

## Catalog

## - University of Alaska

1968-69


The cover drawing shows the entrance to the Bunnell Building and Memorial Plaza. The building houses the Library, classrooms and administrative offices.

# MAIN CAMPUS The University of Alaska College, Alaska 

## Buildings

(1) BROOKS BUILDING - Classrooms, laboratories, offices for College of Earth Sciences and Mineral Industry
(2) BUNNELL BUILDING - General Administrative offices, classrooms, library, Schaible Lecture Hall, offices of College of Arts and Letters
(3) CONSTITUTION HALL (Student Union) - Student activities offices, snack bar, alumni services, bookstore, KUAC studios.
(4) DUCKERING BUILDING - Classrooms, laboratories, offices of College of Mathematics, Physical Sciences and Engineering, College of Business, Economics and Government, Institute of Social, Economic and Government Research, Institute of Marine Science, Computer Center
(5) EIELSON BUILDING - Classrooms, laboratories, offices of College of Behavioral Sciences and Education
(6) FACULTY HOUSING
(7) FOREST SCIENCES LABORATORY
(8) GEOPHYSICAL INSTITUTE
(9) HEALTH SERVICE CENTER
(10) HESS HALL, HARRIET - Dormitory
(11) TOTEM POLE
(12) LATHROP HALL, AUSTIN E. - Dormitory
(13) BOYD HARWOOD HALL (Married Student Apartments)
(14) McINTOSH HALL, JOHN E. - Dormitory
(15) MEMORIAL PLAZA
(16) MUSEUM - Upper floor houses music facilities
(17) NERLAND HALL, ANDREW - Dormitory
(18) PATTY BUILDING - Gymnasium, pool, ROTC, Rifle Range
(19) POWER PLANT
(20) PRESIDENT'S RESIDENCE
(21) SERVICES BUILDING
(22) STATEWIDE SERVICES BUILDING - Administrative offices
(23) STEVENS HALL, MORTON - Dormitory
(24) STUART HALL - Faculty apartments
(25) U.S. COAST AND GEODETIC SURVEY - Observatory houses seismograph installation for the continuous registration of earth tremors
(26) UNIVERSITY COMMONS - Dining facility for all dormitory residents
(27) WALSH HALL - Married students apartments
(28) WICKERSHAM HALL - Dormitory
(29) IVAR SKARLAND HALL (Women's Dormitory)
(30) TERRIS MOORE HALL (Dedicated May 21, 1967)
(31) WEST RIDGE - Arctic Research Center loffices of College of Biological Sciences and Renewable Resources in BioSciences Building)
(32) Site of new Library, Fine Arts and Humanities Building


1968 Summer Session
Short Session . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . June 10-June 28, 1968
Regular Session
Post Session Workshop
July 1-August 9, 1968
August 12-August 16, 1968

## Proposed 1968-69 Academic Year Calendar <br> 1968-69 Fall Semester

Labor Day
Dormitory Rooms Open
Orientation and Guidance Testing for New Students
General Faculty Convocation
Faculty Meetings (Academic Colleges)
Faculty Meetings (Departmental).
Counselling of Students by Advisers

## Registration

All Students .
(Meal tickets effective Dinner Sat., Sept. 7)
Instruction Begins
Registration Closes
Last Day to Withdraw without Grade
Last Day for Making Up Incompletes .
Six Week Grade Reports
Thanksgiving Recess
Christmas Recess
Last Day for Student-Initiated Withdrawals
Last Day for Student-Initiated Withdrawals . . . . . . . . . . . . . . . . . . Tues., Dec. 3
Semester En Study Period (No Classes)
Semester Examinations
Final Grades on File with Registrar
End of Fall Semester
. ... Mon., Sept. 2
.Noon Thurs., Sept. 5
8:00 a.m. Fri., Sept. 6
10:00 a.m. Tuesday, Sept. 3
. 2:30 p.m. Tues., Sept. 3
9:30 a.m. Wed., Sept. 4
Fri., Sept. 6
8:00 a.m. to $9: 00$ p.m. Sat., Sept. 7
. 8:00 a.m. Mon., Sept. 9
5:00 p.m. Mon., Sept. 23
5:00 p.m. Mon., Sept. 23
.5:00 p.m. Mon., Oct. 21
Wed., Oct. 23
Begins 5:00 p.m. Wed., Nov. 27
to 8:00 a.m. Mon., Dec. 2
Begins 5:00 p.m. Sat., Dec. 14, 1968 to 8:00 a.m. Thurs., Jan. 2, 1969

Wed., Jan. 8
8:00 a.m. Thurs., Jan. 9
to Noon Wed., Jan. 15
Noon Thurs., Jan. 16
5:00 p.m. Fri., Jan. 17

1968-69 Spring Semester
Dormitory Rooms Available . . . . . . . . . . . . . . . . . . . . . . . Noon Thurs., Jan. 16
Orientation and Guidance Testing for New Students . . . . . . . . . 8:00 a.m. Fri., Jan. 17
Counselling of Students by Advisers . . . . . . . . ............................... 17
Registration . . . . . . . . . . . . . . . . . . . . . . . 8:00 a.m. to 9:00 p.m. Mon., Jan. 20
Instruction Begins ...................... 8:00 a.m. Tues., Jan. 21

Registration Closes
Last Day to Withdraw without Grade
Last Day for Making Up Incompletes
Six Week Grade Reports
Spring Recess.
5:00 p.m. Mon., Feb. 3
5:00 p.m. Mon., Feb. 3
5:00 p.m. Mon., Mar. 3
Wed., Mar. 5

Last Day for Student-Initiated Withdrawals
Last Day to Submit Graduate Thesis
All Campus Day
Begins 5:00 p.m. Thurs., Mar. 13
to 8:00
to 8:00 a.m. Mon., Mar. 17
5:00 p.m. Thurs., Apr. 24
Governor's Day
Fri., Apr. 25
Examination Study P.................................................. Tay 3
Semester Examinations (
Final Senior Gradles on File with Registrar
End of Spring Semester
8:00 a.m. Fri., May 9 to $6: 00 \mathrm{p} . \mathrm{m}$. Thurs., May 15

9:00 a.m. Fri., May 16
. . . . . . .00 p.m. Fri., May 16
Final Grades on File with registrar
.5:00 p.m. Fri., May 16
Baccalaureate.
Sun., May 18
Commencement
Mon., May 19
1969 Summer Session (Tentative)
Short Session . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . June 9-June 27, 1969
Regular Session . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . June 30-August 8, 1969
Post Session Workshop . . . . . . . . . . . . . . . . . . . . . . . . August 11-August 15, 1969

## CONTENTS

Calendar ..... 5
Sources of Information ..... 7
History ..... 9
Objectives of the University ..... 9
Accreditation ..... 10
Carnegie Corporation Crant ..... 10
Campus Buildings and Facilities at College, Alaska ..... 10
Alumni Services ..... 12
Enrollment Summary 1967-68,
First Semester ..... 13
Admissions, Policies
and Procodures ..... 14
Financial Information ..... 21
Dogroes ..... 27
Academic Rogulations ..... 35
Offico of Student Affairs ..... 40
Rosearch and Advanced Study ..... 53
Alaska Agricultural Experiment Station ..... 53
Alaska Cooperative Wildlife Research Onit ..... 53
Arctic Environmental Engineering Laboratory ..... 53
Naval Arctic Research Laboratory, Point Barrow ..... 54
Geophysical Institute ..... 54
Institute of Arctic Biology ..... 54
Institute of Marine Science ..... 55
Institute of Social, Economic and Government Research ..... 55
Institute of Water Resources ..... 55
Mineral Industry Research Laboratory ..... 55
Musk Ox Project ..... 55
State and Federal Agencies on Campus ..... 56
Statowide Sorvicos ..... 59
Community Colleges ..... 59
Evening Classes and
Correspondence Study ..... 59
Summer Sessions, Conferences and Short Courses ..... 59
Mining Extension Program ..... 60
Fisheries Extension Program ..... 61
Cooperative Extension Service in Agriculture and Home Economics ..... 61
Audio-Visual Communications ..... 61
Southeoniral Rogional Contor ..... 63
Colloge of Arts and Lottors ..... 67
Art ..... 68
English ..... 69
Journalism ..... 70
Linguistics and Foreign Languages ..... 70
Missie ..... 71
Philosophy ..... 73
Speech, Drama and Radio ..... 74
College of Behovioral Sciences
and Education ..... 75
Anthropology ..... 75
Education ..... 76
Health, Physical Education and Recreation ..... 81
Home Economics ..... 82
Military Science ..... 83
Psychology and Sociology ..... 84
Collogo of Biological Scionces and Renowable Rosources ..... 87
Land Resources and Agricultural Science ..... 87
Biological Sciences ..... 88
Wildlife Management ..... 91
Collogo of Businoss, Economics and Government ..... 95
Accounting ..... 95
Business Administration ..... 96
Economics ..... 97
History ..... 97
Office Administration ..... 98
Political Science ..... 100
Colloge of Earth Sciences and Mineral Industry ..... 103
Geography ..... 103
Geology ..... 104
Mineral Engincering ..... 108
Collogo of Mathomatics, Physical Scionces and Engineering Chemistry ..... 109
Chemical Engineering ..... 111 ..... 111
Civil Engineering ..... 111
Electrical Engineering ..... 112
Engineering Management ..... 114
General Science ..... 114
Mathematics ..... 116
Mechanical Engineering ..... 117
Oceanography and Ocean Engineering ..... 118
Physics ..... 118
Electronic Technology Program ..... 120
Environmental Health
Engincering ..... 120
Courso Doseriptions ..... 123
Registors ..... 207
Board of Regents ..... 207
Administrative Council ..... 207
Emeriti and Honorary Staff . ..... 207
Academic Faculty and
Professional Staft ..... 208
Indox ..... 229

## Sources of Information

| General News Information | Director, University Relations |
| :---: | :---: |
| Admissions and | Director of Admissions |
| Rosidence Hall Applitations | and Registrar |
| Scholarships and Loans | Director, Student Affairs |
| Part-Time Employment | Director, Student Affairs |
| Exira-Curricular Activities | Head, Student Activities |
| Studont Housing | Head, Student Housing |
| Graduate Work | Vice President for Research and Advanced Study |
| Summer Sessions | Head, Summer Sessions, |
|  | Conferences and Short Courses |
| Alumni Association | Head, Alumni Services and |
| Agriculfuro Information | Director, Cooperative Extension Service |
| Mining Information | Dean, College of Earth Sciences and Mineral Industry |
| Wildlife Management | Leader, Cooperative Wildlife |
|  | Research Unit and Head, |
|  | Department of Wildijfe |
|  | Management |
| Off-Campus Educational | Dean, Division of Statewide |
| Programs | Services |
| Katchikan Community | Director |
| College | Box 358 |
|  | Ketchikan, Alaska 99901 |
| Juneau-Douglas | Director |
| Community College | 1250 Glacier Avenue |
|  | Juneau, Alaska 99801 |
| Stika Community Collogo | Director |
|  | Box 179 |
|  | Sitka, Alaska 99835 |
| SOUTHCENTRAL REGIONAL CENTER | Provost |
|  | 1820 W Northern Lights Blvd. Anchorage, Alaska 99501 |
| Anchorage Community | Director |
| Colloge | 1820 W Northern Lights Blvd. |
|  | Anchorage, Alaska 99501 |
| Elmonderf-Ft. Richardson | Director |
| Evening Classes | 1820 W Northern Lights Blvd. |
|  | Anchorage, Alaska 99501 |
| Mantanuska-Susitna | Director |
| Community College | Box 86 |
|  | Palmer, Alaska 99645 |
| Kenai Poninsula | Director |
| Community Collogo | Box 539 |
|  | Kenai, Alaska 99611 |
| Kodiak Community College | Director |
|  | Box 886 |
|  | Kodiak, Alaska 99615 |
| Mailing Address for | University of Alaska |
| Main Office: | College, Alaska 99701 |



Wickersham Hall is one of the seven student residence halls on the campus. On-campus housing is also available to UA faculty members, married university students and graduate students.

## 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 universtiy, 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 Interstate Commission for Higher Education.

The four-year curriculums 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 is also on the approved list of colleges and universities of the American Association of University Women.

## CARNEGIE CORPORATION GRANT

The Carnegie Corporation of New York has awarded the University a grant of $\$ 150,000$ for the purpose of bringing to the University outstanding visiting professors in the humanities and social sciences. This is the seventh year of the grant. The visiting professors will be specialists in such subjects as music, art, linguistics, English, philosophy, psychology, history, economics and political science.

## CAMPUS BUILDINGS AND FACILITIES AT COLLEGE, ALASKA

## ADMINISTRATIVE AND CLASSROOM 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, and 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 and 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 Social, Economic and Government Research; the Institute of Marine Science; laboratories of the State Highway Material Division, 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 more than 100,000 catalogued specimens of Eskimo and other artifacts in mineral, anthropological, ethnological, paleontological, botanical, and natural history fields.

The Sydnoy 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.
Student Union Building - Dining, recreational, and co-curricular facilities are contained in Constitution Hali, the official name of the Student Union Building, which was completed in 1955. 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 a 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 speech, radio and drama facilities, and the alumni and graduate placement office.

## THE UNIVERSITY LIBRARY

The University Library is housed in attractive three-level quarters in the west wing of the Bunnell Building. The library collection consists of approximately 200,000 volumes, 3,500 periodicals and serial titles, 4,500 reels of microfilm and 60,000 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 means of McBee edged punch cards. Nine professional librarians serve the University complex. Faculty members assume the responsibility for ordering those materials needed for their classes.

The main floor of the Library contains the circulation desk, the reserve book desk, periodical and other indexes, the reference area, a room where smoking is permitted, study tables for student use, the Acquisitions Department, Reader Services personnel, and the office of the Director of Libraries.

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

A special collection of books on Alaska and the Polar Regions, known as the Skinner Collection, is housed on the mezzanine. The Catalog Department is on this level along with the bibliographic collection. A noncirculating collection of college and university catalogs for use by students and faculty is located on the mezzanine.

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 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. Equipment for head-phone listening to the non-circulating phonograph record collection is located here. A restricted collection of rare books is on the ground level.

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

The Manuscript Collection and the Archives, a depository for University and other Alaska historical records, are located in Room 15 of Bunnell. Both the Archives and the Documents area are open from 8 a.m. until 5 p.m. five days a week.

While classes are in session, the following hours are maintained in the main library:
Monday through Friday . . . . . . . . . . . . . . . . . . . . . 8:00 a.m. to 10:00 p.m. Saturday . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 8:00 a.m. to 5:00 p.m. Sunday . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2:00 p.m. to 10:00 p.m.

## ALUMNI SERVICES

The University of Alaska Alumni Association was founded November 16, 1927. The Association promotes interest 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 Alumus, 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 office where graduating seniors and former graduates may be assisted in their 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.


## Admissions

## REQUIREMENTS FOR ADMISSION

## Admission as a Freshman

## 1. 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 each high school's principal or guidance officer. The cost of the test to the student is $\$ 4.00$.

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 throghout 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
Units
$\qquad$
Mathematics:
Algebra . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
Geometry 1
Trigonometry ..... $1 / 2$
One Foreign Language ..... 2
United States History ..... 1
Physics or Chemistry ..... 1
Natural or Social Science ..... 1
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 of Business, Eco-
nomits and Government:

| Business Administration Economics, History and Political Science | 3 | 2 | 1 | 1 | 2 | 75 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| Colloge of Earth Sciences and Minoral Industry Geology, Geological Engineering, Mining | 3 | $\begin{aligned} & \text { Algebra-2 } \\ & \text { Geom.-1 } \end{aligned}$ | 0 | 1 | Physics or Chemistry-1 | 71/2 |
| Engineering <br> Geography | 3 | $\underset{2}{\text { Trig. }-1 / 2}$ | 2 | 1 | 4 | 5 |
| College of Mathomatics, Physical Sciencos and Engineering | 3 | Algebra-2 <br> Geom.-1 <br> Trigon.-4/ | 0 | 1 | Physics or Chemistry-1 | 71/2 |

- Plane Geometry required of Education students who intend to select teaching majors and/or minors in mathematics, chemistry, and/or physics.
- Students who offer 2 units of a high school foreign language will normally enroll in second year language. See placement tests, page
1 1 year of algebra and 1 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.
1 Two years of French, German, or Russian language highly recommended. See departmental curricula.

Entering freshmen whose background of training in English and mathematics appears to be deficient when measured by placement tests may be required to take English 1 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 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 120).

## 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 thirty 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 30.

## 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 reguirements are met and transcripts filed.
Audifors - 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 1st for the fall semester and December 15th 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 or the Educational Testing Service
(C.E.E.B.) are required for all entering freshmen and those transfer students with less than 30 semester hours of transferrable 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 A.C.T. test since this is a registration requirement for all entering freshmen and transfer students with less than 30 semester hours of transferrable credit.
4. Leffers of recommendation (graduate applicants only). After receiving and processing the above materials, the Registrar's Office will mail to the student a statement of acceptance or non-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.
5. 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.
6. Medical and Physical Examination. Registration at the University is dependent upon the applicant's 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 7 credits or more, any students enrolling in 7 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 7 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.
7. 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, Uni-
versity of Alaska, with a $\$ 35.00$ 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 request 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 summer of 1967 marked the university's 50th anniversary and the centennial anniversary of Alaska's purchase from Russia. The official university seal commemorates the occasion.

## Fees and Expenses



Students normally will pay approximately the sums above at semester registration time. However, those taking less than seven (7) 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, and athletic equipment, musical instruments and other specialized classroom supplies which certain students may need.

## TUITION

University Fee-Students registering for seven to eleven (7-11) credit hours shall be charged a fee of $\$ 110$ per semester. Students registering for twelve (12) or more credit hours shall be charged a fee of $\$ 100$ per semester. Residents and non-residents alike shall pay this fee.

Credit-hour Fee-Students registering for less than seven (7) 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 old is the residence of the parents or legal guardians as defined above. Students from 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 twelve (12) or more semester credit hours, at $\$ 150$ per semester. Part-time, non-resident students carrying seven to eleven (7-11) 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.

## 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 rescheduling 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 (7) 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 twelve (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 - Athietics 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.

Associafed 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 ASUA. Five dollars of this fee is designated for planning and design of a new Campus Activities Center building.

A deposit of $\$ 2.00$ 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 (7) or more semester credit hours, including graduate students and those 26 years of age or older carrying twelve (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 twelve (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 for only fully enrolled students from the time students enter the dormitory 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 825.00
By August 15 - Fall semester - January 1-Spring semester 15.00
By September 1 - Fall semester - January 15 - Spring semester . 5.00

## Room Rent-

On Double Room: $\$ 230.00$ per semester
On Single Room: \$265.00 per semester
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 ... . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 83474.00
Meal tickets become effective at the evening meal, September 7 and the evening meal, January 20. 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. The amounts of such special meal tickets will be approximately as follows:

Thanksgiving Recess . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6.00
Christmas Recess . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 16.00
Spring Recess . . . . . . .
Those not possessing special meal tickets may buy meals during vacation periods at ala carte prices.

## PAYMENT OF FEES

All charges, deposits, rent and meals 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 flve 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 University 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.


Commencement is a momentous time at the university, as graduate and undergraduate degrees are conferred. Here the University Marshal leads the processional to commencement exercises.

## 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.
Master of Science in Environmental Health Engineering, M.S.E.H.E.
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 $2.00(\mathrm{C})$ 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

Ali 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 Physical Education 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 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, efectives in English orforeign languages may be substituted for the general degree requirements, ifthe 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 Sclence or Physical Education ..... 4-6Electives to bring total credit to $\mathbf{1 3 0}$ credits.
MINOR SPECIALTIES 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, Phi-losophy, Physics, Political Science, Psychology, Russian, Sociology, Spanish, Speech.
general requirements for a b.b.A. DEgree
English Composition and Literature, including Engl. 101-102 ..... 12 credits
Humanities, including Humanities 211-212 or 6 hours in Art, Music or Philosophy ..... - 6
Behavioral Science, including courses in Psychology, Sociology or Anthropology ..... 9
History, including six credits in American History or six credits in European History ..... 6
Political Science ..... 6
Economics, including Econ. 121-122, 321 and 324 ..... 18
Mathematies and statistics including Math 110 and Economics 221 ..... 6
Natural Science, iocluding Biological Science 105-108 or Chemistry 101-102 or Ceology 101-102 or Physics 103-104 or any 8 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 A b.Ed. DEGREE
For requirements for a B.Ed. in Elementary Education, see page 77.
For requirements for a B.Ed. in Secondary Education, see page 78.
GENERAL REQUIREMENTS FOR A B. Mus. DEGREE
For requirements for a B. Mus. degree, see page 72.
GENERAL REQUIREMENTS FOR A B.S. DEGREE (ENGINEERING SCIENCE)
English Composition and Literature, including Engl. 101, 102 ..... 12 credits
Social Science, including Econ. 121 ..... 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 $\mathbf{1 3 0}$.
major specialties available for b.S. (ENgineering science) degree- Civil Engineering. Electrical Engineering, Mechanical Engineering.
GENERAL REQUIREMENTS FOR A B.S. DEGREE
English Composition and Literature, including Engl. 101-102 ..... 12 credits
Foreign Language - A first year (101-102) or a second year ..... 0.10
(201-202) of a language approved by the Department Head. Students withtwo or three years of study of an approved language may petition to have thisrequirement removed by examination.
Social Science ..... 9
Mathematics ..... 8
Physics ..... 8
Chemistry or Biology ..... 8
Major Specialty (See Departmental Sections for specific requirements)Military Science or Physical Education4-6
Departmental requirements, minor specialties, and/or electivesto bring total credits to 130 .

MAJOR SPECIALTIES AVAILABLE FOR A 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 A B.S. DEGREE - Refer to Departmental Section since some B.S. degree programs do not require minor specialties.

## ASSOCIATE DEGREES <br> 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 Govermment or American History | 6 |
| Speech | 2 |
| At least $\mathbf{6}$ credits in any three of the following arcas: <br> (a) humanities, (b) social studies, (c) netural science, <br> (d) mathematics, (e) other. | 18 |
| Major Specialty (See Department Sections for specific requirements). | 20-30 |
| Electives to bring total eredits to 60. |  |

major specialties available for an a.A. degree - Liberal Arts,
English . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6 credits
American Government or American History . . . . . . . . . . . . . . . . . . . . . . 6
Speech . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . $\quad 2$
it least 6 credits in any three of the following arcas: -
(a) humanities, (b) social studies, (c) netural science,
(d) mathematics, (e) other.
Major Specialty (See Department Sections for specific
requirements) . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 20-30
Electives to bring total credits to 60 .
Olfice Administration, Science, Vocational Arts.

