major on page 28.

# REQUIREMENTS FOR M.S. DEGREE WITH A BOTANY, BIOLOGY OR ZOOLOGY MAJOR

- 1. A minimum of 30 credits of approved courses, including Biol. 697-698, Thesis.
- 2. An examination attesting a reading knowledge of French, German, or Russian.

<sup>\*</sup>Students with two years of an approved foreign language in high school may have this requirement waived.

3. Completion of the general requirements for a graduate degree as listed on page 31. For course description, see page 137.

#### REQUIREMENTS FOR M.A.T. DEGREE

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

# LAND RESOURCES AND AGRICULTURAL SCIENCE DEPARTMENT

### DWANE J. SYKES --- DEPARTMENT HEAD

The undergraduate curriculum for the first two years is designed to provide the basic science foundation on which advanced courses are based. The curriculum is intended for students who expect to prepare for careers in wildland utilization (watershed management, forest resources, range management, recreation, conservation, etc.) and in agriculture.

Opportunities for summer employment are available through various state and federal agencies and through the University's Agricultural Experiment Station.

#### CURRICULUM

FALL SEMESTER		SPRING SEMESTER
First Your	16 or 161/2 Credits	16 or 161/2 Crodits
Biol. 105—Fund. c Chem. 101—Gener P.E. 100 or Mil. Sc	& Modes of Lit 3 f Biology 4 al Chem 4 i 1 or 1½	Engl. 102—Comp. & Modes of Lit 3 Biol. 106—Fund. of Biology
Second Year	17 or 171/2 Credits	16 or 171/2 Credits
Phys. 103-College	Physics 4	Phys. 104-College Physics 4
Phys. 103-College Gcol. 101-Gen.	Physics 4 Geology 4	Phys. 104—College Physics
Phys. 103—College Geol. 101—Gen. C Econ. 121—Princ.	Physics 4 Geology 4 of Econ 3	Phys. 104—College Physics
Phys. 103—College Geol. 101—Gen. C Econ. 121—Princ. Engl. 213—Adv. C	Physics	Phys. 104—College Physics       4         P.E. 100 or Mil. Sci.       1 or 1½         Approved Biology Elective       4 or 3         Engl. Elective       3
Phys. 103—College Gcol. 101—Gen. C Econ. 121—Princ. Engl. 213—Adv. C P.E. 100 or Mil. Sc	Physics 4 Geology 4 of Econ 3	Phys. 104—College Physics

### **GRADUATE STUDY IN LAND RESOURCES**

A program of graduate study in land resources is available through the university's interdisciplinary graduate program. Areas include forestry, watershed, soils, water relations, and other aspects of natural resources sciences. Students interested in graduate work should write to the head, Department of Land Resources and Agricultural Science.

# WILDLIFE MANAGEMENT DEPARTMENT

FREDERICK C. DEAN — DEPARTMENT HEAD

DEGREES — BACHELOR OF SCIENCE, MASTER OF SCIENCE

MINIMUM REQUIREMENTS FOR DEGREES:

B.S. — 135 CREDITS

M.S. — 30 ADDITIONAL CREDITS

Both the wildlife management and fisheries biology curricula in the undergraduate program in the Department of Wildlife Management are 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 wildlife work. Students contemplating careers in research, administration, advanced management work, or teaching will find the bachelor's curricula solid foundations 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 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.

SPRING SEMESTER

# REQUIREMENTS AND CURRICULA FOR B.S. DEGREE WITH MAJORS IN WILDLIFE MANAGEMENT AND FISHERIES BIOLOGY

**FALL SEMESTER** 

First Year 16		
11131 1001	or 161/2 Credits	16 or 161/2 Credits
Biol. 105—Fund. of Bio Chem. 101—General Ch Engl. 101—Comp. & M Math. 121—Intro. Algebr P.E. 100 or Mil. Sci	nem	<ul> <li>Biol. 210—General Physiology</li></ul>
Second Year 15	or 151/2 Credits	15 or 15 1/2 Credits
Biol. 217—Comp. Anaton Chem. 223—Intro. Organ (Fisheries M or	ic Chem 4 lajor)	Biol. 239—Plant Form & Function       4         Biol. 303—Ecology       3         Math. 204—Elem. Statistics       3         Phys. 104—College Physics       4
Geol. 101—General Geol (Wildlife Ma	logy 4	P.E. 100 or Mil. Sci 1 or 1½
Land. Res. 101-Cons. 1	Natural Res. 2	
Phys. 103—College Phys P.E. 100 or Mil. Sci	sics 4 1 or 1½	
MAJOR IN FISHERIE	S BIOLOGY	
MAJOR IN FISHERIE Third Year		9- - Credits***
	14+ Credits*** Zool	9+ Credits***           Biol. 302-Genetics         3           Engl. 213-Adv. Comp.         3           *° Foreign Language 202         3
Third Year Biol. 203—Invertebrate 2 Biol. 309—Biol. of the V W.M. 325—Scientific Sar	14+ Credits***  Zool	Biol. 302—Genetics
Third Year Biol. 203—Invertebrate 2 Biol. 309—Biol. of the V W.M. 325—Scientific Sar Foreign Language 201 Fourth Year Econ. 121—Princ. of Ec W.M. 304—Wildlife Mg Geol. 411—General Occa	14+ Credits***  Zool	Biol. 302—Genetics
Third Year  Biol. 203—Invertebrate 2  Biol. 309—Biol. of the V  W.M. 325—Scientific Sar  Foreign Language 201  Fourth Year  Econ. 121—Princ. of Ec  W.M. 304—Wildlife Mg	14+ Credits***  Zool	Biol. 302—Genetics 3 Engl. 213—Adv. Comp. 3 ** Foreign Language 202 3  13+ Credits***  Biol. 414—Comp. Physiology 4 Engl. 314—Research Writing 3

#### MAJOR IN WILDLIFE MANAGEMENT

	Third Year 13+ Credits	***	13- - Credits*	**
•	Biol. 309—Biol. of the Vert	4	Biol. 310—Biol. of the Vert	4 3 3 3
	Fourth Year 15+ Credits*	**	11+ Credits*	**
	Biol. 331—Systematic Botany	4	Biol. 414-Comp. Physiology Engl. 314-Research Writing	43
	Land. Res. 311-Soils	3	W.M. 410-Wildlife Tech	3
	Econ. 121-Princ. of Economics	3	W.M. 492-Seminar	
	W.M. 304-Wildlife Mgmt. Princ		or	_
	W.M. 423—Limnology	3	W.M. 494—Special Topics	1
	Geol. 411-General Oceanography W.M. 429-General Fisheries Biol	3 3		

Note prerequisite.

OA proficiency equivalent to two college years of French, German, or Russian is required for graduation. Students with two to four years of one of these lanrequired for graduation. Students will two to four years of one of these languages in high school may enter the third or fourth semester of the language or have the requirement waived, whichever is appropriate. Students entering this department are expected to have two high school years of one of these languages; students lacking this preparation must take ten credits of first year language in college, thereby reducing their college electives.

\*\*\*Sufficient elective credits to satisfy the minimum requirement of 135 credits are needed; six of these must be from courses which will satisfy the university's social science requirement. All electives must be approved by the head of the Department of Wildlife Management.

A minimum of two months must be spent in the employ of an approved conservation agency before a student will be eligible for a bachelor's degree. Two type-written copies of a report on the work done and the experience gained during this time must be approved by the head of the Department.

Demonstration of proficiency in swimming is required for graduation.

## REQUIREMENTS FOR M.S. DEGREE WITH A MAJOR IN WILDLIFE MANAGEMENT OR FISHERIES BIOLOGY

- A minimum of 30 credits of approved courses, including W.M. 697-698, Thesis, in the field of Fisheries Biology or Wildlife Management.
- 2. For Fisheries Biology, an examination attesting a reading knowledge of French, German, Russian or Japanese.
- 3. Complete general requirements for a graduate degree as listed on page 31. For course descriptions, see page 216.

### GRADUATE STUDY IN WILDLIFE MANAGEMENT

The Department of Wildlife Management and the Alaska Cooperative Wildlife Research Unit cooperate in offering graduate work leading to the Master of Science degree. Thesis work can be done in either Fisheries Biology or Wildlife Management. Persons desiring detailed information on the graduate program in Wildlife Management may obtain this from the head, Department of Wildlife Management. The

agement may obtain this from the head, Department of Whithe Management. 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, College, Alaska. Applications for these assistantships should be sent to the unit leader; such applications are supplementary to the application for admission for leader; such applications are supplementary to the application for admission for

graduate study.

# College of Business, Economics, and Government

# **ROBERT L. SMITH — DEAN**

The primary objective of the college is to provide courses of study which will prepare young men and women for careers of responsibility in private and public organizations and which will acquaint them with the kind of society in which they will live and work when they leave the university.

Specifically, the aims of the college are: (1) to educate students for positions in industry, government, and other organization which require analytical ability; (2) to provide those who wish to prepare themselves for positions of responsibility in industry and government with the basic understanding of the economic, political, and social environment; (3) to offer courses in the fields of business, economics, history and political science which meet the needs of students who wish to major in any of these disciplines with the intention of preparing themselves for advanced study or entering the teaching profession; (4) to acquaint the students with the problems of economic, political and social development in Alaska and the northern region of which it is a part; and (5) to instruct students in social science research techniques.

UNDERGRADUATE DEGREES — The college grants the following undergraduate degrees: Bachelor of Business Administration, Associate in Office Administration, Associate in Office Administration in Police Administration, and Bachelor of Arts.

**GRADUATE DEGREE** — Programs leading to the Master of Business Administration degree and the Master of Arts degree are offered to qualified students.

### **ACCOUNTING DEPARTMENT**

ROBERT C. HARING — ACTING DEPARTMENT HEAD

DEGREE — BACHELOR OF BUSINESS ADMINISTRATION
WITH A MAJOR IN ACCOUNTING

#### MINIMUM REQUIREMENTS FOR DEGREE: 130 CREDITS

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

### REQUIREMENTS FOR B.B.A. DEGREE WITH A MAJOR IN ACCOUNTING

- 1. Complete requirements for a B.B.A. degree listed on page 29.
- 2. Complete the following required courses:

Acc. 215-216 — Principles of Accounting	6 Credits
Acc. 311-312 - Intermediate Accounting	6
Acc. 313 - Federal and State Tax Accounting	
Acc. 416 - Advanced Accounting	3
Acc. 417 - Cost Accounting	
Acc. 418 – Auditing	
B.A. 331-332 - Business Law	
Approved upper division electives	
Approved upper division electives 8-	10

## **BUSINESS ADMINISTRATION DEPARTMENT**

ROBERT C. HARING — DEPARTMENT HEAD

DEGREES — BACHELOR OF BUSINESS ADMINISTRATION,
MASTER OF BUSINESS ADMINISTRATION

MINIMUM REQUIREMENTS FOR DEGREES:

B.B.A. — 130 CREDITS

M.B.A. — 30 ADDITIONAL CREDITS

The Business Administration Department offers professional training in the field of management, finance, 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.

# REQUIREMENTS FOR A BACHELOR OF BUSINESS ADMINISTRATION DEGREE

- 1. Complete general requirements for a B.B.A. degree on page 29.
- 2. Complete the following foundation courses:

Acc. 215-216 — Principles of Accounting	6
B.A. 331-332 — Business Law	
B.A. 325 - Financial Management	3
B.A. 343 — Marketing	3
B.A. 360 - Production Management	3
B.A. 462 - Administrative Policy	3

A student must take a minimum of 12 hours of the courses listed below including all of the courses in one of the three groups.

#### Management

B.A. 359 — Regulation of Industry	3 3
Marketing  B.A. 359 — Regulation of Industry  B.A. 442 — Marketing Institutions and Channels  B.A. 443 — Marketing Theory and Analysis of Market Change	3
B.A. 423 — Investment Management	3

A MINOR IN BUSINESS ADMINISTRATION REQUIRES 15 CREDITS OF BUSINESS ADMINISTRA-TION ELECTIVES.

# REQUIREMENTS FOR THE MASTER OF BUSINESS ADMINISTRATION DEGREE

- Completion of the general requirements for a graduate degree listed on page 31
  of the catalog. (Note that no foreign language requirement is involved in the
  Master of Business Administration degree.)
- Completion of a minimum of 30 semester hours of required courses in Business Administration and Economics, including a thesis or research project, as approved by the candidate's graduate committee. No more than nine semester hours of 300 or 400 level courses may be counted toward the MBA degree.

- 3. Completion of a thesis or research project, which normally will carry no more than six semester hours of credit. Under unusual conditions and upon petition, thesis credit may be granted beyond the traditional six. Thesis credit and research project credit apply toward the 30 required hours. (Decisions on thesis or research project are the sole prerogative of the candidate's supervisory committee.)
- 4. A minimum terminal grade point average of 3.00.
- A minimum grade for a comprehensive written examination given during the last semester of course work to test achievement and knowledge in the general area of business.
- Passage of an oral examination, after the thesis or research project has been approved, covering the student's field of specialization and thesis or research project content.

# **ECONOMICS DEPARTMENT**

GENE L. ERION - DEPARTMENT HEAD

**DEGREE** — BACHELOR OF ARTS

MINIMUM REQUIREMENTS FOR DEGREE: 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 of 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; (3) to offer a course of study suitable for a minor in economics.

### REQUIREMENTS FOR B.A. DEGREE WITH AN ECONOMICS MAJOR

1. Complete general requirements for a B.A. degree listed on page 28.

2.	Complete the following additional foundation courses:	
	Econ. 121-122 — Principles of Economics Behavioral Sciences: Physchology, Sociology,	6
	Behavioral Sciences: Physchology, Sociology,	
	Anthropology	y
	History	В
	Math. 121-122 - Intro. to Modern Algebra and Analysis	8
	Or Math. 100 Callings Almsland and Talmanass stars	_
	Math. 106 — College Algebra and Trigonometry	Э
	Math. 200 — Calculus	А
	Madi. 200 — Calculus	78

	Math. 200 — Calculus	
3.	Complete 30 additional credits in Economies, including:	
	Econ. 221 — Interpretation of Business and Economic Data  Econ. 232 — Economic History of the U.S. Econ. 321 — Price and Allocation Theory Econ. 324 — Income and Employment Econ. 350 — Monetary Economics Econ. 494 or 495 — Special Topics	3 3 3

A MINOR IN ECONOMICS REQUIRES 15 CREDITS IN ECONOMICS.

### HISTORY DEPARTMENT

HERMAN E. SLOTNICK — DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS, MASTER 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.

# REQUIREMENTS FOR B.A. DEGREE WITH A HISTORY MAJOR 1. Complete general requirements for a B.A. degree listed on page 28.

 2. Complete the following foundation courses:
 3

 Econ. 121 — Principles of Economics
 3

 Hist. 101-102 — Western Civilization
 6

 Hist. 131-132 — History of the U.S.
 6

 P.S. 101 — American Government
 3

 P.S. 102 — Introduction to Political Science
 3

 3. Complete 20 credits in History, including:
 3

 Hist. 475 — Introduction to Historical Method
 3

 Approved Upper Division American History

Approved Upper Division European History
Electives 6

A MINOR IN HISTORY REQUIRES 12 CREDITS OF HISTORY ELECTIVES, SIX OF WHICH MUST

## REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN HISTORY

- Completion of the general requirements for a graduate degree as listed on page 31.
- Completion of a minimum of 30 semester hours of courses in History and other fields as determined by the candidate's graduate committee. The courses must include Hist. 601, Historiography, Hist. 692, Seminar in European History, and Hist. 692, Seminar in American History.
- 3. Completion of a satisfactory thesis for which six credit hours may be granted.
- Successful completion of comprehensive examinations in two fields of History as determined by the candidate's graduate committee.
- 5. Passage of an oral examination on the thesis and general field of History.

#### REQUIREMENTS FOR M.A.T. DEGREE

BE UPPER DIVISION.

Refer to general requirements for M.A.T. degree on page 89. Persons interested in this degree program should check with the head of the department.

### OFFICE ADMINISTRATION DEPARTMENT

MELBA F. PELOSI — DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS WITH A MAJOR IN OFFICE ADMINISTRATION OR BUSINESS EDUCATION. ASSOCIATE IN OFFICE ADMINISTRATION. CERTIFICATE IN SECRETARIAL SERVICE

### MINIMUM REQUIREMENTS FOR DEGREES:

**B.A.** — 130 CREDITS A.O.A. --- 60 CREDITS CERTIFICATE — 30 CREDITS

The department offers four courses of study in order to meet the different needs of those who plan to specialize in the field of office operations. (1) an extensive four-year program leading to the degree of Bachelor of Arts with a major in office administration. 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. (2) a four-year course leading to the degree of Bachelor of Arts with a major in Business Education. The objective of the curriculum is prepare young men and women for the teaching of business subjects in the secondary schools. (3) an intensive two-year program in office administration leading to an Associate in Office Administration degree with a major in Office Administration. (4) a one-year certificate issued after completion of 30 credits with emphasis placed on typewriting, machine transcription, filing, and the English language.

### REQUIREMENTS FOR B.A. DEGREE WITH A MAJOR IN OFFICE ADMINISTRATION OR BUSINESS EDUCATION

1. Complete the requirements for the B.A. degree listed on page 28. 2. Complete the following required courses: 3. Social Science must include: Econ. 121-122 — Principles of Economics ..... B.A. 331 - Business Law ..... 4. Approved Upper Division Electives ..... The following minor in education is required for Business Education majors: Subjects .... 

 Ed. 421 — Secondary Education
 3

 Ed. 452 — Directed Teaching
 6

### REQUIREMENTS FOR A.O.A. DEGREE

1. Complete the follow	ving general requirements:	
Acc. 215-216 - Econ. 121 — P Econ. 122 — P	- Principles of Accounting	6 3 3
Engl. 101-102 Math 110 — M Sp. 211 — Publ Soc. 101 — Int	Composition and Modes of Literature (ath of Finance) c Speaking (co. to Sociology)	3 6 3 2 3
Psy. 101 - Int	ro. to Phychology	3
0 4 101 100	ving required courses in Office Administration: Shorthand (or approved electives) Emediate Typewriting Vanced Typewriting Emediate Stenography Vanced Stenography Coe Machines Colalized Secretarial Skills Stiness Correspondence	62233333
REQUIREMENTS FOI	R ONE-YEAR CERTIFICATE RVICE	
	1st Semoster	
O.A. 105 — Int O.A. 61 — Cler O.A. 65 — Mac	mentary Exposition Speaking I Speaking I Sermediate Typewriting Speaking Shills Shills Shine Transcription Speaking Spea	3 2 3
or O.A. 102 — Sho O.A. 63 — Add	orthand	3
	2nd Samestar	
O.A. 66 — Mac	mentary Exposition Synchronic Syn	3 2 3
O.A. 201 — Sho O.A. 99 — Offic	orthand	

# POLITICAL SCIENCE DEPARTMENT

RONALD E. CHINN - DEPARTMENT HEAD

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.

### REQUIREMENTS FOR B.A. DEGREE WITH A POLITICAL SCIENCE MAJOR

1.	Complete the general requirements for a B.A. degree listed on page 28. English	12
	Social Science: Hist. 101-102 — Western Civilization Hist. 131-132 — History of the U.S. Econ. 121-122 Phil. 201 Mathematics and Natural Science Physical Education or Military Science	6 6 6 3 12
2.	Complete the following required courses:  Econ. 221 — Interpretation of Economics and Business Data P.S. 101-102 — Intro. to American Government and Pol. Sci P.S. 201 — Comparative Politics: The Political Process P.S. 202 — Comparative Politics: Case Studies P.S. 321 — International Affairs	6
3.	Complete two approved minors.  Complete elective courses to bring total credits to 130.	
A i	P.S. 201 or 202 — International Affairs: Case Studies	
	P.S. 332 — International Law and Organization	3

### POLICE ADMINISTRATION PROGRAM

ROBERT L. SMITH — PROGRAM DIRECTOR

DEGREE — ASSOCIATE OF ARTS

#### MINIMUM REQUIREMENTS FOR DEGREE: 64 CREDITS

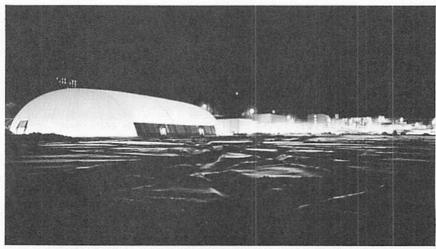
Crime and the role of law enforcement in a democratic society is one of the most perplexing challenges facing the United States. Law enforcement agencies have the responsibility for maintaining social order yet they must do so within the framework of the rule of law and without undue restriction upon individual freedom. Education will enhance the capabilities of in-service personnel, as well as those newly interested in a career in law enforcement, to more adequately meet the complexities of their task.

Opportunities in the field are limitless with employment available in municipalities, on the state and federal level, and in private industry — all of which are constantly seeking capable and well-qualified applicants.

### REQUIREMENTS FOR THE ASSOCIATE OF ARTS DEGREE IN POLICE ADMINISTRATION

1. Social and Behavioral Sciences (21 credits) 

	P.S. 101 — American Government P.S. 102 — Introduction to Political Science Soc. 101 — Introduction to Sociology Soc. 201 — Social Problems Psy. 101-102 — Introduction to Psychology	3 3 3 6
2.	Humanities (eight credits) Engl. 101-102 — Composition and Modes of Literature	6
	Engl. 67-68 — Elementary Exposition  Sp. 211 — Public Speaking	6
3.	Mathematics or Natural Science (eight credits)  Math. 106 — College Algebra and Trigonometry  Math. 110 — Mathematics of Finance  or  Biol. 105-106 — Fundamentals of Biology  Chem. 101-102 — General Chemistry and Introductory	5 3 8
1	Qualitative Analysis	8
4.	Police Administration (27 credits)  P.A. 151 — Introduction to Criminology P.A. 152 — Criminal Law P.A. 153 — Criminal Evidence P.A. 154 — Administration of Justice P.A. 155 — Criminal Investigation P.A. 156 — Patrol Procedures P.A. 157 — Traffic Control P.A. 158 — Juvenile Procedures P.A. 159 — Organization, Management and Administration	3333333333



The university's new instant building, an inflated sports dome covering the hockey rink, adds light to a night panorama. The dome was purchased by students, alumni, and friends of the university to provide winter-long skating and other indoor sports.

# College of Earth Sciences and Mineral Industry

#### EARL H. BEISTLINE — DEAN

The objectives of the College of Earth Sciences and Mineral Industry are: to prepare students for their place in the profession, community, state, nation, and world; to carry on research and development work that will add to basic knowledge as well as assist in the discovery, recovery, and utilization of mineral resources, and to provide more generalized instruction to students on campus and to interested persons in various communities in Alaska.

UNDERGRADUATE DEGREES — The college has programs that lead to Bachelor of Science Degrees in Geography, Geology, Geological Engineering, and Mining Engineering. A Bachelor of Arts degree with majors in Geography and Geology may be earned.

**GRADUATE DEGREES** — Programs leading to a Master of Science degree are offered in Geology, Mineral Industry Management, and Mineral Preparation Engineering; a M.A.T. degree is offered in Geology.

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

The Geology Department offers the Ph.D. degree. Interdisciplinary research and study programs leading to the doctorate are available through cooperative arrangements between the department and the Geophysical and Marine Science Institutes.

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 aid in the further utilization of Alaska's mineral resources. Research is conducted in facilities of the college and coordinated with graduate student academic programs.

EARTH SCIENCES AND MINERAL INDUSTRY AGENCY — Housed in the Brooks Memorial Mines Building with the College of Earth Sciences and Mineral Industry is the College Office of the Alaskan Geology Branch of the U.S. Geological Survey. This arrangement, leading to close association and cooperation and sharing of some facilities, tends to give the harmony and efficiency to the work of all for the benefit of the mineral industries of Alaska.

# **GEOGRAPHY DEPARTMENT**

HERBERT H. RASCHE — DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS, BACHELOR OF SCIENCE
MINIMUM REQUIREMENTS FOR DEGREES: 130 CREDITS

The department offers undergraduate courses in Geography and a major can be earned. Geography provides an organized picture of the earth as a whole and of its interrelated regions and activities. It deals with both 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 draws upon many related disciplines for needed information; in return it serves by presenting comprehensive, integrated

descriptions and interpretations of the total characteristics of areas, economic units, or political entities. It thus 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 economic units, and the sciences is constituted in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in the science in the science is constituted in the science in sive program in biological and earth sciences; (c) as background for studies in economics, history, political science; (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 graduate study in geography, regional planning, and related disciplines. Students majoring in geography, after completing required fundamental courses, may elect such advanced work in this and other departments as will provide a concentration of the provided and the science are in science sciences. tion either in physical science or in social science.

### REQUIREMENTS FOR B.A. DEGREE OR B.S. DEGREE WITH A GEOGRAPHY MAJOR

1. Complete general requirements for a B.A. or B.S. degree as listed on page 28-29.

2.	Complete 20 credits in geography beyond Geog. 101, including: Geog. 201 — Elements of Physical Geography	3 (	Credits
	Geog. 316 - Pleistocene Environment	3	
	Geog. 327 - Cold Lands	3	
	Geog. 401 — Weather and Climate	3	
	Geog. 402 — Man and Nature	3	
	Geog. 491 — Seminar	3	
3.	Complete the following:		
	Land Res. 101 - Conservation of Natural Resources	2	
	Biol, 303 - Principles of Ecology	3	
	Geol. 101 - General Geology	4	
	Geol. 102 - Historical Geology	4	
	Anth. 101 — The Study of Man	3	
	Anth. 214 — Archaeology	4	
	<del></del>		

A MINOR IN GEOGRAPHY REQUIRES 15 HOURS OF GEOGRAPHY COURSES.

### GEOLOGY DEPARTMENT

ROBERT B. FORBES --- DEPARTMENT HEAD

DEGREES — BACHELOR OF ARTS, BACHELOR OF SCIENCE, MASTER OF SCIENCE, MASTER OF ARTS IN TEACHING, DOCTOR OF PHILOSOPHY.

#### MINIMUM REQUIREMENTS FOR DEGREES:

**B.A. GEOLOGY MAJOR — 130 CREDITS** B.S. GEOLOGY — 130 CREDITS, PLUS **8 CREDITS SUMMER FIELD COURSE** M.S. GEOLOGY — 30 ADDITIONAL CREDITS,

**INCLUDING THESIS** 

M.A.T. — 30 ADDITIONAL CREDITS B.S. GEOLOGICAL ENGINEERING — 135 CREDITS PLUS 8 CREDITS SUMMER FIELD COURSE PH.D. (OPEN)

The bachelors degree curricula in geology provides broad training in the earth sciences and essential course work in mathematics and the physical sciences. The geological engineering curriculum is designed to prepare the student for professional work in the earth sciences, involving engineering problems. Graduate programs are tailored to the special research and study interest of the student.

# REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE IN GEOLOGY

REQUIREMENTS AND CURRICULUM FO	OR B.S. DEGREE IN GEOLOGY	
FALL SEMESTER	SPRING SEMESTER	
FIRST YEAR 16 or 161/2 Credits	16 or 16½ Credits	
Engl. 101—Comp. & Modes of Lit 3	Engl. 102-Comp. & Modes of Lit 3	
Math. 106-Algebra & Trig 4	Math. 200 — Calculus 4	
Geol. 111-Physical Geology 4	Geol. 102—Historical Geology 4	
Geol. 111-Physical Geology	Chem. 102-General Chemistry 4	
P.E. or Mil. Sci 1 or 1½	P.E. or Mil. Sci 1 or 1½	
Second Year 16 or 161/2 Credits	17 or 171/2 Credits	
Geol. 213 - Mineralogy 4	Geol. 214-Optical Mineralogy 3	
Math. 201—Calculus 4	Math. 202—Calculus	
Phys. 211 - General Physics 4	Phys. 212—General Physics 4	
P.E. or Mil. Sci	P.E. or Mil. Sci 1 or 1½	
Social Science Elective	Elective	
	Engish Elective	
THIRD YEAR 17 Credits	15 or 16 Credits	
Geol. 304—Geomorphology 3	Geol. 314-Structural Geology 3	
Geol. 315—Petrology	Geol. 402-Strat. Paleo 4	
	Social Science Elective 3 or 4	
Foreign Language 5	Foreign Language 5	
SUMMER		
Geol. 351-Field Geology, eight credits, eight	weeks	
FOURTH YEAR 15 or 16 Credits	15 or 16 Credits	
Geol. 321—Sedimentation 3	Phys. 362-Gen. Geophysics	
Geol. 416-Intro. to Geochemistry† 3	English Elective	
Social Science Elective 3	Professional Electives†† 9 or 10	
Professional Electives†† 6 or 7		
One year of a modern foreign language is required for graduation. Students who have completed two years of formal instruction in a modern foreign language at the high school level may petition to fulfill this requirement by taking a first year college reading examination in the language concerned.		

# REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE IN GEOLOGICAL ENGINEERING

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR 17 or 171/2 Crodits	17 or 17 1/2 Credits
Engl. 101—Comp. & Modes of Lit.       3         Math. 106—Algebra & Trig.       4         Chem. 101—General Chemistry       4         E.S. 101—Graphics       2         E.S. 111—Engr. Science       3         P.E. or Mil. Sci.       1 or 1½	Engl. 102—Comp. & Modes of Lit.        3         Math. 200—Calculus        4         Chem. 102—General       Chemistry        4         E.S. 102—Graphics        2         Econ. 121—Prin. of Econ.       3         P.E. or Mil. Sci.       1 or 1½
SECOND YEAR 16 or 16 1/2 Credits	16 or 161/2 Credits
Math. 201—Calculus       4         Phys. 211—General Physics       4         Geol. 111—Physical Geology       4         E.S. 207—Measurements       3         P.E. or Mil. Sci.       1 or 1½	Math. 202—Calculus       4         Phys. 212—General Physics       4         E.S. 208—Mechanics       4         Geol. 314—Structural Geology       3         P.E. or Mil. Sci.       1 or 1½
THIRD YEAR 18 Credits	16 Credits
E.S. 331-Mech. of Materials       3         Geol. 213-Mineralogy       4         Chem. 331-Physical Chemistry       4         Math. 302-Diff. Equations       3         E.S. 341-Fluid Mechanics       4	Geol. 214—Optical Mineralogy       3         Min. 102—Min. Syst. Engr.       4         Geol. 362—Engr. Geology       3         English Elective       3         Professional Elective       3

#### SUMMER

Geol. 351 - Field Geology, eight credits, eight weeks

FOURTH YEAR	17 Credits	16 Crod	its
Geol. 315-Petrology	5	Geol. 404-Economic Geology	
Min. 405-Geophys. & Geoc	hem. Exp. 3	English Elective	
C.E. 435-Soil Mechanics		Professional Electives††	7
Professional Elective††	3	Social Science Elective	3
Social Science Elective	3		

#### REQUIREMENTS FOR B.A. DEGREE WITH A GEOLOGY MAJOR

- 1. Complete the general requirements for a B.A. degree listed on page 28.
- 2. Complete required courses in Geology as planned in individual conference with the head of the Geology Department.

A MINOR IN GEOLOGY REQUIRES 12-16 CREDITS OF APPROVED GEOLOGY COURSES.

#### REQUIREMENTS FOR M.S. DEGREE IN GEOLOGY

- A minimum of 30 credits, including a maximum of 12 credits in Geol. 693-694, Special Topics, and Geol. 697-698, Thesis.
- 2. An examination to demonstrate ability to read scientific literature in an approved foreign language.
- 3. Completion of the general requirements for a graduate degree listed on page 31.

#### REQUIREMENTS FOR PH.D.

- Program arranged by conference.
- 2. Completion of the general requirements for the Ph.D. listed on page 32.

†Majors may elect to substitute Chem. 331 for Geol. 416.

††Approved courses in geology, mathematics, chemistry, physics, or the engineering sciences.

#### Suggested professional electives:

C.E. 344 — Hydrology C.E. 412 — Elements of Photogrammetry C.E. 422 — Foundation Engineering C.E. 603 — Arctic Engineering Geol. 321 — Principles of Sedimentation

Geol. 304 - Geomorphology

Geol. 416 - Geochemistry

Geol. 610 - Theories of Ore Deposition

Math. 309 — Programming of Digital Computers Math. 312 — Numerical Methods for Engineers

M. Pr. 313 — Introduction to Mineral Preparation

Min. 408 - Mineral Valuation and Economics

### MINERAL ENGINEERING DEPARTMENT

DONALD J. COOK — DEPARTMENT HEAD

DEGREES — BACHELOR OF SCIENCE, MASTER OF SCIENCE, ENGINEER OF MINES

#### MINIMUM REQUIREMENTS FOR DEGREES:

**B.S.** — 135 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 development and exploration of mineral resources and upon the economics of the business of mining. In addition, a student interested in Petroleum Engineering may complete the first two years of the Mining Engineering curriculum and then transfer to another university and complete the final two years of the curriculum without loss of time.

UNDERGRADUATE DEGREES - The Department of Mineral Engineering offers the Bachelor of Science Degree in Mining Engineering.

GRADUATE DEGREES — The graduate program allows for the awarding of Master of Science Degrees in Mineral Industry Management and Mineral Preparation Engineering. The curriculum consist of core courses in Engineering Management with electives in the field of Mineral Industries and advanced courses in Mineral Preparation, respectively. University policy pertaining to graduate study leading to a Master's degree applies.

\*PROFESSIONAL DEGREE — 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.

### REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE IN MINING ENGINEERING

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR 18 or 181/2 Credits	17 or 171/2 Credits
Engl. 101—Comp. & Codes of Lit 3 Math. 108—Algebra & Trig 5	Engl. 102—Comp. & Modes of Lit 3 Math. 200—Calculus
E.S. 101-Graphics 2	E.S. 102—Graphics 2 Econ. 121—Prin. of Economics 3
E.S. 111-Engineering Science 3	Econ. 121-Prin. of Economics 3
Geol. 111-Physical Geology 4	<ul><li>Min. 102—Min. Systems Engl 4</li></ul>
P.E. or Mil. Sci 1 or 1½	P.E. or Mil. Sci 1 or 1½
SECOND YEAR 17 or 171/2 Credits	16 or 161/2 Crodits
Math. 201-Calculus 4	Math. 202-Calculus 4
Phys. 211—General Physics 4	Phys. 212—General Physics 4
Chem. 201-Gen. & Quant. Chem 4	Chem. 202—Gen. & Quant. Chem 4
Geol. 213-Mineralogy 4	Min. 202-Mine Surveying 3
P.E. or Mil. Sci 1 or 1½	P.E. or Mil. Sci 1 or 1½
THIRD YEAR 16 Credits	16 Credits
• Chem. 331-Phys. Chem 4	E.S. 208-Mechanics 4
• Chem. 331—Phys. Chem	E.S. 208—Mechanics
<ul> <li>Chem. 331—Phys. Chem</li></ul>	E.S. 208—Mechanics
Chem. 331—Phys. Chem.       4         Min. Pr. 313—Intro. to Min. Prep       3         E.E. 313—Elem. Elec. Engr.       3         Math. Elective       3	E.S. 208—Mechanics       4         Met. 304—Intro. to       Met.       3         Geol. 314—Structural Geol.       3         E.E. 314—Elem. Elec. Engr.       3
<ul> <li>Chem. 331—Phys. Chem</li></ul>	E.S. 208—Mechanics
Chem. 331—Phys. Chem.       4         Min. Pr. 313—Intro. to Min. Prep       3         E.E. 313—Elem. Elec. Engr.       3         Math. Elective       3	E.S. 208—Mechanics       4         Met. 304—Intro. to Met.       3         Geol. 314—Structural Geol.       3         E.E. 314—Elem. Elec. Engr.       3
Chem. 331—Phys. Chem.       4         Min. Pr. 313—Intro. to Min. Prep       3         E.E. 313—Elem. Elec. Engr.       3         Math. Elective       3         Social Science Elective       3         FOURTH YEAR       16 Credits         E.S. 331—Mechanics of Materials.       3	E.S. 208—Mechanics       4         Met. 304—Intro. to       Met.       3         Geol. 314—Structural Geol.       3         E.E. 314—Elem. Elec. Engr.       3         English Elective       3
Chem. 331—Phys. Chem.       4         Min. Pr. 313—Intro. to Min. Prep       3         E.E. 313—Elem. Elec. Engr.       3         Math. Elective       3         Social Science Elective       3         FOURTH YEAR       16 Credits         E.S. 331—Mechanics of Materials       3         E.S. 341—Fluid Mechanics       4	E.S. 208—Mechanics
• Chem. 331—Phys. Chem	E.S. 208—Mechanics
• Chem. 331—Phys. Chem	E.S. 208—Mechanics
• Chem. 331—Phys. Chem	E.S. 208—Mechanics

Course may be taken in increments, see course descriptions.
 Approved electives may be substituted.