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

A total of 60 credits required for graduation.
I. General Education

B. General Requirements $\quad$ Humanities . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . $\quad 6$

Humanities. 6
Six credits in one of the following:
Natural Science, Mathematics, or other 6

11. 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 . . . . . . . . . . . . . . . 8
A year's sequence course in Biology, Chemistry,
Geology, or Physics, plus two semesters in
area other than that chosen for sequence
14-16
Approved Science Elective (may include courses in
Mathematics or Applied Science such as
Engineering, Wildife Management, etc.) $4-6$

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

For reguirements for A.E.T., see page 120.

## 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, linguistics, 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 in 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 thirty semester credits, of which a maximum of twelve 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 ( $\mathbf{1 0 0}$ 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 8 credits of graduate study at the University of Alaska; 2) demonstrated a reading ability of a foreign language, if required; 3) received approval by the dean, if he is enrolled in a college, or by the Vice President for Research and Advanced Study, if not, of the provisional title of his thesis, if a thesis is required, and of his program of studies.

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 oceanography, zoophysiology, zoology, wildife management, and English.

Prospective candidates in these, or other topics, should write to the Vice President tor Kesearch 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 applicant'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 $\mathbf{B}$ must be maintained in graduate course work.
Reading ability in one foreign language appropriate to the students 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 Advanced Study after having been reproduced by the University.

## EXTENDED REGISTRATION FOR GRADUATE STUDENTS

A student who is working towards 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.


Over half of the university's modern classrooms have been constructed since 1960. Classes are frequently kept small to provide a close teacher-student relationship in course work.

## 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 Orientation Week. 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 receijed ACT scores will be required to take the test during orientation week and to pay a $\$ 5.00$ 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 English 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 $\$ 5.00$ 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:
Freshmen. . . . . . . . . . . . . . . . . . . . . . . . . 0 . $0-29$ credits
Sophomore. . . . . . . . . . . . . . . . . . . . . . . . . . $60-94$ credits
Junior . . . . . . . . . . . . . . . . . . . . . . . . . . . . 95 credits

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

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 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 through his dean, and 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 English 101-102 may be made only upon petition. The fee for student initiated course changes is $\$ 1.00$ 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.
$\mathbf{P}$ - 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.

DF - Indicates that for good cause, as determined by the instructor, the grade in the 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 of 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 may, under unusual circumstances, be permitted to continue on probation but may enroll for a maximum of two college level courses at 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 at any unit of the University for one or more semesters, and will be readmitted 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 disqualitied trom 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 they apply. 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 twelve credits each semester.

[^0]
## 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 help new students adjust to the privileges and responsibilities of membership in the University community; b) psychological testing to help students find 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 parttime jobs; 3) 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.

## 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 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 Adviser and several Student Advisers. 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 Adviser is a full-time member of the University staff, responsible for the administration, programming, and counseling within a residence hall. All staff members have had considerable experience in group living and group activities. The Student Advisers are full-time students who are selected to work with the Resident Adviser in planning and administering an interesting and valuable social, governmental, and recreational program.

All student rooms are trim, light, and of ample size. 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.

The residence halls have attractive social rooms and recreational facilities. Regular custodial service is provided in common area such as corridors, lounges, and bathrooms.

Only a limited number of headbolt heaters for automobiles is available. Application for such facilities can be made at the Comptroller's Office.

Students bringing guns to the University are required to store them in a central storeroom.

All single students under 21 years old 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 parttime 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 that 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. Melntosh 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. It is named for Morton Stevens, who was president of the Board of Regents from 1921 until 1932.

Austin E. Lathrop Hall houses 144 men in double rooms on its five floors. 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, longtime professor of Anthropology at the University.

Terris Moore Hall, the newest residence hall on 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 accommodation 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.

Completed in the spring of 1964, Harwood Hall, 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. Two
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 that 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, UNIVERSITY OF ALASKA, COLLEGE, ALASKA 99701, with a $\$ 35.00$ 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 lst. Spring semester assignments are made as space becomes available. The contract for single students housing in undergraduate residence halls is for room and board. The contract for married student housing does not include board.

Students are required to sign the Housing-Board contract from the time they entered the halls to the end of the 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 1st, 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 $\$ 230.00$ per semester and for a single room $\$ 265.00$ 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.

Moal Tickets - Each occupant of undergraduate residence hall is required to buy a 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.

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 students is provided on special occasions.

All members of the undergraduate residence halls are required to contract for their meals both semesters at the University Commons. Breakfast, luncheon, 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 meal 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 Registered 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.

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 processes insurance claims.

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
4) 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 one semester 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 $\$ 1200$ per year for Alaska residents and $\$ 1500$ for non-residents. Contributors to the program for 1967-68 include Chandler Plumbing \& Heating, First National Bank, Locher Company, Mobil Foundation, Pan American Petroleum, Sinclair Oil, University of Alaska Alumni Association, and Vinnell Corporation.

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.

Bureau of Indian Affairs grants are processed and administered through the Office of Student Affairs. Alaska natives (Eskimos, Indians, Aleuts) apply according to routine financial aid request procedures.

Applications from currently-enrolled students are accepted twice each year before March 1 and November 1. Application from Alaska high school seniors are accepted one each year before March 1 and are reviewed 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 these deadlines 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 entire grants which are 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 it is in effect, who enroll for less than a fulltime 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 Office of Student Affairs.

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 $1967-68$ school year:

| Name of Scholarship | Number | Total Amount |
| :---: | :---: | :---: |
| AIME, Southwestern Alaska Section | One | \$ 400 |
| Alaska Insurance Agency "Major George W. |  |  |
|  |  |  |
| Alaska National Guard Officers Association | One | 500 |
| Alaska Native Scholarships | Varies | 11,300 |
| Alaska Scottish Rite of Freemasonry | One | 300 |
| Alaska State Employees Association "President |  |  |
| John F. Kennedy Memorial" | One | 250 |
| American Association on Indian Affairs | One | 1,000 |
| B \& C Electric | One | 500 |
| Covenant High School Alumni Association |  |  |
| Educational Opportunity Grant | Varies | 16,100 |
| Fairbanks Kiwanis Club "Andy Anderson Memorial" | One | 500 |
| First National Bank of Fairbanks | Two | 1,000 |
| Ceneral Motors | Four | 2,250 |
| Henderson Estate, John B. | Four | 1,600 |
| Hess Estate, Harriet | Two | 880 |
| Hess Estate, Luther | Three | 1,200 |
| Hoffer Glass Company | One | 125 |
| Music Shop of Fairbanks "Grace Hoitt Scholarship in Music" | One Priva lesson per | music eek |
| International Brotherhood of Electrical Workers |  |  |
| Kennecott Copper Corporation | Two | 1,000 |
| Ladjes for the Colden North | One | 250 |
| Lathrop Estate, Austin E. | Varies | 3,560 |
| Leach Estate, Frank M. | One | 100 |
| Lewis Fund, Charles W. and Hortense W. | One | 500 |
| McIntosh Estate, Jessie O'Bryan | Varies | 14,000 |
| 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 | One | 500 |
| Phipps, Margaret R. | Three | 450 |
| Pioneers of Alaska Memorial, Igloo No. 4 | One | 300 |
| Pressor Foundation | One | 400 |
| Radio Corporation of America | Two | 800 |
| Ralston Purina Company | One | 500 |
| Romick, Mr. \& Mrs. A. J. | One | 500 |
| Sears Roebuck Foundation | Four | 1,200 |
| Sears Roebuck Foundation (Home Economics) | One | 300 |
| Sheppard Trading Company | One | 500 |
| State Room Scholarships | Varies | 23,000 |
| Texaco, Inc. | Two | 1,000 |
| Unalakleet PTA "Senator William E. Beltz |  |  |
| United States Smelting, Refining and |  |  |
| 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 regular 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 $\$ 2.00$ per loan or $50 \$$ if repayment is made within 10 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 from the University loan fund is $4 \%$ per annum. The loan requires a co-signer (not a fellow student), and will be made for University expenses only 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 (1928)
American Military Engineer Revolving Loan Fund 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, Ploneers
of Alaska (1957)
Dave M. Dishaw (1958)
Rotary Club of Fairbanks (1963)
Southern Califomia Alumni (1963)
Arthur A. and Anne Shonbeck Memorial (1904)
Anchorage Soil Conservation
Subdistrict No. 4 (1966)
Ann Meeks Memorial Fund (1967)

Anchorage High School (1958)
Anchorage High School PTA
(1836)
(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 (1860)
James E. Nankervise Memorial 1961
Herman Turner Memorial (1861)
Marianne Casson Memorial Fund (1985)

Ketchikan Communication Committee (1968)
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 or service with the Peace Corps. For those who become teachers, one-tenth of the amount borrowed is canceled each year for five years, representing as much as $50 \%$ of the original loan. Interest rate is $3 \%$ per annum. Loans must be paid within ten years.

The Clarence J. Rhode Memorial Scholarship Lean Fund was initiated by the Territorial Sportsmen, Inc. of Juneau. Junior, senior and graduate students in Wildlife Management are eligible for loans up to $\$ 300.00$, 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. Loans may be made from this money to deserving students in Mechanical Engineering. The Dean of the College of Mathematics, Physical Science and Engineering administers these student loans.

The Society of American Military Enginears 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 Office of Student Affairs.
3) Part-time Employment. Two types of work opportunities are available:
a) Listings are available in the Office of Student Affairs for both on-campus 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 fifteen hours a week during the school term and forty 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 Office of Student Affairs, 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

All students are encouraged to participate in at least some of a wide range of co-curricular activities. Many of them, such as the student government, the choral groups, band, dramatics, student newspaper, yearbook, radio station, and intercollegiate and intramural athletics are open to academically qualified students regardless of their field of study. Others are activities or organizations
in which participation is dependent upon enrollment in a particular curriculum. All may make meaningful contributions to the student's educational experience.

To encourage students to maintain 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:

1. All members of University organizations must be students who are enrolled for twelve or more semester hours of credit.
2. Students who participate in co-curricular activities must maintain a cumulative grade point average of 2.00 or higher and must not be on disciplinary probation.
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.
4. The Academic Vice President and the Director of Student Affairs shall review special cases or unusual circumstances regarding eligibility regulations and, with the approval of the President of the University, may make exceptions to the above rules.

## 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.


The Library occupies three levels in the Bunnell Building and includes informal study areas as well as desks and tables. The "open-stacks" policy makes all books readily accessible.


The university's Geophysical Institute maintains intricate equipment for advanced study of the aurora borealis. In winter months, the aurora can often be seen in skies over the campus.

## Research and Advanced Study

The research programs of the University of Alaska take advantage of the University's unique location in the sub-arctic 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, the Matanuska Experimental Farm seven miles to the west, 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 throughout the potential farming areas of the State.
Alaska Cooperative Wildife 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 degrees 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.

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.

Geophysical Institute - The Institute was opened on July 1, 1949, as a department of the University. The 79th Congress of the United States had 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 andtectonic 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 200 , 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 BioSciences 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 pre-doctoral 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, physical and chemical 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. The Institute operates the 80 -foot Research Vessel Acona. 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 the 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.

Institute of Water Resources - The Institute was established in May, 1965, and is the youngest of the research institutes at the University.

The Institute has no building or laboratory facility as such but it administers and coordinates many of the water resources research 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 College 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 College 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 arctic regions, is able to maintain itself yearround 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 markets. The breeding station and program are supported by the W.K. Kellogg Foundation through a grant to the University.

## STATE AND FEDERAL AGENCIES ON CAMPUS ASSOCIATED WITH 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 areal 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.
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 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 Minerals - The central headquarters of the division moved, in November of 1967, to the Maintainance Warehouse (Services Building) on campus. The Division operates with a staff of 18, and maintains its own laboratory for assay and analytical services to miners and prospectors. 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.
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. 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.

United States Forest Service - The Institute of Northern Forestry has established a branch laboratory on the campus. A growing research staff is conducting investigations on forest management, fire, entomology, and other aspects of subarctic forest ecology. This laboratory is to be the center for the Institute's activities in interior and northern Alaska. Although field work is conducted throughout the region, many investigations will be centered on the Bonanza Creek Experimental Forest about 35 miles from campus.

The overall purpose of the research conducted by the Institute of Northern Forestry is to supply the land manager with the most efficient means of growing, protecting and harvesting timber crops in a manner most compatible with other land uses.

Arctic 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.

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 fulltime study of health problems in low temperature environments on a yearround 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 in northern latitudes and has gained international recognition for its contribution in many fields.

The AHRL includes a reference library containing over 30,000 catalogued 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 belonging to the AHRL Epidemiology Section is located in Bethel.


The university's swimming pool in the Patty Gymnasium is of standard intercollegiate size. It is open to students and faculty for swimming meets, classes and recreational swimming.

## Division of Statewide Services

The Division of Statewide Services makes available to residents of Alaska academic credit courses, educational programs, and special services. The Division operates an Extension Center in Arts and Crafts, statewide civil defense education programs, and many of the programs available to Alaskans under such federal legislation as the Economic Opportunity Act, the State Technical Services Act, and the Higher Education Act of 1965, in addition to following on-going programs.
Community Colleges - The Division of Statewide Services 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 residence 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 and Correspondence Study - The Department offers residence credit courses on the main campus during the evening, at military installations, and in other locations throughout the state not served by a Community college or the Southcentral Regional Center, and correspondence courses.

The Department also coordinates the grading of the United States Armed Forces Institute Correspondence Course Lessons submitted by military personnel in Alaska.

Catalogs pertaining to Department activities are available by writing to the Department of Evening Classes and Correspondence Study, University of Alaska, College, Alaska.
Summer Sessions, Conferences and Short Courses - The University holds three- and six-week summer sessions on the campus at College and at most of the community colleges. A wide range of courses are offered for both graduate and undergraduate credit. Courses of study are open to both men and women who are (1) candidates for graduate or undergraduate degrees, or (2) unclassified students wishing to take special courses 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 of credit may be earned during the three-week sessions.

Of special interest are various workshops, institutes, conferences and lectures conducted by specialists, with Alaskan aspects of the subjects presented when possible. A post-session Workshop on Alaska includes anthropology, education, history, literature, art, agriculture, and wildlife, consisting of lectures by authorities, demonstrations, and field trips.

Special workshops and institutes open to high school age students are also presented. These include the Music Camp, and a Youth Leadership Conference.

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

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

The Summer Sessions Catalog, which includes a listing of courses to be offered, is available after March 1 of each year from the Department of Summer Sessions, Conferences, and Short Courses.

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 the state of Alaska.

Mining Extension Program - The Mining Extension Program, supported by state appropriations, consists of three short courses: a four-week or fiveweek 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 Department of Summer Sessions, Conferences and Short Courses, 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 demonstrations 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 Department of Summer Sessions, Conferences and Short Courses, 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 USDA to the public. They help local people to indentify 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 $4-\mathrm{H}$ 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. The Department administers the audio-visual materials of the State Department of Education for use in schools throughout interior and northern Alaska.

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


Computers play an ever-increasing role in university research and administration. The data pre-processing unit of the Geophysical Institute is one of several computer installations.

## Southcentral Regional Center

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 Southcentral Regional Center effective July l, 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 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-Susitna Community College (Palmer), both activated within the past decade, offer limited lower division academic courses each semester under University of Alaska authorization and a number of vocational-technical and interest courses under school district sponsorship. The Kodiak Borough Community College activated just this year 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 services are provided. Currently the College operates primarily on a late afternoon and evening basis in school district and other rented facilities. The first phase of a separate Anchorage Community College facility is now under construction on an 87 -acre site and will be ready for use in 1969.

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 many qualified part-time lectures serves the instructional needs while as yet other locations have only part-time instructors. Some upper division courses under the framework of the 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 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 majority of a 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 dependent 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 authorized for the Anchorage area for 1988-69. A small resident staff, supplemented by commuting staff from the main campus and well-qualified local lecturers, offers course work, practicum, and projects for a master's degree in Counseling Psychology and the master's in 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 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 and the University Academic Council and the Advanced Study Council. The Provost provides liaison between the main campus and Regional Center operation 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 Bqulevard, 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


Charles W. Davis, head of the Music Department, conducts a concert performed by the Choir of the North. The choir has gained many honors both within Alaska and outside the state.

## Arts and Letters

## CHARLES J. KEIM - DEAN

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, Linguisties, 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.


#### Abstract

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. A Master of Arts in teaching is available, requiring 30 additional credits.


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

I. General Education
A. Specific Requirements (12) Credits
English (Comp. and Modes of Lit.)6History (Hist. of U.S.)
or
Political Science (Amer. Govt.)6
B. General Requirements ..... (18) Credits
At least 6 credits each in 3 areas below:
Humanities ..... 6
Social Studies ..... 6
Natural Science ..... 6
Mathematics ..... 6
Other ..... 6
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) Credits
One year of foreign language ..... 6-10
Two years of high school of oneForeign Language
Speech (Public Speaking) ..... 4
Formal Humanities Course (s) ..... 4-6
B. Approved Electives ..... (10-16)of which six must be in one departmentA total of 60 credits is required for graduation.
ART DEPARTMENT
HELMUT G. VAN FLEIN - DEPARTMENT HEAD
DEGREES - BACHELOR OF ARTS, ASSOCIATE OF ARTS
MINIMUM REQUIREMENTS FOR DEGREE: B.A. - 130 CREDITS
A.A. - 60 ADDITIONAL 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

1. General Education
A. Specific Sequirements
English
(12) Credits
American Covernment
or
American History. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ${ }^{6}$
B. General Requirements
At least $\mathbf{6}$ credits each in $\mathbf{3}$ areas below:
Humanities ..... 6
Social Studies ..... 6
Natural Science ..... 6
Mathematics ..... 6
Other
(20-30)
II. Major
No course used to meet the General Education requirements may be used to meet therequirements of the major.
A. Specific Requirements
Art 55 and 56, Elementary Drawing, or
Art 105 and 106, Freehand Drawing4 Credits
Art 57 and 58, Elementary Printmaking, or
Art 207 and 208, Beginning Printmaking4
Art 59 and 60 , Elementary Metalcraft, or
Art 209 and 210, Beginning Metalcraft ..... 6
Art 61 and 62, Elementary Sculpture, or
Art 211 and 212, Beginning Sculpture ..... 6
Art 63 and 64, Elementary Oil Painting, or
Art 213 and 214, Beginning Oil Painting ..... 6
Art 65 and 68, Elementary History of World Arts, or
Art 261 and 262, History of World Art ..... 6
B. Electives ..... (4-18) CreditsA total of $\mathbf{6 0 - 7 5}$ credits numbered $\mathbf{5 0 - 2 9 9}$ are required for graduation.The Department of Art would prefer that the candidate for the Associate of Arts Degree inVocational Art continue for at least a minimum of 4 credits, not exceeding a maximum of 6 cre-dits in the area of his strongest interests and artistic inclinations.
REQUIREMENTS FOR A B.A. DEGREE WITH AN ART MAJOR
2. Complete general requirements for a B.A. degree as listed on page 28.
3. Complete a minimum of 37 hours of credit in Art courses. A maximum of 54 hours of creditin Art courses may be counted toward the degree.
4. Complete the following courses in Art:
Art 105-106 - Freehand Drawing ..... 4 Credits
Art 207-208 - Beginning Printmaking ..... ${ }_{8}^{4}$
Art 211-212 - Beginning Sculpture ..... 8
Art 213-214 - Beginning Oil Painting ..... 6
Art 281-262 - History of World Art ..... 6
Art 307 - Intermediate Printmaking. ..... 2
Art 311 - Intermediate Sculpture ..... 3
Art 313 - Intermediate Oil Painting and
Art 407-408 - Advanced Printmaking ..... 4Art 411-412 - Advanced Sculpture6
Art 413-414 — Advanced Oil Painting ..... 4
5. 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.
6. 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 155.

## ENGLISH DEPARTMENT

JAMES R. WILSON - DEPARTMENT HEAD

DEGREES - BACHELOR OF ARTS, MASTER OF ARTS, MASTER OF FINE ARTS
MINIMUM REQUIREMENTS FOR DEGREE: B.A. -130 CREDITS
M.F.A. -48 ADDITIONAL CREDITS
M.A. -30 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 English 101 and 102, including:

English 201-202 Masterpieces of World Literature
Credits
English 239 - Form and technique of Poetry 3
English 240 - Form and Technique of Fiction3
Not required of Junior and Senior transfer majors.
English 423 - Elizabethan Drama ..... 3

or
English 424 - Shakespeare ..... 3
Two courses ( 6 credits) chosen from:
English 421 - Chaucer ..... 3
English 420 - Milton ..... 3
English 472 - History of the English Language ..... 3
A minor in English requires 18 credits beyond English 101 and 102, including:
English 423 - Elizabethan Drama ..... 6
3
or ..... 3English 424 - Shakespeare
One course ( 3 credits) chosen from:
English 421 - Chaucer ..... 3
English 426-Milton ..... 3
English 472 - History of the English Language ..... 3
For course description, see page 155.
REQUIREMENTS FOR A M.A. DEGREE IN ENGLISH

1. A minimum of 30 credits of approved courses including English 697-698, Thesis 6 Credits. For course description, see page 155.
2. Completion of the general graduate degree requirements listed on page 30.3. Reading knowledge of a foreign language.
3. Thesis ..... 6
REQUIREMENTS FOR M.F.A. DEGREE IN CREATIVE WRITING
4. Graduate creative writing courses. ..... 12
5. English electives ..... 15
6. Interdisciplinary electives ..... 12
7. Thesis ..... 6
8. Reading knowledge of a foreign language.

## JOURNALISM DEPARTMENT JIMMY B. BEDFORD - DEPARTMENT HEAD <br> DEGREE - BACHELOR OF ARTS <br> MINIMUM REQUIREMENTS FOR DEGREE: 130 CREDITS

The journalism curriculum is designed to prepare students for a challenging profession which calls for a high degree of proficiency in communicating with words and pictures-while being versatile enough to allow a broad general education.