The above program may be taken over a five-year period if a chemistry sequence of Chem. 101, 102, and 212 is followed and the student desires more time for electives of his choice.

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 engineer-

ing study listed in the mining engineering curriculum. This course of study may be altered to allow for requirements of individuals. Upon satisfactory completion of the two-year curriculum, students may transfer to one of a number of universities having petroleum engineering programs and complete their course of study without loss of time or course credit.

# REQUIREMENTS FOR M.S. DEGREE IN MINERAL INDUSTRY MANAGEMENT

FALL SEMESTER	15 Credits	SPRING SEMESTER	15 Credits
E.M. 611-Engr. Manager E.M. 605-Adv. Engr. Ed	nent 3 onomy 3	E.M. 612—Engr. Mana E.M. 613—Engr. Manag	
Min. 697—Thesis Min. 621—Adv. Mineral Ed	3	Approved Elective Min. 698—Thesis	6
Approved Elective	3		

Completion of the general requirements for a graduate degree as listed on page 31.

# REQUIREMENTS FOR M.S. DEGREE IN MINERAL PREPARATION ENGINEERING

FALL SEMESTER	15 Crodits	SPRING SEMESTER	15 Credits
Min. Pr. 601—Froth Flotati Min. Pr. 695—Min. Prep. Re Min. 621—Adv. Mineral Eco Min. Pr. 697—Thesis	on	Min. Pr. 696—Min. Prep. 1 Min. Pr. 606—Plant Desig • Elective Min. Pr. 698—Thesis	n 3 6
<ul><li>Elective</li></ul>	3		

Completion of the general requirements for a graduate degree as listed on page 31.

\*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 specific background and interest.

# College of Mathematics, Physical Sciences, and Engineering

#### CHARLES E. BEHLKE — DEAN

Physical Science is based upon mathematical fundamentals. Engineering is founded upon mathematical and physical principles. The integration of the departments of this college provides the common ground for training in science and technology.

The primary mission of the college is to provide education to the baccalaureate level in its departments and to supplement the primary purpose with research and graduate training where necessary.

**UNDERGRADUATE DEGREES** — The college grants the following undergraduate degrees: Bachelor of Arts, Bachelor of Science.

GRADUATE DEGREES — The College offers the following graduate degrees: Master of Arts, Master of Arts in Teaching, Master of Science, Master of (Civil, Electrical, Environmental Health, Mechanical) Engineering, and Doctor of Philosophy.

**DEPARTMENTS** — Departments in the college include: Chemistry, Civil Engineering, Electrical Engineering, Engineering Management, General Science, Mathematics, Mechanical Engineering, and Physics. The college also includes within its scope the program in Electronics Technology, the program in Environmental Health Engineering, and the program in Oceanography and Ocean Engineering.

**ENGINEERING SCIENCE COURSES** — The designation Engineering Science is given to courses which are common to all fields of engineering. Each engineering curriculum specifies which of these courses are required and the semester in which it is advisable to take them.

# **CHEMISTRY DEPARTMENT**

G. WARREN SMITH - DEPARTMENT HEAD

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, as supervisors in industry, as technical sales personnel; as research chemists in federal, state, municipal, academic or industrial laboratories, in pre-medicine 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 since World War I. 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 general offerings of the Chemistry Department are arranged to allow students in less specialized programs to meet requirements for the requisite majors and minors. Such service courses and programs are an outstanding feature in the department.

The field of chemistry is highly developed. Graduate study is a necessity for the better opportunities in this field. A prospective chemist should have some advanced work in chemistry and/or additional courses in mathematics and physics. Sufficient study in two foreign languages, preferably German and Russian, to gain a reading knowledge is recommended.

#### REQUIREMENTS FOR B.A. DEGREE WITH A MAJOR IN CHEMISTRY

1. Complete the general requirements for a B.A. degree listed on page 28.

2.	Complete the following Chemistry courses:		
	Chem. 101-102 — General Chemistry	8	Credits
	or		
	Chem. 201-202 - General and Quantitative Chem	8	
	Chem. 321-322 — Organic Chemistry	8	
	Chem. 212 - Intro. Quantitative Analysis	4	
	Chem. 416 - Instrumental Chem. Analysis	4	
	Chem. 331-332 — Physical Chemistry	6	
	Chem. 333-334 - Physical Chemistry Lab	2	
	Chem. 425 - Organic Qualitative Analysis		
	Chem. 491-492 — Seminar (as seniors)	-2	
	Math. 106 - College Algebra and Trig	5	
	Math. 200-201-202 - Calculus	12	
	Phys. 103-104 — College Physics	8	
	Phys. 211-212 — General Physics	8	

# REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE WITH A MAJOR IN CHEMISTRY

FALL SEMESTER		SPRING SEMESTER		
FIRST YEAR	17 or 171/2 Credits	16 or 16 1/2 Credits		
Chem. 101—Gen. Chem. & Intro.		Chem. 102—General Chem. Intro. Qualitative Analysis 4  or Chem. 202—General Quantitative Chemistry		
SECOND YEAR Chem. 321—Organic Math. 201—Calculus Phys. 211—Gen. Phy P.E. or Mil. Sci	16 or 16½ Credits 2 Chemistry 4 3	6 Elective       4         16 or 16½ Credits         Chem. 322—Organic Chemistry       4         Math. 202—Calculus       4         Phys. 212—Gen. Physics       4         P.E. or Mil. Sci.       1 or 1½         • Elective       3		

THIRD YEAR 17-18 Credits	16 or 18 Credits
Chem. 331—Physical Chemistry       3         Chem. 333—Physical Chem. Lab.       1         Chem. 212—Intro. Quant. Analysis       4         German or Russian 101       5         Chem. 491—Seminar       0         * Electives       4-5	Chem. 332—Physical Chemistry       3         Chem. 334—Physical Chem. Lab.       1         Chem. 416—Inst. Chem. Analysis       4         or       Chem. 402—Adv. Inorg. Chem.       3         Ger. 102—Elem. German       5         or       Russ. 102—Elem. Russian       5         Chem. 492—Seminar       0         * Electives       4-5
FOURTH YEAR 16 or 18 Credits	16 or 18 Credits
Chem. 425—Org. Qual. Analysis 3 Chem. 491—Seminar	Chem. 416—Inst. Chem. Analysis or       4         Chem. 402—Adv. Inorg. Chem. 3       3         Chem. 492—Seminar 1       1         Chem. 496—Research 2-4       • Electives 4-12

- <sup>o</sup>A minimum of 130 credits must be carned. The general requirements for the B.S. degree must be met. This curriculum meets the suggested minimum standards of the Amercian Chemical Society, but additional advanced courses in chemistry may be elected with the approval of the department.
- \*OAdvanced courses in mathematics, physics or biological sciences may be substituted on approval of the department.

#### REQUIREMENTS FOR M.A. OR M.S. DEGREE IN CHEMISTRY

- 1. A minimum of 30 credits of approved courses including Chem. 697, Thesis.
- 2. Completion of the general graduate degree requirements listed on page 31.

Graduate students 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.

### REQUIREMENTS FOR M.A.T. DEGREE

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

# CHEMICAL ENGINEERING DEPARTMENT

#### G. WARREN SMITH - DEPARTMENT HEAD

Chemical Engineering is concerned with the development and application of manufacturing processes in which physical or chemical changes of materials are involved. The chemical engineer is primarily concerned with the development, design, and operation of equipment and processes for bringing out those desired changes on an industrial scale and at a profit. Chemical engineers find opportunities with manufacturers of all the numerous chemical products of commerce such as the heavy and fine chemicals, pulp and paper, plastics, drugs, dyes, soap and mineral products; with atomic energy, missile and satellite programs; with petroleum refineries; with the mineral industry; with the food industries and with many other industries. These opportunities may involve research, design, control, operation, and technical sales.

The university does not offer a full four-year curriculum in Chemical Engineering but hopes to do so in the future. The first two years of the curriculum for the B.S. degree with a major in Chemistry will, in general, prepare a student to transfer into Chemical Engineering at other institutions. However, it would be wise for students to consult the catalogs of institutions to which they might transfer and plan their two years at the University of Alaska to conform to their requirements.

# CIVIL ENGINEERING DEPARTMENT

#### E. F. RICE - DEPARTMENT HEAD

DEGREES — BACHELOR OF SCIENCE (ENGINEERING SCIENCE), MASTER OF CIVIL ENGINEERING, MASTER OF SCIENCE

#### MINIMUM REQUIREMENTS FOR DEGREES:

B.S. — 131 CREDITS
M.S. — 30 ADDITIONAL CREDITS
M.C.E. — 161 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 pass a comprehensive exam-

ination in their general field.

Students will enter the fifth year 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 highly specialized program, with emphasis on research and/or advanced specialized study, will ordinarily select the Master of Science in Civil Engineering degree.

# REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE (ENGINEER-ING SCIENCE) WITH A MAJOR IN CIVIL ENGINEERING

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR       17 or 17½ Crodits         Engl. 101—Comp. & Modes of Lit.       3         Math. 106—Algebra & Trig.       5         E.S. 101—Graphics       2         E.S. 111—Engineering Science       3         Econ. 121—Principles of Econ.       3         P.E. or Mil. Sci.       1 or 1½	16 or 16½ Crodits   Engl. 102—Comp. & Modes of Lit
SECOND YEAR       16 or 16½ Credits         Math. 201—Calculus       4         Phys. 211—Gen. Physics       4         E.S. 207—Measurements       3         Chem. 201—Gen. & Quant. Chem.       4         P.E. or Mil. Sci.       1 or 1½	17 or 17½ Crodits  Math. 202—Calculus
THIRD YEAR         17 Credits           E.S. 331—Mech. of Materials         3           Math. 302—Differential Equations         3           E.S. 341—Fluid Mechanics         4           E.E. 313—Elem. of Elect. Engr.         3           Geol. 101—General Geology         4	C.E. 334—Phys. Prop. of Mat
FOURTH YEAR       15 Credits         C.E. 435—Soil Mechanics       3         C.E. 441—Sanitary Engineering       3         C.E. 431—Structural Analysis       4         C.E. 415—Surveying       3         Sp. 111—Public Speaking       2	14 Credits   E.S. 450-Engr. Mgt. & Oper

#### REQUIREMENTS FOR THE MASTER OF CIVIL ENGINEERING DEGREE

Students entering the Master of Civil Engineering program should have com-

pleted a bachelor's degree in engineering.

A student will elect a Civil Engineering program approved by his graduate committee. Thirty semester credits of approved courses beyond the B.S. degree are required. M.C.F. candidates will have passed a State Engineer-in-Training Examination prior to the awarding of the degree.

#### REQUIREMENTS FOR THE M.S. DEGREE IN CIVIL ENGINEERING

A student selecting this program will meet the general requirements for the Master's degree (page 31) plus the following:

Thirty semester hours of credit approved by his graduate committee, of which six to twelve hours will be C.E. 697, 698—Thesis.

### ELECTRICAL ENGINEERING DEPARTMENT

KENNETH L. ZONGE - ACTING DEPARTMENT HEAD

DEGREES — BACHELOR OF SCIENCE (ENGINEERING SCIENCE) MASTER OF SCIENCE, MASTER OF ELECTRICAL ENGINEERING

#### MINIMUM REQUIREMENTS FOR DEGREES:

**B.S.** — 130 CREDITS M.S. — 30 ADDITIONAL CREDITS M.E.E. — 162 CREDITS

Electrical Engineering is concerned with the practical application of electricity and magnetism. Electrical engineers develop, design, and operate equipment for generating and utilizing power, for instrumentation, for automatic control, and for information processing.

The program emphasizes the study of electronic devices and circuits, with partic-

ular reference to instrumentation and communication systems. Due attention is given

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ular reference to instrumentation and communication systems. Due attention is given to power, control, and information processing. Also, each senior is expected to take the State Engineer-In-Training Examination.

Students entering the fifth year may choose one of two programs: those whose goal is broad professional practice will ordinarily choose the curriculum leading to the Master of Electrical Engineering degree; those whose interests or background favor a highly specialized program with emphasis on research and/or advanced specialized study will usually select the Master of Science degree, with a major in Electrical Engineering. In addition to the general requirements for graduate study, a candidate for the M.E.E. degree is expected to qualify and register as an Engineer-In-Training.

#### REQUIREMENTS AND CURRICULUM FOR B.S.E.S. DEGREE (ELECTRICAL)

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LATE SEWESIEK	STRING SEMESIER
FIRST YEAR 17 or 171/2 Credits	16 or 161/2 Credits
Engl. 101-Comp. & Modes of Lit 3	Engl. 102-Comp. & Modes of Lit 3
Math. 106-Algebra & Trig 5	Math. 200-Calculus 4
E.S. 101-Graphics	E.S. 122-Engineering Design 3
E.S. 111-Engineering Science 3	*Social Science Elective 3
Econ, 121-Prin, of Econ	
P.E. or Mil. Sci 1 or 1½	• Elective 2
SECOND YEAR 16 or 161/2 Credits	17 or 171/2 Credits
Math. 201-Calculus 4	Math. 202—Calculus 4
Phys. 211-Gen. Physics 4	Phys. 212-Gen. Physics 4
E.É. 203-Fund. of Elect. Engr 4	E.E. 204-Fund. of Elect. Engr 4
E.S. 207—Measurements 3	E.S. 208-Mechanics 4
P.E. or Mil. Sci 1 or 1½	P.E. or Mil. Sci 1 or 1½

THIRD YEAR  Math. 302—Diff. Equations Chem. 201—Gen. & Quant. Che.E. 333—Electronics E.E. 353—Circuit Theory E.E. 323—Elect. Engr. Lab. I E.S. 331—Mechanics of Materi	 17 Credits            • Math. 312—Numerical Methods
FOURTH YEAR E.S. 341—Fluid Mechanics E.E. 403—Elect. Pwr. Engr. I Phys. 331—Elect. & Magnetisn Social Science Elective English Elective	   13 Credits   E.S. 346-Basic Thermodynamics     3   E.S. 450-Engr. Manag. & Op.     3   E.E. 492-Seminar     1   Electives   6

<sup>\*</sup>Electives must have the approval of the department.

#### REQUIREMENTS FOR THE MASTER OF ELECTRICAL ENGINEERING

Students selecting the Master of Electrical Engineering program will meet the general requirements of the university for the Master's degree, be guided in coursework and an engineering project by a personal advisor, and accumulate a total of 32 semester hours of approved courses.

# REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE IN ELECTRICAL ENGINEERING

A candidate for the Master of Science degree will meet the university's general requirements plus the following:

Thirty semester hours of credit approved by his graduate committee, of which six to twelve semester hours will be E.E. 697,698—Thesis.

### ENGINEERING MANAGEMENT DEPARTMENT

JOHN M. HILPERT — DEPARTMENT HEAD

**DEGREE** — MASTER OF SCIENCE

# MINIMUM REQUIREMENTS FOR DEGREE: 30 CREDITS (BEYOND A BACHELOR'S DEGREE IN ONE OF THE RECOGNIZED BRANCHES OF ENGINEERING)

The Engineering Management curriculum is designed for graduate engineers who will hold executive or managerial positions in engineering, construction, or industrial organization. It includes financial, legal, human relations, economic, and technical subjects which are useful to solve problems of management.

The curriculum will include graduate level core courses, business law, and additional course work either directed toward special problems such as Arctic Engineering, or in one of the more general fields of engineering through projects or research in the application of engineering management principles. Candidates should have had on-the-job experience working as an engineer, not merely prior academic training.

FALL SEMESTER	15 Credit	\$	SPRING SEMESTER	15 Credits	
B.A. 331-Business Law			B.A. 332-Business Law		
E.M. 611—Engineering			E.M. 612—Engineering M	lanagement 3	
E.M. 605—Advanced En	gr. Economy	3	E.M. 613—Engineering M	lanagement 3	
Electives	(	6	Project or Research	3	
			* Elective	3	

Other courses may be substituted for Business Law if a student shows evidence of satisfactory completion of subject matter of B.A. 331 and 332 at the B grade level. \*Electives must have the approval of the department.

# GENERAL SCIÈNCE DEPARTMENT

WILLIAM S. WILSON — DEPARTMENT HEAD 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 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 all 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 transcerves this function makes it a necessary study.

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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 border between the older sciences provide excellent opportunity for research. An acquaintance with the fundamentals of all of 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 school and college and also in preparing for specialization in certain of the social degrees.

#### REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE WITH A MAJOR IN GENERAL SCIENCE

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR 16 or 161/2 Credits	16 or 16 1/2 Credits
Engl. 101—Comp. & Modes of Lit 3 Biol. 105—Fund. of Biology	Engl. 102—Comp. & Modes of Lit 3 Biol. 106—Fund. of Biology
Phys. 103—College Physics	P.E. or Mil. Sci 1 or 1½
SECOND YEAR 17 or 181/2 Credits	17 or 181/2 Credits
Phys. 103-College Physics	Phys. 104-College Physics 4
Chem. 101—General Chemistry	Chem. 102—General Chemistry       4         Anth. 101—The Study of Man       3         For. Lang. or Dept. Elect.       7 or 6         P.E. or Mil. Sci.       1 or 1½         Elective       3

#### THIRD AND FOURTH YEARS

By the beginning of his 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, makes out a program for his third and fourth years of study.

Directions for making out the program:

1.	Include the following courses: Dept. Elec. or For. Lang Engl. 213—Adv. Exposition or	5	Dept. Elec. or For. Lang Engl. 314—Scholarly and Tech.	6
	selected literature	3	Writing or selected literature	3

- 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, Geology, Geophysics, 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 16 credits), Engilsh, French, German, Russian, History, or Political Science.
- 4. All prerequisites of courses elected must be met, preferably by inclusion in the major.
- 5. One year of German, French, or Russian is required in the General Science curriculum. If the foreign language is postponed to the third year, the program described under third and fourth year must be made out at the beginning of the second year.
- Advanced Exposition is required unless written work in all courses indicate a good writing technique.
- 7. Courses selected to complete the requirements in the social sciences must be chosen from the following: Anthropology except Anth. 402 and Archaeology; Sociology; Economics; History; and Political Science.

#### REQUIREMENTS FOR M.S. DEGREE IN GENERAL SCIENCE

- 1. Minimum of 30 credits of approved courses.
- 2. Completion of the general graduate degree requirements listed on page 31.

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 "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 carned in science and mathematics. At least 12 credits must be carned 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 but each course should contribute to the specific aim of the candidate, and the thesis or project should reflect this aim.

## MATHEMATICS DEPARTMENT

ROBERT W. BROWN - DEPARTMENT HEAD

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 Department of Mathematics offers service courses to all the colleges of the university. In addition, the department offers courses for students who major in mathematics. The number of positions available for trained mathematicians grows annually, and currently exceeds the supply.

A digital computer, installed in the Spring, 1966, has improved the department's capacity to train mathematicians, scientists, and engineers.

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.

#### REQUIREMENTS FOR B.A. DEGREE WITH A MAJOR IN MATHEMATICS

- 1. Complete the general requirements for a B.A. degree as listed on page 28.
- 2. Complete the calculus sequence Math. 200, 201, 202.
- 3. Complete 15 approved credits in mathematics at the 300 level or above, at least six of which must be at the 400 level.

A MINOR IN MATHEMATICS REQUIRES COMPLETION OF MATH. 200, 201, 202 IN ADDITION TO SIX APPROVED CREDITS IN MATHEMATICS AT THE 300 LEVEL OR ABOVE.

#### REQUIREMENTS FOR B.S. DEGREE WITH A MAJOR IN MATHEMATICS

- 1. Complete the general requirements for a B.S. degree as listed on page 29.
- 2. Complete the calculus sequence Math. 200, 201, 202.
- Complete Phys. 211-212 and six additional approved credits in upper division science courses.
- 4. Complete 18 approved credits in Mathematics at the 300 level or above, at least six of which must be at the 400 level.

# SUGGESTED CURRICULUM FOR B.S. DEGREE WITH A MAJOR IN MATHEMATICS

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR         17 or 17½ Credits           Engl. 101—Comp. & Modes of Lit.         3           Math. 106—Algebra & Trig.         5           P.E. or Mil. Sci.         1 or 1½           Foreign Language         5           Social Science Elective         3	The content of the
SECOND YEAR       17 or 17½ Credits         Math. 201—Calculus       4         Math. 293—Special Topics       1         Phys. 211—General Physics       4         Chem. 201—Gen. & Quant. Chem.       4         or       4         Biol. 105—Fund. of Biology       4         P.E. or Mil. Sci.       1 or 1½         Approved Elective       3	17 or 17½ Crodits   Math. 202—Calculus   4   Math. 294—Special Topics   1   Phys. 212—General Physics   4   Chem. 202—Gen. & Quant. Chem.   4   or Biol. 106—Fund. of Biology   4   P.E. or Mil. Sci.   1 or 1½   Approved Elective   3
THIRD YEAR 17 Credits Math. 302—Differential Equations 3 Math. 303—Intro. to Mod. Algebra 3 Physics Elective	17 Credits         Math. 417—Differential Geom.       3         Math. 304—Intro. to Mod. Algebra       3         Physics Elective       3         English Elective       3         Approved Electives       5
FOURTH YEAR         17 Credits           Math. 401—Advanced Calculus         3           Math. 491 Seminar         2           Social Science Elective         3           Approved Electives         9	17 Credits           Math. 402—Advanced Calculus         3           Math. 492—Seminar         2           Approved Electives         12

#### REQUIREMENTS FOR M.A.T. DEGREE WITH A MAJOR IN MATHEMATICS

- 1. Complete the general requirements for a M.A.T. degree as listed on page 89.
- 2. Complete 30 credits in courses approved by the student's graduate committee.

#### REQUIREMENTS FOR M.S. DEGREE WITH A MAJOR IN MATHEMATICS

- 1. Complete the general requirements for a master's degree as listed on page 31.
- 2. Complete 30 credits in courses approved by the student's graduate committee.
- 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 DEPARTMENT

#### E. S. BROWN — ACTING DEPARTMENT HEAD

DEGREES — BACHELOR OF SCIENCE (ENGINEERING SCIENCE), MASTER OF MECHANICAL ENGINEERING, MASTER OF SCIENCE

#### MINIMUM REQUIREMENTS FOR DEGREES:

B.S. — 130 CREDITS

M.M.E. — 162 CREDITS

M.S. — 30 ADDITIONAL CREDITS

Mechanical Engineering embraces professional disciplines concerned with the application of scientific principles to the design of thermal mechanical equipment for the benefit of mankind. Emphasis is placed on the phases of Mechanical Engineering of special importance to Alaska: power, transportation, and environmental control.

Candidates for the Bachelor of Science degree will pass a comprehensive examination in their general field.

Students enter the fifth year in one of two programs: those whose goal is broad professional practice will ordinarily choose the curriculum leading to the Master of Mechanical Engineering degree; those whose interests or background favor a highly specialized program with emphasis on research and/or advanced specialized study will ordinarily select the Master of Science in Mechanical Engineering degree.

The first four years are common to each of these programs.

# REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE (ENGINEERING SCIENCE) WITH A MAJOR IN MECHANICAL ENGINEERING

SPRING SEMESTER
16 or 161/2 Credits
Engl. 102—Comp. & Modes of Lit.       3         Math. 200—Calculus       4         E.S. 102—Graphics       2         E.S. 112—Engineering Science       3         P.E. or Mil. Sci.       1 or 1½         Social Science Elective       3
17 or 171/2 Credits
Math. 202—Calculus       4         Phys. 212—Gen. Physics       4         E.S. 208—Mechanics       4         Chem. 202—Gen. & Quant. Chem       4         P.E. or Mil. Sci.       1 or 1½

THIRD YEAR	16 Credits	15 Credi	ts
E.E. 313—Elem. of E.E Math. 302—Differential Eq E.S. 331—Mech. of Materia E.S. 341—Fluid Mechanics M.E. 321—Industrial Proce	uations 3 ls 3 4	E.E. 314—Elem. of E.E	
FOURTH YEAR	17 Credits	16 Credi	fs
M.E. 401—Machine Design M.E. 413—M.E. Thermody M.E. 441—Intro. Heat Tran	namies 3	M.E. 418—Power Analysis M.E. 412—Space Conditioning E.S. 450—Engr. Mgt. & Oper	3

#### REQUIREMENTS FOR THE DEGREE MASTER OF MECHANICAL ENGINEERING

Each fifth year student under this program will be guided by a personal advisor and shall accumulate 32 semester hours of approved courses, M.E. students may alternatively enroll in Engineering Management under the requirements of that program.

#### REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

Persons interested in this program should see head of department.

### PHYSICS DEPARTMENT

#### J. ROGER SHERIDAN — DEPARTMENT HEAD

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, geology, and marine science.

UNDERGRADUATE PROGRAM — The undergraduate curriculum aims at a good foundation in general physics with emphasis on the experimental aspects. It provides opportunities 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 offer 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 radio astronomy and solar-terrestrial relations, polar meteorology and glaciology, seismology and solid earth physics, and laboratory studies of atomic and molecular interactions.

A graduate student may designate his major field as physics or geophysics. He will pursue his studies under the supervision of an advisory committee consisting of his major professor (chairman), two approved faculty members, and the department head (ex officio). 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.

The graduate course offerings include the basic material generally required for research and teaching in physics or related fields, and specialized courses in the research areas mentioned above.

#### REQUIREMENTS FOR B.A. DEGREE WITH A MAJOR IN PHYSICS

- 1. Complete the general requirements for a B.A. degree listed on page 28.
- 2. Complete the following foundation courses:
- 4. Complete 20 credits of approved courses in Physics.

A MINOR IN PHYSICS REQUIRES 12-16 CREDITS.

# REQUIREMENTS AND CURRICULUM FOR B.S. DEGREE WITH A MAJOR IN PHYSICS

FALL SEMESTER	SPRING SEMESTER
FIRST YEAR 16 or 161/2 Credits	16 or 161/2 Credits
Engl. 101—Comp. & Modes of Lit 3 Phys. 103—College Physics	Engl. 102—Comp. & Modes of Lit 3 Phys. 104—College Physics
P.E. or Mil. Sci	P.E. or Mil. Sci 1 or 1½ • Approved Electives 4
SECOND YEAR 16 or 161/2 Credits	16 or 161/2 Credits
Math. 201-Calculus 4	Math. 202—Calculus 4
Phys. 211—General Physics 4	Phys. 212—General Physics
Foreign Language 3 or 5	Foreign Language 3 or 5
P.E. or Mil. Sci 1 or 1½	P.E. or Mil. Sci 1 or 1½
* Approved Electives 4 or 2	*Approved Electives 4 or 2
THIRD YEAR 17 Crodits	17 Credits
Math. 302-Differential Equations 3	Math. 314-Linear Algebra 3
Phys. 311—Classical Physics 4	Phys. 312—Classical Physics 4
Phys. 331—Electricity and Magnet 3	Phys. 332—Electricity and Magnet 3
• Approved Electives 7	• Approved Electives 7
FOURTH YEAR 17 Credits	17 Credits
† Math. 405-Applied Math 3	† Math. 406—Applied Math 3
Phys. 411—Modern Physics 4	Phys. 412-Modern Physics 4
Phys. 481-Advanced Physics Lab 2	Phys. 482—Advanced Physics Lab 2 Phys. 313—Classical Physics
* Approved Electives 8	Phys. 313—Classical Physics 4
<b></b>	• Approved Electives 4
*Nine credits of electives must be Social a	Science and six must be English.

Nine credits of electives must be Social Science and six must be English. for approved equivalent.

#### REQUIREMENTS FOR M.S. DEGREE IN PHYSICS OR GEOPHYSICS

- 1. A minimum of 30 credits of approved courses, including Phys. 697 or 698 Thesis.
- 2. Completion of the general requirements for a graduate degree listed on page 31.

#### REQUIREMENTS FOR M.A.T. DEGREE

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

#### REQUIREMENTS FOR PH.D. DEGREE IN PHYSICS OR GEOPHYSICS

Completion of the requirements for the doctoral degree set forth on page 32.

### **ELECTRONICS TECHNOLOGY PROGRAM**

FOYE L. GENTRY -- PROGRAM HEAD

DEGREE — ASSOCIATE IN ELECTRONICS TECHNOLOGY WITH SPECIALTIES IN ELECTRONICS OR ELECTRO-MECHANICS

#### MINIMUM REQUIREMENTS FOR DEGREE: A.E.T. --- 65 CREDITS

The program in Electronics Technology prepares people to maintain, install, and operate complex electronic and mechanical equipment.

Students specializing in electronics will have emphasis placed on equipment such as broadcast transmitters, airways control equipment, carrier telephone systems, telemetry systems, and digital computers.

Students specializing in electro-mechanics will have emphasis placed on precision and high speed electro-mechanical devices and systems, such as high speed printers, office machines, servo systems, fluid power systems, industrial control systems, etc.

The program is not introductory electrical or mechanical engineering, which emphasizes design; it is electronics technology, which emphasizes maintenance.

Enrollment is limited. Write to the department head for information on admission to this program.

#### REQUIREMENTS AND CURRICULUM FOR AN ASSOCIATE DEGREE IN ELECTRONICS TECHNOLOGY

#### FIRST YEAR FOR SPECIALTIES IN ELECTRONICS OR ELECTRO-MECHANICS

FALL AND SPRING SEMESTERS 16 Credits	SPRING AND SUMMER SEMESTERS 17 Credits
E.T. 51-DC Circuits       4         E.T. 52-AC Circuits       4         E.T. 55-Electronics Practice       3         E.T. 59-Math. for Electronics       5	E.T. 61—Tubes and Semiconductors 4 E.T. 62—Electronic Circuits 1

#### SECOND YEAR FOR SPECIALTY IN ELECTRONICS

SUMMER AND FALL SEMESTERS 17 Credits	FALL AND SPRING SEMESTERS 15 Credits
E.T. 71—Electronic Circuits II	E.T. 81—Telemetry

#### SECOND YEAR FOR SPECIALTY IN ELECTRO-MECHANICS

SUMMER AND FALL SEMESTERS 17 Credits	FALL AND SPRING SEMESTERS 15 Credits
E-M.T. 73—Mechanics 1 5	E-M.T. 85-Mechanics 11 5
E-M.T. 74-Storage Principles 4	E-M.T. 86-Vacuum Technique Proc. 3
E-M.T. 76-E-M Ind. Control Dev 4	B.A. 66-B.A. for Tech 4
E-M.T. 79—Fluid Power Systems 4	P.S. 68-Soc. Sci. for Tech

## ENVIRONMENTAL HEALTH ENGINEERING PROGRAM

R. SAGE MURPHY -- PROGRAM HEAD

**DEGREE** — MASTER OF SCIENCE

### MINIMUM REQUIREMENTS FOR DEGREE: 30 CREDITS (Beyond a Bachelor's Degree)

The Environmental Health Engineering curriculum is designed for graduate engineers, chemists, and biologists who will pursue a career in the areas of water supply, treatment, and distribution; waste treatment, stream pollution, air pollution, and solid wastes disposal. Graduates will hold positions in federal, state, and municipal organizations as well as consulting engineering offices.

# REQUIREMENTS FOR M.S. DEGREE IN ENVIRONMENTAL HEALTH ENGINEERING

- A minimum of 30 credits of approved and required courses, including a six-credit thesis.
- 2. Completion of the general requirements for a graduate degree listed on page 31.
- 3. The following required courses:

FALL SEMESTER	15 Credits	SPRING SEMESTER	15 Credits
E.H.E. 605—Water Treatment E.H.E. 606—Waste Treatment	3	E.H.E. 601—Water Qual E.H.E. 608—E.H.E. Unit	ity Control 2
Biol. 341—Microbiology Electives and Research	4	E.H.E. 610—Arctic E.H. • Electives and Research	E. Design 2

<sup>&</sup>lt;sup>o</sup>Electives must have the approval of the Department.

### OCEANOGRAPHY & OCEAN ENGINEERING PROGRAM

#### JOHN J. GOERING - PROGRAM CHAIRMAN

# DEGREES — MASTER OF SCIENCE (INTERDISCIPLINARY DEGREES) DOCTOR OF PHILOSOPHY (INTERDISCIPLINARY DEGREE)

The purpose of the program in Oceanography and Ocean Engineering is to train ocean engineers at the M.S. level and oceanographers at the M.S. and Ph.D. levels. The program in Oceanography and Ocean Engineering is coordinated by an interdisciplinary committee of the university composed of selected staff members from the academic colleges and research institutes involved in these areas of graduate training.

Graduate students for this program are selected on the basis of their backgrounds and on the basis of the university's capabilities to meet the selected needs of the individual student. Each student's application for admission to graduate study must be approved by an admission committee selected from members of the program's coordinating committee.

Excellent graduate training opportunities in oceanography and ocean engineering are offered by the university through the Institute of Marine Science, and the instructional colleges of the university. The Institute of Marine Science has a staff of scientists and engineers actively engaged in oceanographic research work progressing at the main campus of the university in College, at the Marine Station in Douglas, and on research vessels at sea. The departments of Chemistry, Physics, Geology, Biological Sciences, Electrical Engineering, Civil Engineering, Engineering Management, and Mathematics, contribute academic courses to this program.

At the M.S. level, the program emphasizes ocean related course work in both the oceanography and ocean engineering areas. However, additional graduate courses are recommended in the area of the student's undergraduate training to assure a high level of competence in his primary subject.

# **Course Descriptions**

Courses offered by the university are listed alphabetically by department.

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. 101 is given for first-year students and Engl. 342 is given for third-year students.

1-49-Non-credit courses.

50-99—Courses designed for associate degree or a technical certificate; they are not applicable to the baccalaureate requirements.

300-499—Upper division courses. Freshmen and sophomores must petition the Academic Council for permission to take these groupings unless such courses are required in the first two years of their curriculum as printed in this catalog.

93, 94, 193, 194, 293, 294, 393, 394—Special Topics courses in certain departments.

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. 491-492 and 681-692 indicate Seminars, 493-494 and 693-694 indicate Special Topics, and 695-698 indicate Thesis or Dissertation in those departments where listed.

COURSE CREDITS—One credit (or one hour) represents satisfactory completion of one hour of work a week for one semester. This requirement may be met by attendance at one lecture, or by three fifty-minute periods of laboratory work a week, or the equivalent.

Following the title of each course, the figures in parentheses indicate the number of lecture and laboratory hours the class meets. The first figure indicates lecture hours; the second, laboratory. For example (2+3) indicates that a class has two hours of lecture and three of laboratory work

The number of credits listed is for each semester. Thus "Three Credits" mean three credits may be earned.