Students with diverse interests frequently find that journalism fits well into a joint educational program with such areas as broadcasting, home economics, wildife management, anthropology, economics or political science.

Emphasis on practical experience includes an intern program with Alaska media.

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

1. Complete general requirements for a B.A. degree listed on page
2. Complete a minimum of 21 hours of credits in Journalism. A maximum of 30 hours of credit in Joumalism courses may be counted toward a degree.
3. Complete the following courses in Journalism:

$$
\begin{aligned}
& \text { Iournalism } 201 \text { - Introduction to Journalism } \\
& \text { Journalism } 202 \text { - Reporting of Public Affairs . . . . . . . . . . . . . . . . . . } 3 \\
& 3 \text { Credits } \\
& \text { journalism 2003- Basic Photography . . . . . . . . . . . . . . . . . . . . . . . } 3 \\
& \text { Journalism } 312 \text { - Editing . . . . . . . . . . . . . . . . . . . . . . . . . . . } 3 \\
& \text { Journalism } 324 \text { - Newspaper Production, } \\
& \text { Advertising and Typography }
\end{aligned}
$$

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 linguistics 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 A B.A. DEGREE WITH A FOREIGN LANGUAGE OR LINGUISTICS MAJOR OR MINOR

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

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

A minor in a foreign language requires four semesters ( 12 credits) of study in that language beyond the 102 level.
For a major in Linguistics:

1. Complete general requirements for a B.A. degree as listed on page 28 , including foreign language requirement.
2. Complete 4 semesters ( $12-16$ credits) in language other than that offered as fulfilment 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 $\mathbf{1 5}$ credits in Linguistics courses.

A minor in Linguistics requires 12 credits in Linguistics.
Audio-lingual practice in the Language Laboratory is an integral part of all elementary and intermediate language courses.

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

1. A minimum of 30 credits of approved courses including French 697-898, Thesis.
2. Completion of the general graduate degree requirements listed on page 30 .
3. Proficiency in a foreign language other than French.

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

1. 30 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 <br> DEGREE - 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 $\mathbf{2 0 0}$ level in attempting to pass requirements for admission to upper division study.

## REQUIREMENTS FOR A 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:
Music 131-132 - Basic Theory ..... 6 Credits
Music 231-232 - Advanced Theory ..... 6 Credits
Music $321-322$ - History of Music ..... 6 Credits
Music 331-332 - Form and Analysis ..... 4 Credits
Music 491-492 - Senior Seminar ..... 2 Credits
Applied Music, to include 8 credits of private lessons and 8credits of ensemble participation16 Credits
3. Prior to graduation, satisfy an examination in piano proficiency.
For a major in Music Education:
4. Complete general requirements for a B,A. degree listed on page 28.
5. Complete 40 credits in music including:
Music 131-132 - Basic Theory 6 Credits
Music 231-232 - Advanced Theory ..... 6 Credits ..... 6 Credits
Music $321-322$ - Music History 6 Credits
At least 6 credits from:
Music 315-316 - Instrumental Methods 4 Credits
Music 415-416 - Instrumental Methods 4 CreditsApplied Music, to include 6 credits of private lessons and 10credits of ensemble participation, to include 2 semestersof a vocal ensemble.16 Credits
6. Complete a minor in Education, including either Music 309, or Music 405.
7. Prior to graduation satisfy an examination in pjano proficiency.
REQUIREMENTS FOR A BACHELOR OF MUSIC DEGREE (INSTRUMENTAL)
English Composition and Literature, including Engl. 101-102 ..... 6 Credits
Humanities - Art, English, Foreign Language, Philosophy, Journalism, and Speech11 Credits
Foreign Language
6-10 Credits
History, 101, 102 plus 6 hrs. in another Soc. Science ..... 12 Credits
Mathematics and Natural Science ..... 8 Credits
Music:
Required Courses:
Mus. 151-382 - Piano Proficiency 0-8 Credits
Mus. 161-462 - Applied Music (Major) ..... 24 Credits
Mus. 101, 203, 205, 211 - Ensemble ..... 8 Credits
Mus. 123, 124 - Intro. to Music ..... 6 Credits
Mus. 131, 132 - Advanced Theory ..... 6 Credits
Mus. 321, 322 - History of Music ..... 6 Credits
Mus. 331, 332 - Form and Analysis ..... 4 Credits
Mus. 431 - Counterpoint ..... 3 Credits
Mus. 432 - Orchestration ..... 3 Credits
Mus. 351 or 352 - Conducting ..... 2 Credits
Spec. Top. 493 - Lit. of Major Instrument ..... 3 Credits
Physical Education or Military Science ..... 4-6 CreditsElectives - 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. Thestudent, in his graduation recital must demonstrate ability to perform satisfactorily in public aprogram 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 Language 22-28 Credits
Mus. 331, 332-Form and Analysis ..... 2 Credits
Mus. 431 - Counterpoint 0 Credits
REQUIREMENTS FOR A BACHELOR OF MUSIC DEGREE (MUSIC EDUCATION)
English Composition and Literature, including Engl. 101-102 6 Credits
Humanities: Art, English, Foreign Language, Philosophy, Journalism, and Speech 11 Credits
Foreign Language ..... 6-10 Credits ..... 6-10 Credits
History 101, 102 plus Psychology 101, 252 ..... 12 Credits
Mathematics and Natural Sciences ..... 8 Credits
Education:
Required Courses:
Ed. 313 - Educational Psychology ..... 3 Credits
Ed. 332 - Tests and Measurements ..... 3 Credits
Ed. 405 - Methods of Teaching Music ..... 3 Credits
Ed. 421 - Secondary Education ..... 3 Credits
Ed. 452 - Student Teaching ..... 6 Credits

## Music:

Required Courses:
Mus. 151-362 - Applied Music

> (Piano Profficiency). . . : . . . . . . . . . . . . . . . . . . . . . . 0-8 Credits

Mus. 161-462 - Applied Music (Major) . . . . . . . . . . . . . . . . . . . . . . . 16 Credits
Mus. 101, 203, 205, 211 - Ensemble . . . . . . . . . . . . . . . . . . . . . . . . . . . . 8 Credits
Mus. 123, 124-Intro. to Music . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 8 Credits
Mus. 131, 132 - Basic Theory . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6 Credits
Mus. 231, 232 - Advanced Theory . . . . . . . . . . . . . . . . . . . . . . . . . . . 6 Credits
Mus. 321, 322 - History of Music . . . . . . . . . . . . . . . . . . . . . . . . . . 6 Credits
Mus. 331 - Form and Analysis . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2 Credits
Mus. $315-416$ - Methods \& Tech. in Voice, Brass, Woodwind,
Percussion, Strings. . . . . . . . . . . . . . . . . . . . . . . 10 Credits
Mus. 351 or 352 Conducting . . . . . . . . . . . . . . . . . . . . . . 2 Credits
Mus. 351 or 352 - Conducting . . . . . . . . . . . . . . . . . . . . . . . . . . 2 Credits
Mus. 432 - Orchestration. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3 Credits
Physical Education or Military Science . . . . . . . . . . . . . . . . . . . . . . . . . . 4-6 Credits
Electives - To bring total credit to 130 credits.
Students who desire to meet certification requirements for teaching music at the elementary school level should consult with the head of the Music Department concerning a petition to substitute required elementary level psychology and methods courses for similar courses in the Bachelor of Music (Music Education) curriculum.

A minor in Music requires 12 hours of music credit in addition to 6 credits in Music 131-132 - Basic Theory, or Music 123-124 - Introduction to Music.

All applied music students are expected to perform on student recitals each semester of study.

All music majors and minors are expected to attend all music department recitals and concerts.

For course descriptions, see page 181.

## 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 philosopfical heritage and introduce him to independent reflection on them. thus broadening his perspectives for the various areas of specialization in science, the social sclences and humanities.

## REQUIREMENTS FOR A 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
3 Credits
Phil. 204 - Introduction to Logic . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Choose 2 courses out of the following:
Phil. 321 - Aesthetics . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3 Credits
Phil. 332 - Ethics . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Phol. 341 - Epistemology. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Phil. 342-Metaphysics. . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Complete Phil. $351-352$ - History of Philosophy . . . . . . . . . . . . . . . . . . . . ${ }^{6}$
Complete Phil. 471 - Contemp. Philosophical Problems . . . . . . . . . . . . . . . 3
Choose two of the following:
Phil. 481 - Philosophy of Science . . . . . . . . . . . . . . . . . . . . . . . . 3
Phil. 482 - Comparative Religion . . . . . . . . . . . . . . . . . . . . . . . . 3
Phil. 484 - Philosophy of History . . . . . . . . . . . . . . . . . . . . . . . 3
Complete one Course Phil. 493 or 494 - Special Topics . . . . . . . . . . . . . 3
4. A minor in Philosophy requires 15 credits of approved philosophy courses. For course descriptions, see page 187.

# SPEECH, DRAMA, AND RADIO DEPARTMENT <br> LEE H. SALISBURY - DEPARTMENT HEAD <br> DEGREE - BACHELOR OF ARTS <br> MINIMUM REQUIREMENTS FOR DEGREE - 130 CREDITS 


#### Abstract

Few phenomena of man's life are of greater concern to him than communication. In one way or another, communication has become the common problem, sine qua non, of the sciences and the arts alike. The life and behavioral sciences concern themselves directly with communication, for it is the processes of communication which define and maintain the structure and functioning of living things. The physical sciences from archaeology to space have an equal, if less direct concern, for the progress and development of any science depend 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.


## REQUIREMENTS FOR A 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 Speech 111, including:

$$
\text { Speech } 221 \text { - Introduction to Theater . . . . . . . . . . . . . . . . . . . . . } 3 \text { Credits }
$$

Speech 231 - Introduction to Broadcasting
3
Speech 315 - Phonetics 2
Speech 316 - Voice and Diction . . . . . . . . . . . . . . . . . . . . . 2
3. A Speech major may elect to take an option in Public Address by adding the following courses to those specifically required in 2 (above).

Speech 212 - Public Speaking II . . . . . . . . . . . . . . . . . . . . . . . . 2
Speech 313 - Argumentation and Debate . . . . . . . . . . . . . . . . . . . . 2
Speech 314 - Discussion . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
Speech 317 - Oral Interpretation . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
4. A Speech major may elect to take an option in Drama by adding the following courses to those specifically required in 2 (above).

Speech 223 - Acting 1
Speech 325 - Theater Production . . . . . . . . . . . . . . . . . . . . . . . 3
Speech 327 - Makeup for Theater 2
Speech 425 - Directing or

$$
\begin{aligned}
& \text { Speech } 323 \text { - Acting II . . . . . P Psychology . . . . . . . . . . . . . . . . . . . . . . . . } 33 \\
& \text { Psychology } 101 \text { Introduction to }
\end{aligned}
$$

5. A speech major may elect to take an option in Broadcasting by adding the following courses to those specifically required in 2 (above).

Speech 237 - Announcing
Speech 333 - Writing for Radio and Television . . . . . . . . . . . . . . . . . . . . . . . 3
Speech 334 - Radio-Television Advertising or
Speech 433 - Radio-Television News . . . . . . . . . . . . . . . . . . . . . . 3
Speech 335 - Broadcast Production . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
6. A minor in Speech requires 12 credits of approved Speech electives. For course descriptions, see page 201 .

# College of Behavioral Sciences and Education 

## CHARLES K. RAY - DEAN

The College of Behavioral Sclences 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 soclety 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.
Graduato Dogroos - 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 <br> ERNA GUNTHER - DEPARTMENT HEAD <br> DEGREES - BACHELOR OF ARTS, BACHELOR OF SCIENCE, AND MASTER OF ARTS <br> MINIMUM REQUIREMENTS FOR DEGREES: B.A. - 130 CREDITS <br> 8.5. - 130 CREDITS <br> 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 A B.A. DEGREE OR A B.S. DEGREE WITH AN ANTHROPOLOGY MAJOR

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

Anth. 203 - World Ethnography .
Credits
Anth. 204 - World Ethnography: New World, Pacific 3
Anth. 214 - Archacology . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 4
Anth. 303 - Culture History . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Anth. 423 - Social Structure . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Anth. 424 - Primitive Religion . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Anth. 402 - Human Biology . . . . . . . . . . . . . . . . . . . . . . . . . . . 4
Anth. 498 - Thesis or Project . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
3. Complete the following:
Psy. 101 - Introduction to Psychology . . . . . . . . . . . . . . . . . . . . . . 3

Psy 101 - Introduction to Psychology . . . . . . . . . . . . . . . . . . . . . . 3
Philosophy 201 or Sociology 101 . . . . . . . . . . . . . . . . . . . . . . 3
Philosophy 201 or Sociology 101 10 . . . . . . . . . . . . . . . . . . . . . . . .
Geology 101-102 or Biology 105-106 . . . . . . . . . . . . . . . . . . . . 8
A minor in Anthropology requires 12 approved hours in Anthropology exclusive of Anth. 101.

## REQUIREMENTS FOR AN 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 by special arrangement.

Roquiroments for the dogroo: 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 9 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, or the extensive use of one of these languages in the writing of the thess. 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

CHESTER E. YOUNGBLOOD - DEPARTMENT HEAD
degrees - bachelor of education, master of education, and MASTER OF ARTS IN TEACHING
MINIMUM REQUIREMENTS FOR DEGREES: B.Ed. - 130 CREDITS
M.Ed. - 30 ADDITIONAL CREDITS

$$
\text { M.A.T. - } 30 \text { ADDITIONAL CREDITS }
$$

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 granted by the Alaska Department of Education in juneau. Students who obtain the B.Ed. degree will meet the current academic requirements for Alaskan certification. Any student minoring in Education must meet the Alaska certification requirements. Students seeking a minor in Education should consult with the Head of the Education Department during their freshmian year to obtaln speciffc 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 THE B. ED. DEGREE WITH AN ELEMENTARY EDUCATION MAJOR

1. Military Science or Physical Education (2 years) ..... 0-4 credits
2. Humanities (Art, English, Languages, Linguistics, Music, Philosophy. Speech) ..... 20
a. Required Courses:
English 101 and 102 - Composition \&8 Modes of Literature ..... 6
b. Recommended Courses:
English 213 - Advanced Exposition ..... 3
Music 309 - Elementary School Music Methods ..... 3
Philosophy 201 - Introduction to Philosophy ..... 3
Speech 111 - Public Speaking I or Speech 316 - Voice and Diction ..... 2
3. Social Sciences (Anthropology, Economics, Geography, History, Home Economics 236, Political Science, Psychology, Sociology. ..... 24
a. Required Courses: History 101-102 - Western Civilization or History 131-132 -History of the U.S.6
Political Science 101-102 - American Govemment and Introduction to Political Science. ..... 6
Psychology 101 - Introduction to Psychology ..... 3
Psychology 305 - Child Development ..... 5
b. Recommended Courses:
Economics 121-122-Principles of Economics ..... 8
Anth. 101 - The Study of Man ..... 3
Anth. 342 - Anthropology of the Natives of Alaska ..... 3
Geography 101 - Introductory Geography ..... 3
History 341 - History of Alaska ..... 3
Sociology 101-102 - Introduction to Sociology ..... 6
4. Mathematics ..... 4
Math 121 - Introduction to Modern Algebra and Analysis ..... 4
5. Natural Sciences (Anthropology 402, Biological Sciences, Chemistry, Geography 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 ..... 3
Ed. 332 - Tests and Measurements ..... 3
Ed. 409 - The Teaching of Reading ..... 3
-Ed. 452 - Student Teaching ..... 6
${ }^{\circ}$ Candidates who have taught successfully two years in the public elementary schoolsmay petition to be excused from Ed. 452.
b. Nine credits from the following courses:
Ed. 301 - Social Studies for Elementary Teachers ..... 3
Ed. 302 - Language Arts for Elementary Teachers ..... 3
Ed. 304 - Literature for Children ..... 3
Ed. 306 - Teaching of Science in Elementary Schools ..... 3
Ed. 307 - Teaching of Arithmetic ..... 2
Ed. 311 - Audio Visual Methods and Materials ..... 3
Ed. 323 - Small Schools ..... 2
c. Six credits from the following courses:
Ed. 345 - Sociology of Education ..... 3
Ed. 348 - History of Education in the U.S. ..... 3
Ed. 422 - Philosophy of Education. ..... 3
Ed. 426 - Principles and Practices of Guidance ..... 3
Ed. 446 - Public School Organization, Control \& Support ..... 3
7. A total of 36 credits (including 12 upper division credits) in any two of the following fields, with a minimum of 12 credits in either field:

| Anthropology | Linguistics |
| :--- | :--- |
| Ar | Mathematics |
| Biological Sciences | Music |
| Chemistry | Philosophy |
| Economics | Physics |
| English | Political Science |
| French | Psychology |
| Geography | Russian |
| Geology | Spanish |
| Gernan | Spech |
| History | Sociology |Credits earned in fulfilment of (2), (3), (4), and (5) above may be applied toward courses listedin (7) above.

8. Forty-eight credits of upper division courses, twenty-four of which must be completed at the University of Alaska.
9. Sufficient free electives to total 130 credits.
REQUIREMENTS FOR THE B. ED. DEGREE WITH A SECONDARY EDUCATION MAJOR
10. Military Science or Physical Education (2 years). ..... 6-4 credits
11. Humanities (Art, English, Languages, Linguistics, Music, Philosophy, Speech) ..... 20
a. Required Courses:
English 101 and 102 - Composition \& Modes of Literature ..... 6
b. Recommended Courses:
English 213 - Advanced Exposition ..... 3
Philosophy 201 - Introduction to Philosophy ..... 3
Speech 111 - Public Speaking I or Speech 316 - Voice and Diction ..... 2
12. Social Sciences (Anthropology, Economics, Geography, History, Home Economics 236, Political Science, Psychology, Sociology) ..... 24
a. Required Courses:
History 101-102 - Westem Civilization or History 131-132 - History of the U.S. ..... 6
Political Science 101-102 - American Government and Introductionto Political Science6
Psychology 101 - Introduction to Psychology ..... 3
Psychology 252 - Psychology of Adolescence ..... 3
b. Recommended Courses:
Anth. 101 - The Study of Man ..... 3
Anth. 342 - Anthropology of the Natives of Alaska ..... 3
Economics 121 and 122 - Principles of Economics ..... ${ }^{8}$
History 341 - History of Alaska ..... 3
Sociology 101 and 102 - Introduction to Sociology ..... 6
13. Mathematics and Natural Sciences (Anthropology 402, Biological Sciences, Chemistry, Geography $201 \& 401$, Geology, Physics) ..... 8
14. Education (students must maintain at least a $\mathbf{2 . 0 0}$ average in all education courses) ..... 24
a. Required Courses:
Ed. 313 - Educational Psychology ..... 3
Ed. 332 - Tests and Measurements ..... 3
Ed. 402 or 404 or 405 or 406 or 407 or 408 - Methods ..... 3
-Ed. 452 - Student Teaching. ..... 6-Candidates who have taught successfully two years in the publicsecondary schools may petition to be excused from Ed. 452.
b. Six credits from the following courses:
Ed. 345 - Sociology of Education . . . . . . . . . . . . . . . . . . . . . . . 3
Ed. 348 - History of Education in the U.S. . . . . . . . . . . . . . . . . . . . 3
Ed. 421 - Secondary Education . . . . . . . . . . . . . . . . . . . . . . . . . 3
Ed. 422 - Philosophy of Education . . . . . . . . . . . . . . . . . . . . . . . . 3
Ed. 446 - Public School Organization, Control and Support . . . . . . . . . . 3
c. Three credits of education electives selected from the following:
Ed. 311 - Audio Visual Methods and Materials . . . . . . . . . . . . . . . . . 3
Ed. 323 - Small Schools . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
Ed. 426 - Principles and Practices of Guidance . . . . . . . . . . . . . . . . . 3
15. Teaching Majors and Minors (students must maintain at least a 2.00 average in their teaching majors).

Option A.
Complete a teaching major of at least 26 approved credits and a teaching minor of at least 16 approved credits for a total of 51 credits of which at least 18 must be upper division. See advisor.
Option B.
Complete an integrated teaching major-minor of 51 approved credits. See advisor.

## MAJOR OR MINOR (Option A)

## Art

Biological Sciences
Business Education
Chemistry
English

- Foreign Language

History
Home Economics
Mathematics
Music

- *Physical Education

Physics
Speech

## MINOR ONLY (Option A)

- **Economics
${ }^{-}$Geography
journallism
- Political Science
${ }^{-}$Sociology


## INTEGRATED MAJOR-MINOR (Option B)

## General Science

Social Science
Earth Sciences

- Approved for History Major only.
- Confer with Head of the Department of Education.
** See page 81 for requirements for B. Ed. Degree with a major in Physical Education.
- . Approved for History and Business Education Teaching Majors only. Credit earned in fulifiment 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 specitied courses must be approved by written petition to the Head of the Education Department.

7. Forty-eight credits of upper division courses, twenty-four 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 fead of the Education Department in their freshman year to obtain course requirements and application procedure 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:


## REQUIREMENTS FOR ADMISSION TO STUDENT TEACHING

1. 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 $\mathbf{1 5}$ 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. 305, Math. 121, 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 .
e. Completion of a minimum of 24 approved credits in an approved teaching major with a G.P.A. of 2.00 or more.
f. Completion of Psy. 101, Psy. 252, Ed. 313, and Ed. 332 with a minimum G.P.A. of 2.00 in Psy. 252, 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 A 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 Hend 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 goneral the requiroments 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 requirement listed on page 30.

## REQUIREMENTS FOR A 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.
2. 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 acadernically 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

## BEN H. BROOKS - ACTING DEPARTMENT HEAD

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 A B. ED, DEGREE WITH A PHYSICAL EDUCATION MAJOR

1. Complete the general requirements for a B.Ed. degree as follows:
a. Military Science: 6 credits, or Physical Education Activities (P.E. 100): 4 credits.
b. Physical Education:

Women majoring in P.E. will complete 2 credits of P.E. 100.
Men majoring in P.E. are exempt from required P.E. 100.
c. Humanities: 14 credits.

Art 261 or Music 123; English 101, 102; Philosophy 201; Speech 111.
d. Social Sciences: 18 credits

Anthropology 342; Economics 121; History 341; Psychology 101, 252;
Sociology 101.
e. Mathematics, Natural Science, Physical Science: 16 credits

Biology 105, 201, 202; Chemistry 104; Mathematics 121.
f. Education: 18 credits

$$
\text { Education } 313,332,406,426,452 .
$$

2. Complete the following required professional courses:

$$
\text { P.E 311-Principles of Physical Education . . . . . . . . . . . . . . . . . . . } 4 \text { Credits }
$$

P.E. 242_Personal and Community Health . . . . . . . . . . . . . . . . . . . . . . . 3
P.E. 248-First Aid . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 308-Physical Education for the Elementary School . . . . . . . . . . . 3
P.E. 331 -Sports Officlating . . . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 358 -History of Physical Education . . . . . . . . . . . . . . . . . . . . 3
P.E. $425-$ Organization and Administration of Physical Education . . . . . . 3
P.E. 440-Prevention and Care of Athletic Injurtes . . . . . . . . . . . . . . . 2
P.E. 211 -Fundamentals of Sports-Volleyball and Soccer ........... 1
P.E. 212-Fundamentals of Sports-Recreational Activities . . . . . . . . . . 1
P.E. 213-Fundamentals of Sports-Swimming. . . . . . . . . . . . . . . . . 1
P.E. 214-Fundamentals of Sports-Skiing . . . . . . . . . . . . . . . . . . . I
P.E. 215-Fundamentals of Sports-Tumbling \& Gymnastics (men) . . . . . 1
P.E. 216-Fundamentals of Sports—Rhythms. ... ................. 1
P.E. 217 -Fundamentals of Sports-Tumbling and Apparatus
Gymnastics (women) $\ldots . . . . . . . . .$. . . . . . . . . . . . . .

1
P.E. 301 -Techniques in Physical Education-Basketball (men). . . . . . . . . 2
P.E. 302-Techniques in Physical Education-Track \& Field . . . . . . . . . 2
P.E. 300 -Techniques in Physical Education-Team Sports
(women) . . . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 400 -Techniques in Physical Education-Tumbling \& $\quad$ Gymnastics . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 401 -Techniques in Physical Education-Aquatics $\&$
Rhythms . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 203-Fundamentals of Sports-Tennis and Badminton . . . . . . . . . . 1
3. Teaching minor (will depend upon minor chosen).
4. Electives to total 130 credits.

Completion of the following courses is required for a MINOR in Physical Education:
P.E. 311-Principles of Physical Education Credits
P.E. 246—First Aid . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 308-Physical Education for the Elementary School . . . . . . . . . . . 3
P.E. 425-Organization and Administration of Physical Education . . . . . . 3
P.E. 440-Prevention \& Care of Athletic Injuries-Required
for MEN only
P.E. 211-Fundamentals of Sports-Volleyball and Soccer . . . . . . . . . . 1
P.E. 214-Fundamentals of Sports-Stding . . . . .............. . . . 1
P.E. 215-Fundam entals of Sports-Tumbling \& Cymnastics (men) . . . . . 1
P.E. 216-Fundamentals of Sports-Rhythms. . . . . . . . . . . . . . . . . . . I
P.E. 217-Fundamentals of Sports_Tumbling and Apparatus
Gymnastics (women) . . . . . . . . . . . . . . . . . . . . .
P.E. 301-Techniques in Physical Education-Basketball (men). . . . . . . . . 2
P.E. 302-Techniques in Physical Education-Track \& Field . . . . . . . . . 2
P.E. 303 -Techniques in Physical Education-Team $\quad$ Sports (women) . . . . . . . . . . . . . . . . . . . . . . . . . 2
P.E. 203-Fundamentals of Sports-Tennis and Badminton: . . . . . . . . . . 1

## HOME ECONOMICS DEPARTMENT

ANN L. WALSH - DEPARTMENT HEAD
DEGREE - BACHELOR OF SCIENCE

## MINIMUM REQUIREMENTS FOR DEGREE: B.S. - 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 experience in the liberal arts.

## HOME ECONOMICS CURRICULUM

## FALL SEMESTER

## first year <br> 16 Credits

Engl. 101 - Comp. \& Modes of Lit. . . . 3
H.E. 102 - Meal Management . . . . . . 3
H.E. 121 - Related Art . . . . . . . . . . 2

Chem. 101 - Gen. Chemistry . . . . . . 4
P.E. 100 - Physical Ed. Activities . . . . 1

Electives . . . . . . . . . . . . . . . . . . 3
SECOND YEAR 16 Credirs
Psy. 101 - Intro. to Psy . . . . . . . . . 3
P.E. 100 - Physical Ed. Activities . . . . 1
H.E. 211 - Textiles . . . . . . . . . . . 3

English Elective . . . . . . . . . . . . . . 3
Biol. 105 - Fund. of Biol . . . . . . . . . 4
Electives . . . . . . . . . . . . . . . . . . 2
THIRD YEAR 16 Credits
Econ. 121 - Prin. of Econ . . . . . . . . . 3
H.E. 312 - Adv. Clothing. . . . . . . . . . 3

Electives . . . . . . . . . . . . . . . . . . 10
FOURTH YEAR 17 Crodits
H.E. 441 - Family Health . . . . . . . 2
H.E. 445 - Home Mgt . . . . . . . . . . 3

Electives . . . . . . . . . . . . . . . . . . 12
SPRING SEMESTER
15 Cradits
Engl. 102 - Comp. \& Modes of Lit ..... 3
H.E. 241 - Home Mg. 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
16 Credits
H.E. 236 - Marriage \& Fam. Life ..... 3
P.E. 100 - Physical Ed. Activities ..... 1
H.E. 302 - Advanced Foods ..... 3
English Elective ..... 3
Speech 111 - Public Speaking ..... 2
Electives ..... 4
17 Credits
H.E. 304 - Nutrition ..... 3
H.E. 305 - Child Develop ..... 5
Electives ..... 9
17 Cradits
H.E. 446 - House Plan. \& Furn ..... 3
Electives ..... 14

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 credit 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 certifcate by completing Education 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 LIEUTENANT COLONEL STEPHEN E. ANDREWS, JR. - 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 cilizens 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 Ammy 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 月ying 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, Aying clothes, cost of lessons and transportation are furmished by the Department of the Army.
UNIFORMS AND EQUIPMENT - Members of the Basic and Advanced Course are furmished uniforms and texts by the United States Army.

Regulation gymnasium shoes, avallable through the University Book Store, are required to be worn during Leadership Laboratory (drill). These shoes must be purchased by the individual student.
ALOWANCE - 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 Inter-collegiate Match in competition with west coast schools. Postal matches are fired against university and college teams throughout the United States. The Einest 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 DRILI 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 <br> DEPARTMENT HEAD - ZAYNE CHAPIN <br> DEGREES - BACHELOR OF ARTS AND BACHELOR OF SCIENCE MINIMUM REQUIREMENTS FOR DEGREES: B.A. - 130 CREDITS <br> B.S. - 130 CREDITS

Psychology seeks to guide the student in an understanding of himself and of others in the area of experience and reaction to the milieu.

The feld of Psychology has relevance for students preparing for careers in law, medicine, social work, education, industrial relations, and government service.

Psychology majors are specifically prepared for graduate work in major universities throughout the United States.

Sociology is a field in social science concerned with the behavior of people in groups, particularly societies, culture, and institutional arrangements under which people live. It is concerned with contemporary civilization.

## requirements for a b. A. degree or a b. s. degree with A PSYCHOLOGY MAJOR

[^1]Psy. 304 - Abnormal Psychology orPsy. 209 - Social Psychology3
Psy. 491 - Seminar in Human Behavior ..... 2
3. A minor in Psychology requires 12 approved credits in Psychology beyond Psy. 101 and 102 .
REQUIREMENTS FOR A B.A. OR A B.S. DEGREE WITH A SOCIOLOGY MAJOR

1. Complete general requirements for a B.A. or B.S. degree as listed on page 28.
2. Complete 24 credits in Sociology beyond Sociology 101, 102, eighteen units of which mustbe upper division and must include:
Soc. 434 - Social Science Research Methods ..... credits
Soc. 491 - Seminar in Human Behavior ..... 2
3. Complete nine units chosen from the following:
Psy. 209 - Social Psychology ..... 3
Soc. 304 - Culture and Personality ..... 3
Soc. 410 - Social Theory ..... 3
Soc. 209 - Urban Sociology ..... 3
Soc. 232 - Family and Society ..... 3
Soc. 205 - Group Processes in Modern Society ..... 3
4. Complete the following:3
A minor in Sociology requires 12 elective credits in Sociology beyond Soc. 101 and 102.


The annual Winter Carnival is a community and campus highlight. Events include such winter activities as snowmobile races, a blanket toss, dogsled races and the formal "Snow Ball."


# 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.

## 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 and conservation, etc.) and in agriculture.

Opportunities for summer employment are available through various State and Federal Agencies and through the University's Agrieultural Experiment Station.

## CURRICULUM

FALL SEMESTER
FIRST YEAR 16 or 161/2 Crodits
Engl. 101 - Comp. \& Modes of 1 it ..... 3
Biol. 105 - Fiund. of Biology ..... 4
Mathematics ..... 4
Chem. 101 - Ceneral Chem ..... 4
P.E. 100 or Mil. Sci ..... 1 or 14
SECOND YEAR 17 or $171 / 2$ Crodits
Phys. 103 - Coll. Physies ..... 4
Geol. 101 - Gen. Geology ..... 4
Econ. 121 - Princ. of Econ ..... 3
Engl. 213 - Adv. Comp ..... 3
Elective1 or $1^{1 / 2}$

## SPRING SEMESTER

## 16 or 161/2 Crodits

Engl. 102 - Comp. \& Mordes of Lit ..... 3
Biol. 103 - Fund. of Biology ..... 4
Mathematics ..... 4
Chem. 102 - General Chem ..... 4
P.E. 100 or Mil. Sci ..... 1 or $11 / 2$
16 or 171/2 Credifs
Phys. 104 - Coll. Physics ..... 4
Approved Biology Elective ..... 4 or 3
Engl. Elective. ..... 3
Soc. Sci. Elective ..... 3
Elective ..... 2
P.E. 100 or Mil. Sci ..... 1 or $11 / 2$

## GRADUATE STUDY IN LAND RESOURCES

A program of graduate study is planned beginning in 1988.

# BIOLOGICAL SCIENCES DEPARTMENT <br> JAMES E. MORROW - DEPARTMENT HEAD <br> 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 requirements include fewer credits in the major field, but give greater emphasis in the fields of social sciences and humanities and allow a greater breadeh of subject matter in the curricula. The requirements for the B.S. degree include 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. All electives in the various curricula must be approved by the Head of the Department of Biological Sciences.

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

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

Biology 105-106
Mathematics - 1 year
Chemistry - 1 year
Biology 302 - Genetics
Biology 303 - Ecology
Physiology
At least two of the following:
Biology 305 - Invertebrate Zoology
Biology 317 - Comp. and Dev. Anat.
Biology 318 - Comp. and Dev. Anat.
At least two of the following:
Biology 233 - Morph. of Nonvascular Plants
Biology 234 - Morph. and Anat. of Vasc. Plants
Biology 331 - Systematic Botany
Biology 341 - Microbiology
3. Attend Biol. 491 - 492 (Seminar) during Junior and Senior years. A minor in Biological Sciences requires 14 credits of biology.

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

1. Complete the general requirements for a B.S. degree as listed on page 29.
```
2. Complete the following courses:
    Biology 105-106
    -Mathematics - }1\mathrm{ year
    Chemistry 101-102
    Organic Chemistry - 1 semester
    Physics - l year
    * Foreign Language or Introductory Linguistics - 1 year
    Biology 302 - Genetics
    Biology 303 - Ecology
    * * Physiology
    At least three of the following:
        Biology 305 - Invertebrate Zoology
        Biology 317 - Comp. and Dev. Anat.
        Biology 318 - Comp. and Dev. Anat.
        Biology 413 or 414 - Cell or Comparative Physiology
***At least three of the following:
        Biology 233 - Morph. of Nonvascular Plants
        Biology 234 - Morph. and Anat. of Vasc. Plants
        Biology 331 - Systematic Botany
        Biology 341 - Microbiology
        Biology 416 - Plant Physiology
```

3. Attend Biol. 491-492 (Seminar) during Junior and Senior years.
-Acceptable 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.
$\cdots$ May be satisfied by taking Biology 413, 414, or 416 as one of the choices below.

- . ${ }^{\circ}$ Students preparing to enter professional schools (medical, dental, veterinary, etc.) may substitute approved chemistry courses.


## REQUIREMENTS AND CURRICULUM FOR A 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 unjversity, three of which must be at the University of Alaska with a G.P.A. of at least 2.0, 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 in affiliated school of Medical Technology, and, if accepted, registers for Binl. 401 at the University of Alaska and spends a 12 -month internship at the affiliated school. The University is afBliated with three ASCP-approved, non-denominational schools of medical technology $\rightarrow \mathrm{St}$. 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 abovementioned University requirements, the student is eligble to receive a Bachelor of Science degree from the 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) after his name.

## FALL SEMESTER

## FIRST YEAR <br> 15 or 151/2 Crediss

Engl. 101 - Comp. \& Modes of Lit . . . . 3
Mathematics ... . . . . . . . . . . . 3
Chem. 101 - General Chem . . . . . . . 4
Biol. 105 - Fund. of Biology . . . . . . . 4
P.E. 100 or Mil. Sci . . . . . . . . . . 1 or $11 / 2$

## SPRING SEMESTER

| 15 or 151/2 Crodits |  |
| :---: | :---: |
| Engl. 102 - Comp. \& Mod | odes of Lit. . . . 3 |
| Mathematics | 3 |
| Chem. 102 - General Che | hem . . . . . . 4 |
| Biol. 106 - Fund. of Biolog | logy . . . . . . 4 |
| P.E. 100 or Mil. Sci . . . . . | . . . . . . . 1 or $11 / 2$ |

Mathematics . . . . . . . . . . . . . . . 3
Chem. 102 - General Chem . . . . . . 4
P.E. 100 or Mil. Sci . . . . . . . . . . 1 or $11 / 2$
sECOND YEAR ..... 16 or 171/2 Credits
Biol. 201 - Elem. Vert. Anatomy
${ }^{\circ} \mathrm{r}$
Biol. 317 - Comp. \& Dev. Anat. . 3 or 4
Engl. 213 - Adv. Exposition ..... 3
Soc. Sci. Elective. ..... 3
Elective ..... 23
-Approved Chem. Elective ..... 4
P.E. 100 or Mil. Sci ..... 1 or $1 / 2$
THIRD YEAR ..... 17 Crodits
Phys. 103 - Coll. Physics ..... 4
Biol. 341 - Cen. Microbiology ..... 4

- ${ }^{\text {Foreign Language }} 101$ ..... 5
Chem. 212 - Quant. Anal ..... 4
Biol. 491 - Seminar ..... 0
FOURTH YEAR 33 or 36 Crodits
Soc. Sci. Elective ..... 3
Elective ..... 0.3
Bial. 401 - Medical Technology ..... 30- Organic Chemistry recommended.- Students with two years of an approved foreign language in high school may have this re-quirement waived.
$\cdots$ Btol. 414 not required if Biol. 202 has been successfully completed.


## PREPARATORY CURRICULA - 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 Biclogical Sciences Department, where the ptudent will follow a sequence of courses planned to meet the requirements of the particular profesilonal field in which he is interested.

Most premedical 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 Blological Sciences or Chemistry, earning a bachelor's degree at the end of four years. Adjustments may be made to meet varying requirements. Pre-medical students who are accepted in medical school prior to finishing their bachelor's requirements and who have earned at least 100 hours of preprofessional work with a G.P.A. of 3.0 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 transer 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 the Department of Biological Sciences.

Candidates for the Bachelor of Science degree in General Science wishing a major in Bioloppcal Sciences must satisfy both the requirements of their major curriculum and those listed for B.A. degree major on page 28.

## REQUIREMENTS FOR A M.S. DEGRE 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.
3. Completion of the general requirements for a graduate degree as listed on page $\mathbf{3 0}$. For course description, see page 125.

# WILDLIFE MANAGEMENT DEPARTMENT <br> FREDERICK C. DEAN - DEPARTMENT HEAD <br> DEGREES - BACHELOR OF SCIENCE AND MASTER OF SCIENCE <br> MINIMUM REQUIREMENTS FOR DEGREE: B.S. - 135 CREDITS <br> <br> M.S. - 30 ADDITIONAL CREDITS 

 <br> <br> 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 a 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 Scutheastern 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 Wildlite 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.

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

FALL SEMESTER
FIRST YEAR ..... 16 ar 161/2 Cradits
Biol. 105 - Fund. of Biology ..... 4
Chem. 101 - General Chem ..... 4
Eng. 101 - Comp. \& Modes of Lit ..... 3
Math. 121 - Intro. Algebra \& Anal ..... 4
P.E. 100 or Mil. Sci ..... 1 or $11 / 2$
SECOND YEAR 15 or 151/2 Crodits
Land Res. 101 - Cons. Natural Mes. ..... 2
Biol. 317 - Comp. \& Dev. Anatomy ..... 4
Phys. 103 - College Physics ..... 4
Chem, 223 - Intro. Organic Chem.(Fisheries Major)
orGeol. 101 - Gen. Geology4
(Wildlife Major)
P.E. $\mathbf{1 0 0}$ or Mil. Sci ..... 1 or 11/3
MAJOR IN FISHERIES BIOLOGY
third year ..... $12+$ Crodits
Biol. 328 - Ichthyology ..... 3
Econ. 121 - Prin. of Economics ..... 3
${ }^{-}$Forelgn Language 201 ..... 3
W.M. 325 - Scientific Sampling ..... 3

## SPRING SEMESTER

16 or 161/2 Crodits
Biol. 105 - Fund of Biology ..... 4
Chem. 102 - General Chem ..... 4
Engl. 102 - Comp. \& Modes of Lit ..... 3
Math. 122 - Intro. Algebra \& Anal ..... 4
P.E. 100 or Mil. Sci . ..... 1 or $11 / 2$
15 or 151/2 Crodits
Biol. 303 - Ecology ..... 3
Biol. 318 - Comp. \&e Dev. Anatomy ..... 4
Phys. 104 - College Physics ..... 4
Math. 204 - Elem. Statistics ..... 3
P.E. 100 or Mil. Sci ..... 1 or $11 / 2$
$9+$ Credits
Biol. 302 - Genetics ..... 3
Engl. 213 - Adv. Comp ..... 3
fourth year $11+$ Credits
Biol. 305 - Invertebrate Zoology . . . . . 4
W.M. 304 - Wildlife Mgmt. Princ . . . . 3
W.M. 423 - Limnology
or
Geol. 411 - General Oceanography . . . 3
W.M. 491 - Seminar
or
W.M. 493 - Special Topics 1
MAJOR IN WILDLIFE MANAGEMENT
THIRD YEAR 15 + Crodifs***
Biol. 323 - Mammalogy . . . . . . . . . 3
Biol. 331 - Systematic Botany
or
Land Res. 311 - Soils . . . . . . . . 4 or 3
Econ. 121 - Prin. of Econ . . . . . . . . 3

- ${ }^{\circ}$ Foreign Language 201 . . . . . . . . . 3
W.M. 325 - Scientific Sampling. . . . . 3

FOURTH YEAR $\quad 12+$ Credis***
Biol. 326 - Ichthyology . . . . . . . . . . 3
Biol. 331 - Systematic Botony
or
Land Res. 311 - Soils . . . . . . . . 4 or 3
W. M. 304 - Wildife Mgmt. Prine . . 3
W. M. 423 - Limnology
or
Geol. 411 - General Oceanography. . . 3

Biol. 414 - Comp. Physiology . . . . . 4
Engl. 314-Research Writing . . . . . . 3
W.M. 410-Wildlife Tech . . . . . . . . 3
W.M. 424 - Ecology of Fishes . . . . . 3
${ }^{\circ}$ In Fisheries Biology major, 24 credits of electives must be completed; 3 of these must be in Biol. 233 or Biol. 31 or Biol. 416; 6 more must be from courses which will satisfy the University's social science requirement.
"A 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 languages in high school may enter the third or fourth semester of the language or have the requirement waived, whichever is approprjate. Students entering this department are expected to have two high school years of one of these languages; students lacking this preparation must take 10 credits of first year language in college, thereby reducing their college electives.
${ }^{6-9}$ In Wildlife Management major, 15 credits of electives must be completed; 6 of these must be from the courses which will satisfy the University's social science requirement.

All electives must be approved by the Head of the Department of Wildife 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 typewritten coples 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 A M.S. DEGREE WITH A MAJOR IN WILDLIFE MANAGEMENT OR FISHERIES BIOLOGY

1. A minimum of 30 credits of approved courses, including Wildlife Management 697-698, Thesis, in the field of Fisheries Biology or Wildlife Mariagement.
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 For course descriptions, see page

## 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 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 graduate study.


The Musk Ox farm is a 5 -year project supported by the W. K. Kellogg Foundation. The musk ox is under study as a potential large-scale source of meat and wool for arctic environments.

The main campus of the university is on a hill four miles west of Fairbanks. This winter-
time photo shows major campus buildings. Converging roads at lower center lead to Fairbanks.