COURSE CLASSIFICATIONS—Subjects and courses are classified as below:

Natural Sciences
Anthropology
Biological Sciences
Chemistry
Geography
Geology
Mathematics
Physics

Social Sciences
Anthropology
Economics
Geography
History
Home Economics
Law
Political Science
Psychology

Humanities
Art
English
Foreign Language
and Literature
Journalism
Linguistics
Music
Philosophy
Speech and Drama

#### **ACCOUNTING**

Acc. 215 Accounting Principles (0+6)

3 Credits
3 Credits

Fall Spring

Accounting as a factor in business management and control.

Sociology

Fall semester: accounting principles as they apply to the organization and conduct of business.

Spring semester: application of accounting principles and practices to business situations; preparation of financial statements.

Prerequisites: Acc. 215 - sophomore standing or permission of the instructor. Acc. 216-Acc. 215 or equivalent.

Acc. 311 Intermediate Accounting (0+6) 3 Credits Fall 312 Spring

Advanced principles and techniques. Relation of accounting to business management and control; accounting practices and procedures designed to reflect the financial position of a business and the results of its operation. *Prerequisite: Acc. 216 or equivalent.* 

Acc. 313 Federal and State Tax Accounting (0+6) 3 Credits Fall Basic principles of the federal income tax; application of these principles to individual taxpayers; practice in the preparation of tax returns. *Prerequisites: Acc. 215, 216.* 

Acc. 316 Analysis of Financial Statements (0+6) 3 Credits Spring Interpretation of financial statements and analysis of accounting data for business planning, investment, and evaluation purposes. Course not available for credit for accounting majors. *Prerequisites: Acc. 215, 216 or equivalent.* 

Acc. 318 Accounting Systems (0+6) 3 Credits Fall Function of commercially developed accounting systems; study and solution of procedural problems at the working level; use and adaptation of bookkeeping machines and electronic data processing to cash control, customer billings, payables, payrolls and payroll taxes, sales analysis and inventory and cost control. Prerequisites: Acc. 311, 312 or equivalent. Offered in alternate years.

Acc. 414 Federal and State Tax Accounting (0+6) 3 Credits Fall Application of income tax principles to partnerships, corporations, estates, and trusts; state taxes and their operation; social security, gift and estate taxes; practice in the preparation of tax returns for business entities. *Prerequisite: Acc. 313*.

Acc. 416 Advanced Accounting (0+6) 3 Credits Fall Accounting problems involved in creation, operation and liquidation of business entities. Consideration of accounting problems, most frequently encountered in partnerships, corporations, estates, trusts, and receiverships. *Prerequisites: Acc. 311, 312 or equivalent.* 

Acc. 417 Cost Accounting (3+0) 3 Credits Spring Principles and procedures for determining production and operating costs; factors in reducing costs; interpretation and analysis of cost data. Prerequisite: Acc. 311 or equivalent.

Acc. 418 Auditing (3+0) 3 Credits Spring Principles, standards and working procedures of audit verification and analysis; functions of public accountants and internal auditors. Prerequisites: Acc. 311, 312 or equivalent.

Acc. 493 Special Topics Credits Arr. Fall
494 Credits Arr. Spring

An area in which the student has a special interest. Independent research, outside reading, and periodic reports are included. Admission by arrangement.

Acc.693Special TopicsCredits Λrr.Fall694Credits Λrr.Spring

Prerequisites: graduate standing and permission of the instructor.

131

Spring

Fall

Fall

3 Credits

Credits Arr. Acc. 697 Thesis Fall 698 Credits Arr. Spring AGRICULTURAL SCIENCE **301** Agricultural Prices (3+0) 3 Credits Fall Analysis and interpretation of factors affecting agricultural prices; study of price movements; price policy. Prerequisites: Econ. 121, 122. Offered as demand warrants. 310 Animal Husbandry (2+3) Origin, history, and economic significance of major breeds of dairy and beef cattle, swine, sheep, and poultry. Introduction to management, with special reference to Alaska. Offered as demand warrants. 382 Herticulture (2+3)3 Credits Ag. Spring Survey; principles of propagation, culture and use; soil, light, and water requirements; planting and harvesting; insect, weed, and disease control. Prerequisites: Biol. 105, 106. Offered as demand warrants. 404 Agricultural Marketing (3+0) 3 Credits Spring Principles and practices of agricultural marketing; prices, and costs; case studies. Prerequisite; Econ. 121. Offered as demand warrants. 491 Seminar (Arrange) Credits Arr. Fall Ag. 492 Credits Arr. Spring Unique problems in agricultural development of Alaska, the role of agriculture in Alaska's economy, and recent research advances in the state. Subject matter fields: economics, agronomy, animal industry, soils, horticulture, and agricultural engineering. Offered as demand warrants. 493 Special Topics (Arrange) Credits Arr. Credits Arr. 494 Spring Various subjects studied principally through directed reading and supervised projects. Offered as demand warrants. ANTHROPOLOGY Anth. 101 The Study of Man (3+0)3 Credits Introduction to anthropology, including the physical and cultural aspects of man. Anth. 202 Cultural Anthropology (3+0)3 Credits Spring Basic theories and current concepts of cultural anthropology regarding the social, political, and aesthetic life of primitive societies. Anth. 203 World Ethnography (3+0)3 Credits Fall A descriptive study of peoples of the world: Europe, Asia, and Africa. Anth. 204 World Ethnography (3+0)3 Credits

A descriptive study of peoples of the world: the New World and the Pacific.

The history of archaeology and a study of its methods. Prerequisite: Anth. 101.

of man, the distribution of races, and the physical study of populations.

An introduction to physical anthropology dealing with the general physical history

205 Physical Anthropology (3+0)

Anth. 214 Archaeology (3+3)

Anth. 303 Culture History (3+0) The inventions of man and the spread of civilization Prerequisites: Anth. 101 or 203 or 204, or permission		Spring World.			
Anth. 304 Africa (3+0) Peoples and cultures of Africa. Prerequisite: Anth. 10		or Spring			
Anth. 306 Oceania (3+0)  Ethnic groups and cultures of Indonesia, Micronesia, tralia. <i>Prerequisite: Anth. 101</i> .	3 Credits Melanesia, Polynesia, a	Spring and Aus-			
Anth. 312 North American Archaeology (3+0) 3 Credits Fall or Spring Prehistoric cultures north of Mexico. Archaeological methods peculiar to America and problems related to the prehistory of the Arctic Regions. <i>Prerequisite: Anth. 214.</i>					
Anth. 326 Arctic Ethnology (3+0) Ethnic groups and cultures of the circumpolar area. It or 204.	3 Credits Prerequisites: Anth. 10	Spring I or 203			
Anth. 328 Arctic Archaeology (2+3) Problems of the prehistory of the Arctic. Prerequisite.	3 Credits Anth. 214.	Spring			
Anth. 329 Peoples of Central and Northern Asia $(3+0)$	3 Credits	Fall			
Native peoples of Siberia and adjoining regions. Prere	quisite: Anth. 101.				
Anth. 335 North American Ethnology (3+0) 3 Credits Fall Tribal life of American Indians north of Mexico. Prerequisites: Anth. 101 or 203 or 204.					
Anth. 336 Ethnology of Central and South	0.0 10				
America (3+0)	3 Credits	Spring			
Racial distribution, material, and social cultures of America. Prerequisite: Anth. 101.	peoples of Central an	a South			
Anth. 342 Anthropology of the Natives	3 Credits	Spring			
of Alaska (3+0) 3 Credits Spring Indians and Eskimos of Alaska. Social organization, social customs, and problems of acculturation. Primarily for students who expect to teach in Alaska. Prerequisites: Anth. 101, Hist. 341 or junior standing.					
Anth. 402 Human Biology $(3+3)$	4 Credits	Fall			
The study of fossil man, evolution and the implications for the development of culture. Prerequisite: Anth. 205 or permission of the instructor.					
Anth. 423 Social Structure (3+0)	3 Credits	Fall			
The social systems of native peoples. Prerequisites: Anth. 101 or 203 or 204 and junior standing.					
Anth. 424 Primitive Religion (3+0)  Descriptive and comparative study of religious belief	3 Credits in native societies.	Spring			
Anth. 425 Primitive Arts (3+0)	3 Credits	Spring			
The visual, literary, and musical arts of native people junior standing.					

Anth. 427 Contemporary Problems (3+0)3 Credits Fall Analysis of the contemporary problems of the native populations, emphasizing the peoples of Alaska. Prerequisite: permission of the instructor. Anth. 428 Psychological Anthropology (3+0)3 Credits The relationship between culture and personal behavior patterns. Prerequisites: Anth. 202, Psy. 101 and junior standing. Anth. 429 Language in Culture (3+0)3 Credits The study of language in its relation to culture. Prerequisites: Anth. 202 and junior standing. 3 Credits Anth. 430 Anthropological Field Methods (3+0)Spring

Lectures to prepare the student for field work and inform him of recently developed techniques of collecting field data. Prerequisites: junior standing and permission of the instructor. Offered as demand warrants.

491 Seminar Anth. Credits Arr. As demand warrants 492 As demand Credits Arr. warrants

Topics in anthropology.

**493** Special Topics Credits Arr. Fall Anth. Credits Arr. Spring

Various subjects studied in special fields on anthropology. Prerequisite: senior standing or permission of the instructor.

Anth. 495 Research Credits Arr. Fall 496 Credits Arr. Spring

Supervised research in the fields of anthropology represented in the department program. Prerequisite: permission of the instructor.

Anth. 497 Thesis of Project Credits Arr. Fall 498 Credits Arr. Spring

Advanced students who have shown special aptitude for individual study or research may elect thesis or project work. Prerequisite: permission of the head of the department

Anth. 601 History of Anthropology (3+0)3 Credits Fall A chronological study of the development of the science of anthropology, stressing

the leaders in the field and the theories developed.

Anth. 610 Human Ecology (3+0)3 Credits The adaptation of man to his environment, both natural and social. The course concerns itself with the total aspect of a society in its internal group relationship, as well as in the natural environment on which its economy is based.

Anth. 630 Anthropological Field Methods Credits Arr. An opportunity for the graduate student to learn the techniques of field work and practice them.

Credits Arr. Fall Anth. 691 Seminar Credits Arr. Spring 692

Topics include physical and social anthropology, comparative archaeology, ethnological theory. Admission by arrangement.

Anth.	693 694	• • • •	Credits Arr. Credits Arr.	Fall Spring	
Various subjects studied, principally by directed study, discussion, and research. Admission by arrangement.					
Anth.	695	Research	Credits Arr.	As demand warrants	
	696		Credits Arr.	As demand warrants	
		research. Credit to be arranged. <i>Prerequisi</i> he instructor. Can be repeated.	tes: graduate stand	ing and per-	
Anth.		Thesis	Credits Arr.	Fall	
Off	698		Credits Arr.	Spring	
Onere	ca as c	lemand warrants.			
ART					
Art	55	Elementary Drawing (0+4)	2 Credits	Fall	
	56		2 Credits	Spring	
Line	drawi	ng, shading, layout, and design.			
Art	57	Elementary Printmaking $(0+4)$	2 Credits	Fall	
	58		2 Credits	Spring	
Block	printi	ng, etching, and engraving.			
Art	59 60	Elementary Metalcraft $(0+4)$	3 Credits 3 Credits	Fall Spring	
Metal		techniques. Designing, annealing, and solo		oping	
			3 Credits	Fall	
*	61 62	Elementary Sculpture (0+6)	3 Credits	Spring	
Clay modeling, stone carving, and woodcarving.					
Art	63	Elementary Oil Painting (0+6)	3 Credits	Fall	
	64		3 Credits	Spring	
Characteristics of pigments, preparation of canvas, layout, and design painting.					
	55   56	Elementary History of World Art $(3+0)$	3 Credits 3 Credits	Fall Spring	
Artistic endeavors throughout the history of Western man.					
Art	105	Freehand Drawing $(0+4)$	2 Credits 2 Credits	Fall Spring	
Pictorial design, life drawing, landscape, drawing, using varied techniques and media.					
	161 162	Design and Color Theory $(1+3)$	2 Credits 2 Credits	Fall Spring	
Creative designing and rendering. Emphasis on mass-space relationships and composition, value transitions and hues, colorwheel, color, and intensity movements.					

Additional study and experimentation in intaglio, relief, and planographic printing techniques, including lithography, serigraphy, and color printing. *Prerequisite: Art 208 or permission of the instructor.* 

Art 309 Intermediate Metalcraft (0+4) 3 Credits Fall 310 Spring

Material processes and techniques for silver jewelry and silver-smithing; creating problems in artistic design. Prerequisite: Art 210 or permission of the instructor.

Art 311 Intermediate Sculpture (0+6) 3 Credits Fall 312 Spring

Creative studies in welding, plaster casting, concrete casting, sand-casting, clay modeling, wood carving, and stone carving. Prerequisite: Art 212 or permission of the instructor.

Fall 313 Intermediate Oil Painting (0+4) 2 Credits Art 2 Credits 314 Spring Creating pictorial problems in oil painting techniques, still life, composition, and figure painting. Prerequisite: Art 214 or permission of the instructor. 407 Advanced Printmaking (0+4)Fall 2 Credits 408 2 Credits Spring Advanced study in all printing media. Prerequisite: Art 308 or permission of the instructor. Art 409 Advanced Metalcraft (0+4) 3 Credits Fall 3 Credits 410 Spring Continued investigation and experimentation of intermediate metalcraft. Prerequisite: Art 310 or permission of the instructor. 411 Advanced Sculpture (0+6) Fall 3 Credits 412 3 Credits Spring Styro-foam burn-out, aluminum, bronze casting, steel welding, repousse sculpture, plastics, inlay, and architectural sculpture. Prerequisite: Art 312 or permission of the instructor. 413 Advanced Oil Painting (0+4) Art 2 Credits Fall 2 Credits Spring Exploration and development of the creative approach to various techniques involved in figure, landscape, abstract and non-objective painting, and pictorial design. Prerequisite: Art 314 or permission of the instructor. 419 History of Northern Renaissance Art (3+0)3 Credits Fall 420 3 Credits Spring Pre-Renaissance painting, sculpture, architecture, and minor arts of the Netherlands through the Netherlandish Renaissance; Renaissance painting in France and Germany; the humanist and reformative influences on artistic developments. **493** Special Topics Credits Arr. Fall Art 494 Credits Arr. Spring Various subjects in art. Admission by arrangement. 691 Art Seminar Credits Arr. As demand Art warrants As demand Credits Arr. 692 warrants Credits Arr. **693** Special Topics Fall Art Credits Arr. Spring Various subjects, principally by directed study, discussion, and research. Credits Arr. Fall Art 695 Research Credits Arr. 696 Spring 697 Thosis Credits Arr. Art Fall 698 Credits Arr. Spring

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#### **BIOLOGY**

Biol. 105 Fundamentals of Biology (3+3) 4 Credits Fall 106 Spring

An introductory course open to students in all curricula.

Fall semester: 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.

Spring semester: plant and animal kingdoms; structure and function of vertebrates and vascular plants.

Prerequisite for Biol. 106: Biol. 105 or permission of the instructor.

Biol. 201 Elements of Vertebrate Anatomy (2+3) 3 Credits Fall Anatomy and histology of the vertebrate body with emphasis on human and other mammals. Prerequisites: Biol. 105, Chem. 101 or 104.

**Biol. 203** Invertebrate Zoology (3+3) 4 Credits Fall Structure, function, classification, evolution, and life histories of invertebrate animals. Several all day field trips. *Prerequisites: Biol. 105 with grade of B or better, or Biol. 105 and sophomore standing.* 

Biol. 206 Introduction to Bird Study (1+3) 2 Credits Spring Natural history and identification of birds. Early morning field trips. No credit allowed if credit received for Biol. 310. Prerequisites: Biol. 105 with a grade of B or better, or Biol. 105 and sophomore standing, or permission of the instructor. Offered alternate years; next offered 1969-70.

**Biol. 208 Organic Evolution** (2+0) 3 Credits Spring Evidences, mechanisms, and directive forces. *Prerequisite: Biol. 105 with a grade B or better, or sophomore standing. Offered alternate years; next offered 1969-70.* 

Biol. 210 General Physiology (3+3) 4 Credits Spring Physiology of organisms at the molecular, cellular, organ, and systems levels. Examples will be drawn from both the plant and animal kingdoms. Prerequisites: Biol. 105 with a grade of B or better, or Biol. 105 and sophomore standing; Chem. 101 or 104.

Biol. 217 Comparative Anatomy of
Vertebrates (2+6) 4 Credits Fal

Anatomy, phylogeny, and evolution of the vertebrates. Prerequisites: Biol. 105 with a grade of B or better, or Biol. 105 and sophomore standing.

Biol. 239 Plant Form and Function (3+3) 4 Credits Fall Structure, function, ecology, and evolutionary patterns of the major groups of plants. Prerequisites: Biol. 105 with a grade of B or better, or Biol. 105 and sophomore standing.

**Biol. 302 Genetics** (3+0) 3 Credits Spring Principles of inheritance in plants and animals; the physico-chemical properties of genetic systems. *Prerequisites: Biol. 105 with a grade of B or better, or Biol. 105 and sophomore standing.* 

Biol. 303 Principles of Ecology (3+0)

3 Credits Fall or Spring

Relationships between organisms and their environments. Communities, environmental factors affecting plants and animals, population structure, and reaction of organisms. Field trips. Prerequisites: Biol. 105 with a grade of B or better, or Biol. 105 and sophomore standing.

Biol. 307 Parasitology (2+3)

3 Credits

Fall

Classification, morphology, life history, and ecology and parasites of animals. Prerequisite: Biol. 105. Offered alternate years; next offered 1969-70.

Biol. 309 Blology of the Vertebrates (3+3)

4 Credits
4 Credits

Fall

Classification, evolution, morphology, ecology, and distribution of the vertebrates. Field trips, including early morning trips in Biol. 310. Prerequisites: for Biol. 309, Biol. 105 and a course in anatomy or permission of the instructor. For Biol. 310, 309 or permission of the instructor.

Biol. 318 Vertebrate Developmental

Anatomy (2+6)

4 Credits

Spring

Morphogenesis of the vertebrates and introduction to the casual analysis of development. *Prerequisite: Biol. 217.* 

Biol. 331 Systematic Botany (2+6)

4 Credits

Fall

Identification, nomenclature, and classification of vascular plants emphasizing taxonomic principles, mechanisms of variation, classical and newer methods of taxonomic research, and characteristics of major plant families. Several all day field trips. Prerequisite: Biol. 239, or permission of the instructor.

Biol. 333 Morphology of the Non-Vascular

Plants (2+3)

3 Credits

Fall

Comparative study of structure, development, phylogenetic trends, and life histories of the major groups of algae, fungi, and bryophytes. *Prerequisite: Biol.* 239. Offered alternate years; next offered 1970-71.

Biol. 334 Morphology and Anatomy of

Vascular Plants (3+3)

4 Credits

Spring

Comparative study of morphology, developmental anatomy, phylogenetic trends, and life histories of the major groups of vascular plants. Prerequisite: Biol. 239. Offered alternate years; next offered 1970-71.

Biol. 341 General Microbiology (2+6)

4 Credits

Fall

342 4 Credits Spring
Morphology, physiology, and ecology of micro-organisms. Isolation, cultivation, and

identification. Disease, sources and modes of infection, sterilization. Micro-organisms in food, soil, and water. Laboratory includes isolation and identification of representative groups of micro-organisms and experiments on their physiological and biochemical characteristics. *Prerequisites: Biol. 105, Chem. 105 or 321, or permission of the instructor.* 

Biol. 401 Medical Technology

30 Credits

Fall

Twelve-month medical technology internship at an affiliated hospital school, including work in clinical chemistry, hematology, microbiology, serology, parasitology, and histologic technique. Prerequisites: senior standing in medical technology curriculum with the prior two semesters having been in residence at the University of Alaska; acceptance by an affiliated school of medical technology.

3 Credits

139

Fall

Chem. 223 or 321 recommended. Biol. 414 Comparative Physiology (3+3)4 Credits Spring Water, ion, and nitrogen balance; temperature regulation; circulatory, muscle, hormone, and nervous systems in the various animal phyla. Prerequisites: Biol. 210, Chem. 102; Chem. 223 or 321 and Biol. 413 recommended. Biol. 416 Plant Physiology (2+3)3 Credits Functions of the vascular plants: plant-soil-water relations; synthesis and metabolism of organic compounds; growth and development. Prerequisites: Biol. 210, Chem 102, Chem 223 or 321 and Biol. 413 recommended. Offered alternate years; next offered 1969-70. Biol. 491 Seminar Credits Arr. Fall 492 Credits Arr. Spring Topics in biological sciences. Biol. 493 Special Topics Credits Arr. Fall Credits Arr. Spring Special fields in biological sciences. Prerequisite: senior standing or permission of the instructor. Offered as demand warrants. Biol. 495 Research Credits Arr. Fall 496 Credits Arr. Spring Guided investigation, either laboratory or field, for qualified seniors. Admission by arrangement. 3 Credits Biol. 608 Parasite Ecology (2+3)Spring Ecology of animal parasites. Prerequisites: Biol. 307 and permission of the instructor. Offered as demand warrants. Fall Biol. 615 History of Biology (1+0)1 Credit The progress of biological thought and philosophy from ancient to modern times. Offered as demand warrants. Biol. 616 Principles and Methods of Taxonomy (2+3)3 Credits Spring Modern taxonomic ideas and their application to zoological and botanical problems. Offered alternate years; next offered 1970-71. Biol. 618 Biogeography (2+0)2 Credits Spring Spatial and temporal geography of plant and animal groups; emphasis on environmental and historical features controlling present patterns of distribution. Offered alternate years; next offered 1969-70. Biol. 624 Plant Ecology (2+3)3 Credits Spring Occurrence, abundance, and productivity of plant species; structure, composition, and variation in time and space of plant communities; related environmental aspects. Current concepts and controversies; methods of analysis. Prerequisites: Biol. 303, 331,

334 or 416; and permission of the instructor. W.M. 325 strongly recommended. Offered

alternate years; next offered 1970-71.

Physical and chemical properties of protoplams; morphology, and function of the cell in relation to the life of the organism. Major topics: passive and active transport, photosynthesis, respiration, enzymes, metabolism. *Prerequisites: Biol.* 210, Chem. 102;

Biol. 413 Cell Physiology (2+3)

3 Credits Fall Biol. 627 Physiological Ecology (2+3)Interaction between organisms and their environment with emphasis on the function of the organism as affected by physical stimuli such as light, heat, water, ions, and biotic stimuli such as competition. Each environmental factor is considered at the molecular, cellular, organismic, population, and community levels. Prerequisites: a physiology course and Biol. 303. Biol. 629 Animal Behavior (3+0)3 Credits Fall Principles of the behavior, causal factors, functional consequences, developmental, and evolutionary histories of behavior patterns. Prerequisites: Biol. 303; 413 or 414 and permission of the instructor. Offered alternate years, next offered 1969-70. Biol. 637 Modern Evolutionary Theory (2+0)2 Credits Fall Contemporary ideas and problems of the mechanics of evolution. Biol. 641 Microbial Physiology (2+3)The principal types of autotrophic and heterotrophic microbial metabolism. Photosynthesis, nitrogen fixation, metabolism of iron and sulfur bacteria. Fermentation, respiration, biosynthetic pathways. Prerequisites: Biol. 341, 342; Chem. 452, or permission of the instructor. Offered as demand warrants. Biol. 652 Marine Ecology (3+0)3 Credits 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. 303, Chem. 212, 322; Geol. 411 or permission of the instructor. Offered alternate years; next offered 1970-71. Biol. 691 Seminar Credits Arr. Fall 692 Credits Arr. Spring Topics in biological sciences. Offered as demand warrants. **Special Topics** Biol. 693 Credits Arr. Fall 694 Credits Arr. Spring Various subjects, including advanced studies in ecology, evolution, taxonomy, biogeography, physiology, animal behavior, etc. Admission by arrangement. Biol. 695 Rosearch Fall

Biol. 695 Research Credits Arr. Fall
696 Credits Arr. Spring

Investigation, either field or laboratory, of a problem of lesser scope than the thesis, or supplementary to the thesis. Admission by arrangement.

Biol. 697 Thesis Credits Arr. Fall
698 Credits Arr. Spring

Admission by arrangement.

#### **BUSINESS ADMINISTRATION**

B.A. 165 Business Administration for Technicians

3-4 Credits Fall or Spring

166

A survey of core areas of business administration with particular emphasis upon organization and operation of small and middle-scale businesses. Business law, personal finance, manufacturing, marketing and finance at the introductory level. An intro-

duction to business enterprise for non-business majors. Prerequisites: Associate degree or freshman standing, except that credit may not be counted toward the four-year degrees in business and economics.

B.A. 325 Financial Management

3 Credits Fall or Spring

Intensive analysis of the methods of financial planning and control, asset management, and other functions performed by the financial executive.

B.A. 331 Business Law (3+0) 332 3 Credits Fall 3 Credits Spring

Survey of the legal aspects of business problems; basic principles, institutions, and administration of law.

Fall semester: contracts, agency, employment, negotiable instruments, personal property sales.

Spring semester: insurance, suretyship, partnerships, corporations, real property, trusts, wills, bankruptcy, torts, and business crimes.

Prerequisite: junior standing.

**B.A. 343** Marketing (3+0)

3 Credits

Fall

Fundamental problems; simulation exercises; interrelations of marketing with other business activities; conceptual and quantitative sciences in marketing. *Prerequisite: Econ.* 121, 122.

**B.A.** 359 Regulation of Industry (3+0) 3 Credits Fall or Spring Effects of government regulation, economic policy, and executive policy on private and public enterprise.

**B.A. 360 Production Management** (3+0) 3 Credits Spring Basic manufacturing management. Survey of models and representative problems including scheduling machine set-up, plant layout, capital budgeting, and production control. *Prerequisite: junior standing*.

**B.A. 361 Industrial Relations** (3+0) 3 Credits Fall or Spring Personnel practice in industry; analysis of labor-management problems; methods and administrations of recruiting, selecting, training and compensating employees; labor laws and their applications. *Prerequisite: B.A. 360.* 

B.A. 371 Business Data Processing

3 Credits

Fall

An introductory analysis of computer based management information systems. Required for all business administration majors.

B.A. 372 Business Simulation

3 Credits

Spring

Realistic exercises in management decision-making using computer simulated models. Required for all business administration majors. *Prerequisite: B.A. 371 (or equivalent programing background) and juntor standing.* 

**B.A.** 423 Investment Management (3+0) 3 Credits Fall or Spring Management securities, portfolios of individuals and institutions; basic security analysis; investment policies of banks, insurance companies, investment companies, and fiduciaries.

**B.A.** 424 Managerial Economics (3+0) 3 Credits Spring 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.* 324.

B.A. 442 Marketing Institutions and

Channels (3+0)

3 Credits

Spring

Analysis of industry and firm operations as marketing institutions; evolution of distribution channels; and contemporary marketing problems.

B.A. 443 Marketing Theory and Analysis

of Market Change (3+0)

3 Credits Fall or Spring

Factors influencing behavior of consumer and business units; behavior change. The construction and use of mathematical models in marketing; application of digital computers in marketing system analysis and control. Prerequisites: B.A. 343, completion of behavioral science requirements, and statistics.

**B.A.** 462 Administrative Policy (3+0)

3 Credits

Spring

Organization role in a dynamic society; decision problems in varying social, economic, and political environments.

**B.A.** 480 Organization Theory (3+0)

3 Credits Fall or Spring

Literature of organizational theory; emphasis on theoretical concepts, social science research techniques and organizational behavior. Prerequisites: junior standing, completion of behavioral science requirements, or permission of the instructor.

B.A. 493 Special Topics

Credits Arr. Credits Arr.

Fall Spring

494

B.A. 648 Mathematical Method and Computers Workshop (3+0)

3 Credits Fall or Spring

Selected topics in the use of mathematical models, econometric techniques, and computers in marketing; individual research projects. *Prerequisite: permission of the instructor.* 

**B.A.** 690 Seminar in Finance (3+0)

3 Credits

Spring

Survey of financial institutions and markets with emphasis upon theory and practice of central banking and actual operation of monetary policy. Current problems in finance. Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head.

B.A. 691 Seminar in Marketing (3+0)

3 Credits

Fall

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.** 692 Seminar in Production (3+0)

3 Credits Fall or Spring

A survey of conceptual framework and selected mathematical models applicable in production management. A review of classical problems in simplex method, waiting line theory, monte carlo analysis, queing theory. Selected current problems and topics. Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head.

B.A. 693 Special Topics

Credits Arr.

Fall

694

Credits Arr.

Spring

B.A. 696 Orientation to Research (3+0)

3 Credits

Spring

Review of statistical tools representative of the field quantitative analysis in business and economics. Survey of selected research methods in social sciences. Graduate topics in managerial economics, including advanced statistical methods, Bayesian statistics and their interpretation. Preparation and organization of the thesis, Current problems. Prerequisites: post-graduate or graduate standing. Approval of graduate student's advisory committee or the department head. Normally taken the last semester prior to the thesis requirement.

B.A. 697 Thesis 698

Credits Arr. Credits Arr.

Fall Spring

CHEMISTRY

101 General Chemistry (3+3)Chem.

4 Credits

Fall

102 General Chemistry & Introductory Qual. Analysis (3+3)

4 Credits

Spring

General chemistry and introductory qualitative analysis with one hour per week of recitation in addition to three hours of lecture and three hours of laboratory per week. Fall semester: general principles, chemistry of the non-metals. Spring semester: chemistry of the metals and qualitative analysis.

Chem. 103 Introductory Chemico-

Physical Science (3+0)

3 or 4 Credits

Fall

104

or (3+3)

3 or 4 Credits

Spring

Descriptive course in chemico-physical science. Either semester may be taken separately. One three-hour laboratory period may be elected but must be concurrent with lecture program.

Chem. 201 General and Quantitative

Chemistry (3+3)

4 Credits

Fall

202

4 Credits

Spring

Classical principles of chemistry, atomic structures, and the periodic table; molecular structure, the states of matter. For students in engineering. Prerequisites: Math. 200, high school chemistry or Chem. 104, Chem. 101 recommended.

212 Introductory Quantitative Chem.

Analysis (2+6)

4 Credits

Spring

General principles of chemical analysis; introduction to volumetric and gravimetric methods. Theory, problems, and laboratory. Prerequisites: Chem. 102 or 202, Math. 106 or equivalent.

223 Introductory Organic

Chemistry (3+3)

4 Credits

Fall

For students in curricula requiring a one-semester terminal course in organic chemistry. Prerequisite: Chem. 102 or 202.

Chem. 321 Organic Chemistry (3+3) 4 Credits

Fall

322

4 Credits

Spring

Organic chemistry; preparation and properties of simple aliphatic and aromatic compounds. For chemistry, chemical engineering, premedical, biochemistry, science, etc. Prerequisite: Chem. 102 or 202 for Chem. 321; Chem. 321 for Chem. 322.

Chem. 331 Physical Chemistry (3+0)

3 Credits Fall and Spring 3 Credits Fall and Spring

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: for Chem. 331, Chem. 102 or 202; Math. 200, 201, 202; Phys. 103, 104 or 211, 212 or permission of the instactor. For Chem. 332, Chem. 331.

Chem. 333 Physical Chemistry Lab (0+3)

1 Credit Fall and Spring 1 Credit Fall and Spring

Fall semester: three states of matter, principles of heat and thermodynamics, and applications; solutions, colloids.

Spring semester: thermochemistry, second and third laws of thermodynamics, equilibria, chemical kinetics, electrical phenomena, atomic structure, molecular structure, photochemistry. Prerequisites: Chem. 333 and Chem. 334 are to be taken concurrently with Chem. 331 and Chem. 332, respectively.

Chem. 362 Scientific Glassworking (0+3) 1 Credit Spring Construction of scientific glassware. Prerequisite: junior standing in chemistry or permission of the instructor. Offered alternate years, next offered 1970-71.

Chem. 402 Advanced Inorganic Chem. I (3+0) 3 Credits Spring Systematic application of the theories of atomic structure and chemical bonding to the elements as they appear in the Periodic System. Prerequisites: Chem. 331, 333 with Chem. 332, 334 at least corequisite.

Chem. 416 Instrumental Chemical Analysis (2+6) 4 Credits Spring Introduction to modern physical methods of analysis. Prerequisites: Chem. 212, 331, 333 and Chem. 332, 334 at least corequisite.

Chem. 421 Advanced Organic Chemistry (3+0) 3 Credits Fall Emphasis on the theoretical interpretation of structure and reactions. Prerequisites: Chem. 321, 322, 331, 332. Offered in alternate years; next offered in 1970-71.

Chem. 425 Organic Qualitative Analysis (1+6) 3 Credits Fall Identification of pure organic compounds and mixtures. Prerequisite: Chem. 322. Offered as demand warrants.

Chom. 431 Advanced Physical Chemistry I (3+0) 3 Credits Fall Nuclear and atomic structure, spectroscopy, homogeneous reaction kinetics, photochemistry, solid state. *Prerequisites: Chem. 331*, 332, 333, 334.

Chem. 451 General Biochemistry 4 Credits Fall 452 4 Credits Spring

General principles of biochemistry. Chemistry and metabolism of carbohydrates, lipids, and proteins together with a consideration of enzymes, vitamins, hormones, and other biocatalysts; chemistry and physiology of living tissues, blood, and urine. Prerequisites: Chem. 321, 322, and a familiarity with thermodynamics and reaction kinetics, and permission of the instructor.

Chem. 491 Seminar (1+0) 492 0 or 1 Credit Fall 0 or 1 Credit Spring

Discussion of current literature.



Chem. 493 Special Topics 494 Credits Arr.

Fall Spring

Various subjects studied including advanced organic chemistry, advanced physical chemistry, advanced analytical chemistry, history and literature of chemistry, industrial chemistry, instrumental analysis, chemistry of radioactivity and isotopes, petroleum chemistry spectroscopy. Prerequisites: junior standing and three semesters (or 12 credits) of college chemistry with grade of C or better.

Chem. 495 Research

Credits Arr. Credits Arr. Fall Spring

Introduction to research at the undergraduate level. Admission is by permission of the department head.

Chem. 602 Advanced Inorganic Chemistry II

3 Credits

Spring

Advanced topics in inorganic chemistry. Prerequisite: Chem. 402.

Chem. 612 Advanced Analytical Chemistry 3 Credits Spring Emphasis on the theoretical interpretation of structure and reactions. *Prerequisites: Chem.* 212, 416, 331, 332, 333, 334. Offered as demand warrants.

Chem. 622 Advanced Organic Chemistry II 3 Credits Spring Modern interpretations of organic chemical reactions based on structure, kinetics, and energetics. Prerequisites: Chem. 321, 322, 331, 332, 421. Offered in alternate years; next offered in 1970-71.

Chem. 632 Advanced Physical Chemistry II 3 Credits Spring Advanced topics in physical chemistry not considered in Chem. 431.

Chem. 633 Spectroscopy and Molecular Structure 3 Credits Fall Introduction to the rotational, vibrational, and electronic spectra of polyatomic molecules. Prerequisite: Chem. 332.

Chem. 651 Selected Topics in Biochemistry (2+0) 2 Credits Fall 652 2 Credits Spring

Topic areas: vitamins and hormones, carbohydrates, physical biochemistry, nucleic acids, lipids, enzymes, protein chemistry; intermediary metabolism, oxidate enzyme systems, pathways of metabolism, biochemistry of the cell nucleus, etc. *Prerequisite:* one year of biochemistry or one year of organic chemistry or permission of the instructor.