# Business, Economics and Government 

## LEO M. LOLL, JR. - DEAN

The primary ohjective 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 organizations which require analytical ability; (2) to provide those who wish to prepare themselves for positions of responsibility in industry and government with a basic understanding of the economic, political and social environment; (3) to offer courses in the fields of business, economies, 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 in 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, and Bachelor of Arts.
GRADUATE DEGREES - 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 A 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 316 - Analysis of Financial Statements ..... 3
Acc 413 - Federal and State Tax Accounting ..... 3
Acc 416 - Advanced Accounting ..... 3
Acc 417 - Cost Accounting ..... 3
Acc 418 - Auditing ..... 3
B.A. 331-332 - Business Law ..... 6
Approved upper division electives ..... $.8-10$BUSINESS ADMINISTRATION DEPARTMENTROBERT 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


#### Abstract

The Business Administration Department offers professional training in the fields 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 listed on page 29.
2. Complete the following foundation courses:
Acc. 215-216 - Principles of Accounting ..... credits
B.A. 331-332 - Business Law ..... 6
B.A. 325 - Financial Management ..... 3
B.A. 343 - Marketing ..... 3
B.A. 360 - Production Management ..... 3
B.A. 462 - Administrative Policy ..... 3
3. A student must take a minimum of 12 hours of the courses listed below includingall of the courses in one of the three groups.
Managomont
B.A. 359 - Regulation of Industry ..... 3 credits
B.A. 361 - Industrial Relations ..... 3
B.A. 424 - Managerial Economics ..... 3
B.A. 480 - Organization Theory ..... 3
Markoting
B.A. 359 - Regulation of Industry ..... ${ }^{3}$
B.A. 442 - Marketing Institutions and Channels ..... 3
B.A. 443 - Marketing Theory and Analysis of Market Change ..... 3
Financo
B.A. 423 - Investment Management ..... 3
B.A. 425 - Advanced Corporate Financial Problems ..... 3
Acc. 316 - Analysis of Financial Statements ..... 3
Econ. 351 - Public Finance and Taxation ..... 3
A minor in Business Administration requires 15 credits of BusinessAdministration electives.
REQUIREMENTS FOR THE MASTER OF BUSINESS ADMINISTRATION DEGREE
4. Completion of the general requirements for a graduate degree listed on page $\mathbf{3 0}$.
5. Completion of a minimum of $\mathbf{3 0}$ semester hours of required courses in Business Administration and Economics (including thesis) as approved by the candidate's graduate committee.
6. Completion of a thesis which generally will carry no more than six semester hours of credit. Onder unusual conditions, and upon petition, additional thesis hours may be granted. Thesis credit applies toward the 30 required hours.
7. A minimum terminal grade point average of 3.00 .
8. 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.
9. Passage of an oral examination, after the thesis has been approved, covering the students field of specialization and thesis content.
ECONOMICS DEPARTMENTGENE L. ERION - DEPARTMENT HEADDEGREE - BACHELOR OF ARTSMINIMUM 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 A 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 . . . . . . . . . . . . 6 Credits
Behavioral Sciences: Psychology, Sociology, Anthropology . . . . . . . . . . . 9

Math 121-122; or 106, 200 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . $8-9$
P.S. 101-102 - American Government . . . . . . . . . . . . . . . . . . . . . . 6
3. Complete 30 additional credits in Economics, including:

Econ. 221 - Interpretation of Business and Economic3

Data Economic History of the U.S.
Econ 232 - Economic History of the U.S. ..... 3
3Econ 324 - Income and Employment
Econ 350 - Monetary Economics ..... 3
Econ 494 or 495 - Special Topics ..... 3
Electives in Economics. ..... 12( 6 hours of the following Business Administrationcourses may be included: B.A. 325, 343, 359,424. and 480.)

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 CREDITSM.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 scught 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 the other social sciences.

## requirements for a 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:

Econ. 121 - Principles of Economics . . . . . . . . . . . . . . . . . . . . . . 3 credtis
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:
Hist. 475 - Introduction to Historical Method . . . . . . . . . . . . . . . . . 33

Approved Upper Division American History ..... 6

Approved Upper Division European History
Electives
6
A minor in History requires $\mathbf{1 2}$ credits of History electives, $\mathbf{6}$ of which must be upper division.

## REQUIREMENT FOR THE MASTER OF ARTS DEGREE IN HISTORY

1. Completion of the general requirements for a graduate degree as listed on page $\mathbf{3 0}$.
2. 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 History 601 (Historiography), History 692 (Seminar in European History) and History 692 (Seminar in American History).
3. Completion of a satisfactory thesis for which six credit hours may be granted.
4. 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.

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 degree CERTIFICATE IN SECRETARIAL SERVICE
MINIMUM REQUIREMENTS FOR DEGREES: CERTIFICATE - 30 CREDITS
A.O.A. - 60 CREDITS
B.A. - 130 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) $\hat{A}$ four-year course leading to the degree of Bachelor of Arts with a major in Business Education. The objective of the curriculum is to 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, dictaphone, filing and the English Language.
REQUIREMENTS FOR A B.A. DEGREE WITH A MAJOR IN OFFICE ADMINISTRATION OR BUSINESS EDUCATION

1. Complete requirements for the B.A. Degree listed on page 28.
2. Complete the following required courses:
Acc. 215-216 - Principles of Accounting ..... 6
O.A. 101-102 - Shorthand or approved electivescredits
O.A. 105 - Intermediate Typewriting ..... 2
O.A. 106 - Advanced Typewriting. ..... 2
O.A. 201 - Intermediate Stenography ..... 3
O.A. 202 - Advanced Stenography ..... 3
O.A. 203 - Office Machines ..... 3
O.A. 208 - Secretarial Skills ..... 3
O.A. 231 - Business Correspondence ..... 3
O.A. 302 - Secretarial Training ..... 3
3. Social Science must include:
Econ. 121-122 - Principles of Economics ..... 6
B.A. 331 - Business Lawcredits
4. Approved Upper Division Electives ..... 8
5. The following minor in education is required for Business Education Majors:
Psy 101 - General Psychology ..... 3
Psy 252 - Psychology of Adolescence ..... 3
Ed 313 - Educational Psychology ..... 3
Ed 332 - Tests and Measurements ..... 3
Ed 408 - Methods of Teaching Business Education Subjects ..... 3
Ed 421 - Secondary Education ..... 3
Ed 452 - Directed Teaching ..... 8
REQUIREMENTS FOR AN A.O.A. DEGREE
6. Complete the following general requirements:
Acc. 215-216 - Principles of Accounting
Acc. 215-216 - Principles of Accounting ..... 6 ..... 6
Econ. 121 - Principles of Economics
Econ. 121 - Principles of Economics ..... 3 ..... 3
Econ. 122 or P.S. 101 ..... 3
Engl. 101-102 - Composition and Modes of Literature ..... 6 ..... 6
Math. 110 - Math of Finance ..... 3
Sp. 211 - Public Speaking ..... 2
Soc. 101 or Psy. 101 ..... 32. Complete the following required courses in Office Administration:
O.A. $101-102$ - Shorthand (or approved electives) ..... 6credits
O.A. 106 - Advanced Typewriting ..... 2 ..... 2
O.A. 201 - Intermediate Stenography ..... 3
O.A. 202 - Advanced Stenography ..... 3
O.A. 203 - Office Machines. ..... 3
O.A. 208 - Specialized Secretarial Skills ..... 3 ..... 3
O.A. 231 - Business Correspondence ..... 3
Approved Electives ..... 9
Total ..... 60 ..... 60requirements for a óneyear certificate in secretarialSERVICE
1st Semester
Engl. 67 - Elementary Exposition ..... credits
Speech 68 - Public Speaking 1
Speech 68 - Public Speaking 1 ..... 2 ..... 2
O.A. 105 - Intermediate Typewriting
O.A. 105 - Intermediate Typewriting ..... 3 ..... 3
O.A. 61 - Clerical Skills
O.A. 61 - Clerical Skills
O.A. 61 - Clerical Skills .....
3 .....
3 .....
3
O.A. 102 - Shorthand
O.A. 102 - Shorthand .....
3 .....
3 .....
3
O.A. 63 - Adding and Calculating Machines
O.A. 63 - Adding and Calculating Machines
O.A. 63 - Adding and Calculating Machines ..... 16 credits ..... 16 credits
2nd Somester
2nd Somester
Engl. 68 - Elementary Exposition
Engl. 68 - Elementary Exposition ..... credits
O.A. 108 - Advanced Typewriting
O.A. 108 - Advanced Typewriting ..... 2 ..... 2
O.A. 68 - Dictaphone Transcription or
O.A. 68 - Dictaphone Transcription or
O.A. 201 Shorthand
O.A. 201 Shorthand ..... 3 ..... 3
O.A. 99 Office Practice
O.A. 99 Office Practice ..... 14 credits
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 effort 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 A B.A. DEGREE WITH A POLITICAL SCIENCE MAJOR

1. Complete the general requirements for a B.A. Degree listed on page 28.
English ..... 12
Foreign Language ..... 12-16
Social Science:
Hist. 117-118, Hist. 131-132 ..... 12
Econ. 121-122 ..... 6
Phil. 201 ..... 3
Mathematics and Natural Science ..... 12
Physical Education or Military Science ..... 4-6
2. Complete the following required courses:
Econ. 221 - Interpretation of Economics and Business Data ..... 3
P.S. 101-102 - Introduction to American Government andPolitical Science6
P.S. 201 - Comparative Politics: The Political Process ..... 3
P.S. 202 - Comparative Politics: Case Studies ..... 3
P.S. 321 - International Affairs (Introduction to) ..... 3
P.S. 322 - International Affairs: Case Studies ..... 3
P.S. $401-402$ - Political Behavior ..... 6
P.S. 411-412 - Political Theory ..... 6
3. Complete two approved minors.
Complete elective courses to bring total credits to ..... 130




One facet of the university's research is the study of earthquakes. Two sensor networks are centered at the campus. Here, Geophysical Institute members examine a seismograph recording.

# 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 Geology, Geological Engineering, Mining Engineering, and Geography. A Bachelor of Arts Degree with majors in Geology and Geography may be earned.
GRADUATE DEGREES - Programs leading to a Master of Science Degree are offered in Geology, Mineral Industry Management, and Mineral Preparation Engineering; an M.A.T. degree is offered in Gcology.

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

The Geology Department offers the Ph.D degree; and 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 academise 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 harmony and efficiency to the work of all for the benefit of the mineral industries of Alaska.

## GEOGRAPHY DEPARTMENT

DEGREES - BACHELOR OF ARTS AND BACHELOR OF SCIENCE

## MINIMUM REQUIREMENTS FOR DEGREES - 130 CREDITS

The Department offers undergraduate courses in Geography and a major can be carned. 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 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 either in physical science or in social science.

## REQUIREMENTS FOR A 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
2. Complete 20 credits in geography beyond Geography 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 Ceology . . . . . . . . . . . . . . . . . . . . . . . . . . 4
Anth. 101 - The Study of Man . . . . . . . . . . . . . . . . . . . . . . . . . . 3
Anth. 214 - Archaeology . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 4
A minor in Geography requires 12 hours of approved Ceography courses.

## GEOLOGY DEPARTMENT <br> ROBERT B. FORBES - DEPARTMENT HEAD <br> DEGREES - BACHELOR OF ARTS, BACHELOR OF SCIENCE, MASTER OF SCIENCE, MASTER OF ARTS IN TEACHING, Ph.D.

## MINIMUM REQUIREMENTS FOR DEGREES -

## B.A. GEOLOGY MANOR - 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 CREDIT SUMMER FIELD COURSE <br> 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 interests of the student.

## REQUIREMENTS AND CURRICULUM FOR A B.S. DEGREE IN GEOLOGY FALL SEMESTER <br> SPRING SEMESTER

FIRST YEAR 17 or $171 / 2$ CREDITS
Engl. 101 - Comp. \& Modes of Lit . . . . 3
Math. 106 - Algebra \& Trig . . . . . . . 5
Geol. 101 - General Geology . . . . . . . 4
Chem. 101 - Ceneral Chemistry . . . . . 4
P.E. or Mil. Sci . . . . . . . . . . . 1 or 1 $1 / 2$

SECOND YEAR 16 or 161/2 CREDITS
Geol. 213 - Mineralogy . . . . . . . . . . 5
Math. 201 - Calculus . . . . . . . . . . . 4
Phys. 211 - General Physics . . . . . . . 4
Elective . . . . . . . . . . . . . . . . . . . 2
P.E. or Mil. Sci . . . . . . . . ...... i or ${ }^{11 / 2}$

16 or 161/2 CREDITS
Engl. 102 - Comp. \& Modes of Lit . . . . 3
Math. 200 - Calculus . . . . . . . . . . . 4
Geol. 102 - Historical Geology . . . . . . 4
Chem. 102 - General Chemistry . . ... 4
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$

## 17 or 171/2 CREDITS

$$
\text { Geol. } 214 \text { - Petrology . . . . . . . . . . . } 5
$$

Math. 202 - Calculus . . . . . . . . . . . 4
Phys. 212 - General Physics . . . . . . . 4
Elective . . . . . . . . . . . . . . . . . . . 2
Min. 102A - Min. Systems Engr. . . . . . 1
P.E. or Mil. Sci. . . . . . . . . . . . . 1 or $11 / 2$
THIRD YEAR 17 CREDITS
Geology Elective ..... 4
Geol. 321 - Sedimentation ..... 3
Geol. 401 - Invert. Paleontology ..... 4
English Elective ..... 3
Social Science Elective ..... 3
SUMMER
Geol. 351 - Field Geol., 8 credits, 8 weeks
FOURTH YEAR 15 CREDITS
Foreign Language ..... 5
Geol. 400 - Earth Sci. Seminar ..... 0
Approved Electives ..... 7
Social Science Elective ..... 3 guage concerned. students every semester.

FALL SEMESTER
FIRST YEAR ..... 18 or 181/2 CREDITS
Engl. 101 - Comp. \& Modes of Lit ..... 3
Math. 106 - Algebra \& Trig ..... 5
Chem. 101 - General Chemistry ..... 4
E.S. 101 - Craphics ..... 2
E.S. 111 - Engr. Science ..... 3
P.E. or Mil. Sci ..... lor 11/2
SECOND YEAR 16 or 161/2 CREDITS
Math. 201 - Calculus ..... 4
Ceol. 101 - General Ceology ..... 4
Phys. 211 - Gen. Physics ..... 4
E.S. 207 - Measurements ..... 3
P.E. or Mil. Sci ..... 1 or 11/2
THIRD YEAR ..... 18 CREDITS
Econ. 121 - Prin. of Economics ..... 3
E.S. 331 - Mech. of Materials ..... 3
English Elective ..... 3
Geol. 213 - Mineralogy ..... 5
Chem. 331 - Physical Chem ..... 4
SUMMERGeol. 351 - Field Geology, 8 credits, 8 weeksFOURTH YEAR 18 CREDITS
Geol. 401 - Invertebrate Paleo ..... 4
Min. Pr. 313 - Mineral Prep ..... 3
Ceol. 415 - Geol. and Engr. Prob. of Frozen Ground ..... 3
Geol. 400 - Earth Sci. Jour. Club ..... 0
Geol. 321 - Sedimentation ..... 3
E.S. 341 - Fluid Mechanics ..... 4

## 16 CREDITS

Geology Elective ..... 4
Geol. 304 - Geomorphology ..... 3
Geol. 314 - Structural Ceol ..... 3
Geol. 402 - Stratigraphy ..... 3
Social Science elective ..... 3

One year of a modern foreign language is required for graduation. Students who have completed two years of formal instriction 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 lan-

Gool. 400 - Earth Sciences Seminar is required of all upper division geology and graduate

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

## SPRING SEMESTER

17 or 171/2 CREDITS
Engl. 102 - Comp. \& Modes of Lit . . . . 3
Math 200 - Calculus . . . . . . . . . . . 4
Chem. 102 - General Chemistry . . . . . 4
E.S. 102 - Graphics . . . . . . . . . . . . 2
E.S. 112 - Engr. Sćience . . . . . . . . 3
P.E. or Mil. Sci . . . . . . . . . . . 1 or 11/2

17 or 17\% CREDITS
Math. 202 - Calculus . . . . . . . . . . . 4
Geol. 102 - Historical Geology . . . . . . 4
Phys. 212 - Gen Physics . . . . . . . . . 4
E.S. 208 - Mechanics . . . . . . . . . . . 4
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$

16 CREDITS
Chem. 212 - Quantitative Anal . . . . . 4
Geol. 214 - Petrology . . . . . . . . . . . 5
Geol. 314 - Structural Geol . . . . . . . 3
Min. 102 - Mincral Sys. Eng . . . . . . . 4

Geol. 400 - Earth Science Seminar is required of all upper division Geological Engineering majors.

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

1．A minimum of 30 credits，including a maximum of 12 credits in Ceol．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 30 ．

## REQUIREMENTS FOR A Ph．D．

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

## MINERAL ENGINEERING DEPARTMENT <br> DONALD J．COOK－DEPARTMENT HEAD <br> DEGREES－BACHELOR OF SCIENCE，ENGINEER OF MINES， MASTER OF SCIENCE <br> MINIMUM REQUIREMENTS FOR DEGREES：B．S．－ 139 CREDITS <br> M．S．－ 30 ADDITIONAL CREDITS

In the Mining Engincering 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 ycars of the curriculum without loss ce 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 curricu－ lum consist of core courses in Engineering Management with electives in the field of Mineral Industries and advanced courses in Mineral Preparation，respectively．University policy per－ taining to graduate study leading to a Master＇s Degree applies．

The graduate program also provides for the awarding of a professional degree，Mining Engi－ neer（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 A B．S．DEGREE IN MINING engineering

FALL SEMESTER
FIRST YEAREngl． 101 －Comp．\＆Modes of Lit ．．．． 3
Math． 106 －Algebra \＆Trig ..... 5
E．S． 101 －Graphics ..... 2
E．S． 111 －Engineering Science ..... 3
Geol． 101 －General Geology ..... 4
P．E．or Mil．Sci． ..... ． 1 or $1 / 2$
SECOND YEAR 17 or $171 / 4$ CREDITS
Math． 201 －The Calculus ..... 4
Phys． 211 －General Physics ..... 4
Geol． 213 －Mineralogy ..... 4
Chem． 201 －Gen．\＆Quant．Chem ..... 4
P．E．or Mil．Sci ..... 1 or $11 / 2$
SPRING SEMESTER
17 or 171／2 CREDITS
Engl． 102 －Comp \＆r Modes of Lit． ..... 3
Math． 200 －Calculus ..... 4
E．S． 102 －Graphics ..... 2
Econ． 121 －Prin．of Economics ..... 3
＊Min． 102 －Min．Systems Engr． ..... 4
P．E．or Mil．Sci． ..... 1 or 11／2
17 or 171／2 CREDITS
Math． 202 －The Calculus ..... 4
Phys． 212 －General Physics ..... 4
E．S． 208 －Mechanics ..... 4
Chem． 202 －Gen．\＆Quant．Chem ..... 4
P．E．or Mil．Sci 1 or $11 / 2$
THIRD YEAR
18 CREDITS

- ${ }^{\text {Chem. }} 331$ - Phys. Chem ..... 4
Engl. Elective (Lit. recomm.) ..... 3
E.S. 331 - Mechanics of Materials ..... 3
E.S. 341 - Fluid Mechanics ..... 4
Min. 303 - Min. Plant Engr ..... 4
FOURTH YEAR ..... 18 CREDITS
Min. 405 - Geophys. \& Geochem ..... 3
${ }^{\bullet}{ }^{\circ}$ B.A. 360 - Production Mngt ..... 3
E.E. 313 - Elem. Elec. Engr ..... 3
Math. Elective ..... 3
Min. Pr. 313 - Intro. to Min. Prep ..... 3
Social Science Elective ..... 3
18 CREDITS
Met. 304 - Intro. to Met ..... 3
Min. 306 - Rock Mechanics ..... 3
Geol. 314 - Structural Geol ..... 3
Min. 302 - Mine Surveying ..... 3,
English Elective ..... 3
Approved Elective ..... 3
16 CREDITS
Min. 496 - Min. or Mineral Res ..... 3
${ }^{\bullet}{ }^{\circ}$ Geol. 496 - Ore Deposits ..... 3
E.E. 314 Elem. Elec. Engr ..... 3
Min. 408 - Mineral Val. \& Econ ..... 4
Social Science Elective ..... 3
- 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 Engincering at the Unlversity of Alaska. Students enrolling in Petroleum Engineering will normally complete the first two years of basic engineering 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 A M.S. DEGREE IN MINERAL INDUSTRY MANAGEMENT <br> Completion of the program listed below:

FALL SEMESTER
E.M. 611 - Engr. Management

15 CREDITS
E.M. 611 - Engr. Management . . . . 3
E. M. 605 - Adv. Engr. Economy . . 3

Min. 697 - Thesis . . . . . . . . . . . . 3
Approved Elective . . . . . . . . . . . . . 3
Min. 621 Adv. Mineral Economics . . . . 3

## SPRING SEMESTER

15 CREDITS
E.M. 612 - Engr. Management . . . . 3
E.M. 613 - Engr. Management . . . . . 3

Min. 698 - Thesis . . . . . . . . . . . . 3
Approved Elective . . . . . . . . . . . . . 6

Completion of the general requirements for a graduate degree as listed on page 30.

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

Completion of the program listed below:

FALL SEMESTER 15 CREDITS
Min. Pr. 601 - Froth Flotation . . . . . . 3
Min. Pr. 695 - Min. Prep. Res . . . . . . 3
Min. 621 - Adv. Mincral Economy . . . 3
'Elective . . . . . . . . . . . . . . . . . . 3
Min. Pr. 697 - Thesis . . . . . . . . . . 3

SPRING SEMESTER 15 CREDITS
Min. Pr. 696 - Min. Prep Res . . . . . . . 3
Min. Pr. 606 - Plant Design . . . . . . . 3
-Elective . . . . . . . . . . . . . . . . . . 8
Min. Pr. 658 - Thesis . . . . . . . . . . . 3

Completion of the general requirements for a graduate degree as listed on page 30.
${ }^{\bullet}$ Electives will bc 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.

## Performing arts are numerous at the university. The concert band, chorus, orchestra and Choir of the North perform in on-campus and community concerts and in other areas of the state.

# 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, Mathematics, Mechanical Engineering, and Physics. The College also includes within Its scope the Program in Electronic 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.
FIRST-YEAR ENGINEERING STUDENTS - All first-year students intending to study engineering will be registered in Engineering Science. Before a student may be registered in a particular specialty of engineering, he must have an accumulated average of 2.00 and have completed all courses listed in the curriculum for the common first year of Engineering Science.