Chem. 661 Chemical Oceanography I (3+0) 3 Credits Fall or Spring (Same as OCN 661)

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. 663 Chemical Oceanography II (3+0) 3 Credits Fall or Spring (Same as OCN 663)

Selected topics in chemical oceanography, including stable isotope chemistry; chemical equilibria; chemistry of marine biota and their products; interaction of sediments and water; material exchange through sea air interface; marine photosynthesis and special topics of marine biochemistry; chemical technology as applied to oceanography; raw materials and industrial utilization. Prerequisite: Chem. 661, or permission of the instructor. Offered in alternate years.

665 Cellular Biochemistry (2+0)2 Credits Fall or Spring Chemistry structure and metabolism of microorganisms including growth kinetics and entergetics, transport and control processes. Prerequisite: Chem. 452 or equivalent. Offered in alternate years. Fall Chem. **691** Sominar (1+0)1 Credit 692 1 Credit Spring Reviews of current research. Chem. **693** Special Topics Credits Arr. Fall 694 Credits Arr. Spring Various subjects, including kinetics, thermodynamics, statistical mechanics, photochemistry, colloid chemistry, nuclear chemistry, etc. Chem. 695 Rosoarch Credits Arr. Fall 696 Credits Arr. Spring Research which is not directly connected with thesis work. Admission by arrangement and permission of the department head. 697 Thesis Chem. Credits Arr. Fall 698 Credits Arr. Spring CIVIL ENGINEERING 3 Credits C.E. 112 Elementary Surveying (2+3)Spring Use of transit, level and plane table, traverses, stadia, circular curves, elementary theory of measurement. 116 Mapping (2+3)3 Credits Maps and scales, projections, U.S. Public Land System, aerial photos with special applications to forestry and wildlife management. Plane tables, compasses, stadia, levels, transits, traverses. Intended primarily for students in wildlife management. Prerequisite: junior standing or permission of the instructor. Offered in alternate years, 1969, 1971, 1973. 334 Properties of Materials (1+6)3 Credits Introduction to the properties of engineering materials. Bonding, crystal, and amorphous structures. Relationships between microstructure and engineering properties. Modification of properties and environmental serviceability. Prerequisite: E.S. 331. 2 Credits 344 Hydrology (2+0)Spring Relationship between precipitation and runoff. Infiltration, evaporation, aufeis, permafrost. Flood hydrographs and unit hydrographs. Flood routing. Statistical analyses. Prerequisite: E.S. 341.

C.E. 402 Transportation Engineering (2+0) 2 Credits Spring Administration, economics, location, design, construction and maintenance of highways, railways, airports and other transportation facilities. *Prerequisite: C.E.* 435.

C.E. 412 Elements of Photogrammetry (2+3) 3 Credits Spring Elementary study of aerial and terrestrial photographs as applied to surveying and mapping. Prerequisite: permission of the instructor.

C.E. 415 Surveying (1+6) 3 Credits Fall Traverses, curves, field astronomy, state coordinate systems, adjustments. Prerequisite: C.E. 422 Foundation Engineering (2+0)2 Credits Spring Principles of foundation action, spread footings, mats, pile foundations, retaining walls and bulkheads, bridge piers, cofferdams and abutments. Prerequisite: C.E. 435. 431 Structural Analysis (3+3) Spring Statically determinate structures. Loadings, Graphical and analytical solutions for stresses and deflections. Indeterminate structures. Influence lines. Prerequisite: E.S. 331. 432 Structural Dosign (3+3) 4 Credits Spring Planning of structural systems, detail connections. Reinforced concrete. Introduction to ultimate load theory. Prestressing. Composite action. Prerequisite: C.E. 431. 435 Soil Mechanics (2+3)3 Credits Fall Identification, description, and physical properties of soils. Subsurface exploration, frost action. Entire soil mass surveyed for effect on substructure design. Prerequisite: E.S. 331. C.E. 441 Sanitary Engineering (3+0)3 Credits Theory of works for conservation, collection, treatment, and distribution of water for domestic and industrial use, and theory of wastewater treatment and disposal. Prerequisite: C.E. 334 or permission of the instructor. C.E. 491 Seminar Credits Arr. Fall or Spring 493 Credits Arr. Fall **Speical Topics** Credits Arr. 494 Spring C.E. 499 Advanced Engineering Problems (1+0)2 Credits Fall  $(2\ 0)$ General problems drawn from science and engineering. This course is preparation for registration in Professional Engineer-in-Training. 3 Credits Fall C.E. 603 Arctic Engineering (3+0)Application of engineering fundamentals or problems of advancing civilization in polar regions. Logistics, foundations on frozen ground and ice, thermal aspects of structures and materials; transport and communications; heating and ventilating. Transportation Engineering (3+0)3 Credits 612 3 Credits Land, air, and marine transportation, facilities, design, utilization, planning, and administration. C.E. 615 Transportation Design (1+6)3 Credits Primarily a laboratory course in pavement and embankment design. 618 Transportation Planning (arrange) Future design problems with special emphasis on mass transit and mode interconnection. C.E. 620 Civil Engineering Construction (3+0)Fall Construction equipment and methods, construction management and accounting,

construction estimates and costs. Prerequisites: E.S. 450 or equivalent and graduate

standing.

3 Credits Fall C.E. 631 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 Advanced Structural Design (2+3) 3 Credits Spring 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. 631. C.E. 644 Hydraulic Engineering (2+3)3 Credits Spring Study and design of hydraulic power projects, structures, and machines; reclamation and drainage; canals and reservoirs. Prerequisite: E.S. 341. 645 Advanced Sanitary Engineering (3+0) 3 Credits Fall 3 Credits Spring Continuation of C.E. 441; emphasizes polar problems involving water supply, sanitation, waste disposal, water and air pollution abatement. C.E. 649 City and Regional Planning (3+0)3 Credits Fall or Spring Elements of city and regional planning for engineers. Demography, land use, physical planning techniques. C.E. 670 Waves and Tides (2+1)3 Credits (Same as OCE 670) Generation and propagation of waves at sea, theory of waves, wave spectra and forecasting, observation and recording of ocean waves, tsunamis, tides, internal waves. C.E. 674 Environmental Hydrodynamics (2+1)3 Credits (Same as OCE 674) 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. C.E. 676 Coastal Engineering (2+1)3 Credits (Same as OCE 676) · Review of deep and shallow water waves, littoral drift, coastal structures, pollution problems, harbor seiches. Prerequisite: C.E. 670. 691 Graduate Seminar (1+0)1 Credit C.E. Fall 692 1 Credit Spring Reports and papers on engineering topics. Practice in public speaking. Prerequisite: permission of the instructor. C.E. 693 Special Topics Credits Arr. Fall 694 Credits Arr. Spring Various subjects. Prerequisite: permission of the instructor. C.E. 697 Thesis Credits Arranged Fall Credits Arranged Spring

#### **ECONOMICS**

Econ. 121 Principles of Economics 1 (3+0) 3 Credits Fall Introduction to economics; analysis and theory of national income; money and banking; public finance and taxation; economic systems.

Individual study or research for students of special aptitude.

149

Econ. 122 Principles of Economics II (3+0) 3 Credits Spring Theory of prices and markets; income distribution; contemporary problems of labor, agriculture, public utilities, international economic relations.

Econ. 221 Interprotation of Economic and
Business Data

3 Credits Fall

Problems in economics and business translated into statistical terms. Organizing of data; identifying of populations and their parameters; sample selection and use of sample data; linear correlations; time series analysis; index numbers. *Prerequisite: Math. 122 or Math. 106.* 

Econ. 232 Economic History of the

United States (3+0)

3 Credits Spring

History of the U.S. economy with special emphasis on the process of economic growth.

Econ. 321 Price and Allocation Theory (3+0) 3 Credits

Fall

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 Income and Employment (3+0) 3 Credits Spring Concepts and measurement of income; analysis of aggregate demand and supply, and their relation to prices, employment and growth.

**Econ. 337 Economic Development** (3+0) 3 Credits Fall or Spring Theories of growth and development; problems of economic development illustrated with case studies; analysis of major policy issues. *Prerequisites: Econ. 321; 324 or 350; or permission of the instructor. Offered as demand warrants.* 

Econ. 350 Monetary Economics (3+0) 3 Credits Spring Sources and uses of money and credit in modern society; regulation of money and credit and their impact on the economic welfare of the United States. *Prerequisites: Econ.* 121, 122, 232.

Econ. 351 Public Finance and Taxation (3+0) 3 Credits Fall or Spring Government taxation, borrowing and spending; economic effects of taxation; influence of fiscal policy on economic activity. Prerequisites: Econ. 121, 122. Offered in alternate years.

Econ. 420 Labor Economics (3+0) 3 Credits Spring Labor market analysis; employment and unemployment, wage rates, structure and composition of the labor force; economic aspects of unionism, labor legislation, social insurance. *Prerequisites: Econ. 121, 122, 232.* 

Econ. 423 Comparative Economies (3+0) 3 Credits Fall Contrasts structure, institutions, and dynamics of selected private enterprise, collectivist, and underdeveloped economies. Prerequisites: Econ. 321; 324, or Econ. 350; or permission of the instructor.

Econ. 425 History of Economic Thought (3+0) 3 Credits Fall or Spring Economic thought from the physiocrats to the present, classical and neoclassical theory, exponents and critics; contemporary development in economic theory. Prerequisites: Econ. 121, 122 and three credits of upper division courses in economic or other social sciences. Offered as demand warrants.

429 Business Fluctuations (3+0)3 Credits Fall Analysis of fluctuations in economic activity; theories of business fluctuation; methods of control and forecasting. Prerequisites: Econ. 221, 321, 324, 350; or permission of the instructor. Econ. 435 Economics of Resources (3+0) 3 Credits Fall Concepts of resources; interaction among resources, industrialization and economic development; theories and problems of conservation; emphasis on Alaska. Prerequisites: Econ. 121, 122; or permission of the instructor. 463 International Economics (3+0)Econ. 3 Credits Fall Pure theory of international trade; comparative cost, terms of trade, and factor movements. International disequilibrium; balance of payments and its impacts on national economy, capital movement, economic development through international trade. Prerequisites: Econ, 321, 324 or 350; or permission of the instructor. Credits Arr. Fall Econ. 493 **Special Topics** 494 Credits Arr. Spring 495 Research Credits Arr. Fall Econ. 496 Credits Arr. Spring Readings and research on individually assigned topics; formal paper required on assigned topic. 691 Credits Arr. Fall Econ. Seminar in Economic Theory 692 Credits Arr. Spring Econ. 693 **Special Topics** Credits Arr. Fall 694 Credits Arr. Spring 695 Seminar in Economic Research 1-3 Credits Fall Econ. 1-3 Credits 696 Spring Methods of economic research used in analyzing specific, assigned topics. Discussion of problems encountered, results obtained. Report and formal paper required. Prerequisites: graduate standing and permission of the instructor. **EDUCATION** Ed. 301 Social Studies for

Elementary Teachers (3+0)

3 Credits Fall

Methods and materials adaptable to modern curriculum in elementary social studies. Prerequisites: Ed. 313 and prerequisites thereto.

Ed. 302 Language Arts for

Elementary Teachers (3+0)

3 Credits Spring

Definition; role of language in children's learning; specific language skills to be taught in grades one through eight; methods and materials for effective teaching; organization for instruction; all aspects of the language arts, except reading. Prerequisites: Ed. 313 and prerequisites thereto.

304 Literature for Children (3+0)3 Credits 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. Prerequisite: Psy. 351 or permission of the instructor.

Ed. 306 Teaching of Science in

Elementary Schools (3+0)

Fall

Modern concepts, methods and materials of teaching science. Prerequisites: Ed. 313 and prerequisites thereto.

Ed. 307 Teaching of Arithmetic (2+0) 2 Credits Spring Present day concepts, methods and materials. Prerequisites: Math. 121, Ed. 313 and prerequisites thereto. In-service teachers may substitute Math. 345 for the mathematics prerequisites.

Ed. 308 Physical Education for the Elementary

School (2+3)

3 Credits

3 Credits

Spring

(Same as P.E. 308)

Philosophy, source materials, games, rhythmics, group activities and program planning; participation required to gain skills and techniques of teaching activities for elementary grade children. *Prerequisites: Ed. 313 and prerequisites thereto*.

Ed. 309 Elementary School Music Methods (3+0) 3 Credits Fall or Spring (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 Audio Visual Methods and Materials (3+2)3 Credits Spring Selection and use of audio visual materials in teaching and learning at all levels of education. Prerequisites: Ed. 313 and prerequisites thereto.

Ed. 313 Educational Psychology (3+0) 3 Credits Fall and Spring Application of principles of psychology to classroom teaching and learning. *Prerequisites: Psy. 101, 351 or 352.* 

Ed. 323 Small Schools (2+0)

2 Credits

As demand warrants

Basic for students planning to teach in small schools; special problems in organization and methods; small schools in Alaska serve as the focal point for discussion and instruction. *Prerequisites: Ed. 313 and prerequisites thereto.* 

Ed. 332 Tests and Measurements (3+0) 3 Credits Fall and Spring 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. Not open to students having credit in Psy. 373. Prerequisites: Ed. 313 and prerequisites thereto.

Ed. 345 Sociology of Education (3+0)

3 Credits

Fall

(Same as Soc. 345)

Impact of culture of schools. Examination of contemporary social trends and relationships among church, school, government, and family. Prerequisite: Soc. 101.

Ed. 348 History of Education in the

United States (3+0)

3 Credits

Spring

Development of American education as a facet of social and intellectual history. Prerequisites: Hist. 131, 132. Ed. 402 Methods of Teaching (3+0)

3 Credits Fall and Spring

Principles and methods of teaching management, routine, daily programs, etc. Pre-requisites: 100 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 404 Methods of Teaching Foreign Languages (3+0)

3 Credits

As demand warrants

Discussion of the particular problems related to the teaching of foreign languages in the secondary schools, evaluation of teaching aids, audio-visual equipment and the language laboratory, and methods such as "grammar-translation," "direct," "audio-lingual"; recent research on the subject. Prerequisites: 100 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 405 Methods of Teaching Music (3+0)

3 Credits

As demand warrants

(Same as Mus. 405)

Methods and problems of teaching music in junior and senior high schools, with emphasis on the general music program. Prerequisites: 100 collegiate credits, Ed. 332 and prerequisites thereto, and Mus. 232, or permission of the instructor.

Ed. 406 Mothods of Teaching

Physical Education (3+0)

3 Credits

As demand warrants

Selection of materials and presentation methods for secondary school physical education. Prerequisites: 100 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 407 Methods of Teaching Home

Economics (3+0)

3 Credits

As demand warrants

Problems and methods in selecting and organizing materials for instruction; comparison and evaluation of methods, laboratory techniques, supplies, equipment; economy of time and materials. Admission by arrangement. Prerequisites: 100 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 408 Methods of Teaching Business

Education (3+0)

3 Credits

As demand warrants

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 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 409 The Teaching of Reading (3+0)

3 Credits

Fall

Importance and nature of reading. Specific steps involved in the teaching of reading, word analysis, comprehension, interpretation, reading rate; new developments in reading instruction emphasizing appropriate materials. *Prerequisites: Ed. 313 and prerequisites thereto.* 

Ed. 421 Secondary Education (3+0)

3 Credits

Fall

Development of a working concept of secondary education in the U.S., its history, objectives, curriculum, organization, practices, and consideration of current issues. *Prerequisites: Ed. 313 and prerequisites thereto.* 

**422** Philosophy of Education (3+0)Ed.

3 Credits

Fall

Basic philosophic concepts and their historical development; philosophy applied to education and related issues and problems; examinations of contributions of outstanding educators. Prerequisite: Phil. 101.

Ed. 426 Principles and Practices of Guidance (3+0)

3 Credits

Fall

Introduction to the philosophies; organization, patterns, tools, and techniques that aid teachers and guidance personnel in preparing students for responsible decisionmaking in modern society. Prerequisites: Ed. 332 and prerequisites thereto.

Ed. 446 Public School Organization, Control,

and Support (3+0)

3 Credits

As demand warrants

Fundamentals of public school organization, control, and support. Relation of federal, state, and local agencies. Problems incident to public school organization, control, and support in Alaska. Prerequisite: senior standing in education. Not open to students who took Ed. 442, 542 before it was abolished.

Ed. 452 Student Teaching (0+18) 6 Credits Fall and Spring

Supervised teaching in elementary of secondary schools of Fairbanks or in a school approved by the Department of Education. The department may limit registration, determine assignments, prescribe the number of teaching hours required, and cancel the registration of students doing unsatisfactory work. Prerequisite: see page 88 for requirements for admission to student teaching. May be taken concurrently with Ed. 402.

Ed. 461 Research Credits Arr.

As demand warrants

On approval of the head of the Education Department, fourth year students who show outstanding ability for individual study in education may undertake research during their final year.

480 Education of Culturally Different Ed.

Youth (3+0)

3 Credits

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. Seminar Credits Arr.

As demand warrants

492

Credits Arr.

As demand

warrants

Current topics in education. Prerequisite: permission of the head of the department.

**493** Special Topics Ed.

Credits Arr.

Fall

494

Credits Arr.

Spring

Various subjects; principally directed study, discussion, and research.

## Ed. 601 Master of Arts in Teaching

Seminar I (2+0)

1 or 2 Credits

Fall

Expectations, concerns, and questions regarding elementary and secondary classroom teaching today. Prerequisite: admission to Master of Arts in Teaching program or permission of the instructor.

#### Ed. 602 Master of Arts in Teaching

Seminar II (2+0)

1 or 2 Credits

Spring

Selected major trends, problems, and issues in elementary and secondary education and the profession of elementary and secondary teaching. Prerequisites: admission to Master of Arts in Teaching program and Master of Arts in Teaching Seminar I or permission of the instructor.

#### Ed. 604 Diagnosis and Correction of Reading

Deficiencies (3+0)

3 Credits

As demand warrants

Nature of the reading process; emphasis on psychology involved in teaching reading difficulties; testing programs to ascertain specific disabilities in readiness, vocabulary, word-attack, comprehension, speed, and accuracy; specific suggestions for their correction; newer approaches to teaching reading. *Prerequisites: Ed. 409 and experience in the teaching of reading.* 

### Ed. 608 The Improvement of Elementary

Teaching (3+0)

3 Credits

As demand warrants

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.

#### Ed. 620 Curriculum Development (3 0)

3 Credits

As demand warrants

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. 623 Principles of Individual

Counseling (3+0)

3 Credits

As demand warrants

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, Psy. 338 or 406 and permission of the instructor.

#### Ed. 624 Group Counseling (3+0)

3 Credits

As demand warrants

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. 627 Education Research (3+0)

3 Credits

3 Credits

3 Credits

Fall

155

Techniques on education research; selection of topics and problems, data gathering, interpretation and preparation of reports. *Prerequisite: graduate standing in education*.

Ed. 628 Analysis of the Individual (3+0)

As demand warrants

Means of acquiring data pertinent to the individual. Interpreting data and formulating case reports conducive to greater understanding. *Prerequisite: Ed. 426.* 

Ed. 629 Individual Tosts of Intelligence (3+0)

As demand warrants

Individual intelligence tests with emphasis on the Revised Stanford-Binet Intelligence Scale and the Wechsler Intelligence Scales. *Prerequisites: Ed. 332 and permission of the instructor.* 

Ed. 630 Laboratory in Individual Tests of Intelligence (0+9)

3 Credits

As demand warrants

Provides laboratory experience in administration of the Revised Stanford-Binet Intelligence Scale or the Wechsler Intelligence Scales. *Prerequisites: Ed. 629 and permission of the instructor.* 

Ed. 631 Advanced Educational Psychology:

Developmental (3+0)

3 Credits

As demand warrants

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 Occupational Information (3+0)

3 Credits

As demand warrants

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.

Ed. 633 Organization, Administration, and Supervision of Guidance (2+0) 2 C

2 Credits

As demand warrants

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. 428*.

Ed. 634 Counseling Practicum (1+4)

3 Credits

Arr.

Provides supervised field experience, including preparatory activities in an educational setting. Prerequisites: approval of head of education department; Ed. 426, 623, Psy. 338 or 406, Psy. 373.

Ed. 636 Advanced Public School Administration:

Cases and Concepts (2+0)

2 Credits

As demand warrants

Case study approach to public school administration; identification and analysis of basic issues and problems; identification of pertinent data and possible solutions. Prerequisite: first course in public school administration.

Ed. 637 Public School Administration (3+0)

3 Credits

As demand warrants

Responsibility pertaining to the organization of a school and the direction of personnel. Functions of instructional leadership. Public school administration as a career. Problems incident to public school administration in Alaska. Prerequisites: Ed. 446 and graduate standing in education.

Ed. 638 Supervision and Improvement of

Instruction (3+0)

3 Credits

As demand warrants

Development, purpose, organization of supervisory programs; special attention to current in-service education programs.

Ed. 639 Public School Finance (3+0)

3 Credits

As demand warrants

Contemporary basis for raising and distributing federal, state and local education funds; problems of school financing in Alaska. Prerequisite: open only to advanced students in education.

Ed. 641 School Law (2+0)

2 Credits

As demand warrants

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. 691 Education Seminar

Credits Arr.

As demand

692

Credits Arr.

warrants As demand

warrants

Current topics in education. Maximum credit allowed toward advanced degrees: four credits. Admission by arrangement.

Ed. 693 Special Topics 694

Credits Arr.
Credits Arr.

Fall,

Various subjects, principally by directed study, discussion, and research. Admission by arrangement. Prerequisite: Ed. 627 when taken as independent project in lieu of thesis.

Ed. 695 Research Education

Credits Arr.

Fall

696 Credits Arr. Spring Independent project in lieu of thesis. Admission by arrangement. Prerequisite: Ed. 627.

Ed. 697 Thesis

Credits Arr.

Fall

978

Cre

Credits Arr.

Spring

Offered as demand warrants. Prerequisite: Ed. 627.

#### **ELECTRICAL ENGINEERING**

E.E.	102	Introduction to	<b>Electrical</b>
		Engineering	(0+6)

2 Credits

Fall

Basic modern devices, concepts, technical skills, and instruments of electrical engineering introduced through construction projects. Enrollment limited. *Prerequisite:* registration in electrical engineering or permission of the instructor.

E.E. 203 Electrical Engineering Fundamentals

4 Credits

Fall

**204** (3+3)

4 Credits

Spring

Analysis of alternating-current circuits using complex notation and phasor diagrams; resonance; transformers; Fourier analysis; the complex frequency plane; three-phase circuits. *Prerequisite: Math. 200.* 

E.E. 313 Elements of Electrical Engineering

3 Credits

Fall

**314** (2+3)

3 Credits

Spring

Primarily for students of civil, mining, mechanical, and chemical engineering. Circuits, machines, electronics, instrumentation. *Prerequisite: Phys.* 212.

E.E. 323 Electrical Engineering Lab t (0+3)

1 Credit

Fall

324

1 Credit

Spring

Laboratory problems emphasizing measurement techniques, laboratory procedures, and operating principles of basic instruments. Laboratory exercises basically in circuits, electronics, and control. Semester design problems. Corequisites: E.E. 333, 334, 353, 372 or permission of the instructor.

E.E. 333 Electronics (3+0)

3 Credits

Fall

Precise description of electronic functional units; properties of basic circuits; electronic systems; use of the computer in system design. *Prerequisite: E.E. 204.* 

E.E. 334 Electronic Circuit Design (3+0)

3 Credits

Sorina

Analysis of the common circuits used in computation, control, and communications; stability considerations; worst case design of functional units. *Prerequisite: E.E.* 333.

E.E. 353 Circuit Theory (3+0)

3 Credits

Fall

Transient analysis by Laplace transform, state variable, and Fourier methods; filter networks, computer aided analysis. *Prerequisite: E.E. 204.* 

E.E. 372 Feedback and Control Systems (3+0)

3 Credits

Spring

Theory and practice of automatic control systems; signal flow graphs, system modeling; stability criterion; Bode, Nyquist, Nichols, root locus analysis; introduction to Z-transform. Prerequisites: E.E. 353, Math. 302 or permission of the instructor.

E.E. 403 Electrical Power Engineering I (3+3)

4 Credits

Fall

Characteristics and applications of electric motors, generators and transformers; multiphase circuit applications; transients, fault currents, and system stability; power systems. *Prerequisites: E.E. 372*, 334.

E.E. 404 Electrical Power Engineering II (3+3) 4 Credits

Spring

Topics in generation, power system operation and management, and distribution which include selection of energy source, plant layout and construction, rate structures, customer relations, and power regulation and relaying. *Prerequisite: E.E. 403*.

E.E. 432 Fields, Lines, and Antennas (3+3) 4 Credits Spring Use of Maxwell's equations in the analysis of waveguides, cavity resonators, and transmission lines; retarded potentials; antennas for radio and microwave frequencies. Prerequisites: Math. 302, Phys. 331.

E.E. 442 Digital Computers (4+0) 4 Credits Fall Design functioning of digital computers; system organization, programming, computer arithmetic, combinational and sequential circuits, methods of control, electronic circuitry. Prerequisite: junior standing in electrical engineering, mathematics or physics, or permission of the instructor.

E.E. 462 Communication Systems (3+3) 4 Credits Fall Theory and practice of communications systems; essentials of information theory; operation and maintenance of typical equipment. Prerequisite: credit or registration in E.E. 334, 432.

E.E. 474 Instrumentation and Measurement 3 Credits Fall Instrumentation theory and concepts; devices, transducers; data sensing, transmission, recording, display, instrumentation systems; remote sensing; hostile environmental conditions. *Prerequisites: E.S.* 207, E.E. 314, or permission of the instructor.

**E.E.** 476 Instrumentation Lab (0+3) 1 Credit Fall Primarily for students not familiar with operation of electronic instruments. Operation, accuracy, utility of electronic instruments and transducers. Corequisite: E.E. 474.

E.E. 484 Design of Electrical Systems (1+6) 3 Credits Spring The design process; class will design a simple system with attention to capability, reliability, cost. *Prerequisite: junior standing.* 

reliability, cost. Prerequisite: junior standing.

E.E. 491 Seminar (1+0) 1 Credit Fall

Current topics. Students will have an opportunity to present papers. Prerequisite: senior standing in electrical engineering.

E.E. 493 Special Topics Credits Arr. Fall Credits Arr. Spring

Various subjects studied.

492

**E.E.** 635 Advanced Electronic Circuit Design (3+0) 3 Credits Fall Low noise, low level design; networks for extraction of signals from noise; environmental design; signal conditioning networks. *Prerequisite: E.E.* 334 or permission of the instructor.

**E.E.** 662 Communication Theory (3+0) 3 Credits Spring 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: Math.* 302.

## E.E. 672 Underwater Acoustics

3 Credits

1 Credit

Spring

(Same as OCE 672)

Nature of sound, units and standards, sound-related characteristics of sea water, transmission and transmission losses, effect and discontinuities, reverberation, measurement techniques.

E.E.	674	Instrumentation System	s (3+0)	3 Credits	Spring
dolog	zy; cos			strumentation systems; tes ions; environmental hazar	
E.E.	676	Instrumentation Lab II	(0+3)	1 Credit	Spring
Build	ling ar	nd testing systems design	ed in E.E. 6	74 (Fee \$20) Corequisite: i	E.E. 674.
E.E.	691	Seminar		Credits Arranged	Fall
E.E.	692			Credits Arranged	Spring
Current topics at an advanced level. Presentation of student papers.					
E.E.	693	Special Topics		Credits Arr.	Fall
	694			Credits Arr.	Spring
E.E.	697	Thesis		Credits Arr.	Fall
	698				Spring

#### **ELECTRONICS TECHNOLOGY**

Individual study and research.

- E.T. 50 **General Science of Modern Electronics** 2 Credits Fall-Spring A comprehensive treatment of the development of electronics in our modern world. This course includes a study of power supplies, electron tubes, amplifiers, electron tube oscillators, transistors, servosystems, radio, radar, and sonar. Not open to students in electronics technology programs.
- 51 DC Circuits (5+12) 4 Credits Fall-Spring The first course in electricity for electronics technicians. Basic physics, electrical terms and units, meters and their use, resistance, Ohms' law, simple circuits, magnetie fundamentals, batteries, Kirchoff's laws, DC circuit analysis, inductance, capacitance.
- E.T. AC Circuits (5+12)4 Credits Principles of alternating current, vectors, phase relationships, inductive and capacitative reactance and impedance, AC circuit analysis, series and parallel resonant circuits, transformers, Thevenin's equivalent circuit.
- Fall-Spring E.T. Electronics Practice (0+12)3 Credits Electronic drawings, soldering, electrical connections, use of hand tools, preparation for license examinations, layout and assembly of audio-frequency equipment, operation transmitters and receivers, troubleshooting, practical aspects of electronics.
- E.T. 59 Mathematics for Electronics (5+3)5 Credits Fall-Spring Review of arithmetic. Selected topics in algebra, trigonometry, slide-rule computation, graphs, analytical geometry, waveform analysis, decibel calculations, applications to electronics. Prerequisite: high school mathematics.
- Tubes and Semiconductors (3+6)4 Credits Spring-Summer Vacuum tubes, semiconductors, transistors. Fundamentals, construction, characteristics, parameters, specifications. Prerequisites: E.T. 51, 52, 59.

E.T. 62 Electronic Circuits I (4+3) 3 Credits Spring-Summer Power supplies, basic amplifiers, loud speakers, microphones and pickups, basic oscillators. *Prerequisites: E.T. 51*, 52, 59.

E.T. 63 Electronic Systems I (3+3) 4 Credits Spring-Summer The radio transmitter, transmission, reception, and detection of radio waves, antennas and transmission lines; the radio receiver; special receiver circuits; frequency modulated transmitters and receiver; transistor applications; single side-band and communications. *Prerequisites: E.T. 51*, 52, 59.

**E.T.** 66 Electronic Practice II (0+12) 3 Credits Spring-Summer Layout and assembly of radio-frequency equipment, practical aspects of electronics, alignment and repair procedures, practical experience in electronics, use of test equipment, preparation for license examinations. *Prerequisite:* E.T. 55

E.T. 71 Electronic Circuits II 5 Credits Summer-Fall 72 Electronic Circuits III (10+12) 4 Credits Summer-Fall

75 Microwave Electronics 4 Credits Summer-Fall

Nonsinusoidal waveshapes, multivibrators, blocking and shock-excited oscillators, wave-shaping, circuits, limiters, clampers, counters, sweep-generator circuits, special power supplies, systems, transistor applications, television transmitters, and receivers. Microwaves; microwave oscillators, transmitters, duplexers, antennas, amplifiers, mixers, receivers, multiplexing. *Prerequisites: E.T. 61, 62, 63.* 

- **E.T.** 78 Solid State Electronics (3+9) 4 Credits Summer-Fall Basic solid state theory and application including laboratory work in the following areas: methods of circuit analysis, circuit aspects of field effect transistors, integrated circuits, and silicon controlled rectifiers. *Prerequisites: E.T.* 61, 62, 63.
- E.T. 81 Telemetry (3+6) 3 Credits Fall-Spring Telemetry techniques including signal conditioning, frequency division telemetry, data sampling, pulse amplitude modulation, pulse duration modulation, pulse code modulated telemetry, subcarrier discriminators. PAM/PDM decommutation, and real time monitoring. Prerequisites: E.T. 71, 72, 75, 78.
- E.T. 84 Digital Computer Theory and Application (3+9) 5 Credits Fall-Spring Theory, organization, functioning and maintenance of large digital computer systems. Prerequisites: E.T. 72, 75, 78.

E.T. 91 Semiconductor Theory and Application. 5 Credits Spring Physics review, semiconductors, physical action of transistors, the transistor as a circuit element, small signal amplifiers, power amplifiers, cascade amplifiers, bias equations and bias stability, feedback noise, transistor oscillators, negative impedance devices, digital switching circuits, high frequency description of transistors, circuit aspects of field effect transistors. Prerequisite: permission of the instructor.

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#### **ELECTRONICS TECHNOLOGY PROGRAM**

#### E-M.T. 73 Mechanics I (3+9)

5 Credits

Study of the mechanical elements and mechanical systems used in data processing equipment. The functional principles of the mechanics will be studied. The characteristics of mechanical systems are analyzed and related to application requirements. Mechanics studied include power input, power transmission devices, inductors, calculators, feeders, punches, accumulators, and printers. Emphasis is placed on the maintenance of the above.

E-M.T. 74 Storage Principles (2+6)

4 Credits

Theory and field application of industrial and geophysical electro-mechanical storage devices.

#### E-M.T. 76 Electro-Mechanical Industrial

Control Devices (3+6)

4 Credits

An introduction to the theory and application and transducer sensor devices, continuous-balance strip-chart recorders, magnetic amplifiers, analog computers, synchrocontrol systems, and gas-tube switching and timing circuits. Introduction to automatic-control principles.

E-M.T. 79 Fluid Power Systems (2+6)

4 Credits

Hydraulics and fluid mechanics with mathematical equations to solve some of the common problems of application.

E-M.T. 85 Mechanics II (3+9)

5 Credits

Continuation of Mechanics I.

E-M.T. 86 Vacuum Technique Processes (2+6) 3 Credits

Vacuum systems maintenance, leak detection, low-pressure measurements of gas flow, special low-pressure techniques, and vacuum evaporation systems.

#### ENGINEERING MANAGEMENT

#### E.M. 401 Construction Cost Estimating and

Bid Preparation (3+0)

Credits Arr.

Fall

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. May be offered for graduate credit.

**E.M.** 605 Advanced Engineering Economy (3+0) 3 Credits

Fall

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.M. 611 Engineering Management (3+0)

3 Credits

Fall

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.M. 612 Engineering Management (3+0) 3 Credits Spring 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.M. 605, 611.* 

**E.M.** 613 Engineering Management (3+0) 3 Credits Spring 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.M.	691 692	Seminar	Credits Arr. Credits Arr.	Fall Spring

# E.M. 693 Special Topics Credits Arr. Fall Credits Arr. Spring

#### **ENGINEERING SCIENCE**

lems.

E.S. 101 Graphics (0+6) 2 Credits Fall 102 2 Credits Spring

Fall semester: orthographic projection, pictorial drawing, sketching, lettering, geometric construction. Charts, graphs, and diagrams.

Spring semester: descriptive geometry; graphic solution of three dimensional prob-

E.S. 111 Engineering Science (2+3)

3 Credits

Fall

Engineering problems solving with emphasis on the statics, kinematics, and dynamics of engineering systems. Conservation laws, fluid mechanics, and heat. *Prerequisite: credit or registration in Math. 106.* 

E.S. 122 Engineering Design (1+6) 3 Credits Spring Student engineering companies will design useful new devices and in so doing practice the techniques of creative engineering; study of need, design, and testing; cost and market analysis; scheduling, budgeting, and organization; written and oral pres-

entation. Prerequisite: E.S. 111 or permission of the instructor.

- E.S. 207 Measurements (2+3) 3 Credits Fall Theory of measurement, precision, dispersion, distribution of error; with practice problems taken from various fields of engineering. *Prerequisite: E.S. 111*.
- **E.S.** 208 Mechanics (3+3) 4 Credits Spring Statics, kinematics, dynamics. Both classical and vector methods are used. Graphical solutions, work and energy, impulse and momentum, virtual work. *Prerequisites: E.S.* 111, Math. 200.