## CHEMISTRY DEPARTMENT

EDWIN O. WIG - 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 premedicine or as laboratory technicians. The rapid introduction of chemical techniques in all branches of commerce and the creation of the many synthetic products has caused phenomenal growth in the profession 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 cutstanding 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 A 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:

Chemistry 101-102 or 201-202 General Chemistry
Chemistry 321-322 Organic Chemistry Chemistry 212, 416 Analytical Chemistry Chemistry 331-332 Physical Chemistry Chemistry 333-334 Physical Chemistry Laboratory Chemistry 425 Organic Qualitative Analysis Chemistry 491-492 Seminar (as seniors) Mathematics, 106, 200, 201, 202 Physics 103-104, or 211-212

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

## FAlL SEMESTER

## first year

16-171/2 CREDITS
Chem. 101 - Gen. Chem. \& Intro. Qualitative Analysis 4
Chem. 201 - General and Quantitative4
Math. 106 - Algobra \& Trig. ..... 5
${ }^{-}$Elective ..... 5
Engl. 101 - Composition \& Modes of Lit. 3
P.E. or Mil. Sci. ..... 1 or $11 / 2$
SECOND YEAR 16-161/2 CREDITS
Chem. 321 - Organic Chemistry ..... 4
Math. 201 - Calculus ..... 4
Phys. 211 - Gen. Physics ..... 4
-Elective ..... 3
P.E. of Mil. Sci ..... 1 or $11 / 2$
third year 16-18 CREDITS
Chem. 331 - Physical Chemistry ..... 3
Chem. 333 - Physical Chem. Lab ..... 1
Chem. 212 - Intro. Quant. Analysis ..... 4
German or Russian 101 ..... 5
"Electives ..... 2 to 4
Chem. 491 - Seminar ..... 0
FOURTH YEARFOURTH YEARChem. 425 - Org. Qual. Analysis3
Chem. 491 - Seminar ..... 1

- ${ }^{\bullet}$ Chem. 451 - Gen. Biochem. ..... 4
"•Chem. 421 - Adv. Org. Chem. ..... 3
or
${ }^{\bullet}$ Chem. 431 - Adv. Phys. Chem. ..... 3
Chem. 495 - Research ..... 2-4


## SPRING SEMESTER

15.161/2 CREDITS
Chem. 102 - General Chem. and Intro Qualitative Analysis ..... 4
or
Chem. 202 - General and Quantitative
Chemistry ..... 4
Math. 200 - Calculus ..... 4
Elective ..... 4
Engl. 102 - Composition \& Modes of Lit. 3
P.E. or Mil. Sci ..... 1 or $11 / 2$
16 or $161 / 2$ CREDITS
Chem. 322 - Organic Chemistry ..... 4
Math 202 - Calculus ..... 4
Phys. 212 - Gen. Physics ..... 4
-Elective ..... 3
P.E. or Mil. Sci ..... 1 or $11 / 2$
16-18 CREDITS
Chem. 332 - Physical Chemistry ..... 3
Chem. 334 - Physical Chem. Lab ..... 1
Chem. 416 - Inst. Chem. Analysis ..... 4Chem. 402 - Adv. Inorg. Chem.
3
German or Russian 102 ..... 5
Chem. 492 - Seminar ..... 0
Electives ..... 2
16-18 CREDITS
Chem. 416 - Inst. Chem. Analysis ..... 4

or
Chem. 402 - Adv. Inorg. Chem. ..... 3
Chem. 492 - Seminar ..... 1
Chem. 498 - Research ..... 2-4
-Electives

- A minimum of 130 credits must be earned. The general requirements for the B.S. degree must be met. This curriculum meets the suggested minimum standards of the American Chemical Society, but additional advanced courses in chemistry may be elected with the approval of the department.
- "Advanced courses in mathematics, physics or biological scjences may be substituted on approval of the Department.


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

1. A minimum of 30 credits of approved courses including Chemistry 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 eam his degree.

## CHEMICAL ENGINEERING DEPARTMENT

## EDWIN O. WIIG - 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 instututions. However, it would be wise for students to consult the catalogs of institutions to which they might transfer and plan their two years at Alaska to conform to their requirements.

## CIVIL ENGINEERING DEPARTMENT

## E. F. RICE - DEPARTMENT HEAD <br> DEGREES - BACHELOR OF SCIENCE (ENGINEERING SCIENCE),

$$
\begin{aligned}
& \text { MASTER OF CIVIL ENGINEERING AND MASTER OF SCIENCE } \\
& \text { MINIMUM REQUIREMENTS FOR DEGREES: } \text { B.S. }-130 \text { CREDITS } \\
& \text { M.S. }-30 \text { ADDITIONAL CREDITS } \\
& \text { M.C.E. }-162 \text { CREDITS }
\end{aligned}
$$

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 faclitities; 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 examination 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 seleet the degree Master of Science in Civil Engineering.

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

FALL SEMESTER
FIRST YEAR 171/2 CREDITS
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 $11 / 2$
SECOND YEAR 161/2 CREDITS
Math. 201 Calculus 1 ..... 4
Phys. 211 - Gen. Physics ..... 4
E.S. 207 - Measurements ..... 3
Chem. 201 - Gen. \& Quant. Chem ..... 4
P.E. or Mil. Sci ..... 1 or $11 / 2$
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
FOURTH YEAR ..... 15 CREDITS
C.E. 435 - Soll Mechanics ..... 3
C.E. 441 - Sanitary Engineerirg ..... 3
C.E. 431 - Structural Analysis ..... 4
C.E. 415 - Surveying ..... 3
Sp. 211 - Public Speaking ..... 2
SPRING SEMESTER
161/2 CREDITS
Engl. 102 - Comp \& Modes of Lit. ..... 3
Math. 200 - Calculus ..... 4
E.S. 102 - Graphics ..... 2
C.E. 112 - Elementary Surveying ..... 3
Soc. Sci. ..... 3
P.E. or Mil. Sci. ..... 1 or $11 / 2$
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. Sci17 CREDITS
C.E. 334 - Phys. Prop. of Materials ..... 3
E.S. 346 - Basic. Thermodynamics . ..... 3
E.E. 314 - Elem. of Electrical Engr ..... 3
Engl. 213 - Advanced Exposition ..... 3
C.E. 344 - Hydrology ..... 2
Math. 312 - Numerical Methods for Engrs. ..... 3
14 CREDITS
E.S. 450 - Engr. Mgt. 8 Oper ..... 3
C.E. 432 - Structural Design ..... 4
C.E. 402 - Transportation Engr. ..... 2
C.E. 422 - Foundation Engineering ..... 3
Soc. Scl. ..... 3

## REQUIREMENTS FOR A M.C.E. DEGREE

Each fifth-year student under this program shall be guided by a personal advisor and shall accumulate 32 semester hours of approved courses.

## 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:

32 semester hours of credit approved by his graduate committee, of which 6 to 12 semester hours will be C. E. 697, 698, Thesis.

## ELECTRICAL ENGINEERING DEPARTMENT

JOHN G. TRYON - DEPARTMENT HEAD
Degrees - bachelor of science (engineering science) and MASTER OF ELECTRICAL ENGINEERING
MINIMUM REQUIREMENTS FOR DEGREES: B.S. - 130 CREDITS

## M.E.E. - 162 CREDITS

Electrical Engineering isthe practicalapplication of electricity and magnetism. Electricalengineers 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 particular reference to instrumentation. Due attention is given to power, control, and information processing. A student who completes the M.E.E. is ready to work in industry or continue with graduate study.

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

## FALL SEMESTER

## FIRST YEAR $\quad 17$ or 171/2 CREDITS

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 - Prin. of Econ . . . . . . . . . 3
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$

SECOND YEAR 16 or $161 / 2$ CREDITS
Math. 201 - Calculus . . . . . . . . . . . 4
Phys. 211 - Gen. Physics . . . . . . . . . 4
E.E. 203 - Fund. of Elect. Engr. . . . . . 4
E.S. 207 - Measurements . . . . . . . . . 3
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$

THIRD YEAR 17 CREDITS
Math. 302 - Diff. Equations . . . . . . . 3
Chem. 201 - Gen. \& Quant. Chem . . . 4
E.S. 331 - Mechanics of Materials . . . . 3
${ }^{\bullet}$ E.E. 333 - Electronics . . . . . . . . . . 4
English Elective . . . . . . . . . . . . . . 3
FOURTH YEAR 15 or 16 CREDITS
E.S. 341 - Fluid Mechanics .

4
${ }^{\circ}$ E.E. 403 - Machines \& Power . . . . . 4
E.E. 453 - Circuit Theory

331 - Elect. \& Magnetism . . 3 or 4
Phys. 331 - Elect. \& Magnetisin . . 3 or 4
Soc. Sci. . . . . . . . . . . . . . . . 3
Elective . . . . . . . . . . . . . . 0 or 1 or 2

## SPRING SEMESTER

16 or $161 / 2$ CREDITS
Engl. 102 - Comp. \& Modes of Lit . . . . 3
Math. 200 - Calculus . . . . . . . . . . . 4
E.S. 122 - Engineering Design . . . . . 3

Soc. Sci. . . . . . . . . . . . . . . . . . . . 3
Elective . . . . . . . . . . . . . . . . . . . 2
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$

17 or 171/2 CREDITS
Math 202 - Calculus . . . . . . . . . . . 4
Phys. 212 - Gen. Physics . . . . . . . . 4
E. E. 204 - Fund. of Elect. Engr. . . . 4
E.S. 208 - Mechanics . . . . . . . . . . . 4
P.E. or Mil. Sci. . . . . . . . . . . . . 1 or $11 / 2$

16 CREDITS
Math. 312 - Numerical Methods . . . . . 3
Chem. 202 - Gen. \& Quant. Chem . . . 4
Engl. 213 - Advanced Exposition . . . . 3
E.E. 334 - Electronics . . . . . . . . . 4

Elective . . . . . . . . . . . . . . . . . . . 2
15 of 16 CREDITS
E.S. 346 - Basic Thermodynamics . . . . 3
${ }^{\text {E E.E. }} 404$ - Machines and Power . . . . 4
E.E. 454 - Circuit Theory
E.E. $43 \mathbf{O}^{\mathbf{0 r}}$ - Fields, Lines, Antennas . . . . 4
E.S. 492 - Engr. Seminar . . . . . . . . . 3

Electives . . . . . . . . . . . . . . . 1 or 2

Electives must have the approval of the department.
-Interchange of upper division courses that are not normally offered every year will be made by 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 of 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.

## ENGINEERING MANAGEMENT DEPARTMENT

# JOHN M. HILPERT - DEPARTMENT HEAD <br> DEGREE - MASTER OF SCIENCE <br> MINIMUM REQUIREMENTS FOR DEGREE - 30 CREDITS (beyond a Bachelor's <br> degree in one of the recognized branches of Engineering) 


#### Abstract

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 <br> 15 CREDITS

B.A. 331 - Business Law . . . . . . . . . 3
E.M. 611 - Engineering Management . 3
E.M. 605 - Advanced Engr. Economy . . 3

Electives . . . . . . . . . . . . . . . . . . 6

## SPRING SEMESTER

## 15 CREDITS

B.A. 332 - Business Law . . . . . . . . . 3
E.M. 612 - Engineering Management . . 3
E.M. 613 - Engineering Management . . 3

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 SCIENCE CURRICULUM

WILLIAM S. WILSON - DEPARTMENT HEAD
DEGREES - BACHELOR OF SCIENCE AND 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 has led him to the study of natural science and to the scientific method. Progress in this study has been fruitful and is so rapid now that the new discoveries in science are affecting our everyday lives, and most certainly will continue to do so in our lifetime. Consequently, every educated citizen needs a knowledge and appreciation of the philosophy and structure of science. It is generally agreed that the best method for achieving this is by direct study of a natural science, and all the curricala at the University of Alaska refect this fact in their requirements.

Traditionally, the role of mathematies has been to simplify, interpret, and extend the boundaries of science. The fact that mathematics still includes, as well as transcends this function makes it a necessary study.

The major in General Science has been designed, as its name indicates, to provide an opportunity to become familiar with a considerable number of natural sciences and thus provide a firm background for specialization in any one of them as well as in certain technical professions. The fields lying on the 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 degrees.

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

## FALL SEMESTER

## FIRST YEAR

16 or 161/2 CREDITS
Engl. 101 - Comp. \& Modes of Lit . . . . 3
Bicl. 105 - Fund. of Biology . . . . . . . 4
Math. 106 - Algebra \& Trig .
5
Chem. 101 - General Chem. or
Phys. 103 - Coll. Physics4
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$

SECOND YEAR 17 or $181 / 2$ CREDITS
Econ. 121 - Prin. of Economics . . . . . 3
Phys. 103 - College Physics
or
Chem. 101 - General Chem. . . . . . . . 4
For. Lang. or Depart. Elective . . . 6 or 5
P.E. or Mil. Sci. . . . . . . . . . . . . 1 or 11/2

## 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 . . . . . . . . . . 5 | Dept. Elec. or For. Lang . . . . . . . . . . 6 |
| :---: | :---: |
| Engl. 213 - Adv. Exposition or | Engl. 314 - Scholarly and Tech. |
| selected literature . . . . . . . . . . . 3 | Writing or selected literature . . . . . . 3 |
| Social Science Elective . . . . . . . . . . . 3 |  |

Social Science Elective . . . . . . . . . . . 3
2. The major field must comprise a minimum of 20 credits above the foundation courses included in this curriculum. The courses scheduled must be approved in writing by the head of the major department. A major may be elected in Anthropology, Biological Sciences, Chemistry, 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), English, French, German, Russian, History or Political Science.
4. All prerequisites of courses elected must be met, preferably by inolusion 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.
6. Advanced Exposition is required unless written work in all courses indicates 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 Archaelogy; Sociology; Economics; History; and Political Science.

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

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

The Department of Mathematics, Physics, Chemistry, Biological Sciences and Geology offer work toward the degree Master of Science with a major in Ceneral 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 earned in science and mathematics. At least 12 credits must be earned in the department giving the degree. A thesis - (maximum of three credits) or project (no credit) must be completed in the major department. It is not intended that the individual courses merely satisfy the credit 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, AND 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 Spring, 1068, 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 A B.A. DEGREE WITH A MAJOR IN MATHEMATICS

Complete the following courses beyond Math. 202:
Math. 302 - Difterential Equations
Math. 303 - Introduction to Modern Algebra 3

## Math 314 - Linear Algebra

 3Math. 401 - Advanced Calculus 3
Math. 402 - Advanced Calculus 3
Math. 417 - Differential Geometry . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
The B.A. degree requires completion of the bbove major requirements as well as the general requirements for the B.A. degree as listed on ${ }_{i}$,age 28.

A minor in Mathematics requires completion of Math. 200, Math. 201, Math. 202, and six additional credits in Mathematics at the 300 level or above.

## REQUIREMENTS FOR A B.S. DEGREE WITH A MAJOR IN MATHEMATICS <br> FALL SEMESTER <br> SPRING SEMESTER

## FIRST YEAR $\quad 17$ or $17 / 2$ CREDITS

Engl. 101 - Comp. \& Modes of Lit . . . . 3
Physics 103 - College Physios . . . . . . 3
${ }^{\circ}$ Math. 103 - Algebra \& Trig. . . . . . . . 5
P.E. or Mil. Scl . . . . . . . . . . . . i or 111/2

Foreign Language . . . . . . . . . . . . . 5

## SECOND YEAR 16 or $16 / 2$ CREDITS

Math. 201 - Calculus . . . . . . . . . . . 4
Phys. 211-General Physics . . . . . . . . 4
Approved Elective . . . . . . . . . . . . 3
Chem. 201 - Gen. Chem \& Quant.
Chem4
P.E. or Mil. Sci . . . . . . . . . . . . . i or $11 / 2$

THIRD YEAR
17 CREDITS
Math. 302 - Differential Equations . . . 3
Math. 303 - Intro. to Modem Alge. . . . 3
English Elective . . . . . . . . . . . . . 3
Approved Electives . . . . . . . . . . . . 8

## FOURTH YEAR <br> 17 CREDITS

Math. 401 - Advanced Calculus . . . . . 3
Social Sci. Electives . . . . . . . . . . . . 3
Approved Electives . . . . . . . . . . . . 11

## 16 or 161/2 CREDITS

Engl. 102 - Comp. \& Modes of Lit . . . . 3
Physics 104 - College Physics . . . . . . 3
Math. 200-Calculus . . . . . . . . . . . 4
P.E. or Mil. Scl . . . . . . . . . . . . 1 or $11 / 2$

Foreign Language . . . . . . . . . . . . . 5
16 or $161 / 2$ CREDITS
Math. 202 - Calculus . . . . . . . . . . . 4
Phys. 212 - General Physics . . . . . . . 4
Approved Electives ........... 3
Chem. 202 - Cen. Chem. \&
Quant. Chem. . . . . . . . . . . . 4
P.E. or Mil. Sci. . . . . . . . . . . . . . . or $11 / 2$

## 17 CREDITS

Math. 417 - Differential Geometry . . . 3
Math. 314 - Linear Algebra . . . . . . . 3
Social Sci. Elective . . . . . . . . . . . . . 3
English Elective . . . . . . . . . . . . . . . . . 3
Approved Electives . . . . . . . . . . . . 5
17 CRedits
Math. 402 - Advanced Calculus . . . . . 3
Social Sci. Electives . . . . . . . . . . . . 3 Approved Electives . . . . . . . . . . . 11

[^2]
## REQUIREMENTS FOR A M.S. DEGREE IN MATHEMATICS

1. Minimum of 30 credits of approved courses.
2. Satisfactory result of the.final examination, including either the defense of a thesis if the candidate has elected to write one or a demonstration by other means by candidate of proficiency at the graduate level in mathematics.
3. Completion of the general requirements for a graduate degree listed on page 31.

## MECHANICAL ENGINEERING DEPARTMENT

# J.b. TIEDEMANN - DEPARTMENT HEAD <br> deGrees - bachelor of science (ENGINeERING sCIence), MASTER OF MECHANICAL ENGINEERING AND MASTER OF SCIENCE <br> MINIMUM REQUIREMENTS FOR DEGREES: B.S. - 130 CREDITS <br> <br> M.S. - 30 ADDITIONAL CREDITS <br> <br> M.S. - 30 ADDITIONAL CREDITS <br> M.M.E. - 162 CREDITS 


#### Abstract

Mechanical Engineering embraces professional disciplines concerned with the application of scientifie principles to the design of mechanjcal 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 degree Master of Mechanical Engineering; those whose interests or background favor a highly specialized program with emphasis on research and/or advanced specialized study, will ordinarily select the degrec Master of Science in Mechanical Engineering.

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


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

FAIL SEMESTER
FIRST YEAR 171/ CREDITS
Engl. 101 - Comp. \& Modes of Lit. ..... 3
Math. 108 - Algebra \& Trig ..... 5
E.S. 101 - Graphics ..... 2
E.S. 111 - Engineering Science ..... 3
Econ. 121 - Prin. of Econ. ..... 3
P.E. or Mil. Sci. ..... $11 / 2$
SECOND YEAR 161/2 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. ..... 11/3
third year16 CREDITS
E.E. 313 - Elem. of E.E. ..... 3
Math. 302 - Differential Equations ..... 3
E.S. 331 - Mech. of Materials ..... 3
E.S. 341 - Fluid Mechanics . ..... 4
M.E. 321 - Industrial Processes ..... 3

## SPRING SEMESTER

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
Social Science or Humanities ..... 3
P.E. or Mil. Sci. ..... $11 / 2$
171/2 CREDITS
Math. 202 - Calculus ..... 4
Phys. 212 - Cen. Physics ..... 4
E.S. 208 - Mechanics ..... 4
Chem. 202 - Gen. \& Quant. Chem ..... 4
P.E. or Mil. Sci ..... $11 / 2$
16 CREDITS
E.E. 314 - Elem. of E.E. ..... 3
Math. 312 - Num. Analysis ..... 3
M.E. 302 - Kinematics of Mach. ..... 3
Engl. 213 - Advanced Exposition ..... 3
E.S. 346 - Basic Thermodynamics ..... 3
M.E. 401 - Machine Design . . . . . . . 4
M.E. 413 - M.E. Thermodynamics . . . 3
M.E. 441 - Intro. Heat Transfer . . . . . 3

Social Science or Humanities . . . . . . . 3
Approved Technical Elective . . . . . . . 3

16 CREDITS
M.E. 418 - Power Analysis . . . . . . . . 4
M.E. 412- Space Conditioning . . . . . 3
E.S. 450 - Engr. Mgt. \& Oper. . . . . . . 3

Met. 304 - Intro, to Metallurgy . . . . . 3
Approved Technical Elective . . . . . . . 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.

## OCEANOGRAPHY \& OCEAN ENGINEERING PROGRAM

## PROGRAM CHAIRMAN - JOHN J GOERING

## DEGREES - MASTER OF SCIENCE (INTERDISCIPLINARY DEGREE) DOCTORATE 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. level. 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 individually 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 its various research institutes, particularly the Institute of Marine Science, and through the instructional colleges of the University. The Institute of Marine Science has a qualified staff of research scientists and engineers actively engaged in oceanographic research at the main campus of the University, at the Douglas Field Station and on its research vessels. Contributing academic courses to this program are the various departments of the colleges of the University with major contributors being the Departments of Chemistry, Physics, Geology, Biological Sciences, Electrical Engineering, Civil Engineering, Engineering Management, and Mathematics.
. 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.

PHYSICS DEPARTMENT

## J. ROGER SHERIDAN - DEPARTMENT HEAD

DEGREES - BACHELOR OF ARTS, BACHELOR OF SCIENCE, MASTER OF SCIENCE, MASTER OF ARTS IN TEACHING, AND 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 experinental 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 A 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:

Phys. 103-104 - College Physics
8 Credits
3. Complete a minor in Mathematics, which includes Math. 200, 201, 202, and 8 credits at the 300 level or above.
4. Complete 20 credits of approved courses in Physics. A minor in Physics requires $12-16$ credits.

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

## fall semester

## FIRST YEAR <br> 16 or $161 / 2$ CREDITS

Engl. 101 - Comp. \& Modes of Lit . . . . 3
Phys. 103 - College Physics . . . . . . . 4
Math. 106-Algebra and Trig . . . . . 5
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$
-Applied Electives . . . . . . . . . . . . . 3

## SECOND YEAR <br> 16 or 161/2 CREDITS

Math. 201 - Calculus . . . . . . . . . . . 4
Phys. 211 - General Physics . . . . . 4
Foreign Language . . . . . . . . . 3 or 5
P.E. or Mil. Scl . . . . . . . . . . . 1 or $11 / 2$
-Approved Electives . . . . . . . . 4 or 2

## third year

17 CREDITS
Math. 302 - Differential Equations . . 3
Phys. 311 - Classical Physics . . . . . . . 4
Phys. 331 - Electricity \& Magnetism . . 3
-Approved Electives . . . . . . . . . . . . 7

## SPRING SEMESTER

## 16 or $161 / 2$ CREDITS

Engl. 102 - Comp. \& Modes of Lit . . . 3
Phys. 104 - College Physics . . . . . . . 4
Math. 200 - Calculus . . . . . . . . . . . 4
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$
-Approved Electives . . . . . . . . . . . . 4
16 or $161 / 2$ CREDITS
Math. 202 - Calculus . . . . . . . . . . . 4
Phys. 212 - General Physics . . . . . . 4
Foreign Language . . . . . . . . . . 3 or 5
P.E. or Mil. Sci . . . . . . . . . . . 1 or $11 / 2$
-Approved Electives . . . . . . . . . 4 or 2
17 CREDITS
Math. 314 - Linear Algebra . . . . . . . 3
Phys. 312 - Classical Physics . . . . . . . 4
Phys. 332 — Electricity and Magnetism . 3
${ }^{\text {Ap }}$ Approved Electives . . . . . . . . . . . . 7

| FOURTH YEAR 17 CREDITS | 17 CREDITS |
| :---: | :---: |
| Math. 401 - Advanced Calculus . . . . . 3 | Math. 402 - Advanced Calculus . . . . . 3 |
| Phys. 411 - Modern Physics . . . . . . 4 | Phys. 412 - Modern Physics . . . . . . 4 |
| Phys. 481 - Advanced Physics Lab . . . . 2 | Phys. 482 - Advanced Physics Lab . . . . 2 |
| ${ }^{\text {® Approved Electives . . . . . . . . . . } 8}$ | Phys. 313 - Classical Physics . . . . . . . 4 <br> "Approved Electives . .......... 4 |

${ }^{\circ} 9$ credits of electives must be Social Science and 6 must be English.

## REQUIREMENTS FOR A 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 30.

## REQUIREMENTS FOR A Ph.D. DEGREE IN PHYSICS OR GEOPHYSICS

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

## ELECTRONICS TECHNOLOGY PROGRAM <br> FOYE L. GENTRY - DEPARTMENT HEAD <br> DEGREE - ASSOCIATE IN ELECTRONICS TECHNOLOGY <br> MINIMUM REQUIREMENTS FOR DEGREE: A.E.T. - 65 CREDITS

The program in Electronics Technology prepares people to maintain, install and operate complex electronic equipment, such as broadcast transmitters, airways beacons, carrier telephone systems, radars and digital computers. The program is not introductory electrical 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 ELECTRONIC TECHNOLOGY

FALL SEMESTER
FIRST YEAR 16 CREDITS
E.T. 51 - DC Circuits . . . . . . . . . . . 4
E.T. $52-$ AC Circuits . . . . . . . . . . 4
E.T. 55 - Electronics Practice . . . . . . 5
E.T. 59 - Math for Elect . . . . . . . . 5

SECOND YEAR
17 CREDITS
E.T. 71 - Electronic Circuits II . . . . . 5
E.T. 72 - Electronic Circuits III . . . . . 4
E.T. 75 - Microwave Electronics ... . 4
E.T. 77 - System Maintenance . . . . . . 4

## SPRING SEMESTER

17 CREDITS
E.T. 61 - Tubes \& Semiconductors . . . 4
E.T. 62 - Electronic Circuits I . . . . . . 3
E.T. 63 - Electronic Systems I . . . . . 4
E.T. 66 - Electronics Practice II . . . . . 3

Engl. 67 - Elementary Exposition . . . . 3

## 16 CREDITS

E.T. 83 - Test Instruments . . . . . . . . 3
E.T. 84 - Electronic System II . . . . . . 5
B.A. $66-$ B.A. for Technicians ..... . 4
P.S. 68 - Soc. Sci. for Technicians .... . 4

## ENVIRONMENTAL HEALTH ENGINEERING PROGRAM

## R. SAGE MURPHY - DEPARTMENT HEAD

DEGREE - MASTER OF SCIENCE IN ENVIRONMENTAL HEALTH ENGINEERING
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 A M.S. DEGREE WITH A MAJOR IN ENVIRONMENTAL HEALTH ENGINEERING

1. A minimum of 30 credits of approved and required courses, including a 6 -credit thesis.
2. Completion of the general requirements for a graduate degree listed on page 30.
3. The following required courses:

FALL SEMESTER
15 CREDITS
E.H.E. 605 - Water Treatment . . . . . 3
E.H.E. 606 - Waste Treatment . . . . . 3

Biol. 341 - Microbiology . . . . . . . . . 4
Electives and Research . . . . . . . . . . . . 5

SPRING SEMESTER
E.H.E. 601 - Water Quality Control . . 2
E.H.E. 608 - E.H.E. Unit Processes . . . 2
E.H.E. 610 - Arctic E.H.E. Design . . . 2

Electives \& Research
9

Electives must have the approval of the Department.


The Geophysical Institute maintains field stations throughout Alaska. Pictured here is an all-sky camera at Ester Dome Observatory, used for continuing study of the aurora borealis.


## 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. Odd numbers are assigned to courses given in the fall semester and even numbers to courses given in the spring semester. For example, English 101 is given for first-year students in the first or fall semester. English 342 is given for third-year students in the second or spring semester.

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.

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, 483-494 and 693-694 indicate Special Topics, and 695-698 indicate Thesis or Dissertation in those departments where listed.

COURSE CLASSIFICATIONS- Subject and courses are classified as follows:

Natural Scioncos
Anthropology
Biological Sciences
Chemistry
Geography
Geology
Mathematics
Physics

Social Seioneos
Anthropology
Economics
Geography
History
Home Economics
Law
Political Science
Psychology
Sociology

Humanities
Art
English
Foreign Language
and Literature
Journalism
Linguistics
Music
Philosophy
Speech and Drama

## - ACCOUNTING

Acc. 215 Accounting Principles ( $0+6$ )
3 Credits
Fall 216

3 Credits
Spring
Accounting as a factor in business management and control.
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.
Prerequisite: Acc. 215 - Sophomore standing or permission of the instructor. Acc. 216-Acc. 215 or equivalent.

Acc. 311 Infermediate Accounting ( $0+6$ ) 3 Credits Fall 312

3 Credits
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. 316 Analysis of Financial Statements ( $0+6$ ) 3 Credits Spring Continuation of Acc. 311-312. Interpretation of financial statements and analysis of accounting data for business planning, investment and evaluation purposes. Prerequisite: Acc. 311-312 or equivalent.

Acc. 318 Accounting Systoms $(0+6) 3$ Credits Spring
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. Prerequisite: Acc. 311-312 or equivalent. Offered in alternate years.
Acc. 393 Special Topics
Credits Arr.
Fall
Credits Arr. Spring
Acc. 413 Federal and Stato Tax Accounting $(0+6)$
3 Credits Fall 4143 Credits Spring
Fall Semester: Basic principles of the federal income tax; application of these principles to individual taxpayers; practice in the preparation of tax returns.
Spring semester: Application of income tax principles to business operations; state taxes and their operation; practice in the preparation of tax returns for business entities. Prerequisite: Acc. 311-312.

Acc. 416 Advanced Accounting ( $0+6$ )
3 Credits Spring
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. Prerequisite: Acc. 311312 or equivalent. Offered in altemate years.
Acc. 417 Cost Accounting ( $3+0$ ) 3 Credits Fall
Principles and procedures for determining production and operating costs; factors in reducing costs; interpretation and analysis of cost data. Prerequisite: Acc. 311-312 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. Prerequisite: Acc. $311-312$ or equivalent.
Acc. 493 Spocial 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.
Ace. 693 Special Topics
694
Credits Arr.
Credits Arr.
Fall
Spring
Prerequisite: Graduate standing and permission of the instructor.

## AGRICULTURAL SCIENCE

Ag. 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.
Ag. 310 Animal Husbandry $(2+3) 3$ Credits Spring 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.
Ag. 382 Horticulture $(2+3) 3$ Credits Spring
Survey; principles of propagation, culture and use; soil, light and water requirements; planting and harvesting; insect, weed and disease control. Prerequisite: Biol. 105, 106. Offered as demand warrants.
Ag. 404 Agriculfural Markoting (3+0) 3 Credits Spring
Principles and practices of agricultural marketing; prices and costs; case studies. Prerequisite: Econ. 121. Offered as demand warrants.

| Ag. 491 | Sominar (Arrange) | Credits Arr. |
| :--- | :--- | :--- |$\quad$ Fall

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.

| Ag. 493 | Special Topics (Arrange) | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- |
| 494 | Credits Arr. | 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 Fall 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 $(3+0) \quad 3$ Credits Fall A descriptive study of peoples of the world: Europe, Asia and Africa.
Anth. 204 World Ethnography $(3+0) 3$ Credits Spring A descriptive study of peoples of the world: the New World and the Pacific.
Anth. 205 Physical Anthropology (3+0) 3 Credits Fall
An introduction to Physical Anthropology dealing with the general physical history of man, the distribution of races, and the physical study of populations.
Anth. 214 Archaeology $(3+3) \quad 4$ Credits Fall
The history of archaeology and a study of its methods. Prerequisite: Anth. 101.

Anth. 303 Culture History $(3+0) \quad 3$ Credits Spring The inventions of man and the spread of civilization in the Old and New World. Prerequisites: Anth. 101 or 203 or 204 or permission of the instructor.
Anth. 304 Africa $(3+0) 3$ Credits Fall or
Peoples and cultures of Africa. Prerequisite: Anth. 101.
Anth. 306 Oceania $(3+0) 3$ Credits Spring
Ethnic groups and cultures of Indonesia, Micronesia, Melanesia, Polynesia and Australia. Prerequisite: Anth. 101.
Anth. 312 North American Archacology (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. Prerequisite: Anth. 214.
Anth. 326 Arctic Ethnology $(3+0) 3$ Credits Spring
Ethnic groups and cultures of the circumpolar area. Prerequisites: Anth. 101 or 203 or 204.

Anth. 328 Arctic Archacology $(2+3) \quad 3$ Credits Spring Problems of the Prehistory of the Arctic. Prerequisite: Anth. 214.
Anth. 329 Peoples of Central and Northern
Asia (3+0) 3 Credits Fall
Native peoples of Siberia and adjoining regions. Prerequisite: 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 Ethnolegy of Contral and South
American $(3+0) \quad 3$ Credits Spring
Racial distribution, material and social cultures of peoples of Central and South America. Prerequisite: Anth. 101.
Anth. 342 Anthropology of the Natives
of Alaska $(3+0) \quad 3$ Credits Spring
Indians and Eskimos of Alaska. Social organization, social customs and problems of acculturation. Primarily for students who expect to teach in Alaska. Prerequisite: 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 Strueturo ( $3+0$ Credits Fall
The social systems of native peoples. Prerequisites: Anth. 101 or 203 or 204 and Junior Standing.
Anth. 424 Primitive Roligion $(3+0) 3$ Credits Spring Descriptive and comparative study of religious belief in native societies.
Anth. 425 Primitive Arts $(3+0) \quad 3$ Credits Spring The visual, literary and musical arts of native people. Prerequisites: Anth. 101 and Junior Standing.

Anth. 427 Contemparary Problems ( $3+0$ ) 3 Credits Fall
Analysis of the contemporary problems of the native populations, emphasizing the peoples of Alaska. Prerequisite: Permission.
Anth. 428 Psychological Anthropology (3+0) 3 Credits Spring The relationship between culture and personal behavior patterns. Prerequisites: Anth. 202, Psy. 101 and junior standing.
Anth. 429 Language in Culture $(3+0) \quad 3$ Credits Fall The study of language in its relation to culture. Prerequisites: Anth. 202 and ${ }^{\text {unnior }}$ standing.
Anth. 430 Anthropological Field Mathods (3+0) 3 Credits Spring Lectures to prepare the student for field work and inform him of recently developed techniques of collecting field data. Prerequisite: Junior standing and permission of instructor. As demand warrants.
Anth. 491 Seminar Credits Arr. As demand warrants
492
Credits Arr. As demand
Topics in Anthropology.
Anth. 493 Special Topics Credits Arr. Fall 494 Credits Arr. Spring
Various subjects studied in special fields of anthropology. Prerequisite: Senior Standing or permission.
Anth. 495 Research Credits Arr. Fall 496 Credits Arr. Spring Supervised research in the fields of Anthropology represented in the Department program. Prerequisite: Permission.
Anth. 497 Thesis or Projoct 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, on approval of the Head of the Department.
Anth. 601 History of Anthropology $(3+0) \quad 3$ 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 Eeology $(3+0)$
3 Credits
Fall
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. Spring
An opportunity for the graduate student to learn the techniques of field work and practice them.
Anth. 691 Seminar Credits Arr. Fall 692 Credits Arr. Spring
Topics include physical and social anthropology, comparative archaeology, ethnological theory. Admission by arrangement.

Anth. 693 Special Topics 694

Credits Arr. Credits Arr. Spring
Various subjects studied, principally by directed study, discussion and research. Admission by arrangement.
Anth. 695 Rosearch Credits Arr. As demand
Credits Arr. As demand warrants
Supervised Research. Credit to be arranged. Prerequisites: Graduate standing and permission. Can be repeated.
Anth. 697 Thesis
Credits Arr. Fall 698
Offered as demand warrants

## ART

Art 55 Elomantary Drawing ( $0+4$ ) 56

2 Credits
Fall
2 Credits
Spring

Line drawing, shading, layout and design.
Art 57 Elementary Printmaking ( $0+4$ ) 58

$$
2 \text { Credits }
$$

Fall 2 Credits Spring
Blockprinting, etching and engraving.
Art 59 Elementary Motalcraft $(0+4)$
3 Credits
Fall
60
3 Credits Spring
Metalcraft techniques. Designing, annealing and soldering.
At 61 Elementary Sculpture $(0+6) \quad 3$ Credits Fall 62

3 Credits
Spring
Clay modeling, stone carving, woodcarving.
Art 63 Elementary Oil Painting $(0+6) \quad 3$ Credits Fall
64
3 Credits Spring
Characteristics of pigments, preparation of canvas, layout and design painting.
Art 65 Elementory History of World Art $(3+0) \quad 3$ Credits Fall 663 Credits Spring
Artistic endeavors throughout the history of Western man.
$\begin{array}{lllll}\text { Art } & 105 & \text { Freohand Drawing } & (0+4) & 2 \text { Credits } \\ 106 & & 2 \text { Credits } & \text { Fall } \\ & & \text { Spring }\end{array}$
Pictorial design, life drawing, landscape, drawing, using varied techniques and media.
Art 161 Design and Color Theory $(1+3) \quad 2$ Credits Fall
$162 \quad 2$ Credits Spring
Creative designing and rendering. Emphasis on mass-space relationships and composition, value transitions and hues, colorwheel, color and intensity movements.

Problems in drawing from life, exploring possibilities in pictorial design and composition, still life, anatomy and perspective. Prerequisile: Art 106 or permission.

Art 207 Beginning Printmaking ( $0+4$ ) | 208 |  | 2 Credits | Fall |
| :--- | :--- | :--- | :--- |
|  | 2 Credits | Spring |  |

Various intaglio and relief printing media, engraving, etching, woodcut and other graphic media. Prerequisite: Art 106 or permission.

Art 209 Beginning Metalcraft $(0+4) \quad 3$ Credits Fall
3 Credits
Spring
Material processes and techniques for silver jewelry and silver-smithing. Prerequiste: Art 161 or permission.

Art 211 Beginning Sculpture $(0+6) \quad 3$ Credits $\quad 3$ Credits $\quad$| Fall |  |  |
| ---: | :--- | ---: | ---: |
| 212 |  | Spring |

Original, creative studies in clay, wood and stone sculpture. Emphasis on mastery of techniques and material processes.

Art 213 Beginning Oil Painting (0+6) 3 Credits Fall
2143 Credits Spring
Basic investigation of materials and their use in expressing the students' ideas. Prerequisite: Art 106 and 162 or permission.

Art 261 History of World Art $(3+0) 3$ Credits Fall 262

3 Credits
Spring
Origins of art and its progressive development from the beginning to contemporary art; emphasis on change and progress. Prerequisite: Sophomore standing. Term paper required each semester.

Aft 305 Advanced Life Drawing and Anatomy ( $0+4$ )

2 Credits
Fall
2 Credits
Spring
Creative approach, including a comprehensive study of functional human anatomy, with the human figure as an art motif. Prerequisite: Art 206 or permission.

Art 307 Infermediate Printmaking $(0+4) \quad 2$ Credits Fall
308
2 Credits
Spring
Additional study and experimentation in intaglio, relief and planographic printing techniques, including lithography, serigraphy and color printing. Prerequisite: Art 208 or permission.

Art | 309 | Infermediafe Metaleraft | $(0+4)$ | 3 Credits |
| :--- | :--- | :--- | :--- |
| 310 |  | 3 Credits | Fall |
|  |  | Spring |  |

Material processes and techniques for silver jewelry and silver-smothing; creating problems in artistic design. Prerequisite: Art 210 or permission.
Art 311 Intermediate Sculpture ( $0+6$ )
3 Credits
Fall
312
3 Credits
Spring

Creative studies in welding, plaster casting, concrete casting, sand-casting, clay modeling, wood carving and stone carving. Prerequisite: Art 212 or permission.

Creating pictorial problems in oil painting techniques, still life, composition, and life painting. Prerequistte: Art 214 or permission.
Art 407 Advanced Printmaking ( $0+4$ )
2 Credits
Fall
408
2 Credits
Spring

Advanced study in all printing media. Prerequisite: Art 308 or permission.
Art 409 Advanced Metaleraft (0+4) $\begin{array}{llll} & 3 & \text { Credits } & \text { Fall } \\ & & 3 & \text { Credits }\end{array}$
$410 \quad 3$ Credits Spring
Continued investigation and experimentation of intermediate Metalcraft. Prerequisite: Art 310 or permission.

| Art 411 | Advanced Sculpture | $(0+6)$ | 3 Credits |
| :--- | :--- | :--- | :--- |
| 412 |  | 3 Credits | Fall |
|  |  | Spring |  |

Styro-foam burn-out, aluminum, bronze casting, steel welding, repouse sculpture, plastics, inlay, and architectural sculpture. Prerequisite: Art 312 or permission.

| Art | 413 | Advancod Oll Painting | $(0+4)$ |
| :--- | :--- | :--- | :--- |
| 414 |  | 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.
Aft 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.

Art 691 Art Sominar
692

Art 493 Spocial Topics
Credits Arr. As demand warrants

494
Credits Arr. Fall Credits Arr. Spring
Various subjects in art. Admission by arrangement.

| Art 693 | Special Topics | Credits Arr. |
| :--- | :--- | :--- |$\quad$ Fall

Various subjects, principally by directed study, discussion and research.

| Art | 695 | Research | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- | ---: |
|  | 696 |  | Credits Arr. | Spring |
| Art |  |  | Fredits Arr. | Fall |
|  | 697 | Thesis | Credits Arr. | Spring |

## BIOLOGICAL SCIENCES

Biol. 105 Fundamentals of Biology (3+3) 4 Credits Fall
106
4 Credits
Spring
Principles of living systems as illustrated in unicellular and multicellular organisms; mechanisms of growth, development, heredity and evolution; introduction to plant and animal kingdoms. An introductory course open to students in all curricula. Prerequisite for Biol. 106: Biol. 105 or permission.
Fall semester: Basic principles; structure and function of vertebrates and vascular plants.
Spring semester: Plant and animal kingdoms.
Bial. 201 Elements of Vertebrate Anatomy (2+3) 3 Credits
Fall
Anatomy and histology of the vertebrate body with emphasis on humans and other mammals. Prerequisites: Biol. 105, Chem. 104.

Biel. 202 Elements of Vertebrate Physiolagy (2+3) 3 Credits Spring Physiology and biochemistry of the vertebrate body with emphasis on humans and other mammals. Prerequisites: Biol. 105, Chem. 104, and a course in anatomy.

Biol. 208 Organic Evolution $(2+0) 2$ Credits Spring
Evidences, mechanisms, and directive forces. Prerequistte; Biol. 105, 108. Offered alternate years; next offered 1969-70.

Biol. 233 Morphology of Nonvascular Plants $(2+3) 3$ Credits Fall
Comparative study of the structure, reproduction, development, phylogenetic relationships of the major groups of nonvascular plants. Prerequisite: Biol. 105, 106. Offered alternate years; next offered 1968-69.

Giol. 234 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. 105, 106. Offered altemate years; next offered 1968-69.

Biol. 302 Genatics $(3+0) 3$ Credits Spring
Principles of inheritance in plants and animals; the physico-chemical properties of genetic systems. Prerequisite: Biol. 105, 106.

Biol. 303 Principles of Ecology ( $3+0$ ) Credits Fall or Spring Relationships between organisms and their environments. Communities, environmental factors affecting plants and animals, population structure, and reaction of organisms. Several all day field trips. Prerequisite: Biol. 105, 106, or permission.

Blal. 305 Invortebrate Zoology (3+3) 4 Credits Fall
Structure, function, classification, evolution, and life histories of invertebrate animals. Several all day field trips. Prerequisite: Biol. 105, 106.

Biol. 307 Parasitology $(2+3) \quad 3$ Credits Fall Classification, morphology, life history and ecology of parasites of animals. Prerequisite: Biol. 105, 106. Offered alternate years; next offered 1969-70.

Biol. 317 Comparative and Developmental
4 Credits
Fall
318 Anatomy of Vertebrates ( $2+6$ )
4 Credits
Spring
Structure, development, and evolution of organs and organ systems of vertebrates, including histology. Laboratory studies of whole and sectioned embryos of amphioxus, frog, and chick; detailed anatomical studies of representative vertebrate types; and microscopic examinations of principal tissues and organs.
Fall semester: Comparative Anatomy.
Spring semester: Embryology and Histology.
Prerequisite: Biol. 105, 106 and Junior standing or a B grade in Biol. 105, 106.
Biol. 323 Mammalogy $(2+3) 3$ Credits Fall
The mammals of the world - their origin, evolution, taxonomy, zoogeography, life history, and habits. Prerequisite: Biol. 105, 106, and a course in anatomy or permission.
Biol. 324 Ornithology $(2+3) 3$ Credits Spring Structure and adaptation, habits, life history, distribution, and classification of birds. Early morning field trips. Prerequisite: Biol. 105, 106, and a course in anatomy or permission.
Biol. 326 lehthyology $(2+3)$
3 Credits Fall
Classification, evolution, anatomy, and special modifications of fishes. Prerequisite: Biol. 105, 106, and a course in anatomy or permission.
Biol. 331 Systematic Botany ( $2+6$ ) 4 Credits Fall
Identification, nomenclature, and classification of vascular plants emphasizing taxonomic principles, mechanism of variation, classical and newer methods of taxonomic research and characteristics of major plant families. Several all day field trips. Prerequisite: Biol. 105, 106.
Biol. 341 Goneral 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. Microorganisms 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: Elementary Biology, Elementary Organic Chemistry, or by permission.
Biel. 401 Medical Technology
30 Credits
Fall
Twelve-month medical technology internship at an affliated hospital school, including work in clinical chemistry, hematology, microbiology, serology, parasitology, and histologic technique. Prerequisite: 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.
Biol. 413 Cell Physiology $(2+3) \quad 3$ Credits Fall
Physical and chemical properties of protoplasm; 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: Chem. 101, 102, and Biol. 105, 106; Chem. 321 or 223 recommended.
Biol. 414 Comparative Physiology ( $3+3$ ) 4 Credits Spring
Water, ion, and nitrogen balance; temperature regulation; and circulatory, muscle, hormone, and nervous systems in the various animal phyla. Prerequisite: Chem. 101, 102, and Biol. 105, 106; Chem. 223 or 321 and Biol. 413 recommended.