331 Mechanics of Materials (2+3)3 Credits Fall Stress-strain relationships, shear and moment diagrams, design of beams, columns, rivet, bolt, and weld connections, indeterminate beams. Prerequisites: E.S. 208, Math. 201. 4 Credits Fall E.S. 341 Fluid Mechanics (3+3)Statics and dynamics of fluids. Basic equations of hydrodynamics, dimensional analysis, simple hydraulic machinery. Prerequisites: E.S. 208, Math. 201. 346 Basic Thermodynamics (3+0)Spring Systems, properties, processes, and cycles. Fundamental principles of thermodynamics (first and second laws), elementary applications. Prerequisites: Math. 202, Phys. 212. 450 Engineering Management and E.S. 3 Credits Operations (3+0)Spring Fundamentals of engineering economy; contracts, specifications, legal and ethical principles, management. Prerequisite: senior standing or permission of the instructor. **Engineering Seminar** Credits Arr. Fall or Spring 492 Credits Arr. Fall or Spring Oral and written exposition on current engineering topics. **ENGLISH** Elementary English (3+0)0 Credit Fall-Spring For students inadequately prepared for Engl. 101. Intensive practice in written and oral comprehension. Frequent writing assignments. Engl. 3 Laboratory in Usage (1+2-4)0 Credit Fall or Spring **Developmental and Oral** Engl. 57 **English** (0+9-18)Credits Arr. Fall Credits Arr. Engl. 58 Spring Individual and group tutoring in oral and written English for foreign students and others with special language problems. May be taken for a total of 12 credits. Fall Engl. 67 **Elementary Exposition** 3 Credits 68 3 Credits Spring Training in oral and written communication. Composition and Modes of

Literature (3+0)Fall or Spring 3 Credits 102 Fall or Spring Intensive instruction in orderly thought, clear expression and analysis of creative lit-

3 Credits

erature. Engl. 201 Masterpieces of World Literature (3+0)3 Credits Fall-Spring

202 3 Credits Fall-Spring

Masterworks of literature, studies to acquire a broad background and develop standards of literary judgment. Prerequisites: Engl. 101, 102.

213 Advanced Exposition  $(1+\frac{1}{2})$ 3 Credits Fall or Spring Clarity and vigor in written communication of facts and ideas. Principles of style and methods of exposition. Students write for individual weekly conferences. Prerequisite: Engl. 102.

EDITORS NOTE: EXCEPT WHERE OTHERWISE INDICATED, PREF QUISITES FOR 300 AND 400 LEVEL COURSES ARE ENGL. 201 AND 202, O PERMISSION OF THE INSTRUCTOR.	RE- OR
Engl. 314 Rosearch Writing (3+0) 3 Credits Spri	ing
Organizing reports, documenting research, language and style in scholarly articl Papers in students' fields prepared for conference and class. <i>Prerequisite: Engl. 2 or permission of the instructor.</i>	
Engl. 318 Modern Grammar (3+0) 3 Credits Spri	ing
The linguistic approaches to the study of grammar with emphasis on structural a transformational (generative) grammars. Recommended for all students majoring elementary education and for all students with a teaching major or minor in English	in
Engl. 321 The Renaissance (3+0) 3 Credits F	all
Poetry and prose of the sixteenth century. Next offered in 1970-71.	
Engl. 322 Neoclassical Age (3+0) 3 Credits Spri	ng
Poetry and prose from John Dryden through Samuel Johnson. Next offered	in
1970-71.	
Engl. 323 Romantic Period (3+0) 3 Credits F	all
Poetry and prose from the late 1700's to 1830. Next offered 1969-70.	
Engl. 324 Victorian Period (3+0) 3 Credits Spri	ing
Poetry and non-fictional prose, 1830-190z. Next offered 1969-70.	
	'ali
2.3.	
A survey of American literary productions — history, sermons, theology, journal diaries, autobiography, poetry, fiction, and drama — from the earliest days of coldialization to ca. 1800.	us, on-
Engl. 328 19th Contury American Prose and Poetry (3+0) 3 Credits Spri	ing
A survey of American literature and related criticism from Bryant and Poe throu	
Robinson and James, including some major novels.	· 6
Engl. 336 20th Century American Prose (3+0) 1-3 Credits Fall or Spri	ing
The major fiction of Lewis, Fitzgerald, Hemingway, Faulkner, and Steinbeck.	_
Engl. 337 20th Century American Poetry (3+0) 3 Credits F	'all
The poetry of Whitman, Dickinson, Robinson, Frost, Stevens, Roethke, and othe Next offered 1969-70.	ers.
Engl. 341 20th Century British Literature (3+0) 3 Credits	all
Major achievements of modern British poetry and prose. Next offered 1969-70.	
Engl. 342 20th Contury Drama (3+0) 3 Credits Spri	ing
From Chekhov to Ionesco, the major dramatists and their achievements. <i>Next offer</i> 1969-70.	red
Engl. 352 The British Novel to 1900 (3+0) 3 Credits Spri	ina
•	mg.
Origin and development of the novel with concentration on Richardson, Fieldin Austen, E. Bronte, Dickens, Conrad, and Hardy. Next offered 1969-70.	_
Austen, E. Bronte, Dickens, Conrad, and Hardy. Next offered 1969-70.	_

An intensive study of the forms and techniques used by poets.

Engl. 382 Craft of Fiction (3+0) 3 Credits Spring An intensive study of the forms and techniques used by prose writers. 383 Craft of Drama (3+0) 3 Credits Fall or Spring An intensive study of the forms and techniques used by dramatists. A close analysis of criticism from Aristotle to Bertolt Brecht. Engl. 413 Old and Middle English 3 Credits Fall Literature (3+0) Old English literature in translation; representative Middle English texts exclusive of Chaucer. Next offered 1970-71. 421 Chaucer 3 Credits Fall Chaucer's poetry, with emphasis on The Canterbury Tales. 423 Elizabethan and Jacobean Drama (3+0) 3 Credits Fall Major plays of Elizabethan and Jacobean dramatists. 424 Shakespeare (3+0) 3 Credits Spring Major works, emphasis on the later plays and review of Shakespearian criticism. 426 Milton (3+0) 3 Credits Spring The poetry, selected prose, and survey of the criticism of Milton. 431 Creative Writers Workshop (3+0) 1-3 Credits Fall 432 1-3 Credits Spring Writing fiction and poetry. Critique of student productions. 443 Greek and Roman Literature (3+0) 3 Credits Fall Greek and Roman literature in English translation. Next offered 1969-70. 444 European Literature (3+0) 3 Credits Fall or Spring Studies in major European writers and periods. Next offered 1969-70. 472 History of English Language (3+0) 3 Credits Spring Origin and development of the English language; modern syntax and usage. 493 Special Topics (3+0) 3 Credits Fall 494 3 Credits Spring Various subjects in American, British, and comparative literature. 600 Teaching College English (3+0) 3 Credits Fall A survey of theories of literature, bibliographical studies, and methods of teaching English in the college or university. Required of all entering graduate students in English. 3 Credits Fall Engl. 605 Studies in Drama (3+0) 610 Studies in Fiction (3+0)3 Credits Engl. Spring Engl. 615 Studies in Poetry (3+0) 3 Credits Fall 620 3 Credits Engl. Studies in Criticism (3+0) Spring Engl. 625 Studies in Middle English Literature (3+0) 3 Credits Fall 630 Studies in Literature of the Engl. English Renaissance (3+0) 3 Credits Spring Engl. 635 Studies in 17th Century English Literature (3+0) 3 Credits Fall

standing.

Engl.	640	Studies in 18th Century English			
		Literature (3+0)	3 Credits	Spring	
Engl.	645	Studies in the Literature of the British Romantic Period (3+0)	3 Credits	Fall	
Engl.	650	Studies in the Literature of the Victorian Period $(3+0)$	3 Credits	Spring	
Engl.	655	Studies in 20th Century British Literature (3+0)	3 Credits	Fall	
Engl.	660	Studies in 20th Century American Literature (3+0)	3 Credits	Spring	
Engl.	665	Studies in 19th Century American Literature (3+0)	3 Credits	Fall	
Engl.	670	Studies in Comparative Literature $(3+0)$	3 Credits	Spring	
Engl.	691 692	Seminar	Credits Arr. Credits Arr.	Fall Spring	
Variou	s topic	cs. Admission by arrangement.			
Engl.	693 694	Special Topics	Credits Arr. Credits Arr.	Fall Spring	
Engl.	695 696	Research	Credits Arr. Credits Arr.	Fall Spring	
Engl.	697 698	Thesis	Credits Arr. Credits Arr.	Fall Spring	
WRITE	r's wo	ORKSHOP			
Engl.	675	Writing Drama	Credits Arr.	Fall or Spring	
Engl.	681	Writing Fiction	Credits Arr.	Fall or Spring	
Engl.	685	Writing Verse	Credits Arr.	Fall or Spring	
ENVI	RON	MENTAL HEALTH ENGINEERING			
E.H.E.	401	Environmental Health Engineering Measurements $(2+3)$	3 Credits	Fall	
Theory and laboratory procedures for determining safety of water supplies, natural water quality, pollution loads, and treatment plant parameters. Prerequisite: registration in C.E. 441.					
E.H.E.	601	Water Quality Control (2+0)	2 Credits	Spring	
Stream and estuarine analysis, limnology of streams and lakes, ocean disposal systems, and waste management in relation to the ultimate disposal of waste products discharged into them. <i>Prerequisites: Biol. 341, E.H.E. 606.</i>					
		Advanced Water Treatment $(3+0)$	3 Credits	Fall	
The theory of chemical coagulation, precipitation, ion exchange, corrosion and stabilization, filtration, and disinfection. Deviations from theory caused by the Arctic climate, and/or natural waters of the north will be emphasized. <i>Prerequisite: graduate standing</i> .					

E.H.E. 606 Advanced Waste Treatment (3+0)

3 Credits

Fall

The physical, chemical and biological methods utilized for waste treatment. Domestic and industrial wastes common to Arctic and sub-Arctic areas will be studied from the unit process approach. Units for individual and small populations. Prerequisite: registration in Biol. 341.

E.H.E. 608 Environmental Health Unit

Processes (0+6)

2 Credits

Spring

A laboratory course in which processes studied in theory will be examined by laboratory and field studies. Experiments in sedimentation — floatation, coagulation, ion exchange, activated-sludge kinetics, steam analysis, and advanced laboratory techniques. Prerequisites: E.H.E. 605, 606 and registration in E.H.E. 601.

E.H.E. 610 Arctic Environmental Health

Engineering Design (1+3)

2 Credits

Spring

Application of environmental engineering principles to the design of those facilities in Arctic and sub-Arctic areas. Designs in water supply, treatment, and distribution, waste collection and disposal systems, and refuse handling and disposal. Prerequisite: registration in E.H.E. 608.

E.H.E. 691 Seminar 692

Credits Arr. Credits Arr. Fall

E.H.E. 693 **Special Topics** 

Credits Arr.

Spring Fall

Credits Arr.

Spring

Various subjects including: air pollution, solid wastes, tertiary treatment, radiological health, industrial wastes, aquatic biology, etc. Prerequisite: permission of the instruc-

E.H.E. 697 Thesis 698

Credits Arr.

Fall Spring

Credits Arr.

#### **ESKIMO**

See Linguistics.

#### FRENCH

Fren.	101	<b>Elementary French</b>	(5+0)

5 Credits

Fall

5 Credits

Spring

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.

105 Elementary French (3+0)Fren.

3 Credits

Fall

106 107

3 Credits 3 Credits

Spring Spring

Same course content as Fren. 101 and 102 but with the year sequence divided into three courses rather than two. Course not offered on main campus at College.

3 Credits

108 French for Reading Ability (3+0)Spring Rapid acquisition of reading knowledge with attention to needs in specialized fields. Credit not applicable toward degree language requirements. Offered as demand war-

rants.

201 Intermediate French (3+0) 3 Credits

Fall

Fren. 202

3 Credits

Continuation of Fren. 102. Increasing emphasis on reading ability and cultural material. Conducted in French. Prerequisite: Fren. 102 or two years of high school French.

Fall 203 Composition and Conversation (2+0)2 Credits 204 2 Credits Spring Supplements Fren. 201 or 202, stressing written and oral practice. Conducted in French. Concurrent enrollment in Fren. 201 or 202 recommended. Prerequisite: Fren. 102 or equivalent. 301 Advanced French (3+0)3 Credits Fren. 302 3 Credits Spring 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 1970-71. Fren. 321 Studies in French Literature (3+0)3 Credits Fall 322 3 Credits Spring Choice of authors, genres, or periods of French literature for intensive study. Conducted in French. Prerequisite: Fren. 202 or equivalent. Students may repeat course for credit when topic varies. Next offered 1969-70. 323 Survey of French Literature (3+0)3 Credits Fall Fren. 324 3 Credits Spring Reading of texts representative of literary currents, genres, authors, epochs. Conducted in French. Prerequisite: Fren. 202. Concurrent or previous enrollment in Fren. 301 or 302 recommended. Next offered 1971-72. 404 Advanced Syntax and Fren. 3 Credits Oral Expression (3+0)Spring Continuation of Fren. 301 or 302. Analysis of difficult aspects of syntax and phonetics and practice in speaking and writing. Conducted in French. Next offered 1969-70. 439 Literature of the Classical Ago (3+0)3 Credits Fall Close study of outstanding literary works of different genres. Conducted in French. Next offered 1969-70. 452 The French Novel of the **20th Century** (3+0) 3 Credits Spring Representative novelists and their works. Conducted in French. Next offered 1969-70. 493 Credits Arr. Fren. Special Topics Fall Credits Arr. Spring Various subjects for advanced students. Admission by arrangement. Offered as demand warrants. Fren. 608 History of the French Language (3+0) 3 Credits Spring Study of the historical evolution of French, supplemented by an analysis of documentary texts from the main literary periods. Conducted in French. Offered as demand warrants. 635 The Renaissance (3+0)Fren. 3 Credits Fall Analysis of outstanding literary works and, in general, of texts representative of the main literary forces prevalent during the 16th century. Conducted in French. Offered as demand warrants.

A critical study of a variety of texts, philosophical as well as literary. Conducted in

3 Credits

Fall

641 The Age of Enlightenment (3+0)

French. Offered as demand warrants.

3 Credits

3 Credits

3 Credits

Fall or Spring

Fall or Spring

Fall or Spring

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Fren.		The 19th Century Novel (3+0)	3 Credits	Spring
		novels ranging from Romanticism to Natulemand warrants.	ralism. Conduc	ted in French.
Fren.	691	Seminar	Credits Arr.	Fall
	692		Credits Arr.	Spring
Variou	s topi	cs. Offered as demand warrants.		
Fren.	693	Special Topics	Credits Arr.	Fall
	694	•	Credits Arr.	Spring
Fren.	695	Research	Credits Arr.	Fall
	696		Credits Arr.	Spring
Fren.	697	Thesis	Credits Arr.	Fall
	698		Credits Arr.	Spring
GEO	GRAF	PHY		
Geog.	101	Introductory Geography (3+0)	3 Credits	Fall
		ns; an analysis of environment.		
	•	World Economic Geography (3+0)	3 Credits	Fall or Spring
Study of the world's major economic activities: pastoralism, agriculture, fishing, forestry, mining, manufacturing, transportation and trade, and their significance in inter-regional and international development.				
Geog.	201	Elements of Physical Geography $(3+0)$	3 Credits	Fall
Description of physical environment and introduction to techniques of geographic analysis. <i>Prerequisite: Geog. 101</i> .				
Geog.	202	Geography of United States and		
		Canada	3 Credits	Spring
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 the significance of Anglo-America in current world economic and political geography.				
Geog.	302	Geography of Alaska $(3+0)$	3 Credits	Spring
Regional geography of Alaska. Prerequisite: Geog. 201, or permission of the instructor.				

A description and analysis of the resources, landforms, vegetation, and climate of Asiatic Russia with emphasis on that part adjacent to Alaska. Admission by arrange-

Graphic techniques for presenting geographic data through the construction of maps,

Regional geography of Asia, exclusive of the Soviet Union. A study of the physical framework, natural resources, peoples, major economic activities, and the characteristic landscape forms, patterns, and associations of the major regions of Japan, China, Southeast Asia, India-Pakistan, and the Asiatic countries of the Middle East.

Geog. 307 Physical Geography of Asiatic Russia

projections, and charts. Admission by arrangement.

Prerequisite: junior standing or permission of the instructor.

Geog. 309 Cartography (1+6)

Geog. 311 Geography of Asia (3+0)

ment.

Geog. 316 Pleistocene Environment (3+0) 3 Credits Spring Principles of paleogeography and their application to the environments of late Ice Age and Post-glacial times. Prerequisite: Geog. 201 or permission of the instructor.

Geog. 327 Cold Lands (5+0) 3 Credits Fall

Goog. 327 Cold Lands (5+0)

3 Credits

Fall

Climate, natural resources, and man's adjustment to environment in cold lands. Prerequisite: Anth. 101 or permission of the instructor.

Goog. 401 Worston and Climate. (2+0)

3 Credits

Fall or Spring

Geog. 401 Weather and Climate (3+0) 3 Credits Fall or Spring Introduction to the study of weather and classification of climates. *Prerequisite: Geog.* 201.

Geog. 402 Man and Nature (3+0) 3 Credits Spring Detailed analysis of the interrelationships of man and environment with particular emphasis on the Arctic. Admission by arrangement.

Geog. 491 Seminar Credits Arr. Fall
492 Credits Arr. Spring

Selected topics in geography. Admission by arrangement.

Goog. 493 Special Topics Credits Arr. Fall
494 Credits Arr. Spring

Various subjects studied. Admission by arrangement.

structure sections. Prerequisites: Geol. 101 or 111.

#### **GEOLOGY**

Geol. 101 General Geology (3+3) 4 Credits Fall Introduction to physical geology; a study of the earth, its materials, and the processes that effect changes upon and within it. Laboratory training in the use of topographic

maps and the recognition of common rocks and minerals.

Geol. 102 Historical Geology (3+3) 4 Credits Spring Summary of the history of the earth from the earliest stages to the present; sequence of geologic events and succession of life forms. Laboratory work includes the reconstruction of geologic history of various regions through the use of geologic maps and

Geol. 104 Elements of Geology (3+0) 3 Credits Evening A non-laboratory introduction to physical and historical geology; the earth, its origin, processes that affect it, sequence of events in its evolution and succession of life on it; appreciation of the modern landscape. Not acceptable toward a degree in geology or fulfilling a laboratory science requirement.

Geol. 111 Physical Geology (3+3) 4 Credits Fall Study of earth materials with emphasis on hand specimen classification; introduction to earth structures and processes. (Field trips). Prerequisite: science and engineering majors, or permission of the instructor.

Geol. 213 Mineralogy (2+6) 4 Credits Fall 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: Math 106, 200. Chem. 101, 102.

Geol. 214 Optical Mineralogy (2+3) 3 Credits Spring Theory and application of optical methods as applied to identification of minerals and rocks. Introduction to the use of the petrographic microscope and familiarization with the optical characteristics of common rock forming minerals. *Prerequisites: Geol.* 111, 213.

Geol. 304 Geomorphology (3+0) 3 Credits Fall Study of landforms and the processes which create and modify them. *Prerequisite: Geol. 102.* 

Geol. 314 Structural Geology (2+3) 3 Credits Spring Origin and interpretation of primary and secondary geologic structures. Graphical solution of structural problems. (Field trips.) Prerequisite: Geol. 111 or 101 by permission of the instructor, recommended Geol. 102, Phys. 103, or admission by arrangement.

Geol. 315 Petrology (3+6) 5 Credits Fall Mineralogy and chemical composition, genesis and identification of igneous, metamorphic and sedimentary rocks. Laboratory work is based on study of paired hand specimens and thin sections. *Prerequisites: Geol. 213, 214.* 

Gool. 321 Principles of Sedimentation (2+3) 3 Credits Fall Sources of materials, sedimentary and diagenetic processes, classification. *Prerequisite: Geol.* 213.

Geol. 351 Field Geology 8 Credits Summer Practical experience in the procedures employed in collecting and presenting the basic data obtained from the field. Includes field mapping on topographic maps, aerial photographs, plane tables 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. Prerequisite: junior standing in geology.

Geol. 362 Engineering Geology (3+0) 3 Credits Spring 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. *Prerequisites: Geol. 111, 314.* 

Geol. 401 Invertebrate Paleontology (3+3) 4 Credits Fall Paleontological theory and practice. Systematic study of fossil invertebrates. Prerequisites: Geol. 111 or 101 by permission of the instructor, Biol. 305 recommended.

Geol. 402 Stratigraphic Paleontology (3+3) 4 Credits Spring Principles of biostratigraphy, history of development of the Geologic Time Scale, and methods of correlation. Laboratory studies on invertebrate faunal assemblages. *Prerequisites: Geol.* 401.

Gool. 404 Economic Goology (2+3) 3 Credits Spring The application of geology to the exploration, valuation, and exploitation of mineral deposits. Prerequisites: Geol. 213, 214, 314, or permission of the instructor.

Geol. 408 Map and Air Photo Interpretation (1+6) 3 Credits Spring Use of topographic maps, geologic maps, and aerial photographs in the analysis of geologic structures and landforms. *Prerequisite: Geol.* 304.

Geol. 411 General Oceanography (3+0) 3 Credits Fall Description of the oceans and ocean processes; inter-relationship of disciplinary sciences to the field; historical facts of oceanography, modern developments and trends in the field. Prerequisites: senior or graduate standing in a disciplinary science, mathematics, or engineering.

Geol. 413 Vertebrate Paleontology (2+3) 3 Credits Fall Systematic study of the fossil vertebrate with emphasis on evolution, morphology, and ecology. (Field trips.) Prerequisite: Geol. 102.

Geol. 416 Introduction to Geochemistry (3+0) 3 Credits Spring Introduction to chemistry of the earth. *Prerequisites: Chem. 101, 102.* 

Geol. 421 Principles of Seismology (3+0) 3 Credits Fall Historical introduction, observational seismology, seismometry, simple elastic wave propagation. Admission by arrangement.

Geol. 424 Ground-water Hydrology (3+0) 3 Credits Spring Occurrence and distribution of ground water; geologic controls over its quality and amount of yield; methods of exploration and development. Prerequisites: Geol. 111 or 101 by permission of the instructor, Geol. 314.

Geol. 462 Glacial and Pleistocene Geology (3+0) 3 Credits Spring Study of the geologic effects of glaciation and other environmental modifications resulting from Pleistocene climatic changes. Chronology of the Pleistocene Epoch and techniques used in its reconstruction. *Prerequisite: Geol. 304.* 

Geol. 491 Seminar in Geology Credits Arr. Fall
492 Credits Arr. Fall

Various subjects studies. Admission by arrangement.

#### Geol. 493 Special Topics — Problems in Various Fields of Geology

Fields of Geology Credits Arr. Fall
494 Credits Arr. Spring

Geology problems of the student's choice approved by instructor. Transportation expenses met by student. No more than three credits allowed per semester. Admission by arrangement.

Geol. 605 Glaciology I (2+3)

3 Credits

Fall

Phase relations between solid, liquid, and vapor states; supercooling, nucleation, and freezing of water in all environments: lakes, rivers, oceans, atmosphere, soil, rock, and plant and animal tissue. Diagenetic processes in snow cover, densification of snow to glacier ice. Laboratory and field work. Admission by arrangement.

Geol. 606 Glaciology II (2+3) 3 Credits Spring Physical properties of ice from various environments including seasonam and perennially frozen ground. Claciers, distribution, classification, heat and temperature relations and glacier flow. Claciation-alpine and continental. Laboratory and field work. Admission by arrangement.

Geol. 608 Pleistocene Environments (3+0) 3 Credits Fall Physical and biological aspects of Pleistocene climatic changes and related events. Faculty panel representing geology, geography, biology, anthropology, and soil science. Admission by arrangement.

Geol. 610 Theories of Ore Deposition (3+0)

3 Credits

Fall

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Theories pertaining to the origin, concentration, transport, and deposition of ore elements. Prerequisites: Geol. 404, 416 or permission of the instructor. Offered in alternate years; next offered 1969-70.

Geol. 613 Marine Geology (3+0)

3 Credits

Spring (On demand)

Survey of marine geology, structure of ocean basins and continental margins, chemical and physical properties of marine sediments, geological processes in the oceans. Prerequisites: senior or graduate standing in geology or appropriate inter-disciplinary programs, or by permission of the instructor.

Geol. 622 Advanced Metamorphic Petrology (2+6) 4 Credits

Fall

Prerequisites: Geol. 314, 315. Offered in alternate years; next offered 1969-70.

Geol. 623 Advanced Petrology of the

Intrusive Igneous Rocks (2+2)

Fall

Geochemistry and petrology of igneous rocks which have crystallized at various depths in the earth's crust or mantle.

Geol. 624 Advanced Petrology of the

Volcanic Rocks (2+6)

4 Credits

Spring

Prerequisites: Geol. 314, 315. Offered in alternate years; next offered 1970-71.

Geol. 627 Geotectonics (3+0)

3 Credits

4 Credits

Spring

Large scale structural features, time and place in orogenesis, theories of orogenesis. Prerequisite: Geol. 314. Offered in alternate years; next offered 1970-71.

Geol. 628 Structural Petrology (2+3)

3 Credits Spring

Structural petrology, mechanisms of folding, theoretical basis for mechanical behavior of rocks. Prerequisites: Geol. 314, 315. Offered in alternate years; next offered 1969-70.

Geol. 629 Crystal Chemistry (3+0)

3 Credits

Spring

This course deals with the crystal chemistry of minerals. The course will include: a discussion of chemical bonding in solids, calculation of lattice energies, a systematic discussion of the various crystallo-chemical groups, classification of phase transformation in solids, defect crystals, an introductory treatment of the band theory of solids. Prerequisites: physical chemistry, Geol. 416 or permission of the instructor.

Geol. 630 Phase Equilibria of Oxide Systems (2+0) 2 Credits

Fall

This course will treat the phase equilibria of important unary, binary, ternary, and quaternary oxide systems. A portion of the course will be devoted to a discussion of the heterogeneous equilibria of oxide systems under conditions of varying partial pressure of oxygen. The course will conclude with a general treatment of p-t-x systems. Prerequisites: physical chemistry, Geol. 416 or permission of the instructor.

Geol. 631 Marine Geochemistry (3+0)

3 Credits

Fall (On demand)

Study of chemistry of elements in lithosphere, atmosphere, and hydrosphere with emphasis on the marine environment, and importance of glaciers in geochemical prochemical processes. *Prerequisites: Geol. 416; Chem. 332; Phys. 212; Math. 202; or permission of the instructor.* 

Geol. 632 Thermodynamics of Geologic

Systems (3+0)

3 Credits

Spring

Demonstrates the use of thermodynamic calculations based upon experimental data from geologically important systems as a means of interpreting natural mineral assemblages. Prerequisites: Geol. 416; Chem. 332, or permission of the instructor.

Geol. 693 Special Topics

Credits Arr.

Fall Spring

Research in various fields.

694

698

Geol. 697 Thesis or Dissertation

Credits Arr.

Fall Spring

Transportation expenses met by the wtudent. Admission by arrangement.

#### **GERMAN**

Ger. 101 Elementary German (5+0) 5 Credits Fall 5 Credits Spring

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.
 105
 Elementary German
 (3+0)
 3 Credits
 Fall

 106
 3 Credits
 Spring

 107
 3 Credits
 Spring

 3 Credits
 Spring

Same course content as Ger. 101 and 102 but with the year sequence divided into three courses rather than two. Course not offered on main campus at College.

Ger. 108 German for Reading Ability (3+0) 3 Credits Spring Rapid acquisition of reading knowledge with attention to needs in specialized fields. Credit not applicable toward degree language requirements. Offered as demand warrants.

Ger. 201 Intermediate German (3+0) 3 Credits Fall 202 Spring

Continuation of Ger. 102. Increasing emphasis on reading ability and cultural material. Conducted in German. Prerequisite: Ger. 102 or two years of high school German.

Ger. 203 Composition and Conversation (2+0) 2 Credits Fall
204 2 Credits Spring

Supplements Ger. 201 or 202, stressing written and oral practice. Conducted in German. Concurrent enrollment in Ger. 201 or 202 recommended. Prerequisite: Ger. 102 or equivalent.

Ger. 321 Studies in German Literature (3+0) 3 Credits Fall 322 Spring

Choice of authors, genres, or periods of German literature for intensive study. Conducted in German. Students may repeat course for credit when topic varies. *Prerequisite:* Ger. 202 or equivalent.

Ger. 404 **Advanced Syntax and Oral** 

Expression (3+0) 3 Credits

Spring

Continuation of Ger. 301 or 302. Analysis of difficult aspects of syntax and phonetics and practice in speaking and writing. Conducted in German. Next offered 1969-70.

Ger. 493 Special Topics 494

Credits Arr. Credits Arr.

Fall Spring

Various subjects for advanced students. Admission by arrangement. Offered as demand warrants.

#### **HISTORY**

Hist. 101 Western Civilization (3+0)

3 Credits

Fali

The origins and major political, economic, social, and intellectual developments of western civilization to 1500.

Hist. 102 Western Civilization (3+0)

3 Credits

Spring

Major political, economic, social, and intellectual developments of western civilization since 1500.

Hist. 131 History of the U.S. (3+0)

3 Credits

Fall

132

222

3 Credits

Spring

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 English History (3+0)

3 Credits 3 Credits Fall

Spring 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. Offered in alternate years.

Hist. 225 Ancient History (3+0)

3 Credits

As demand

warrants

Political, social, economic, and cultural development of the ancient Near East Greece, and Rome.

Hist. 254 History of Canada (3+0)

3 Credits

Fall or Spring

The French foundation to the establishment of dominion status, relations with the U.S. and British Commonwealth of nations. Offered as demand warrants.

Hist. 261 Russian History (3+0)

3 Credits

Fall

Origins of Russia. Kievan Russia. The Mongol Era and the Rise of Muscovy. Modern Russia to the twentieth century.

Hist. 302 The Old Regime, the Enlightenment and

the French Revolution (3+0)

3 Credits

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.

Hist. 305 Europe: 1815 to 1870 (3+0) 3 Credits Fall or Spring Political, economic, social, and intellectual history. Development of Industrial Revolution, romantic movement, and unification of Germany and Italy. *Prerequisite: Hist.* 102. Offered in alternate years.

Hist. 306 Europe: 1870 to 1914 (3+0) 3 Credits Fall or Spring Continuation of Hist. 305. The rise of socialism, imperialism, outbreak of World War I. Prerequisite: Hist. 101, 102. Offered in alternate years.

Hist. 315 Contemporary Europe (3+0) 3 Credits Fall or Spring Europe from 1914 to the present. Prerequisites: Hist. 101, 102 or admission by arrangement. Offered in alternate years.

Hist. 334 Diplomatic History of the United States (3+0) As demand warrants

A survey of foreign relations of the United States from 1775 to the present.

Hist. 341 History of Alaska (3+0) 3 Credits Fall The Russian background; acquisition, settlement and development of Alaska as an American territory and the 49th state. *Prerequisite: junior standing*.

Hist. 344 Twentieth Century Russia (3+0) 3 Credits Fall 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. Offered in alternate years.

Hist. 363 The For East in Modern Times 3 Credits Fall or Spring Nations of Eastern Asia; their relations with the West since the early nineteenth century. Admission by arrangement. Offered in alternate years.

Hist. 416 The Renaissance (3+0) 3 Credits Fall or Spring Political, social, economic, and cultural developments in the Age of the Renaissance. Prerequisites: Hist. 101, 102. Offered in alternate years.

Hist. 417 The Reformation (3+0) 3 Credits Fall or Spring The Protestant and Catholic Reformations. Political, economic, social, and religious conflicts, 1500-1600. Prerequisites: Hist. 101, 102. Offered in alternate years.

Hist. 430 American Colonial History (3+0) 3 Credits Fall or Spring Early America; European settlement; economic and social development of the American community, establishment of political independence. *Prerequisites: Hist.* 131, 132. Offered in alternate years.

Hist. 435 Civil War and Reconstruction (3+0) 3 Credits Fall or Spring Political, economic, social, and diplomatic history from 1860-77; disruption and reestablishment of the Union. Prerequisites: Hist. 131, 132. Offered in alternate years.

Hist. 440 The Westward Movement (3+0) 3 Credits Fall or Spring Westward migration; establishment of new states and political institutions. Influences of the West. Prerequisites: Hist. 131, 132. Offered in alternate years.

Hist. 450 Twentieth Contury America (3+0) 3 Credits Fall or Spring United States from the Progressive Movement to the present day, with emphasis on domestic developments. Prerequisites: Hist. 131, 132. Offered in alternate years.

Hist. 461 American Intellectual and Cultural History (3+0)

3 Credits

Spring

Lectures, readings, discussion. 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. *Prerequisites: Hist.* 131, 132. Offered in alternate years.

Hist. 475 Introduction to Historical Method (3+0) 3 Credits Fall Methods of historical research. Preparation and criticism of student research papers on selected topics. Admission by arrangement.

Hist. 493			Credits Arr. Credits Arr.	Fall Spring
History of	Historiography (3+0) Thistorical writing, Study and and	alysis of wo	3 Credits	Fall or Spring
Hist. 691		(3+0)	3 Credits	Fall or Spring
Hist. 692	Seminar in American History	(3+0)	3 Credits	Fall or Spring
Hist. 693			Credits Arr. Credits Arr.	Fall Spring
Hist. 697	M10737070		Credits Arr. Credits Arr.	Fall Spring

## HOME ECONOMICS

**H.E. 102 Meal Management** (2+3) 3 Credits Fall or Spring Planning, buying, preparing, and serving meals. Emphasis on management, cost, nutrition.

**H.E. 113 Clothing Construction and Selection** (1+6) 3 Credits Fall or Spring Fundamental sewing processes in garment construction, using modern techniques. Clothing selection and wardrobe study, and the psychological and social significance.

H.E. 121 Related Art (1+3)

2 Credits 2 Credits

Fall Spring

Practice in creative design to understand, appreciate, and apply art principles in everyday life. Home furnishing is included in the second semester.

H.E. 211 Textiles (2+3)

3 Credits

Fall

Identification, structure, selection, use, care of fabrics.

**H.E. 236** Marriage and Family Life (3+0) 3 Credits Fall or Spring Preparation for marriage and family life; personality development, dating, courtship, engagement, morality, reproduction, conflicts, money matters, crises, divorce, religion, parenthood, and other topics.

H.E. 241 Home Management Residence 3 Credits Fall or Spring Complete responsibility for a home with an opportunity to be creative and to experiment. Admission by arrangement.

- H.E. 242 Household Equipment (2+3) 3 Credits Fall or Spring Selection, operation, care, and efficient arrangement of household equipment for family use. Offered as demand warrants.
- H.E. 302 Advanced Foods (2+3) 3 Credits Fall or Spring Food selection and preparation based on composition, nutrition, and basic scientific principles and comparison of methods. Food preservation. Prerequisite: three hours of biology and three hours of chemistry.
- H.E. 304 Nutrition (3+0) 3 Credits Fall or Spring Nutritional value of foods. Planning and evaluation of diets. Practical application to daily living.
- H.E. 311 Costume Study: History and Design (2+3) 3 Credits Spring Historic costume; suitability of color, fabric, and design; creative problems in costume design. Prerequisite: H.E. 122 or admission by arrangement. Offered as demand warrants.
- H.E. 312 Advanced Clothing (1+6) 3 Credits Spring Advanced clothing problems in selection, fitting, construction, fabrics, and design; modern construction techniques. Prerequisite: H.E. 113 or admission by arrangement.
- H.E. 351 Child Development (2+9) 5 Credits Fall and Spring (Same as Psy. 351)

Theory and laboratory of human mental, emotional, social, and physical development. Prerequisites: Psy. 101, 45 collegiate credits, and permission of the instructor. It is recommended that Psy. 201 be taken prior to H.E. 351.

- H.E. 401 Consumer Buying (3+0) 3 Credits Fall or Spring Problems of consumers in buying goods and services to satisfy wants and needs. Offered as demand warrants.
- H.E. 402 Nursery School Laboratory (0+9) 3 Credits Fall or Spring Observation, experience, participation in the guidance of young children. Prerequisite: H.E. 351 or Psy. 351 and permission of the instructor.
- H.E. 404 Quantity Cookery (1+6) 3 Credits Fall or Spring Cooking for large groups; institutional management. Prerequisite: H.E. 302. Offered as demand warrants.
- H.E. 405 Camp Cookery (0+3) 1 Credit Fall or Spring For men only. Preparation of nutritious meals from foods available in camps. Offered as demand warrants.
- H.E. 406 Cafeteria Management (1+6) 3 Credits Fall or Spring Buying and management for institutional feeding. Prerequisite: H.E. 404. Offered as demand warrants.
- H.E. 412 Clothing Problems (0+6) 2 Credits Fall or Spring Advanced work in clothing selection and construction. One freedom in the selection and execution of problems. *Prerequisite: H.E. 312. Offered as demand warrants.*
- H.E. 413 Pattern Drafting and Draping (1+6) 3 Credits Fall or Spring Drafting of flat patterns; draping of fabrics for construction of student-designed garments. Prerequisite: H.E. 312. Offered as demand warrants.

H.E. 422 Weaving (0+3) I Credit Fall 1 Credit Spring

Hand weaving of textiles, including rugs. Several looms used. Laboratory time averages three hours per week. Offered as demand warrants.

H.E. 441 Family Health (1+3) 2 Credits Fall Family and community health; home nursing, first aid. Offered in alternate years.

H.E. 445 Home Management (3+0) 3 Credits Fall or Spring Time, energy, finance, housing, and other management problems in relation to family living. Prerequisites: H.E. 241 and junior standing. Offered in alternate years.

**H.E.** 446 House Planning and Furnishing (1+6) 3 Credits Spring Planning, building, furnishing, decorating a home. Field trips to homes. Offered as demand warrants.

H.E. 491 Seminar (1+0) Credits Arr. Fall
492 Credits Arr. Spring

Selected topics in Home Economics.

H.E. 493 Special Topics (1+0) Credits Arr. Fall
494 Credits Arr. Spring

Various subjects studied, principally through directed reading and discussions. Admission by arrangement.

#### **JAPANESE**

Jap. 101 Elementary Japanese (5+0) 5 Credits Fall 5 Credits Spring

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.

Jap. 201 Intermediate Japanoso (3+0) 3 Credits Fall 202 Spring

Continuation of Jap. 102 with increasing emphasis on reading ability and cultural material. Standard Japanese texts for reading including selections from modern Japanese literature. *Prerequisite: Jap. 102 or equivalent.* 

#### **JOURNALISM**

Jour. 201 Introduction to Journalism (2+3) 3 Credits Fall or Spring Structure of news stories, various news leads and feature stories; gathering and evaluating information for simple news stories; writing stories. Prerequisite: Engl. 102 or admission by arrangement. Ability to type is essential.

692

**202** Reporting of Public Affairs (3+0) 3 Credits Spring Study and writing of complex news stories, depth reporting; criticism and reviewing; interviews and features; covering government. Prerequisite: Jour. 201. 203 Basic Photography (2+3)3 Credits Fall or Spring Theory and practice of picture-taking and processing; emphasis on the camera in the modern press. 204 Journalism Laboratory (2+3)1 Credit Credit arranged for students holding editorial or other positions on university publications or obtaining other similarly supervised experience in journalism practices. (May be repeated for maximum of three semesters.) Prerequisite: Engl. 102 or permission of the instructor. 303 Advanced Photography (1+3)3 Credits Fall or Spring Continuation of the basic course, with emphasis on the picture story and free lance photography. 311 Magazine Article Writing (3+0)3 Credits Fall or Spring 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. 312 Editing (3+0)Jour. 3 Credits Spring Editorial writing, editing copy, writing headlines; newspaper layout; general study of mechanical, circulation, editorial, and advertising departments. Prerequisite: Jour. 201. Jour. 324 Newspaper Production, Advertising, and Typography (1+6)3 Credits Fall Total immersion into theory and practice of advertising, typographic design and layout, coupled with a study of the methods of printing production. Recommended for business administration and journalism majors. 412 Advanced Editing (2+3)3 Credits Spring Special problems in editing, with emphasis on the practical experience of editing special features, newspaper sections. Students will work closely with Fairbanks newspapers. Prerequisite: Jour. 312. 433 Public Relations (3+0)3 Credits 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. Prerequisite: Jour. 201 or permission of the instructor. 444 Foreign Correspondence (3+0)3 Credits Fall or Spring A study of the foreign press through direct involvement; each student will serve as a correspondent for one of the world's interesting newspapers. Admission by arrangement. Jour. 493 **Special Topics** Credits Arr. Fall Credits Arr. Spring Various subjects in journalism. Offered as demand warrants. Admission by arrangement. 691 Jour. Journalism Seminar Credits Arr. As demand

warrants

As demand warrants

Credits Arr.

Jour. 69:		cial Topics	Credits Arr. Credits Arr.	Fall Spring
Various sul	bjects p	orincipally by directed stu	dy, discussion, and research.	
Jour. 69:		earch	Credits Arr. Credits Arr.	Fall Spring
Jour. 697 698		sis	Credits Arr. Credits Arr.	Fall Spring
LAND R	ESOU	RCES		
Land Res.	101	Conservation of Natural Resources $(2+0)$	2 Credits	Fall
Conservati United Sta			able natural resources, empl	nasizing the
Land Res.	311	Soils $(2+3)$	3 Credits	Spring
ical prope fertilizers;	rties, b manag	iology, aeration, and mois	fication, terminology; physica sture; reaction and liming; m a. <i>Prerequisite: Chem. 101. O</i>	nanures and
•				
-	414	Principles of Outdoor Red Management (3+0)		Spring
Land Res. Theories, p	oractico l resou ent. <i>Pre</i>	Management (3+0) es, economics, and problem rees for recreation; relation requisite: junior standing		nd and rela- in regional
Land Res. Theories, p ted natura developme	oractico l resou ent. <i>Pre</i>	Management (3+0) es, economics, and problem rees for recreation; relation requisite: junior standing	3 Credits s fundamental to the use of law onship of wildland recreation	nd and rela- in regional s or permis- Fall
Theories, p ted natura developme sion of the Land Ros.	practice l resou ent. Pre instru 491 492	Management (3+0) as, economics, and problem rees for recreation; relation requisite: junior standing actor.  Seminar	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr.  Credits Arr.	nd and rela- in regional s or permis-
Theories, p ted natura developme sion of the Land Ros.	practice l resou ent. Pre instru 491 492	Management (3+0) as, economics, and problem rees for recreation; relation requisite: junior standing actor.	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr.  Credits Arr.	nd and rela- in regional s or permis- Fall
Theories, p ted natura developme sion of the Land Ros.	oractice I resou ent. Pre instru 491 492 land re 493 494	Management (3+0) as, economics, and problem rees for recreation; relation requisite: junior standing actor.  Seminar sources. Offered as demandary special Topics	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr.  Credits Arr.  d warrants.  Credits Arr.	nd and rela- in regional is or permis- Fall Spring
Theories, p ted natura developme sion of the Land Ros. Topics in Land Res.	oractico l resou ent. Pre e instru 491 492 land re 493 494 692	Management (3+0) as, economics, and problem rees for recreation; relation requisite: junior standing actor.  Seminar sources. Offered as demandary special Topics	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr. Credits Arr. de warrants.  Credits Arr.	nd and rela- in regional s or permis- Fall Spring Fall Spring Fall
Theories, p ted natura developme sion of the Land Ros. Topics in Land Res.	oractico l resou ent. Pre e instru 491 492 land re 493 494 692	Management (3+0) es, economics, and problem rees for recreation; relation requisite: junior standing s ctor.  Seminar  Sources. Offered as deman Special Topics  Seminar	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr. Credits Arr. de warrants.  Credits Arr.	nd and rela- in regional s or permis-  Fall Spring  Fall Spring  Fall Spring  Fall Spring
Theories, p ted natural developments of the Land Ros.  Topics in Land Ros.  Land Ros.  Topics in Topics in	oractice l resou ent. Pre e instru 491 492 land re 493 494 692 land re	Management (3+0) es, economics, and problem rees for recreation; relatio requisite: junior standing a ctor.  Seminar  Sources. Offered as deman Special Topics  Sominar  sources. Offered as deman sources. Offered as deman	3 Credits as fundamental to the use of later ship of wildland recreation in biology or natural resource  Credits Arr. Credits Arr. ad warrants.  Credits Arr.	nd and rela- in regional s or permis- Fall Spring Fall Spring Fall Spring Fall Spring
Theories, p ted natura developme sion of the Land Ros.  Topics in Land Res.  Land Ros.  Topics in Land Ros.	oractice 1 resou ent. Pre instru 491 492 land re 493 494 692 land re 693 694 697 698	Management (3+0) es, economics, and problem rees for recreation; relatio requisite: junior standing e ctor.  Seminar  Sources. Offered as deman Special Topics  Sominar  sources. Offered as deman sources. Offered as deman Thesis	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr. Credits Arr. d warrants.  Credits Arr.	nd and rela- in regional s or permis- Fall Spring Fall Spring Fall Spring Fall Spring Fall Spring Fall
Land Res. Theories, p ted natura developme sion of the Land Res. Topics in Land Res. Topics in Land Res. Land Res. Land Res.	oractice l resou ent. Pre instru 491 492 land re 493 494 692 land re 693 694 697 698 by arr	Management (3+0) es, economics, and problem rees for recreation; relatio requisite: junior standing e ctor.  Seminar  Sources. Offered as deman Special Topics  Sominar  sources. Offered as deman sources. Offered as deman Thesis	3 Credits as fundamental to the use of law conship of wildland recreation in biology or natural resource  Credits Arr. Credits Arr. d warrants.  Credits Arr.	nd and rela- in regional s or permis- Fall Spring Fall Spring Fall Spring Fall Spring Fall Spring Fall

Analysis of the living language with native speaker in the classroom. Learning to read and write the language. Admission by arrangement.

Ling. 381 Structural Linguistics and (3+0) 3 Credits Fall
382 Linguistics Analysis 3 Credits Spring

Introduction to the structure of language and practice in analysis, sound structure (phonetics and phonology); grammatical structure (morphology and syntax). Work with Alaskan native languages. Offered as demand warrants.

Ling.385Alaskan Eskimo(3+0)3 CreditsFall3863 CreditsSpringContinuation of Ling.286. Includes linguistic analysis of folklore material. Admission

Continuation of Ling. 286. Includes linguistic analysis of folklore material. Admission by arrangement.

Ling. 388 Alaskan Athapascan (3+0) 3 Credits Spring Athapascan languages in general and Alaskan dialects in particular; dialect geography, comparative phonology; Eyak, Tlingit, Haida. Admission by arrangement. Offered as demand warrants.

Ling. 485 Eskimo Workshop Credits Arr. Fall
486 Credits Arr. Spring

Advanced work in Eskimo, including creative writing, transcription of texts, study of comparative Eskimo dialectology; Aleut; preparation of materials for radio broadcasts and publication. Prerequisite: Ling. 286 or 386, or speaking knowledge of Eskimo and permission of the instructor. Offered as demand warrants.

Ling. 493 Special Topics Credits Arr. Fall 494 Credits Arr. Spring

Various languages and subjects in linguistics. Admission by arrangement. Offered as demand warrants.

#### 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. 105 Intermediate Algebra (2+3) 3 Credits Fall or Spring Set theory, number systems, absolute value, inequalities, linear and quadratic equations, exponents and radicals, polynomials, and functions.

Math. 106 College Alegbra and Trigonometry (5+0)5 Credits Fall or Spring Review of high school algebra, determinants, matrices, topics in the theory of equations, systems of equations, inequalities, curve sketching, probability, and applications; plane trigonometry with emphasis on the analytical and periodic properties of trigonometric functions.

Math... 107 College Algebra (3+0) 3 Credits Fall or Spring Review of high school algebra, determinants, matrices, topics in the theory of equations, systems of equations, inequalities, curve sketching, probability, and applications. Course not offered on main campus at College.

Math. 108 Trigonometry (2+0) 2 Credits Fall or Spring Plane trigonometry with emphasis on the analytical and periodic properties of trigonometric functions. *Prerequisite: Math. 105 or equivalent.* 

Math. 109 Analytic Geometry (3+0)3 Credits

Rectangular coordinate system, the straight line, conic sections, transcendental curves, polar coordinates, parametric equations, and solid analytic geometry. Course not offered on main campus at College. Prerequisite: high school trigonometry or Math. 108.

Math. 110 Mathematics of Finance (3+0)

3 Credits

Spring

Fall or Spring

Simple and compound interest, discount, annuities, amortization, sinking funds, depreciation, and capitalization. Prerequisite: Math. 105, or admission by arrangement.

Math. 111 Beginning Calculus (3+0) 3 Credits Fall orSpring

Sequences, limits, differentiation and applications, integration and applications, differentiation of algebraic and transcendental functions. Course not offered on main campus at College. Prerequisite: Math. 109.

Introduction to Modern Algebra Math. 121

and Analysis (4+0)

4 Credits 4 Credits

Fall Spring

First semester: sets, logic, groups and fields, vectors, analytic geometry, relations and

Second semester: complex numbers, exponential functions, logarithmic functions, trigonometry.

Math. 200 Calculus (4+0)

4 Credits

Fall or Spring

201 202 4 Credits 4 Credits Fall or Spring Fall or Spring

Techniques and application of differential and integral calculus, vector analysis, partial derivatives, multiple integrals, and infinite series. Prerequisite: Math. 106 or 122. Admission to Math. 201 is also possible on completion of Math. 111.

Math. 204 Elementary Probability and

Statistics (3+0)

3 Credits

Spring

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. 106 or 121.

Math. 302 Differential Equations (3+0)

3 Credits

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. Prerequisite: Math. 202.

Math. 303 Introduction to Modern Algebra (3+0) 3 Credits 304

3 Credits

Fall Spring

Introduction to sets, groups, rings, fields, and Galois theory.

Math. 309 Programming of Digital Computers (3+0) 3 Credits

Fall

Organization, function, and application of digital computers, with special reference to IBM 1620. Programming languages, including machine language, SPS and FORTRAN. Individual use of the IBM 1620. Prerequisite: junior standing or permission of the instructor.

Math. 310 Numerical Analysis (3+0)

Finite differences, numerical solutions of differential equations, relaxation methods, interpolation, equations, and matrices. Error analysis. Prerequisites: Math. 302, 309. Math. 312 Numerical Methods for Engineers (3+0) 3 Credits Spring Numerical methods and computer programming designed for engineering students. FORTRAN language for IBM 1620; numerical approximations, solution of differential equations, nonlinear equations, iterative and direct methods for simultaneous linear equations. Individual use of computer parallels lecture topics. Prerequisite: Math. 302 or concurrently with Math. 302.

Math. 314 Linear Algebra (3+0) 3 Credits Spring Linear equations, finite dimensional vector spaces, matrices, determinants, linear transformations, characteristic values. Inner product spaces.

Math. 345C Modern Math Concepts for the

Elementary School

3 Credits Correspondence or upon demand

Fall

Includes a study of the historical development of numeral systems together with operations in various bases. Properties of numerals and numbers are discussed. A brief study of symbolic logic precedes an investigation of the structure of arithmetic, seeking basic principles underlying operations with various number and abstract systems. A survey of informal and intuitive geometry and its relationship with number systems is included.

Math. 371 Probability (3+0) 3 Credits Fall 372 Spring

Probability spaces, conditional probability, random variables, continuous and discrete distributions, expectation, moments, moment generating functions, and characteristic functions.

Math. 401 Advanced Calculus (3+0) 3 Credits Fall 402 Spring

Theory of Dedekind cuts, existence of bounds, sequences. Introduction to point set topology. Rigorous treatment of limits, continuity and differentiability of functions of one variable. Riemann integrals. Extensions to functions of several real variables. Prerequisites: Math. 202 and senior standing or permission of the instructor.

Math. 405 Applied Mathematics (3+0) 3 Credits Fall 406 Spring

Infinite series, functions of several variables, algebra and geometry of vectors, matrices, vector field theory, partial differential equations, complex variables. Prerequisite: Math. 302 or permission of the instructor. To be offered in alternate years.

Math. 407 Mathematical Statistics (3+0) 3 Credits Fall 408 Spring

Distributions of random variables and functions of random variables, interval estimation, point estimation, sufficient statistics, order statistics, text of hypotheses including criteria for goodness of test. *Prerequisite: Math. 372. Offered as demand warrants.* 

Math. 415 Game Theory and Linear

Programming (3+0) 3 Credits

Mathematical approach to Game Theory and Linear Programming with application to economics and operations research. *Prerequisite: Math. 314*,

Math. 417 Differential Geometry (3+0) 3 Credits Fall 3 Credits Spring

Differential geometry of curves and space in Euclidean three-space and extensions to Riemannian n-space.

Fall Math. 421 Vector and Tensor Analysis (3+0)3 Credits Fundamental operations on vectors and tensors, consideration of gradient, divergence, and cural; applications in physics and mechanics. Offered as demand war-3 Credits Fall Math. 471 Stochastic Processes (3+0)Elements of stochastic processes and their applications, the Winer process and the Poisson process, stationary and evolutionary processes, harmonic analysis, random walks, Markov Chains, and elementary queueing theory. Prerequisite: Math. 372. Offered as demand warrants. Math. 491 Seminar Credits Arr. Fall Credits Arr. 492 Spring Topics are selected according to needs and interests of the students to introduce them to independent study and research. Math. 493 Special Topics (2+0)Credits Arr. Fall Credits Arr. Spring Primarily for mathematics majors. Various topics studied. Math. 601 Complex Function Theory (3+0)3 Credits Fall 3 Credits Spring Analytic functions, singularities, analytic continuation, integration, Reimann surfaces, the logarithmic function, conformal representation. Prerequisite: Math. 402 or admission by arrangement. Offered as demand warrants. Math. 605 Real Function Theory (3+0)3 Credits Fall 606 3 Credits Spring The Lebesque integral on the line, metric spaces, Banach spaces, general theory of measure and integration. Prerequisite: Math. 402 or admission by arrangement. Math. 608 Partial Differential Equations (3+0)3 Credits Spring First and second order differential equations, boundary value problems, existence and uniqueness theorems. Green's functions, principal equations of mathematical physics. Prerequisite: Math. 402 or admission by arrangement. Offered as demand warrants. 3 Credits Math. 609 Modern Algebra (3+0)610 3 Credits Spring Groups, rings, fields, Galois theory, additional selected topics. Prerequisite: Math. 304 or admission by arrangement. Math. 611 Mathematics of Physics 3 Credits and Engineering (3+0)Fall 3 Credits Spring Advanced consideration of such topics as transform methods, asymptotic methods, Green's function, Sturm-Liouville theory, conformed mapping and calculus of variations with applications to problems arising in physics. Prerequisites: Math. 402 or 406 and permission of the instructor.

Math.691SominarCredits Arr.Fall692Credits Arr.SpringVarious topics.Admission by arrangement.Math.693Special TopicsCredits Arr.Fall694Credits Arr.Spring

Various subjects studied.

Math. 697 Thesis 698 Credits Arr. Credits Arr. Fall Spring

### MECHANICAL ENGINEERING

M.E. 302 Kinematics of Machines (2+3) 3 ( Velocity and acceleration analysis of mechanisms and mac

3 Credits

Spring

Velocity and acceleration analysis of mechanisms and machines; principles of transforming and transmitting motion, including linkages, cams, gears, belts, chains, and trains of mechanism; dimensional synthesis. *Prerequisites: Math.* 202, E.S. 208.

M.E. 321 Industrial Processes (3+0)

3 Credits

Fall

Methods and equipment used in working, welding, casting, cutting, machining, and fabrication of materials.

M.E. 401 Machine Design (2+6)

3 Credits

Fall

Design of machine elements, including allowances, tolerances, keys, shafts, couplings, springs, clutches, belts, brakes, flywheels, power screws, gears, bearings, lubrication, and stress analysis of components. *Prerequisites: E.S. 331, M.E. 302.* 

M.E. 412 Space Conditioning (2+3)

3 Credits

Spring

Principles of heating, ventilating, air conditioning, and refrigeration with practical applications. *Prerequisites: E.S. 341, 346, M.E. 441.* 

M.E. 413 Mechanical Engineering

Thermodynamics (3+0)

3 Credits

Fall

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. *Prerequisites: E.S.* 341, 346.

M.E. 418 Power Analysis (3+3)

4 Credits

Spring

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. 413.* 

M.E. 430 Instruments and Controls (2+3) 3 Credits Fall or Spring Automatic control and instrumentation of equipment including mechanical, hydraulic, pneumatic, electric, and electronic systems. Prerequisite: senior standing. Offered as demand warrants.

#### METALLURGY

Met. 304 Introduction to Metallurgy (3+0) 3 Credits Spring Definitions and principles of basic science and engineering principles as applied to process and adaptive metallurgy. Prerequisites: Math. 102, Chem. 202 or 211, Phys. 212.

Met. 312 Fire Assaying (0+6)

2 Credits

Spring

Sampling and preparation of ores, mill products, and smelter products for essay. Assaying gold, silver, and lead. Prerequisite: Met. 301, concurrent Chem. 212. Offered as demand warrants.

Met. 332 Physical Metallurgy and

Metallorgraphy (3+3)

4 Credits

Spring

Properties of metals and alloys, metal crystals, chemical and metallic bonds, equilibrium diagrams, defect in metals, heat treatment, pyrometry, foundry, forging welding, principles and application of electron microscope, x-ray. Electron and x-ray diffraction. Equipment used in metallurgy. Prerequisite: Met. 304. Offered as demand warrants.

Met. 493 Special Topics 494 Credits Arr. Credits Arr.

Fall Spring

Various subjects studied, principally through directed reading and discussions. Admission by arrangement.

Met. 693 Special Topics

Credits Arr.

Fall

Fall

Spring

694

Ci

Credits Arr. Spring

Various subjects studied. Admission by arrangement.

### **MILITARY SCIENCE**

Mil. 101 First-Year Military Science (2+1)  $1^1/_2$  Credits  $1^1/_2$  Credits

First-year basic: organization of the Army; individual weapons and marksmanship; U.S. Army and national security; school of the soldier and exercise of command.

Mil. 201 Second-Year Military Science (2+1)  $1^{1}/_{2}$  Credits Fall  $1^{1}/_{2}$  Credits Spring

Second-year basic: American military history; map and aerial photography reading; introduction to operations and basic tactics; school of the soldier and exercise of command.

Mil. 301 Third-Year Military Science (3+1) 3 Credits Fall 302 Spring

First-year advanced: leadership; military teaching; branches of the Army; small unit tactics; communications; school of the soldier and exercise of command.

Mil. 401 Fourth-Year Military Science (3+1) 3 Credits Fall 402 Spring

Second-year advanced: operations; logistics; Army administration; military law; the role of the U.S. in world affairs; service orientation; school of the soldier and exercise of command.

Mil. 403 ROTC Flight Training 2 Credits Spring Thirty-five hours of ground school and  $36^1/_2$  hours of flight; includes FAA flight check.

#### MINERAL PREPARATION ENGINEERING

M.Pr. 313 Introduction to Mineral Preparation (2+3)3 Credits

Fall

Elementary theory and principles of unit processes of liberation, concentration and solid-fluid separation as applied to mineral beneficiation. *Prerequisite: junior standing or permission of the instructor*.

M.Pr. 314 Unit Preparation Processes (1+6) 3 Credits Spring Principles and practices involved in liberation and concentration by gravity, electromagnetic 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: M. Pr. 313.

M.Pr. 406 Materials Handling Systems (2+3) 3 Credits Spring The techniques and design of systems to move ore, concentrates and waste materials in mining and milling operations. Prerequisite: senior standing or permission of the instructor.

M.Pr. 418 Emission Spectroscopy, X-ray Spectroscopy and Electron Microscopy (2+3) 3 Credits Spring

Can be taken for any combination of Parts A, B, C. Admission by arrangement.

M.Pr. 418A — Theory and application of emission spectrography; two one-hour classes; one three-hour lab per week for five weeks. One credit.

M.Pr. 418B — Theory and application of x-ray spectrograph; two one-hour classes; one three-hour lab per week for five weeks. One credit.

M.Pr. 418C — Theory and application of electron microscope; two one-hour classes; one three-hour lab per week for five weeks. One credit.

M.Pr. 431 Applied Ore Microscopy (1+3) 2 Credits Fall Preparation of polished sections of ores. Identifications of ore minerals in reflected light by physical, optical, and chemical methods. Applications to ore genesis, drill core interpretation, beneficiation, and process control. *Prerequisite: Geol. 213*.

M.Pr. 433 Coal Preparation (2+3) 3 Credits Fall Unit operations, flowsheets, washability characteristics, and control by sink-float methods for coal preparation plants. Market requirements and economics of preparation. Prerequisite: M. Pr. 313.

M.Pr. 493 Special Topics Credits Arr. Fall Credits Arr. Spring

Various subjects studied through directed reading, discussions, and laboratory work. Admission by arrangement.

M.Pr. 601 Froth Flotation (2+3) 3 Credits Fall Theory and application of bulk and differential froth flotation to metallic minerals, non-metallic minerals, and coal. Admission by arrangement.

M.Pr. 606 Plant Design (1+6) 3 Credits Spring 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.

M.Pr. 693 Special Topics Credits Arr. Fall Credits Arr. Spring

Various subjects studied. Admission by arrangement.

M.Pr. 695 Mineral Preparation Research (1+6) 3 Credits Fall Spring

Familiarizes students with the concept of basic research and its needs in the field of mineral benefication, 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.

M.Pr. 697 Thesis 3 Credits Fall 698 3 Credits Spring

Application of fundamentals to the actual beneficiation problems of Alaskan ores; to produce increased effectiveness in ability to organize, interpret, and present the results of research clearly, precisely, and with meaning in acceptable thesis form.

#### MINING ENGINEERING

Min. 102 Mining Engineering Systems (4+0) 4 Credits Spring

Can be taken in any combination of parts A, B, C.

Min. 102A — Introduction to mineral industries and elementary principles of exploration. Four one-hour classes per week for four weeks. One credit.

Min. 102B — Utilization and application of mining explosives. Four one-hour classes for four weeks. One credit.

Min. 102C — Fundamentals of mining systems for bedded, massive, vein and surface deposits. Four one-hour classes per week for eight weeks. Two credits.

Min. 202 Mine Surveying (2+3) 3 Credits Spring Surveying principles for surface and underground control of mining properties. Field and office procedures for preparation of maps and engineering data. *Prerequisite: Math.* 106.

Min. 320 Seminar and Senior Field Trip 1 Credit Fall or Spring 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 student. Offered as demand war-

rants.

Min. 331 Mining Law (2+0) 2 Credits Fall

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. Offered as demand warrants.

Min. 400 Practical Engineering Report 1 Credit Spring

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. Offered as demand warrants.

Min. 401 Rock Mechanics (2+3) 3 Credits Fall

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.

Min. 697 Thosis

698

3 Credits Min. 402 Energy Economics (3+0)Spring Economics of mineral fuels in the competitive market; regional and national projection of energy supply and demand; structure of coal, petroleum, natural gas, and uranium industries; and seminar on energy policies. Admission by arrangement. Min. 403 Operations Research in Mineral Industries (2+3)3 Credits The application of operations research techniques in mineral exploration, mineral economics, mine systems, and mineral preparation. Prerequisite: senior standing or permission of the instructor. Min. 405 Geophysical and Geochemical Exploration (2+3)3 Credits Fall Theory and techniques of geophysical and geochemical exploration. Chemical, gravimetric, seismic, electrical, magnetic, and radioactive measurements. Prerequisites: Chem. 202, Phys. 212. 4 Credits Min. 406 Mining Plant Engineering (3+3)Spring Principles of mine ventilation, haulage, pumping, and energy transmission systems. Prerequisites: Min. 102, Phys. 212, E.S. 341 (concurrent). Min. 408 Mineral Valuation and Economics (3+3)4 Credits Spring Theory of sampling techniques, deposit and reserve calculations, and analysis of mineral economic problems. Prerequisite: Min. 102 or permission of the instructor. Min. 493 Special Topics Credits Arr. Fall Credits Arr. Spring Various subjects studied, principally through directed reading and discussion. Admission by arrangement. Min. 496 Mining or Mineral Research  $\cdot (1+6)$ 3 Credits Spring Selected mining, mineral preparation, or mineral economic research problems. Prerequisite: senior standing or permission of the instructor. Min. 621 Advanced Mineral Economics (3+0)3 Credits Fall Economics of mineral exploitation and utilization. International trade, state and federal policies, financial control, and research methods. Admission by arrangement. Credits Arr. Fall Min. 691 Seminar Credits Arr. Spring Reading and report required. Admission by arrangement. Min. 693 Special Topics Credits Arr. Fall 694 Credits Arr. Spring Various subjects studied. Admission by arrangement.

Fall

Spring

Credits Arr.

Credits Arr.

### **MUSIC**

APPLIED M	USIC
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Mus.	101	Chorus (0+3)	1 Credit 1 Credit	Fall Spring
Mus.	109	<b>R.O.T.C. Band</b> (0+3)	l Credit l Credit	Fall Spring
Mus.	203	Orchestra (0+3)	1 Credit 1 Credit	Fall Spring
Mus.	205	Concert Band (0+3)	1 Credit 1 Credit	Fall Spring
Mus.	211	"Choir of the North" (0+3)	1 Credit 1 Credit	Fall Spring
Mus.	307	Chamber Music (0+3)	1 Credit 1 Credit	Fall Spring
Mus.	313	Opera Workshop $(0+3, 6 \text{ or } 9)$	1, 2, 3, Credits 1, 2, 3, Credits	Fall Spring
Mus.	317	Collegium Musicum (0+3)	1 Credit 1 Credit	Fall Spring

NOTE: Admission to ensemble courses above the 100 level is by permission of the instructor. Ensemble courses may be repeated for credit; a maximum of 12 such credits may be counted toward graduation.

Mus. 151, 152 Class Lessons $(0+3)$	l Credit	Fall
251, 252	1 Credit	Spring
Class instruction in piano, voice, or orches	tral instrument.	
Fees for class lessons:	Practice room rental	\$7.50
	Lesson fee	\$15.00

Above fees waived for students enrolled in seven or more credit hours and majoring or minoring in music or music education.

Mus.	161, 261 162, 262	Private Lessons	(1+0)	2 Credits	Fall and Spring
Mus.	361, 461	Private Lessons	(1+0)	2 or 4 Credits	Fall and Spring

Private instruction in piano, voice, or orchestral instrument. Music majors who have certified to junior standing may enroll for four credits. Prerequisite: admission by examination.

Fees for private lessons:	Practice room rental	\$7.50
· · · · · · · · · · · · · · · · ·	Lesson fee	\$45.00

Above fees waived for students enrolled in seven or more credit hours and majoring in music or music education.

# MUSIC THEORY AND HISTORY

Mus.	51	Music Fundamentals	(3+0)	3 Credits 3 Credits	Fall Spring
Rudim	ents o	f music for students wi	ith little or no pric	or training in music re	eading.
Mus.	123 124	Introduction to Music	(2+3)	3 Credits 3 Credits	Fall Spring
		f the understanding and ts, forms, and historical			
Mus.	131 132	Basic Theory $(2+3)$		3 Credits 3 Credits	Fall Spring
of figur	ed bra	elodic, and harmonic d ss; sight-singing and ear th century composers.	training; stylistic a	malysis of works of eigl	
Mus.	231 232	Advanced Theory (2	+3)	3 Credits 3 Credits	Fall Spring
board f	acility	of Music 131-132, whi and more advanced h ntury composers. <i>Seme</i>	armonic vocabula	ry; analysis of works b	ter key-
Mus.	309	Methods (3+0)	vsic	3 Credits	Fall or Spring
		ocedures, and material erequisite: Ed. 313 and			elemen-
Mus.	315 316	Instrumental Methods Techniques (1+3		2 Credits 2 Credits	Fall Spring
		teaching of band instru odwinds. <i>Prerequisite: I</i>			
Mus.	321 322	History of Music (3+	-0)	3 Credits 3 Credits	Fall Spring
_		: music before 1750. S Mus. 232 or permission		isic since 1750.	
Mus.	331 332	Form and Analysis (	1+3)	2 Credits 2 Credits	Fall Spring
Fall Semester: dance forms of the seventeenth and eighteenth centuries. Development of the various sonata forms. Spring Semester: detailed analysis of sonatas by Haydn, Mozart, and Beethoven. Prerequisite: Mus. 232 or permission of the instructor. Semesters must be taken in sequence.					
Mus.	351	Choral Conducting (	2+0)	2 Credits	Fall
Princip 232.	Principles of conducting and interpretation with vocal ensembles. Prerequisite: Mus.				
Mus.	352	Instrumental Conduct	ing $(2+0)$	2 Credits	Spring
Princip site: M		conducting and interp 2.	oretation with insti	rumental ensembles. P	rerequi-

405 Methods of Teaching Music (3+0)3 Credits As demand Mus. warrants See description under Ed. 405, Methods of Teaching Music. 415 Instrumental Methods and 2 Credits Fall Techniques (1+3)2 Credits Spring Playing and teaching of string instruments. Fall Semester: violin and viola. Spring Semester: cello and bass. Prerequisite: Mus. 232 or permission of the instructor. 431 Counterpoint (3+0)3 Credits Fall The contrapuntal style and techniques of the sixteenth century, acquaintance with species counterpoint. Prerequisite: Mus. 232. 432 Orchestration and Arranging (3+0)3 Credits Spring Principles and practices of instrumentation and arranging for vocal and instrumental ensembles. 491 Senior Seminar (2+0)Mus. 2 Credits Fall 492 2 Credits Spring Variety of subject matter depending on the interests and needs of students. Mus. **493** Special Topics Credit Arr. Fall 494 Credit Arr. Spring

Various subjects. Admission by arrangement.

Mus. 693 Special Topics Credit Arr. Fall Credit Arr. Spring

Various subjects. Admission by arrangement.

# OCEANOGRAPHY AND OCEAN ENGINEERING

OCN 411 General Oceanography (3+0) 3 Credits

Description of the oceans and ocean processes; inter-relationship of disciplinary sciences to the field; historical facts of oceanography, modern developments, and trends in the field. Prerequisite: senior or graduate standing in a disciplinary science, mathematics or engineering.

OCN 613 Marine Geology (3+0) 3 Credits

Survey of marine geology; structure of ocean basins and continental margins; chemical and physical properties of marine sediments; geological processes in the oceans. Prerequisites: senior or graduate standing in geology or appropriate interdisciplinary programs; or permission of the instructor.

OCN 620 Introduction to Physical
Oceanography (3+0) 3 Credits

(Same as Phys. 620)

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.

M)94

# OCN 622 Ocean Currents and Water

Masses (3+0)

3 Credits

Theories of ocean circulation, wind currents, and boundary currents. Topographic influences on currents, origin of water masses, instruments, and observations. *Prerequisite: OCN 620 or permission of the instructor.* 

OCN 624 Estuarine Dynamics (3+0)

3 Credits

Physical and chemical properties of estuarine waters including kinematics and dynamics of motion. Classification of estuaries by geomorphological and oceanographic parameters. Prerequisites: OCN 620, Math. 302, or permission of the instructor.

OCN 650 Introduction to Biological

Oceanography (3+0)

3 Credits

Survey of marine plants and animals and their inter-relationships with major emphasis on primary productivity and marine food chains.

OCN 661 Chemical Oceanography I (3+0)

3 Credits

(Same as Chem. 661)

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.

OCN 663 Chemical Oceanography II (3+0)

3 Credits

(Same as Chem. 663)

Selected topics in chemical oceanography, including stable isotope chemistry; chemical equilibria; chemistry of marine biota and their products; interaction of sediments and water; material exchange through sea air interface; marine photosynthesis and special topics of marine biochemistry; chemical technology as applied to oceanography; raw materials and industrial utilization. *Prerequisite: OCN 661, or permission of the instructor.* 

OCE 670 Waves and Tides (3+0)

3 Credits

(Same as C.E. 670)

Generation and propagation of waves at sea, theory of waves, wave spectra and forecasting, observation and recording of ocean waves, tsunamis, tides, internal waves.

OCE 672 Underwater Acoustics (3+0)

3 Credits

(Same as E.E. 672)

Nature of sound, units and standards, sound-related characteristics of sea water, transmission and transmission losses, effect of discontinuities, reverberation, measurement techniques.

OCE 674 Environmental Hydrodynamics (3+0) 3 Credits

(Same as C.E. 674)

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.

OCE 676 Coastal Engineering (3+0)

3 Credits

(Same as C.E. 676)

Review of deep and shallow water waves, littoral drift, coastal structures, pollution problems, harbor seiches. *Prerequisite: OCE 670.* 

**680** Ocean Engineering Field Work (3+0)3 Credits

Field experience either on a vessel or at an ocean engineering site selected by the student in consultation with his graduate committee. Usual duration of the field work is approximately two months.

OCN	690	Colloquium	0 Credits
OCN	691 692	Seminar	1 Credit
OCN	693 694	Special Topics	Credits Arr.
OCN	697	Thesis	Credits Arr.

#### OFFICE ADMINISTRATION

698

Clerical Skills (3+0)3 Credits O.A. Fall Instruction in various duplicating processes, filing, responsibilities and duties of a clerical worker.

Adding and Calculating Machines (1 2) 3 Credits O.A. 63 Spring or Fall Basic operation of adding and calculating machines.

Machine Transcription (3+0)3 Credits Transcription from various voice-writing machines with special emphasis on spelling, word choice, and grammar.

Machine Transcription (3+0)3 Credits Transcription training, with emphasis on mailable material, efficient office routine, setting up letters.

O.A. 99 Office Practice (2+10)6 Credits Spring Same as O.A. 299

Shorthand (2+2)O.A. 101 3 Credits Fall 102 3 Credits Spring

Beginning Gregg Shorthand for secretarial students. Theory and reading practice first semester; dictation and transcription practice second semester.

103 Elementary Typewriting (2+0)2 Credits Fall or Spring Basic typewriting skills, techniques of copy work, introduction to letter writing, simple tabulations. For students who have had no previous typewriting.

105 Intermediate Typewriting (2+2)Speed development and application of typewriting skill to special letter problems. tabulations, and office problems. Prerequisite: one year of high school typewriting or O.A. 103.

O.A. 106 Advanced Typewriting (2+2)2 Credits Fall or Spring Letter writing with special problems, reports, business forms, statistical tabulations and legal documents; emphasis is on speed and office standards. Prerequisites: O.A. 105 or equivalent and speed of 40 words per minute.

O.A. 107 Advanced Dictophone
Transcription (3+0) 3 Credits Fall or Spring
Advanced transcription training with emphasis on mailability, speed, meeting deadlines, and working under pressure.

O.A. 201 Intermediate Stenography (2+2) 3 Credits Fall 202 Advanced Stenography 3 Credits Spring High speed shorthand dictation and transcription. Prerequisite: O.A. 102, 106 or equivalent.

O.A. 203 Office Machines (1+2) 3 Credits Fall Basic operation of calculating, adding, duplicating, and dictation machines. Prerequisite: O.A. 105 or equivalent.

O.A. 208 Specialized Secretarial Skills (3+0) 3 Credits Fall or Spring Principles, practices, and rules of filing. Training and practice in the operation of transcribing machines, responsibilities and duties of the secretary; business ethics.

O.A. 231 Business Correspondence (3+0) 3 Credits Fall Fundamentals of business writing; emphasis on clarity, accuracy, and effectiveness in the writing of business letters and reports. *Prerequisite: Engl. 102, O.A. 105 or equivalent.* 

O.A. 299 Office Practice (2+10) 6 Credits Spring Actual office experience. Students are required to work in selected offices on campus for ten hours each week. They also meet two class hours per week and discuss receptionist duties in an office including business ethics, telephone techniques, meeting callers, taking orders, getting along with fellow employees, subordinates, and superiors. Admission by permission of the instructor.

O.A. 302 Secretarial Training (3+0) 3 Credits Spring Business office systems, procedures, organization; professional secretarial standards and practices; C.P.S. program and requirements; the preparation of office manuals.

**O.A.** 351 Readings in Office Administration (1+0) 1 Credit Fall or Spring Readings in current problems, practices, procedures, methods. Not more than two credits to be earned by any student.

O.A. 360 C.P.S. Coaching (3+0)

Review of current professional literature, a study of material covered in recent C.P.S. examinations, and solving of problems under examination conditions. Guidelines of the course are the requirements for the C.P.S. examination. Prerequisite: senior standing or permission of the instructor.

O.A. 493 Special Topics Credits Arr. Fall Spring
O.A. 499 Office Practice (2+10) 6 Credits Spring
Description same as O.A. 299.

#### **PHILOSOPHY**

Phil. 201 Introduction to Philosophy (3+0)3 Credits Fall and Spring Terms, concepts, and problems as reflected in writings of great philosophers. Prerequisites: Engl. 102, sophomore standing, and permission of the instructor.

Phil. 204 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 applications. Prerequisite: sophomore standing.

Phil. 321 Aesthetics (3+0)

3 Credits

Fall

The nature of aesthetic experience in poetry, music, painting, sculpture, and architecture; studies in relation to artistic production and the role of art in society. Offered in alternate years; next offered in 1969-70.

Phil. 332 Ethics (3+0)

3 Credits

Spring

Examination of ethical theories and basic issues of moral thought. Offered in alternate years; next offered in 1969-70.

Phil. 341 Epistemology (3+0)

3 Credits

Fall

The nature of knowledge, truth and certainty. Prerequisite: Phil. 201. Offered in alternate years; next offered in 1970-71.

Phil. 342 Metaphysics (3+0)

3 Credits

Spring

The nature of reality comprising both ontology and cosmology. Prerequisite: Phil. 201. Offered in alternate years, next offered 1970-71.

Phil. 351 History of Philosophy (3+0)

3 Credits

Fall

Ancient and Medieval periods. Prerequisite: six credits in philosophy or social science.

Phil. 352 History of Philosophy (3+0)

3 Credits

Spring Renaissance, Modern, and Recent periods. Prerequisite: six credits in philosophy or social science.

Phil. 471 Contemporary Philosophical

Problems (3+0)

3 Credits

Fall or Spring

Ideological issues facing the modern world. Prerequisite: nine credits in philosophy or permission of the instructor.

Phil. 481 Philosophy of Science (3+0)

3 Credits

Fall

Comparison and discussion of various contemporary methodological positions. Prerequisite: junior standing.

Phil. 482 Comparative Religion (3+0)

3 Credits

Spring

Seven world faiths represent answers to questions of man's duty, his destiny, and his nature. Prerequisite: permission of the instructor.

Phil. 484 Philosophy of History (3+0)

3 Credits

Spring

Critical examination of the nature of history and historical inquiry. Prerequisite: nine credits in philosophy or social science.

Phil. 493 Special Topics

Credits Arr. Credits Arr.

Fall Spring

494

Various subjects.

#### PHYSICAL EDUCATION

P.E. 100 Physical Education Activities (0+3) 1 Credit Fall and Spring Only P.E. 100 will count toward the four semesters of physical education referred to under General Requirements for Undergraduate Degrees. An activity may be repeated for credit only if the activity is offered on an intermediate or advanced level. Regulation uniforms are required for participation in all activities.

#### PROFESSIONAL TRAINING COURSES

# P.E. 203 Fundamentals of Sports — Tennis

and Badminton (0+2)

1 Credit

Fall

Skills, rules, strategies, terminology of tennis and badminton.

# P.E. 211 Fundamentals of Sports — Volleyball

and Soccer (0+2)

1 Credit

Spring

Skills, rules, strategies, terminology of volleyball and soccer.

# P.E. 212 Fundamentals of Sports — Recreational

Activities (0+2)

1 Credit

Spring

Skills, rules, strategies, terminology of such activities as archery, bowling, table tennis, and shuffleboard.

P.E. 213 Fundamentals of Sports — Swimming (0+2) 1 Credit

Fali

Skills, techniques, terminology of basic strokes; instruction in water safety and accident prevention; a preparatory course for P.E. 401.

**P.E.** 214 Fundamentals of Sports — Skiing (0+2) 1 Credit Spring Skills, techniques, terminology of alpine type and cross-country skiing. Methods of instruction.

### P.E. 215 Fundamentals of Sports — Tumbling

and Gymnastics (Men) (0+2)

1 Credit

Fall

Skills, techniques, terminology of tumbling and gymnastics.

P.E. 216 Fundamentals of Sports — Rhythms (0+2) 1 Credit

Apparatus Gymnastics (Women) (0+2)

Spring

Skills, terminology, and basic patterns of movement.

P.E. 217 Fundamentals of Sports — Tumbling and

1 Credit

Fall

Instruction in basic skills and techniques of apparatus gymnastics. Training and practices in tumbling, free exercises, uneven bars, balance beam, and trampoline.

P.E. 242 Personal and Community Health (3+0) 3 Credits Spring Development of positive health attitudes; principles and practices of personal and community health.

P.E. 246 First Aid (2+0)

2 Credits Fall or Spring

Knowledge and skills necessary to provide efficient aid and treatment in emergencies.

P.E. 301 Techniques in Physical Education — Basketball

(Men) (2+1)

2 Credits

Fall

Methods of coaching and training basketball teams; strategy, methods, and psychology of offense and defense.

3 Credits

2 Credits

Credits Arr.

Credits Arr.

Fall

Spring

P.E. 302 Techniques in Physical Education — Track and Field (2+1)2 Credits Spring Methods and strategy of coaching track and field; form, technique, and training for events; organization and conduct of meets; construction, assembly, and use of equipment. 303 Techniques in Physical Education — Team P.E. Sports (Women) (2+1)2 Credits Fall Methods and practices, analysis of skills and progressions for selected team sports for women. P.E. 308 Physical Education for the Elementary School (2+3)3 Credits Spring (Same as Ed. 308) Philosophy, source, materials, games, rhythmics, group activities, and program planning; participation required to gain skills and techniques of teaching activities for elementary grade children. Prerequisites: Ed. 313 and prerequisite thereto. Principles of Physical Education (4+0)4 Credits P.E. Fall Basic principles and philosophy of physical education; its relation to general education; biological, sociological, and psychological bases. 2 Credits Fall P.E. 331 Sports Officiating (1+3)Ethics of sports officiating; mastery, interpretation, and application of sports rules; laboratory consists of game officiating in the intramural program. 358 History of Physical Education (3+0)3 Credits Spring The position of physical education in successive societies since primitive man, with emphasis on its relation to general education. 400 Techniques in Physical Education — Tumbling P.E. and Gymnastics (2+1)2 Credits Spring Methods and practice in teaching tumbling and gymnastics. Prerequisite: P.E. 215 or 217. 401 Techniques in Physical Education — Aquatics and Rhythms (2+1)2 Credits Fall Methods and materials, techniques and practice in teaching aquatics and rhythms. Prerequisite: P.E. 213, 216. 425 Organization and Administration of

Philosophy, methodology, and problems of planning, organizing, and directing the

Athletic injuries; practical and theoretical aspects of taping, bandaging, and massage;

Physical Education (3+0)

440 Prevention and Care of Athletic

Injuries (2+1)

physical therapeutic procedures.

493 Special Topics

P.E.

494

total physical education program at the secondary school level.

#### **PHYSICS**

Phys.	103	College Physics	(3+3)	4 Credits	Fall
	104		, ,	4 Credits	Spring

Unified classical and modern physics. Prerequisite: High school algebra and geometry.

Phys. 211 General Physics (3+3) 4 Credits Fall 212 4 Credits Spring

Mechanics, acoustics, thermodynamics and kinetic theory, electricity and magnetism, waves and optics.

Phys. 275 Astronomy (3+0) 3 Credits Fall 3 Credits Spring

Science elective for the general student. Fall Semester: stellar astronomy, nature of radiation, physical properties and distribution of stars, galactic structure and cosmology. Spring Semester: the solar system, laws of motion, the earth, the moon, planets, comets and meteors, cosmogony. Evening demonstrations both semesters. Prerequisite: sophomore standing; Phys. 275 not required for 276.

Phys. 280 Shop Technique (0+3) 1 Credit Fall or Spring Elements of machine tool operations, welding, soldering, glass blowing, high vacuum technique. Rudiments of apparatus construction. Shop project. Enrollment limited. Prerequisite: permission of the instructor. Offered as demand warrants.

Phys. 281 Astronomy Laboratory (0+3) 1 Credit Fall 282 1 Credit Spring

Laboratory experiments in gravitation, geometric optics, physical optics, radiometry, photoelectricity, spectrophotometry and spectroscopy illustrating and supplementing Phys. 275, 276. Prerequisite: sophomore standing; Phys. 281 not required for 282. Offered as demand warrants.

Phys. 301 Applied Physics (2+3) 3 Credits Fall 302 Spring

Applied physics for majors in the arts, biological sciences, and education. Electronics, atomic structure and spectra, nuclear structure and reactions, radio-activity, tracer techniques, nuclear power. *Prerequisites: Phys. 104, Math. 102. Offered as demand warrants.* 

 Phys.
 311 Classical Physics (4+0)
 4 Credits
 Fall

 312
 4 Credits
 Spring

 313
 4 Credits
 Spring

Selected topics from mechanics, thermodynamics, kinetic gas theory, statistical mechanics, acoustics, geometric and physical optics. Prerequisites: Phys. 212, Math. 202, or permission of the instructor. Physics 312 and 313 are offered in alternate years in the spring.

Phys. 331 Electricity and Magnetism (3+0) 3 Credits Spring 32 Fall

Electrostatics, dielectrics, magnetostatics, magnetic materials, electromagnetism. Maxwell's equations, plane electromagnetic waves, radiation, selected topics from circuit theory and electronics. *Prerequisites: Phys. 212, Math. 202.* 

351 Introduction to Dynamic Meteorology Phys.

3 Credits

Fall

201

A mathematical treatment of atmospheric thermodynamics and basic equations of motion. The principles of thermodynamics are applied to the atmospheric system in the theoretical considerations as well as in practical applications. Prerequisites: Math. 201, Math. 202 taken concurrently. Offered as demand warrants.

361 General Geophysics (3+0)

3 Credits 3 Credits

Fall Spring

362 Introduction to basic geophysics including terrestrial electricity and magnetism, me-

teorology and seismology, geodesy and vulcanology, glaciology, oceanography and techtonophysics. Prerequisites: junior standing; Phys. 104 or 212, Math. 102, one semester of geology. Offered as demand warrants.

381 Physics Laboratory 382

Credits Arr. Credits Arr.

Fall Spring

Laboratory experiments illustrating and supplementing Phys. 311, 313, and Phys. 331, 332. Enrollment limited. Prerequisite: permission of the instructor.

Phys. 411 Modern Physics (3+0) 3-4 Credits

Fall

412 3-4 Credits Spring

Relativity, elementary particles, atomic structure, x-rays, solid state physics, nuclear structure and reactions. Engineering majors take the three credits lecture course only. Physics majors are required to take a supplementary one credit reading course. Prerequisites: Phys. 212, 332, Math. 302.

Phys. 445 Solid State Physics (3+0)

3 Credits

Fall

Theory of matter in the solid state, especially semiconductors. Prerequisites: Phys. 212, Math. 202. Offered as demand warrants.

Phys. 455 Atomic and Nuclear Physics (3+0)

3 Credits

Fall

Radioactivity, counters, nuclear reactions, neutron physics, nuclear physics, nuclear fission, cosmic rays. Prerequisites: Phys. 212, Math. 202. Offered as demand warrants.

Phys. 460 Geophysical Prospecting (2+3)

3 Credits

Fall or Spring Basic methods in geophysical exploration and measurements, gravimetric, seismic, electrical magnetic, and radioactive. Prerequisites: Phys. 212, Geol. 101, 102, Math. 201. Offered as demand warrants.

Phys. 465 Meteorology

3 Credits

Fall or Spring

Instruments and observations. Introduction to mechanics and thermodynamics of the atmosphere. Weather analysis and forecasting. Prerequisites: Phys. 104 or 212, Math. 102. Offered as demand warrants.

470 Astronautics (3+0)

3 Credits

Fall or Spring

Principles of astronomy, foundations of mechanics, and dynamics of space flight. Prerequisites: Phys. 212, Math. 202. Offered as demand warrants.

475 Astrophysics (3+0)

3 Credits

Fall or Spring

Introduction to stellar spectroscopy, atomic theory and astrophysics, stellar luminosities. Luminosities, atmospheres, interior, energy production and evolution of the stars. Admission by arrangement. Offered as demand warrants.

Phys. 481 Advanced Physics Laboratory Credits Arr.

Fall

Credits Arr.

Spring

Laboratory experiments illustrating and supplementing Phys. 411, 412, 445, 455, 475. Enrollment limited. Prerequisite: permission of the instructor.

Flast

Credits Arr. 485 Experimental Physics Fall 486 Credits Arr. Spring Senior projects in experimental physics. Enrollment limited. Prerequisites: senior standing and permission of the instructor. **491 Physics Seminar** Phys. Credits Arr. Fall 492 Credits Arr. Spring Seminar courses in various topics selected according to needs and interest of students. Primarily for physics majors. Prerequisite: permission of the instructor. Phys. **493** Special Topics Credits Arr. Fall 494 Credits Arr. Spring Various subjects. Admission by arrangement. 603 Introduction to Geophysics (3+0)3 Credits Fall 3 Credits Spring A survey of selected topics in geophysics, including introductory material in each of the major research subject areas in geophysics. Phys. 610 Mathematical Physics (3+0)3 Credits Linear spaces, operator theory, generalized functions, variational methods in theoretical physics. Prerequisite: Math. 612 or permission of the instructor. Offered as demand warrants. Phys. 611 3 Credits Fall Theoretical Physics (3+0)612 3 Credits Spring Fundamentals of mathematical physics with emphasis on problem solving; analytical mechanics; power series; vibrating systems; Fourier analysis; hydrodynamics, vector analysis; electromagnetism, complex analysis, wave optics, wave mechanics, matrices, perturbation theory; atomic structure, statistical physics, asymptotic expansions. Admission by arrangement. Phys. 620 Introduction to Physical 3 Credits Oceanography (3+0)(Same as OCN 620) 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. 621 Classical Mechanics (3+0) Lagrange's equations, two-body problem, rigid body motion, special relativity, canonical equations, transformation theory and Hamilton-Jacobi method. Admission bu arrangement. Phys. 622 Statistical Mechanics (3+0)3 Credits Spring Classical and quantum statistics of independent particles, ensemble theory, applications. Admission by arrangement. Phys. 625 Hydrodynamics (3+0)3 Credits Fall Equations of motion, irrotational motion of perfect fluid, motion of solids through fluids. Vortex motion, waves, viscosity, turbulent flow. Compressible fluids. Admission by arrangement. Offered as demand warrants.

Phys. 626 Magnetohydrodynamics and

Plasma Physics (3+0)

Fundamental equations of magnetohydrodynamics, magnetohydrodynamic waves.

3 Credits

Spring

Invariants of the motion of a charged particle in a magnetic field. Dynamics of a plasma, plasma waves. Admission by arrangement.

Phys. 631 Electromagnetic Theory (3+0) 3 Credits Fall Spring

Electrostatics, magnetostatics, Maxwell's equations, potentials. Lorentz equations, field energy, gauge conditions, retarded potentials, waves, radiation, tensor formulations, non-Maxwellian electrodynamics. Admission by arrangement.

Phys. 641 Radio Waves (3+0) 3 Credits Spring

The ionosphere, Maxwell's equations and constitutive relations, propagation, magneto-ionic theory, ray theory, and wave solutions. Admission by arrangement. Offered as demand warrants.

Phys. 642 Radio Physics (3+0) 3 Credits Fall or Spring Selected topics from ionospheric absorption, diffraction, and scattering of radio waves. Admission by arrangement. Offered as demand warrants.

Phys. 645 Relativity (3+0) 3 Credits Fall or Spring Origins, special theory, mechanics, and electrodynamics, tensors, gravitational field equations and their solutions; particles in general relativity, cosmology; extensions to unified field theories. Admission by arrangement. Offered as demand warrants.

Phys. 651 Quantum Mechanics (3+0) 3 Credits Fall Schrodinger's equations, operator formalism, correspondence principle, central force problems, matrix representations, perturbation theory, quantum-statistic mechanics. Admission by arrangement.

Phys. 652 Applied Quantum Mechanics (3+0) 3 Credits Spring Applications of quantum mechanics to collision problems, radiation and spectroscopy. Prerequisite: Phys. 651 or permission of the instructor. Offered as demand warrants.

Phys. 655 Nuclear Physics (3+0) 3 Credits Fall or Spring Properties of nuclei, interaction of radiation with matter, alpha emission, gamma decay, nuclear forces, mesons, neutrons, cosmic rays. Admission by arrangement. Offered as demand warrants.

Phys. 660 Theoretical Geophysics (3+0) 3 Credits Fall or Spring Selected topics in theoretical geophysics, mainly in solid earth physics, seismology, and geomagnetism. Admission by arrangement. Offered as demand warrants.

Phys. 661 Physics and Chemistry of the Upper

Atmosphere (2+0) 2 Credits Spring
Aerostatics, composition. Kinetic theory. Properties, viscosity, thermal conductivity
and diffusion. Escape. Solar radiation. Absorption. Dissociation and ionization.

and diffusion. Escape. Solar radiation. Absorption. Dissociation and ionization. Positive and negative ions. Recombination, attachment and detachment. Ozone, hydroxyl, and hydrogen. The airglow. Admission by arrangement. Offered as demand warrants.

**Phys. 662 Ionospheric Phenomena** (2+0) 2 Credits Spring Layer formation. Ionization by particles. Eclipse effects. Electrical conductivity. Atmospheric tides and oscillations. The geomagnetic field and its daily variations, solar and lunar. The atmosphere as a dynamo and motor. Admission by arrangement. Offered as demand warrants.

Phys. 663 The Geomagnetic Field (2+0) 2 Credits Spring

The amin field at the earth's surface. Spherical harmonic analysis; the field within the earth; the field outside the earth; the secular magnetic variation; paleomagnetism; the dynamo theory of the field and its secular variation; distortion of the outer field by electric currents associated with magnetic disturbance. Admission by arrangement. Offered as demand warrants.

Phys. 664 Geomagnetic Disturbance and

the Aurora (2+0)2 Credits Fall or Spring

The morphology, statistics, solar and ionospheric associations of magnetic disturbances; indices of disturbance; auroral phenomena; theories of magnetic disturbance and the aurora. Admission by arrangement. Offered as demand warrants.

Phys. 665 Dynamic Meteorology (3+0)3 Credits Fall or Spring Atmospheric statics, thermodynamics, radiation, and dynamics; atmospheric turbulence; general circulation; perturbation theory. Admission by arrangement. Offered as demand warrants.

3 Credits 667 Theoretical Astrophysics (3+0) Fall or Spring Radiative transfer and stellar hydrodynamics; theory of continuous and line spectrum from stellar atmospheres; solar photosphere, chromosphere and corona. Admission by arrangement. Offered as demand warrants.

2 Credits Phys. 670 Solar Physics (3+0)Fall or Spring Structure of the solar interior and atmosphere theory of radiation, radio emission, solar-terrestrial relations. Admission by arrangement. Offered as demand warrants.

Phys. 671 Space Physics (2+0)2 Credits Fall or Spring Radiation belts, motions and magnetic fields of trapped particles, geomagnetic storm effects and primary auroral particles. Admission by arrangement. Offered as demand warrants.

3 Credits Fall or Spring Phys. 675 Radio Astonomy (3+0) Survey of instruments and techniques, radio wave generation and propagation in ionized media, solar radio waves, cosmic radio waves, effects of the troposphere on extra-terrestrial radio waves, radar astronomy. Admission by arrangement. Offered as

demand warrants. Phys. **Atomic and Molecular Processes** Credits Arr. Fall 677 Credits Arr. Spring

Selected topics in collision theory, radiation theory, atomic and molecular structure and reactions, and experimental techniques of atomic and molecular physics.

685 Experimental Physics Credits Arr. Fall Phys. Credits Arr. Spring 686

Advanced work in experimental physics. Admission by arrangement.

Phys. 690 Colloquium 0 Credits Fall or Spring Phys. 691 Seminar Credits Arr. Fall 692 Credits Arr. Spring

Various topics. Admission by arrangement.

Phys.	693 Special Topics	Credits Arr.	Fall
	694	Credits Arr.	Spring
Variou	s subjects. Admission by arrangement.		
Phys.	697 Thesis or Dissertation	Credits Arr.	Fall
	698	Credits Arr.	Spring

# POLICE ADMINISTRATION

P.A. 151 Introduction to Criminology	3 Credits F	all
Study of the major areas of deviant behavior and	relationship to society, law and l	aw
enforcement.		

#### 3 Credits P.A. 152 Criminal Law Fall Structure, definitions, and most frequently used sections of the Penal Code and other criminal statutes.

#### P.A. 153 Criminal Evidence 3 Credits Spring The kinds and degrees of evidence and the rules governing the admissibility of evidence in court.

#### P.A. 154 Administration of Justice 3 Credits Spring Review of court systems, procedures from incident to final disposition; principles of constitutional, federal, state, and civil laws, as they apply to and affect law enforcement. Offered in alternate years.

P.A. 155 Criminal Investigation 3 Credits Fundamentals of investigation; crime scene search and recording; collection and preservation of physical evidence; scientific aids; modus operandi; sources of information; interviews and interrogation; follow-up and case preparation. Offered in al-

# ternate years. P.A. 156 Patrol Procedures 3 Credits Fall

Responsibilities, techniques, and methods of police work; computer orientation. Offered in alternate years.

P.A. 157 Traffic Control 3 Credits Spring Traffic laws, enforcement, regulation, and control; fundamentals of traffic accident investigation; vehicle code. Offered in alternate years.

P.A. 158 Juvenile Procedures 3 Credits The organization, functions, and jurisdiction of juvenile statutes and court procedures. Offered in alternate years.

P.A. 159 Organization, Management, and 3 Credits Administration Fall An integrated study of the composition and functions of organizations; principles and

problems of management and supervision; the role of administrator, including report writing. Offered in alternate years.

# **POLITICAL SCIENCE**

	Introduction to American Government and Political Science $(3+0)$	3 Credits 3 Credits	Fall Spring
U.S. Constitution proceed the constitution of	itution and its philosophy; evolution of the ss; contemporary political issues; goals, m	branches of gonethods, and le	vernment; poli- evels of govern-
P.S. 201	Comparative Politics: The Political Process (3+0)	3 Credits	Fali
Different c	constitutional molds in which the political recesses of modern techniques; emerging p	process operate political forms.	s; the effect on
Case studi	Comparative Politics: Case Studies $(3+0)$ es from selected nations grouped into four ommunism, Chinese Communism and "em	classes: Wester	Spring Democracies, s.
Organizatio	State and Local Government (3+0) on and politics of state and local governmentitution; problems of statehood in Alaska		
	Public Administration (3+0) s and problems of administering public poranch in the political process. Prerequisite		Fall or Spring ging role of the
322 Developmentempts at v	International Affairs: (3+0) International Affairs: Case Studies (3+0) ent of internationalism in relation to nativorld government. The League of Nations w. The role of national governments in the	ionalism and i and the United	Nations. Inter-
Developme	International Law and Organization ent, structure, policies, and problems of pu . Accomplishments and limitations of unive	3 Credits blic internatio rsal and region	Fall or Spring nal law and or- al organizations
P.S. 401 402	Political Behavior (3+0)	3 Credits 3 Credits	Fall Spring
	f political organizations, parties, groups, p quisites: P.S. 101, 102.		
P.S. 411 412	Political Theory $(3+0)^{\epsilon}$	3 Credits 3 Credits	Fall Spring
	assical, medieval, and modern political conc ior.		
P.S. 415	Recent Political Thought (3+0)	3 Credits	Fall or Spring

A discussion of the contributions of modern thinkers to political theory.

P.S. 434 American Constitution (3+0) 3 Credits Fall or Spring Role of the judiciary in the American political system viewed both historically and through analysis of leading cases. *Prerequisite: P.S. 101.* 

# P.S. 485 Seminar in Contemporary International

Relations (3+0)

3 Credits

Fall or Spring

Theory of international conflict. Prerequisites for international political cooperation. The effect on international affairs of advances in military science. Prerequisite: P.S. 321.

P.S.	491	91 Seminar Credits Arr.	Fall	
	492		Credits Arr.	Spring
P.S.	493	Special Topics	Credits Arr.	Fall
	494		Credits Arr.	Spring

# **PSYCHOLOGY**

Psy. 101 Introduction to Psychology (3+0) 3 Credits Fall or Spring Fundamentals of general psychology, Human behavior: genetic, motivation, learning, sensations, perception, personality.

Psy. 102 Introduction to Psychology (3+0) 3 Credits Spring A continuation of the fundamentals of the principal areas of general psychology. Prerequisite: Psy. 101.

Psy. 201 Advanced General Psychology (3+0) 3 Credits Fall 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. Prerequisites: Psy. 101, 102. Psy. 201 is prerequisite for the majority of upper level psychology courses.

# Psy. 261 Introduction to Experimental

Psychology (2+3)

3 Credits

Fall

Introduction to and laboratory application of the experimental methods to some problems of psychology using both human and animal subjects. Prerequisite: Psy. 201.

# Psy. 271 Introductory Statistics for

Behavioral Sciences (3+0)

3 Credits

Fall or Spring

(Same as Soc. 271)

Introduction to the purpose 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. 201.

# Psy. 301 History and Systems of

Psychology (3+0)

3 Credits

Fall

Development of psychological thought with an emphasis on experimental and theoretical areas from the early Greeks to the present. Prerequisite: Psy. 201.

# Psy. 302 Social Psychology (3+0)

3 Credits

Spring

(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, 102 and/or Soc. 101, 102.

# ✓Psy. 331 Industrial Psychology (3+0)

Fall

Job and worker analysis, selection, training, fatigue, worker adjustment, morale, labor-management relations. Prerequisite: Psy. 101. Psy. 201 is recommended prior to Psy. 331. Offered alternate years; next offered 1970-71.

Psy. 338 Abnormal Psychology (3+0) 3 Credits Spring Abnormalities of human behavior. Prerequisites: Psy. 101, 102. Psy. 351 Child Development (2 9) 5 Credits Fall Spring (Same as H.E. 351) Theory and laboratory of human mental, emotional, social, and physical development. Prerequisites: Psy. 101, 45 collegiate credits, and permission of the instructor. It is recommended that Psy. 201 be taken prior to Psy. 351. 3 Credits Fall Psy. 352 Adolescence (2+3)Spring (Same as Soc. 352) Intellectual, emotional, social, and physical development patterns during the adolescent years. Laboratory arranged for observations of adolescents in a variety of settings, including public schools. Prerequisites: Psy. 101, 45 collegiate credits, and permission of the instructor. Soc. 101 is recommended prior to Psy. 352. Psy. 362 Intermediate Experimental Psychology (2+0)Spring Training in the design, instrumentation, and execution of experiments with human and animal subjects. Major emphasis in the areas of learning, motivation, and perception. Prerequisites: Psy. 201, 261. Fall Psy. 373 Psychological Testing (3+0) 3 Credits Standardized psychological tests in various applied areas; administration, scoring, and interpretation of established tests. Prerequisites: Psy. 201, 261. Psy. 406 Theories of Personality (3+0)Spring Current psychological theories, with a critical examination of the different approaches used in theory construction. Prerequisites: Psy. 201, 338. Fall Psy. 407 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. 201, 261. Offered alternate years; next offered 1970-71. 3 Credits Fall Psy. 433 Clinical Psychology (3+0) Elementary course in methods of clinical psychology with consideration of psychological assessment and psychological approaches to treatment. Prerequisite: Psy. 201. Offered alternate years. Next offered 1969-70. 3 Credits Psy. 464 Learning (3+0) Spring A study of the major theories of conditioning and learning, and a survey of current literature concerning classical conditioning and instrumental learning in humans and animals. Prerequisites: Psy. 201, 261. Offered alternate years; next offered 1969-70. Psy. 465 Comparative and Physiological Fall Psychology (3+0)3 Credits An introduction to physiological, chemical, and neutral principles basic to human

261. It is recommended that Biol. 105 and 106 be taken prior to Psy. 465. Offered alternate years; next offered 1969-70.
 Psy. 466 Perception (3+0)
 3 Credits Spring Current literature and theoretical models of perception emphasizing the physiolog-

and animal behavior. Review of current literature in the field. Prerequisites: Psy. 201,

Current literature and theoretical models of perception emphasizing the physiological, developmental, and social effects on interpretation of sensory processes. *Prerequisites: Psy. 201, 261. Offered alternate years; next offered 1970-71.* 

209

Fall

Psy. 473 Social Science Research Methods (3+0) 3 Credits (Same as Soc. 473)

Techniques of social research; sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments; attitude scaling. Prerequisites: Psy. 201, 271.

Psy. 492 Seminar in Human Behavior (2+0) 2 Credits Spring (Same as Soc. 492)

Integrated behavioral approach emphasizing the major sociological and psychological theories with special attention to current literature. *Prerequisite: senior standing in psychology or sociology.* 

Psy. 493 Special Topics Credits Arr. Fall 494 Credits Arr. Spring

Various subjects. Admission by arrangement.

## RUSSIAN

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.
 105
 Elementary Russian
 (3+0)
 3 Credits
 Fall

 106
 3 Credits
 Spring

 №107
 3 Credits
 Spring

 3 Credits
 Spring

Same course content at Russ. 101 and 102 but with the year sequence divided into three courses rather than two. Course not offered on main campus at College.

Russ. 108 Russian for Reading Ability (3+0) 3 Credits Spring Rapid acquisition of reading knowledge with attention to needs in specialized fields. Credit not applicable toward degree language requirements. Offered as demand warrants.

 Russ.
 201 Intermediate Russian
 (3+0)
 3 Credits
 Fall

 202
 3 Credits
 Spring

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. 321 Studies in Russian Literature (3+0) 3 Credits Fall Spring

Choice of authors, genres, or periods of Russian literature for intensive study. Conducted in Russian. *Prerequisite: Russ. 202 or equivalent. Students may repeat course for credit when topic varies.* 

Russ. 493 Special Topics Credits Arr. Fall
494 Credits Arr. Spring

Various subjects for advanced students. Admission by arrangement. Offered as demand warrants.

### SOCIOLOGY

Soc. 101 Introduction to Sociology (3+0) 3 Credits Fall or Spring 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.

Soc. 102 Introduction to Sociology (3+0) 3 Credits Fall or Spring A continuation of Soc. 101. Prerequisite: Soc. 101.

Soc. 106 Social Welfare (3+0) 3 Credits Fall or Spring Functions and development of modern social welfare and the distinctive features of the field, designed primarily to assist in the understanding of social welfare problems and services. Prerequisite: Soc. 101. Course not offered on main campus at College.

Soc. 201 Social Problems (3+0) 3 Credits Fall Problems of contemporary society; analysis of factors giving rise to them. Prerequisites: Soc. 101, 102.

Soc. 205 Group Processes in Modern Society (3+0) 3 Credits Fall Formation, structure and functioning of groups; group processes and group products; implications of various research techniques. *Prerequisites: Soc. 101, 102.* 

Soc. 207 Population (3+0) 3 Credits Fall Analysis of world populations; growth and decline patterns, migratory trends and ecology; worldwide implications to current population growth; critical review of major theoretical contributions with introduction to demographic methods. Prerequisites: Soc. 101, 102.

Soc. 242 The Family (3+0) 3 Credits Spring A study of the contemporary patterns of marriage and family relationships in the U.S. A social psychological approach to factors 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. *Prerequisites: Soc. 101, 102.* 

Soc. 271 Introductory Statistics for
Behavioral Sciences (3+0) 3 Credits

Behavioral Sciences (3+0) 3 Credits Fall or Spring (Same as Psy. 271)
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 Social Psychology (3+0) 3 Credits Spring (Same as Psy. 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, 102 and/or Soc. 101, 102.* 

Soc. 304 Culture and Personality (3+0) 3 Credits Spring 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. 309 Urban Sociology (3+0)

3 Credits

Fall

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.* 

Soc. 310 Sociology of Later Life (3+0)

3 Credits

Spring

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, 102. Offered alternate years; next offered 1969-70.

Soc. 333 Social Welfare as a Social Institution (3+0)

3 Credits

Fall

Historical development and survey of social services and social work practice as these affect human needs: economic security, child welfare, family service programs, health agencies, correctional agencies, community organization programs. *Prerequisites: Soc. 101, 102, 201.* 

Soc. 336 Social Work Methods (3+0)

3 Credits

Spring

The scope and principles of modern social work. Description of the three major methods of social work; casework, group work, and community organization. Preparation for further study in the field and for preliminary work in it. *Prerequisites: Psy.* 101, Soc. 333, or permission of the instructor.

 $\graph$ Soc. 343 Sociology of Deviant Behavior (3+0)

Fal

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. 345 Sociology of Education (3+0)

3 Credits

3 Credits

Fall

(Same as Ed. 345)

Impact of culture on schools. Examination of contemporary social trends and relationships among church, school, government, and family. Prerequisite: Soc. 101.

Soc. 347 Sociology of Religion (3+0)

3 Credits

Fall

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. Offered alternate years; next offered 1970-71.* 

Soc. 352 Adolescence (2+3) (Same as Psy. 352)

3 Credits

Fall Spring

Intellectual, emotional, social, and physical development patterns during the adolescent years. Laboratory arranged for observations of adolescents in a variety of settings, including public schools. Prerequisites: Psy. 101, 45 collegiate credits, and permission of the instructor. Soc. 101 is recommended prior to Soc. 352.

Soc. 363 Social Stratification (3+0)

3 Credits

Fall

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. *Prerequisites: Soc. 101, 102.* 

Soc. 383 Field Observation (to be arr.)

2-3 Credits

Fall Spring

Introduction to the services of community agencies to provide a better understanding

of the role and programs of social agencies and their services. It is designed to assess the students' interest in and motivation for a career in the social services. The serious student can obtain credit for two semester's work in this course. Four to six hours a week in approved social agencies. Prerequisites: Soc. 336 or concurrently with Soc. 336 and permission of the instructor.

Major sociological theories and theories of Western civilization: review of important contributions and approaches of various "national schools" with emphasis on current American and European trends. Prerequisite: Psy. 302 or Soc. 302.

Soc. 405 Social Change (3+0) 3 Credits Fall Social change in long-time perspective, with emphasis on social movements and the influence of technology. *Prerequisites: Soc. 101, 102.* 

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. Prerequisites: Soc. 101, 102. Offered alternate years; next offered 1969-70.

★ Soc. 408 Ethnic Minorities (3+0) 3 Credits Spring Immigration as a factor in American life. Changing politics and practices toward the immigrant seen in the setting of the times. Special problems of Puerto Rican. Mexican, and other recent migrants. Present status of national and religious minorities. Theories of adjustment. Changing social, economic, and political status of the Negro and the factors contributing to change. Negro-white relationships. Recent desegregation trends. Prerequisites: Soc. 101, 102.

Soc. 473 Social Science Research

Methods (3+0) 3 Credits Fall

(Same as Psy. 473)

Techniques of social research; sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments; attitude scaling. *Prerequisite: Psy. 271 or Soc. 271.* 

Soc. 492 Seminar in Human Behavior (2+0) 2 Credits Spring Integrated behavioral approach emphasizing the major sociological and psychological theories with special attention to current literature. Prerequisite: senior standing in psychology or sociology.

Soc. 493 Special Topics Credits Arr. Fall Credits Arr. Spring

Various subjects. Admission by arrangement.

# SPANISH

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.

	Course Description	ns 213
Span. 105 Elementary Spanish (3+0)	3 Credits 3 Credits	Fall Spring
<b>\$107</b>	3 Credits	Spring
Same course content as Span. 101 and 102 but with three courses rather than two. Course not offered of	the year sequence div	vided into
Span. 201 Intermediate Spanish (3+0)	3 Credits 3 Credits	Fall Spring
Continuation of Span. 102. Increasing emphasis on regial. Conducted in Spanish. <i>Prerequisite: Span. 102 eish.</i>		ıral mate-
Span. 203 Composition and Conversation $(2+6)$	0) 2 Credits 2 Credits	Fall Spring
Supplements Span. 201, 202, stressing written and o ish. Concurrent enrollment in Span. 201 or 202 recon or equivalent.		d in Span-
Span. 301 Advanced Spanish (3+0) 302	3 Credits 3 Credits	Fall Spring
Discussions and essays on more difficult subjects or cises, special grammatical problems, systematic voc Spanish. <i>Prerequisite: Span.</i> 202 or equivalent. Next	cabulary building. Con	
Span. 321 Studies in Spanish Literature (3+0) 322	3 Credits 3 Credits	Fall Spring
Choice of authors, genres, or periods of Spanish literated in Spanish. Students may repeat course for credi Span. 202 or equivalent.		
Span. 437 Literature of the Golden Age (3+0)	3 Credits	Fall
Close study of outstanding literary works in different Next offered 1969-70.		-
Span. 493 Special Topics 494	Credits Arr. Credits Arr.	Fall Spring
Various subjects for advanced students. Admission mand warrants.		A 1,7
SPEECH		
Sp. 68 Elementary Public Speaking I $(2+0)$ Elementary speech composition.	2 Credits Fall	or Spring
Sp. 69 Elementary Public Speaking II $(2+0)$ Elementary speech composition.	2 Credits Fall	or Spring
Sp. 111 Public Speaking I $(1+2)$	2 Credits Fall	or Spring
	The state of the s	100

 Sp. ¥122, 1322
 Theater Practicum (0+var.)
 1-3 Credits
 Fall Spring

Fundamentals of oral communication. Theory and practice of exposition and persua-

Participation in Drama Workshop or lab production as performer or technical staff member.

- Sp. 212 Public Speaking II (2+0)2 Credits Fall or Spring Theory and practice of rhetoric and public address. Basic works from Plato to Quintillian. Practice in advanced forms of exposition and persuasion. Sp. 215 Debate Practicum (0+2)Fall or Spring Training in practical debate situations. Participation in Debating Society required. May be repeated for a maximum of six credits. Students wishing to take this course and Sp. 314, Argumentation and Debate, may enroll in the latter with the consent of the instructor and may not receive more than eight units of credit for any combination of the two courses. Sp. 221 Introduction to the Theater (3+0)3 Credits Fall or Spring History of theater with emphasis on dramatic form, architecture, and standards of criticism. Sp. 223 Acting I (1+4)3 Credits Fall or Spring Principles of acting developed through pantomime, improvisation, and sense-memory. Prerequisite: Sp. 221 or admission by arrangement. Sp. 231 Introduction to Broadcasting (3+0)3 Credits Fall or Spring
- and operation of the broadcasting industry.

  Sp. 237 Announcing (1+2)

  2 Credits Fall or Spring Microphone techniques, role of the announcer in broadcasting. Fundamentals of announcing; their practical application. Prerequisite: Sp. 111 or admission by arrangement.

A survey of radio and television, with emphasis on the history, financing, regulation,

- Sp. 239 Radio Operations (0+3) 1 Credit Fall and Spring Training in practical radio operations. Participation on KUAC staff required. May be repeated for a maximum of four credits.
- Sp. 313 Argumentation and Debate (1+2) 2 Credits Fall Theory of argumentation and debate applied to contemporary issues. Practice in briefing and presenting arguments, testing evidence, and detecting fallacies.
- Sp. 314 Discussion (1+2) 2 Credits Spring Nature and operation of discussion groups; use of evidence, reasoning, reflective thinking, group psychology, participant, and leader behavior.
- Sp. 315 Phonetics (2+0) 2 Credits Fall or Spring Use of the International Phonetic Alphabet; assimilation and dialectal problems; use in acting, teaching, speech improvement. Prerequisite: Sp. 111 or admission by arrangement. Offered as demand warrants.
- Sp. 316 Voice and Diction (1+2) 2 Credits Fall 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 recordings. Prerequisite: Sp. 111 or admission by arrangement.
- Sp. 317 Oral Interpretation (2+2) 3 Credits Fall or Spring Interpretative reading based on textual analysis of literary forms and careful study of principles of effective reading. Prerequisite: Sp. 111 or admission by arrangement.
- Sp. 323 Acting II (1+4) 3 Credits Fall or Spring Building a character; role study and performance of small scenes. Prerequisites: Sp. 221, 223, or admission by arrangement.

215

- Sp. 325 Theater Production (1+4) 3 Credits Fall or Spring Direction of short plays for drama lab productions. Principles of makeup, lighting, and production. Prerequisites: Sp. 221, 223, or admission by arrangement.
- Sp. 327 Makeup for Theater (1+2) 2 Credits Fall or Spring Theatrical makeup for actors, teachers, directors, and other theater workers; makeup materials and use; straight and character makeup illusory and plastic relief; national types, influence of lighting. (Students will spend approximately \$20.00 for materials). Offered as demand warrants.
- Sp. 333 Writing for Radio and Television (3+0) 3 Credits Fall or Spring Preparation of announcements, interviews, music continuity, special events programs, documentaries, commentaries, news, and other basic radio and television continuity.
- **5p. 334 Radio-Television Advertising** (2+3) 3 Credits Fall or Spring Academic approach to economics and standards of radio and television advertising. Special emphasis on ethical considerations involved in the preparation and presentation of commercial broadcast copy. *Prerequisite: Sp. 333 or permission of the instructor.*
- Sp. 335 Broadcast Production (2+3) 3 Credits Fall or Spring Use of studio equipment; radio-tv production techniques; radio-tv station organization; tape editing; sound effects; television directing.
- **Sp. 340** Speech for the Classroom Teacher (3+0) 3 Credits Fall or Spring Speech development in the child. Common classroom speech disorders: articulation, delayed speech, stuttering. Classroom procedures in speech improvement.
- Sp. 341 Fundamentals of Speech Correction (3+0) 3 Credits Fall or Spring Basic speech processes. Comprehensive study of four speech disorders: cleft palate, stuttering, hearing impairment, mental retardation (speech and language aspects).
- Sp. 342 Speech Processes (3+0) 3 Credits Spring (Alternate years)

Five basic speech processes. Respiration, phonation, resonance, articulation, and audition.

- Sp. 343 Clinical Methods in Speech Correction (2+2) 3 Credits Spring Administration of clinical tests of speech and application of principles of speech correction; supervised clinical practice. Prerequisites: Sp. 111, 315, 341, or admission by arrangement.
- Sp. 425 Directing (3+0) 3 Credits Spring Directorial analysis of a major dramatic work for public presentation. Prerequisite: senior majors with 3.00 G.P.A. in speech.
- **Sp. 433 Radio-Television News** (2+4) 3 Credits Fall or Spring Responsible news writing, editing, processing and delivery for the broadcast media. Special emphasis on ethical considerations in broadcast journalism. *Prerequisite:* Sp. 333 and Jour. 201 or by permission.
- Sp. 493 Special Topics Credits Arr. Fall Credit Arr. Spring

Various subjects. Admission by arrangement. Offered as demand warrants.

#### WILDLIFE MANAGEMENT

W.M. 304 Wildlife Management Principles (2+3) 3 Credits

Fall

Economic, social, biological, and other values of wildlife; basic principles of wildlife management and its integration with other land use practices; important wildlife resources of Alaska. *Prerequisites: Land Res. 101, Biol. 303.* 

W.M. 325 Scientific Sampling (2+3)

3 Credits

Fall

Sampling methods, including simple random, stratified, and systematic; estimation procedures, including ratio and regression method; special area and point sampling procedures; optimum allocation; special features of biological sampling. *Prerequisites: Math. 122 or 201, and Math. 204 or permission of the instructor.* 

W.M. 410 Wildlife Techniques (2+3)

3 Credits

Spring

Field laboratory and office techniques of collecting, analyzing, interpreting, and presenting data and specimens. Prerequisite: W.M. 304 or permission of the instructor.

\*W.M. 411 Fisheries Field Trip

Credits Arr.

Fall

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 admis*sion by arrangement. Offered as demand warrants.

W.M. 417 Wildlife Management - Forest

and Tundra (2+0)

2 Credits Fall or Spring

Forest and tundra wildlife, with emphasis on game and fur species; correlation of wildlife management with forest and tundra land use practices. Admission by arrangement. Offered as demand warrants.

W.M. 419 Wildlife Management — Wetlands (2+0) 2 Credits Fall or Spring Wetland wildlife with emphasis on game and fur species of fresh-water areas; correlation of wildlife management with wetland use practices. Admission by arrangement. Offered as demand warrants.

W.M. 423 Limnology (2+3)

3 Credits

Fall

Physical, chemical, and biological characteristics of fresh waters, emphasizing ecological aspects important to fish and other organisms. *Prerequisites: Chem. 102, Biol. 105, 303, or permission of the instructor.* 

W.M. 426 The Analysis of Linearized

Models (2+3)

3 Credits

Spring

Analysis by methods of least squares of general linearized models, including those appropriate to various designs, including completely random, randomized complete block, incomplete block, and latin square, and those for the analysis of variance and analysis of covariance. Matrix algebra appropriate to least squares. *Prerequisites: Math.* 122, or 201, Math. 204.

W.M. 429 General Fisheries Biology (2+3)

3 Credits

Fall

The general biology of fishes in relation to their management. Methods of collecting, analyzing and interpreting field and laboratory data. *Prerequisites: Biol. 303, 309, Math. 204.* 

W.M. 430 Fisheries and Their Management (3+0) 3 Credits

Spring

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. Prerequisites: Biol. 303, 309, and Math. 204 desirable, but nonmajors encouraged, and permission of the instructor.

**W.M.** 491 Seminar (2+0)1 Credit Spring 492 1 Credit Fall Various topics in wildlife management. Prerequisite: senior standing in wildlife or admission by arrangement. Offered as demand warrants. 493 Special Topics (arrange) Credits Arr. Fall 494 Credits Arr. Spring Various subjects studied principally through directed reading and discussions. Admission by arrangement. W.M. 611 Wildlife Field Trip Credits Arr. Fall Credits Arr. Spring Trips to wildlife areas to acquaint students with principal animals of the state and problems involved in their management. Admission by arrangement. Offered as demand warrants. W.M. 621 Vertebrate Population Analysis (1+3) 2 Credits Fall Dynamics of vertebrate populations, with particular emphasis on the collection and interpretation of vital statistics of wild populations. Admission by arrangement. Offered as demand warrants. W.M. 622 Environmental Analysis (2+3)3 Credits Spring Recognition, description and evaluation of factors in terrestrial environments. Admission by arrangement. Offered as demand warrants. W.M. 624 Problems in Fisheries Management 2 Credits Spring Selected readings and discussions relating to major fisheries of the world, their problems, and the methods of attack on these problems. Admission by arrangement. Offered as demand warrants. W.M. 625 Fishery Ecology (2+3)3 Credits Fall Advanced ecology of aquatic systems, with emphasis on production, bioenergetics, environmental relationships, pollution, fish behavior, and population dynamics. Applications to fish and invertebrate fisheries production and management. Prerequisites: Geol. 411 or W.M. 423, and W.M. 429. Offered in alternate years; next offered 1970-71. W.M. 691 Seminar (2+0)I Credit Fall 692 1 Credit Spring Various topics in wildlife management; required of all graduate students. Biol. 691, 692 may be substituted by permission of the major professor. Offered as demand warrants. W.M. 693 Special Topics Credits Arr. Fall 694 Credits Arr. Spring Various subjects studied principally through directed reading and discussions. Admission by arrangement. W.M. 695 Research Credits Arr. Fall 494 Credits Arr. Spring Investigative work, either field or laboratory, on a problem of lesser scope than the thesis, or supplementary to the thesis. Admission by arrangement.

698 Credits Arr.

Credits Arr.

Fall

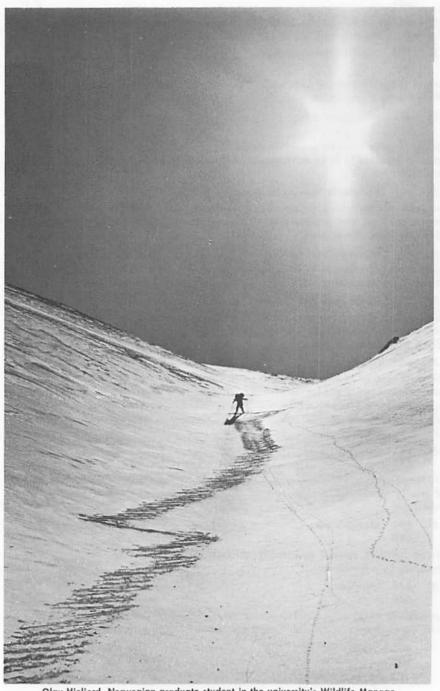
Spring

Admission by arrangement.

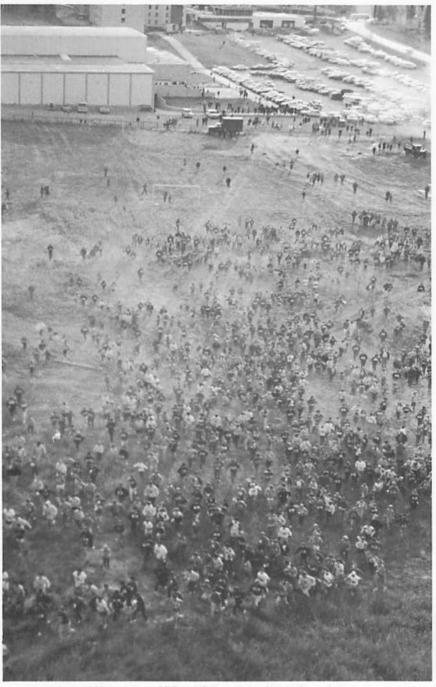
Thesis

697

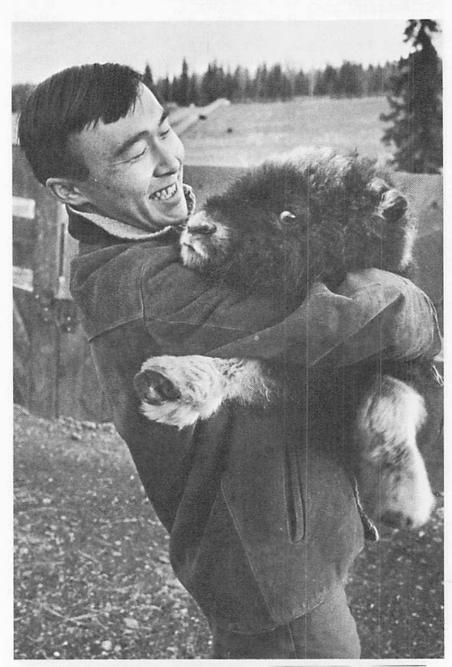
W.M.



Olav Hjeljord, Norwegian graduate student in the university's Wildlife Management Department, nears the summit of the Arctic Divide during a 300-mile ski trek across the tundra. He and another university student photographed snow conditions and conducted research on sheep abundance.



More than 1,000 runners and hikers left the starting line in the sixth Equinox Marathón, a grueling 26-mile, 385-yard event sponsored each September by the university. In the background is the Patty Building, physical education and recreation facility of the university.



Phil Kelly, an Aleut student, hugs a calf at the university's musk ox research farm. Musk oxen, native to arctic regions, may become valuable to the far north economy as domestic farm animals.

## Registers

#### THE BOARD OF REGENTS

The Regents of the University of Alaska are appointed by the Governor and are confirmed by the Legislature.

ELMER E. RASMUSON, Anchorage, President, 1950-1969
WILLIAM A. O'NEILL, Anchorage, Vice-President, 1948-1973
ARTHUR J. SCHAIBLE, Fairbanks, Treasurer, 1961-1969
DOROTHY A. WREDE, Fairbanks, Secretary, 1963-1971
ROBERT E. McFARLAND, Anchorage, 1963-1971
EDITH H. BULLOCK, Kotzebue, 1967-1975
JAMES NOLAN, Wrangell, 1967-1973
A.D. ROBERTSON, Ketchikan, 1967-1975
WILLIAM R. WOOD, President of the University, Ex-Officio Member

#### **ADMINISTRATIVE COUNCIL**

WILLIAM R. WOOD, Ph.D., LL.D., President
DONALD R. THEOPHILUS, JR., Ph.D., Academic Vice President
KENNETH R. RAE, Ph.D., Vice President for Research and Advanced Study
ARTHUR S. BUSWELL, Ph.D., Vice President for Public Service and Director, Cooperative
Extension Service

JAMES H. SHOEMAKER, LL.D., Interim Vice President for Finance and Comptroller

HAROLD A. BYRD, B.B.A., Executive Director, Budget Development and Legal Affairs CHARLES SARGENT, M.S., Executive Director, Planning and Operations LEWIS E. HAINES, Ph.D., Director, Student Affairs TRUMAN F. CLAWSON, J.D., Director, University Relations DON M. DAFOE, Ed. D., Provost of the University, Southcentral Regional Center

#### HONORARY STAFF AND EMERITI

TERRIS MOORE, Professor of the University, Emeritus
Williams College '29, A.B.; Harvard '33, M.B.A.; '37, D. Sc.; University of Alaska '67,
LL.D. (1949-1953, 1953-)

ERNEST N. PATTY, President, Emeritus
University of Washington '19, B.S.; '25 E.M.; University of Alaska '53, D. Engr. (1925-35, 1953-1960)

VENA A. CLARK, Associate Professor of Home Economics, Emeritus Cotner College '25, A.B.; Iowa State University '33, M.S. (1953-1967)

CHRISTIAN T. ELVEY, Director of the Geophysical Institute, Emeritus University of Kansas '21, A.B.; '23, M.A.; University of Chicago '30, Ph.D. (1952-1967)

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)

WILLIAM K. KELLER, Professor of Education, Emeritus
State College of Washington '21, A.B. and M.A.; '41, Ed.D.; University of Alaska '61, LL.D. (1952-1961)

- 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)
- 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)

#### **ACADEMIC FACULTY AND PROFESSIONAL STAFF 1969**

- ABRAHAMSSON, BERNHARD J. Associate Professor of Business Administration and Economics City College of New York '62, B.A.A.; University of Wisconsin '64, M.S.; '65, Ph.D.
- AKASOFU, SYUN-ICHI Professor of Geophysics, Geophysical Institute
  University of Tohoku '53, B.S.; '57, M.S.; University of Alaska '61, Ph.D.
- ALLEN, GEORGE R. Instructor of English University of Alaska '64, B.A.; '64 M.A.
- ALLEN, LEE D. Assistant Agricultural Engineer, Alaska Agricultural Experiment Station (Palmer)
  University of Idaho '57, B.S.
- ALLEN, MARY BELLE Professor of Microbiology University of California '41, B.S.; Columbia University '46, Ph.D.
- ALLISON, RICHARD C. Associate Professor of Geology
  University of Washington '57, B.S.; University of Oregon '59, M.S.; University of California '67, Ph.D.
- ANDERSEN, EUGENE Instructing Technician, Electronics Technology
- ANDRESEN, PATRICIA Assistant Professor of Mathematics University of Illinois '55 B.S.; University of Missouri '59 M.A.
- APPEL, DARLENE M. Instructor of Office Administration Mankato State College '58, B.S.
- ARHELGER, MARTIN E. Senior Research Assistant, Marine Science Institute University of Texas '62, B.S.; Texas A & M University '67, M.S.
- ATAMIAN, SARKIS Associate Professor of Sociology
  University of Rhode Island '50, B.S.; Brown University '54, M.A.
- AYOTTE, ELLEN P. Agent, Home Economics, and Instructor of Extension,
  Cooperative Extension Service
  Stout State College '58, B.S.
- BABB, JAMES D. Editor, Institute of Social, Economic, and Government Research George Washington University '64, A.B.
- BAILEY, EUNICE Assistant Professor of Office Administration, Ketchikan College College Oregon State College '25, B.S.
- BANG, MYRTLE B. Agent, Home Economics, and Assistant Professor of Extension, Cooperative Extension Service (Palmer)
  University of Minnesota '31, B.S.; University of Wisconsin '58, M.S.
- BARSDATE, ROBERT J. Associate Professor of Marine Science, Institute of Marine Science Allegheny College '59, B.S.; University of Pittsburgh '63, Ph.D.
- BASH, RONALD Assistant Professor of Physical Education Temple University '66, B.S.; Boston University '67, M.E.
- BAUST, JUDITH W. Nursery School Supervisor Wagner College '68, B.S.

- BEAUDRY, GLENN W. Assistant Professor of English
  Mexico City College '58, B.A.; '60, M.A.; San Francisco State College '66, M.A.
- BECK, MARY L. Instructor of English, Ketchikan Community College Stanford University '47, M.A.
- BEDFORD, JIMMY Head, Department of Journalism and Creative Writing, and Professor of Journalism
  University of Missouri '50, A.B.; '51, B.J.; '52, M.A.
- BEDSWORTH, WILLIAM F. Assistant Professor of Business Administration, Anchorage Community College
  University of California '58, B.A.; Washington State University '60, M.A.
- BEERS, CLARENCE GEORGE University Buyer
- BEHLKE, CHARLES E. Dean, College of Mathematics, Physical Sciences, and Engineering;
  Director, Arctic Environmental Engineering Laboratory; and Professor of
  Civil Engineering
  - Washington State University '48, B.S.; '50, M.S.; Stanford University '57, Ph.D.
- BEISTLINE, EARL H. Dean, College of Earth Sciences and Mineral Industry, and Professor of Mining Engineering
  University of Alaska '39, B. Min. Engr.; '47, E.M.
- BELON, ALBERT E. Associate Professor of Physics, Geophysical Institute
  University of Alaska '52, B.S.; University of California '54, M.A. (Leave of Absence)
- BENESCH, WALTER Associate Professor of Philosophy
  University of Denver '55, B.A.; University of Montana '56, M.A.; Leopold Franzeus
  Universitat Innsbruck '63, Ph.D.
- BENJAMIN, DAYTON Associate Professor of Education University of Nevada '50, B.A.; Stanford University '52, M.A.; '55, Ph.D.
- BENJAMIN, ELIZABETH F. Counselor, Counseling Center, Office of Student Affairs, and Assistant Professor of Education
  University of the Pacifiic '48, B.M.; San Jose State '63, M.A.
- BENNETT, FRED LAWRENCE Associate Professor of Engineering Management Rensselaer Polytechnical Institute '61, B.C.E.; Cornell University '63, M.S.; '66, Ph.D.
- BENSON, CARL S. Associate Professor of Geophysics
  University of Minnesota '50, B.A.; '56, M.S.; California Institute of Technology '60, Ph.D. (Sabhatical Leave)
- BERG, EDUARD Professor of Geophysics, Geophysical Institute University of Saarbrucken '53, Diplom Physiker; '55, Ph.D.
- BERGSTROM, ROBERT Assistant Instructing Technician, Electronics Technology
- BERKEY, FRANK T. Senior Research Assistant, Geophysical Institute Linfield College '62, B.A.; University of Alaska '64, M.S.
- BETTINE, BONNIE J. Executive Officer, Alaska Agricultural Experiment Station (Palmer)
- BILLAUD, JEAN-PAUL Associate Professor of Music

  Ecole Normale de Musique de Paris '55, Diplome Superieur de Virtuosite; '56, Licence de Concert
- BILLAUD, VERA A. Assistant Professor of Marine Science, Institute of Marine Science University of Wisconsin '55, B.A.; '62, M.S.; University of Alaska '65, Ph.D.
- BINGHAM, DOUGLAS K. Senior Research Assistant, Geophysical Institute Yale University '62, B.A.; University of Alaska '67, M.S.
- BLEWETT, PETER Assistant Professor of History, Anchorage Community College Willamette University '61, B.A.; Johns Hopkins University '64, M.A.
- BONNEY, MAURICE H. Assistant Professor of Music
  Juilliard School of Music '50, Diploma in Orchestral Conducting
- BOSLET, MAURICE D. Instructing Technician, Electronics Technology

- BOWLING, SUE A. Senior Research Assistant, Geophysical Institute Radcliffe College '63, A.B.; University of Alaska '67, M.S.
- BRANTON, C. IVAN Agricultural Engineer, Alaska Agricultural Experiment Station (Palmer)

  Oregon State University '53, B.A.
- BREWER, MAX C. Director, Naval Arctic Research Laboratory, and Ice Physicist Washington University '50, B.S.; University of Alaska '65, D. Sc. (Hon.)
- BROCKEL, CLAYTON E. Resident Director, Kenai Penninsula Community College Montana State University '55, B.A.; Colorado State College '60, M.A.Ed.
- BRODY, ARTHUR W. Instructor of Art Harvey Mudd College '65, B.S.; '67, M.F.A.
- BROWN, E. STAPLES Acting Head, Department of Mechanical Engineering, and Assistant Professor
  University of Main '63, B.S.M.E.; University of Alaska '67, M.S.E.M.
- BROWN, GRETTA K. Associate Professor of Music Fort Wright College '49, B.M., University of Idaho '53, M.M.
- BROWN, J. FRANK Coordinator of Central Personnel Services
  Brigham Young University '60, B.S.; '65, M.B.A.
- BROWN, NEAL Assistant Engineer, Geophysical Institute
  Washington State University '61, B.S.; University of Alaska '66, M.S.
- BROWN, ROBERT W. Head, Department of Mathematics, and Professor of Mathematics Pacific University '50, B.S.; '52, M.S.; Oregon State University '58, Ph.D.
- BRUNDAGE, ARTHUR L. Associate Professor of Animal Husbandry, Alaska Agricultural Experiment Station (Palmer)

  Cornell University '50, B.S.; University of Minnesota '52, M.S.; '55, Ph.D.
- BURAND, JEAN K. Extension Home Economist and Assistant Professor of Extension, Cooperative Extension Service
- BURAND, WILLOW Instructor of Mining Extension New Mexico Institute of Mining Technology, B.S.
- BURDICK, JOHN L. Associate Professor of Civil Engineering
  Rensselaer Polytechnic Institute '47, B.S.C.E.; Massachusetts Institute of Technology '48, S.M.
- BURRELL, DAVID COLIN Assistant Professor of Marine Science, Institute of Marine Science Nottingham University '61, B.Sc.; '64, Ph.D.
- BURTON, WAYNE E. Associate Professor of Economics, Alaska Agricultural Experiment Station (Palmer)
  University of Wyoming '58, B.S.; Texas A & M University '60, M.S.
- BUSWELL, ARTHUR S. Vice President for Public Service; Director, Cooperative Extension Service; and Professor of Agriculture University of Maine '49, B.S.; '50, M.S.; University of Wisconsin '59, Ph.D.
- BUTTON, DON K. Associate Professor of Marine Science, Institute of Marine Science Wisconsin State College '55, B.S.; University of Wisconsin '61, M.S.; '64, Ph.D.
- BYRD, HAROLD A. Executive Director, Budget Development and Legal Affairs University of Washington '31, B.B.A.
- CAMERON, BRUCE M. Chief Accountant
  Arizona State University '53, B.S.; Brigham Young University '64, M. of Accountancy
- CARLSON, AXEL R. Farm and Home Structures Specialist and Associate Professor of Extension, Cooperative Extension Service
  Michigan State University '53, B.S.; Pennsylvania State University '66, M.S.
- CARLSON, ROBERT Assistant Professor of Hydrology, Institute of Water Resources University of Wisconsin, B.S. '61, '63, M.S.; '65, Ph.D.

- CARPENTER, LARRY Head, News Service and Publications Kent State University '55, B.A.
- CARR, LEWIS C. Program Director, Elmendorf Ft. Richardson Unit, Southcentral Regional Center Colorado State '50, A.B.; '53,
- CASEY, JAMES L. Instructor of Military Science Sgt. Major, U.S. Army
- CASHEN, WILLIAM R. Professor of Mathematics and Marshal of the University University of Alaska '37, B.S.; University of Washington '48, M.A.
- CAVASOS, LLOYD E. Instructor of Animal Husbandry, Alaska Agricultural Experiment Station (College)
  New Mexico State University '51, B.S.
- CHAMORRO BUERBA, ANGEL Assistant Professor of Spanish University of Paris, M.A., Degru Helsinki
- CHAPMAN, SYDNEY Advisory Scientific Director and Professor of Geophysics, Geophysical Institute

  Manchester University '07, B.S.; '08, M.S.; '12, D.Sc.
- CHASTAIN, CHARLETTE E. Senior Research Assistant, Institute of Marine Science University of Oregon '65, B.A.
- CHATTERJEE, BISWA N. Sentor Research Assistant, Geophysical Institute
  Bangabasi College '54, B.S.; Asutosh College '61, B.S.; Vikram University '64, M.S.
- CHAUVIN, DAVID L. University Engineer for Campus Planning and Construction University of Washington '50, B.S.E.E.
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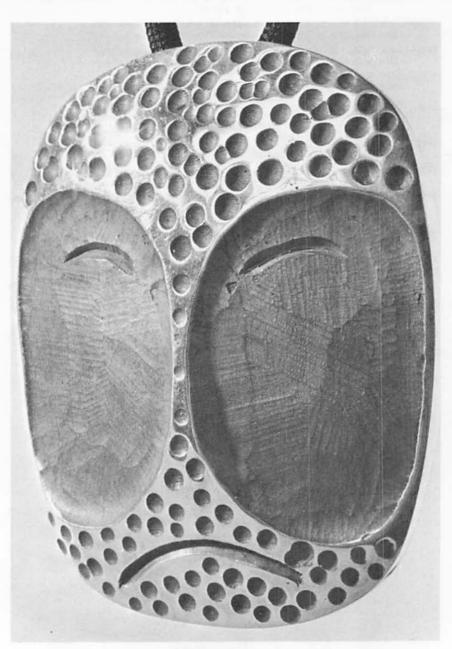
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The handiwork of craftsman Ron Senungetuk, this silver edition of an Eskimo mask is typical of the work produced by Alaska natives at the university's Arts and Crafts Center.

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