Blol. 416 Plant Physiology (2+3) 3 Credits Spring
Metabolic processes in higher plants. Prerequisite: Chem. 101, 102; Biol. 105; Biol. 413 recommended. Offered alternate years; next offered 1969-70.

Biol. 491 Seminar (Arrange)
Credits Arr.
Credits Arr. Spring
Topics in Biological Sciences.
Biol. 493 Special Topics (Arrange) 494

Credits Arr. Fall Credits Arr. Spring

Special fields in Biological Sciences. Prerequisite: Senior standing or permission. Offered as demand warrants.
Blol. 495 Research Credits Arr. Fall 496 Credits Arr. Spring
Guided investigation, either laboratory or field, for qualified Seniors.Admission by arrangement.
Biol. 615 History of Biology $(1+0) \quad 1$ Credit Fall
The progress of biological thought and philosophy from ancient to modern times. Offered as demand warrants.
Biol. 616 Principles and Methods
of Taxonomy $(2+3) \quad 3$ Credits Spring
Modern taxonomic ideas and their application to zoological and botanical problems. Offered alternate years; next offered 1968-69.

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.
Blal. 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, and permission of the instructor. W.M. 325 strongly recommended. Offered altemate years; next offered 1968-69.
Blol. 627 Physiological Ecology $(2+3) \quad 3$ Credits Fall
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. Offered alternate years; next offered 1968-69.

Blol. 637 Modern Evolutionary Theory (2+0) 2 Credits Fall
Contemporary ideas and problems of the mechanics of evolution. Offered alternate years; next offered 1969-70.
Biol. 641 Microbial Physiology ( $1+6$ ) 3 Credits Fall
Organism isolation; growth of cultures; fermentation; enzyme purification; amino acid metabolism and synthesis. Prerequisites: Biol. 341, 342, Chem. 452, or permission of the instructor. Offered as demand warrants.

Biol. 652 Marine Ecology $(3+0) 3$ Credits Spring
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. 105-106, 303; Chem. 212, 322; Geol. 411, or permission of the instructor.. Offered alternate years; next offered 1968-69.

Biol. 691 Seminar Credits Arr. Fall 692 Credits Arr. Spring
Topics in Biological Sciences. Offered as demand warrants.
Biol. 693 Special Topics
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 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 698
Admission by arrangement.

## BUSINESS ADMINISTRATION

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 | $(3+0)$ | 3 Credits |
| :--- | :--- | :--- | :--- |
| 332 |  | 3 Credits | Fall |
|  |  | 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 and wills, bankruptcy, torts and business crimes.
Prerequisite: Third-year 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) <br> 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: Juntor 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. $\mathbf{3 6 0}$.
B.A. 393
Special Topics
Credits Arr.
Fall
394
Credits Arr.
Spring
B.A. 423 Investment Managoment (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 Chango $(3+0) \quad 3$ 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. Prerequisite: B.A. 343, completion of behavioral science requirements, and statistics.B.A. 462 Administrative Policy $(3+0) \quad 3$ Credits Spring Organization role in a dynamic society; decision problems in varying social, economic and political environments.
B.A. 480 Organization Theory $(3+0) \quad 3$ Credits Fall or Spring Literature or organizational theory; emphasis on theoretical concepts, social science research techniques and organizational behavior. Prerequisite: Upper Division standing, completion of behavioral science requirements, or permission of instructor.

| B.A. 493 | Special Topics | Credits Arr. <br> 494 | Credits Arr. |
| :--- | :--- | ---: | :--- | Fall | Spring |
| :--- |

## B.A. 690 Sominar in Finance ( $3+0$ ) <br> 3 Credits <br> 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 Markoting $\quad(3+0) \quad 3$ Credits <br> 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 $\quad(3+0) \quad 3$ 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. Prerequisite: Post-graduate or graduate standing. Approval of graduate student's advisory committee, or the department head.

| B.A. 693 | Special Topics |  | Credits Arr. <br> Credits Arr. | Fall <br> Spring |
| :--- | :--- | :--- | :--- | ---: |
| B.A. 694 |  | Oriontation to Research | $(3+0)$ | 3 Credits |

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. Prerequisite: 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.<br>Fall<br>Credits Arr.<br>Spring

CHEMISTRY

Chem. 101 General Chemistry $(3+3+1) \quad 4$ Credits Fall
102 General Chemistry $\&$ Introductory
Qual. Analysis $(3+3+1)$
4 Credits Spring
General chemistry and introductory qualitative analysis with one hour per week of recitation. 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 |
| :--- | :--- | :--- |$\quad$ Fall

Descriptive course in Chemico-Physical Science. Either semester may be taken separately. One 3 -hour laboratory period may be elected but must be concurrent with lecture program.

Chem. 201 General and Quantitative Chemistry (3+3) 4 Credits Fall
Spring
Fall semester: Classical principles of chemistry, atomic structures and the periodic table; molecular structure, the states of matter. For students in engineering. Prerequisite: Math 102, E.S. 112, high school chemistry or Chem. 104, Chem. 101 recommended.
Chem. 212 Introductory Quantitative Analysis (2+6) 4 Credits Spring General principles of chemical analysis; introduction to volumetric and gravimetric methods. Theory, problems, and laboratory. Prerequisite: Chem. 102 or 202, Math. 102 or 104.
Chom. 223 Introductory Organic Chomistry $(3+3) 4$ Credits Fall
For students in curricula requiring a one-semester terminal course in Organic Chemistry. Prerequisite: Chem. 102 or Chem. 202.
Chem. 321 Organic Chemistry $\quad 4$ Credits Fall
3224 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 $\quad(3+0) \quad 3$ Credits Fall and Spring 3323 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. Prerequisite: For Chem. 331, Chem. 102 or 202; Math 200 and Math 201, 202 or consent of instructor. Physics 103-104 or 211-212. For Chem. 332, Chem. 331.
Chom. 333 Physical Chemistry Lab $(0+3) \quad 1$ Credit Fall and Spring 334

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. Prerequisite: Chem. 333 and Chem. 334 are to be taken concurrently with Chem. 331 and Chem. 332, respectively.
Chom. 362 Scientific Glassworking ( $0+3$ ) 1 Credit Spring
Construction of scientific glassware. Prerequisites: junior standing in Chemistry or permission of instructor. Offered alternate years, next offered 1968.
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.
Chom. 416 Instrumental Chomical Analysis (2+6) 4 Credits Spring Introduction to modern physical methods of analysis. Prerequisite: Chem. 212, Chem. 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. Prerequisite: Chem. 321-322 and Chem. 331-332. Offered in alternate years; next offered in 1968-69.

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 Chomistry $1(3+0) 3$ Credits Fall
Nuclear and atomic structure, spectroscopy, homogeneous reaction kinetics, photochemistry, solid state. Prerequisite: Chem. 331, 332, 333, 334.
Chom. 451 General Biochemistry 4 Credits Fall $452 \quad 4$ 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. Prerequistte: Chem. 321-322, and a famillarity with thermodynamics and reaction kinetics. Consent of the instructor required.
Chom. 491 Seminar $\quad(1+0)$ or 1 Credit Fall 4920 or 1 Credit Spring
Discussion of current literature.
Chom. 493 Special topics Credits arranged Fall 494 Credits arranged 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. Prerequisite: At least junior standing and three semesters (or 12 credits) or college chemistry with grade of $C$ or better.
Chem. 495 Research
Credits Arranged Fall Credits Arranged Spring
Introduction to research at the undergraduate level. Admission is by arrangement with an individual faculty member and with the approval 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. Offered as demand warrants. Prerequisites: Chem. 212, Chem. 416, Chem. 331, 332, 333, 334.
Chem. 622 Advanced Organic Chomistry II
3 Credits
Spring
Modern interpretations of organic chemical reactions based on structure, kinetics and energetics. Prerequisite: Chem. 321-322, Chem. 331, 332, and Chem. 421. Offered in alternate years; next offered 1968-69.
Chem. 632 Advanced Physical Chemisiry II 3 Credits Spring Advanced topics in physical chemistry not considered in Chem. 431.
Chem. 651 Selected Topics in Biochemistry $(2+0) 2$ Credits Fall $652 \quad 2$ 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.

Chem. 661 Chemical Oceanography ( $3+0$ ) 3 Credits Fall or Spring 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, and 332, or permission of the instructor.

Chem. 663 Chemical Oceanography II (3+0) 3 Credits Fall or Spring 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. Chemical Oceanography $I$, or permission of the instructor. Course offered on alternate year.

Chem. 665 Cellular Biochomistry $(3+0) \quad 3$ Credits Fall or Spring Hererotrophic metabolism; autotrophic processes; control mechanisms, including enzymes and mechanism of reaction control; cellular nutrition including growth kinetics. Prerequistes: Chem. 452 or equivalent. Course offered on alternate years.

| Chem. 691 | Sominar | $(1+0)$ | 1 Credit |
| :--- | :--- | :--- | :--- |
|  | 692 |  | Credit |

Reviews of current research.
Chem. 693 Special Topies
Credits Arranged
Fall
694
Credits Arranged Spring
Various subjects, including kinetics, thermodynamics, statistical mechanics, photochemistry, collold chemistry, nuclear chemistry, etc.

Chem. 695 Research Credits Arranged Fall 696 Credits Arranged Spring
Research which is not directly connected with thesis work. Admission is by arrangement with an individual faculty member and with the approval of the De partment Head.

| Chem. | 697 |  |  |
| :--- | :--- | :--- | :--- |
| 698 | Thosis | Credits Arranged <br> Credits Arranged | Fall <br> Spring |

## CIVIL ENGINEERING

C.E. 112 Elementary Surveying (2"3) 3 Credits Spring

Use of transit, level and plane table, traverses, stadia, circula-curves, elementary theory of measurement.
C.E. 116 Mapping $\quad(2+3) \quad 3$ Credits Spring Maps and scales, projections, U.S. Public Land System, aerial photos with special applications to forestry and wildife management. Plane tables, compasses, stadia, levels, transits, traverses. Intended primarily for students in Wildlife Management. Prerequisite: Junior standing or permission of instructor. Offered in alternate years, 1969, 1971, 1973.
C.E. 334 Properties of Materials (1+6) 3 Credits Spring

Properties manufacture and testing of engineering materials. Design of concrete mixes. Prerequiste: E.S. 331.
C.E. 344 Hydrology (2+0) 2 Credits Spring

Relationship between precipitation and runoff. Infiltration, evaporation, aufeis, permafrost. Flood hydrographs and unit hydrographs. Flopd routing. Statistical analyses. Prerequisite: E.S. 341.
C.E. 402 Transporfation 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 Phofogrammetry $(2+3) \quad 3$ Credits Spring

Elementary study of aerial and terrestrial photographs as applied to surveying and mapping. Prerequisite: E.S. 207.
C.E. 415 Surveying $(1+6) \quad 3$ Credits Fall

Traverses, curves, field astronomy, state coordinatesystems, adjustments. Prerequisite: C.E. 112 .

## C.E. 422 Foundation Engineering $(2+0) \quad 2$ Credits Spring

Principles of foundation action, spread footings, mats, pile foundations, retaining walls and bulkheads, bridge piers, cofferdams and abutments. Prerequisite: C.E. 435.
C.E. 431 Structural Analysis $\quad(3+3) \quad 4$ Credits Spring

Statically determinate structures. Loadings. Graphical and analytical solutions for stresses and deflections. Indeterminate frames. Influence lines. Prerequisite: E.S. 331.

## C.E. 432 Structural Design $\quad(3+3) \quad 4$ Credits Spring

Planning of structural systems, detail connections. Reinforced concrete. Introduction to ultimate load theory. Prestressing. Composite action. Prerequisite: C.E. 431.
C.E. 435 Soil Mechanics
$(2+3)$
3 Credits
Fall

Identification, description, and physical properties of soils. Subsurface exploration, frost action. Entire soll mass surveyed for effect on substructure design. Prerequisite: E.S. 331.
C.E. 441 Sanitary Engineering $(2+3) \quad 3$ Credits Fall

Sources of water supply. Design of works for the conservation, collection, treatment and distribution of water for domestic and industrial waste water disposal. Arctic water supplies, Prerequisite: C.E. 344.

| C.E. | 491 | Seminar | Credits Arr. Fall or Spring |  |  |
| :--- | :--- | :--- | :--- | :--- | ---: |
| C.E. | 493 | Special Topics |  | Credits Arranged | Fall |
|  | 494 |  | Credits Arranged | Spring |  |
| C.E. | 499 | Advanced Engineering Problems | $(1+0)$ | 2 Credits | Fall |
|  | or | $(2+0)$ |  |  |  |

General problems drawn from science and engineering. This course is preparation for registration in Professional Engineer-in-Training.
C.E. 603 Arctic Engineering $\quad(3+0) \quad 3$ Credits Fall

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.
C.E. 620 Civil Engineering Construction ( $3+0$ ) 3 Credits Fall

Construction equipment and methods, construction management and accounting, construction estimates and costs. Prerequistte: E.S. 450 or equivalent and graduate standing.
C.E 631 Advanced Structural Analysis $(3+0) \quad 3$ Credits Fall 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 $\quad(2+3) \quad 3$ Credits Spring

Study and design of hydraulic power projects, structures, and machines; reclamation and drainage; canals and reservoirs. Prerequisite: E.S. 341.
C.E. 645 Advanced Sanitary Engineering (3+0) $\begin{array}{lllr} & 3 \text { Credits } & \text { Fall } \\ 646 & & & \text { Credits }\end{array}$

Continuation of C.E. 441; emphasizes polar problems involving water supply, sanitation, waste disposal, water and air pollution abatement.
C.E. 649 Clity 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 691 Graduate Seminar (1+0) 1 Credit Fall
$692 \quad 1$ Credit Spring
Reports and papers on engineering topics. Practice in public speaking. Prerequistte: Permission of instructor.
C.E. 693 Special Topics
Credits Arranged
Fall
Credits Arranged Spring
Various subjects. Prerequisite: Permission of instructor.
C.E. 697 Thesis
Credits Arranged
Fall
698
Credits Arranged
Spring

Individual study or research for students of special aptitude.

## ECONOMICS

Econ. 121 Principles of Economics $1 \quad(3+0) \quad 3$ Credits Fall Introduction to economics; analysis and theory of national income; money and banking; public finance and taxation; economic systems.

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. 193 Spocial Tapics
Credits Arr.
Fall 194 Credits Arr.

Spring
Econ. 221 Interpretation 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 correlation; time series analysis; index numbers. Prerequistte: Math 122 or Math 106.

Econ. 232 Economic History of tho (3+0) United States

3 Credits
Spring History of the U.S. economy with special emphasis on the process of economic growth.
Econ. 293 Special Topies Credits Arr. Fall 294 Credits Arr. Spring
Econ. 321 Prico 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. Prerequisite: Econ. 121, Econ. 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. Prerequisite: Econ. 321; Econ. 324 or Econ. 350; or permission. Offered as demand warrants.

Econ. 350 Monełary 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. Prerequistie: 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. Prerequisite: Econ. 121, Econ. 122. Offered in alternate years.

Econ. 393
Spocial Topics
Credits Arr.
Credits Arr.
Fall 394

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. Prerequiste: Econ. 121, 122, 232.

Econ. 423 Comparative Economias ( $3+0$ ) Fall
Contrasts structure, institutions, and dynamics of selected private enterprise, collectivist, and underdeveloped economies. Prerequisite: Econ. 321; Econ. 324, or Econ. 350; or permission.

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. Prerequistte: Econ. 121, Econ. 122 and three credits of upper division courses in economic or other social sciences. Offered as demand warrants.

Econ. 429 Business Fluctuations $(3+0) \quad 3$ Credits Fall
Analysis of fluctuations in economic activity; theories of business fluctuation; methods of control and forecasting. Prerequisite: Econ. 221, 321, 324, and 350; or permission.

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. Prerequisite: Econ. 121, Econ. 122; or permission.

Econ. 463 Infernational Economics $(3+0) \quad 3$ Credits Fall Theories of international trade; international payments and the balance of payments; public and private control of trade; international economic cooperation. Prerequisite: Econ. 321; Econ. 324 or Econ. 350; or permission.

Econ. 493 Special Topics Credits Arr. Fall 494 Credits Arr. Spring
Econ. 495 Resoarch Credits Arr. Fall 496 Credits Arr.
Readings and research on individually assigned topics, formal paper required on assigned topic.

Econ. 691 Seminar in Economic Theory Credits Arr. Fall 692

Econ. 693 Special Topics
694

| Credits Arr. | Spring |
| :--- | ---: |
| Credits Arr. | Fall |
| Credits Arr. | Spring |

Econ. 695 Seminar in Economic Research 1-3 Credits Fall
696
1-3 Credits Spring
Methods of economic research used in analyzing specific, assigned topics. Discussion of problems encountered, results obtained. Report and formal paper required. Prerequistte: graduate standing and permission of instructor.

## EDUCATION

Ed. 301 Social Studies for
Elementary Teachers $\quad(3+0) \quad 3$ Credits Fall
Methods and materials adaptable to modern curriculum in elementary social studies. Prerequisite: 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 1 through 8; methods and materials for effective teaching; organization for instruction; all aspects of the language arts, except reading. Prerequisite: Ed. 313 and prerequisites thereto.
Ed. 304 Literature for Children $(3+0) 3$ Credits Spring
Cirteria 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. 305 or permission of instructor.
Ed. 306 Teaching of Science in
Elementary Schools $\quad(3+0) \quad 3$ Credits Fall
Modern concepts, methods and materials of teaching science. Prerequisite: Ed. 313 and prerequisites thereto.
Ed. 307 Teaching of Arithmetic $(2+0)$ : 2 Credits Spring
Present day concepts, methods and materials. Prerequisite: Math 121 and Ed. 313 and prerequisites thereto. In-Service teachers may substitute Math. 345 for the math. prerequisites.
Ed. 308 Physical Education for the Elementary
School $\quad(2+3) \quad 3$ 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. Prerequisite: Ed. 313 and prerequisites thereto.
Ed. 309 Elementary School Music Mothods 3 Credits Fall or Spring (Same as Music 309) (3+0)
Principles, procedures, and materials for teaching music to children at the elementary level. Prerequisite: 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. Prerequisite: Ed. 313 and prerequisites thereto.
Ed. 313 Educational Psychology $(3+0) \quad 3$ Credits Fall and Spring
Application of principles of psychology to classroom teaching and learning. Prerequisite: Psy. 101 and Psy. 305 or Psy. 252.

## Ed. 323 Small Schools $(2+0) \quad 2$ 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. Prerequisite: 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. 321. Prerequisite: Ed. 313 and prerequisites thereto.
(Same as Soc. 345)
Impact of culture on 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 $\quad 3+0$ Credits Spring
Development of American Education as a facet of social and intellectual history. Prerequistte: Hist. 131 and 132.
Ed. 402 Mothods of Teaching $(3+0) \quad 3$ Credits Fall and Spring Principles and methods of teaching management, routine, daily programs, etc. Prerequisite: 100 collegiate credits, Ed. 332 and prerequisites thereto.
Ed. 404 Mothods of Teaching Foreign
Languages $\quad(3+0) \quad 3$ 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 of methods such as "grammar-translation," "direct," "audio-lingual"; recent research on the subject. Prerequisite: 100 collegiate credits, Ed. 332 and prerequisites thereto.
Ed. 405 Mothods of Teaching Music $(3+0) \quad 3$ Credits As demand warrants
(Same as Music 405)
Methods and problems of teaching music in junior and senior high schools, with emphasis on the general music program. Prerequisite: 100 collegiate credits, Ed. 332 and prerequisites thereto, and Music 232, or consent of the instructor.

Ed. 406 Methods of Teaching
Physical Education $(3+0) \quad 3$ Credits As demand warrants
Selection of materials and presentation methods for secondary school physical education. Prerequisite: 100 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 407 Methods of Teaching Home
Economics $(3+0) \quad 3$ 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. Prerequisite: 100 col legiate credits, Ed. 332 and prerequisites thereto.

Ed. 408 Methods of Teaching Business
Education $(3+0) \quad 3$ 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. Prerequisite: 100 collegiate credits, Ed. 332 and prerequisites thereto.

Ed. 409 The Teaching of Reading $(3+0) \quad 3$ 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. Prerequisite: Ed. 313 and prerequisites thereto.

Ed. 421 Secondary Education 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. Prerequisite: Ed. 313 and prerequisites thereto.

Ed. 422 Philosophy of Education (3+0) 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 and tools and techniques that aid teachers and guidance personnel in preparing students for responsible decision making in modern society. Prerequisite: Ed. 332 and prerequisites thereto.

Ed. 446 Public School Organization, Control, and Support $(3+0) \quad 3$ 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 $(0+18) \quad 6$ Credits Fall and Spring Supervised teaching in elementary or 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 _ for requirements for admission to student teaching. May be taken concurrently with Ed. 402.

Ed. 461 Rosearch
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.
Ed. 491 Seminar
492
Credits Arr. As demand
Credits Arr. As demand warrants
Current topics in Education. Admission by permission of Head of the Department.

| Ed. 493 | Spocial Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | ---: |
| 494 | Credits Arr. | Spring |  |

Various subjects; principally directed study, discussion and research.

Ed. 601 Master of Arts in Teaching
Sominar $1 \quad(2+0)$
1 or 2 Credits
Fall
Expectations, concerns and questions regarding elementary and secondary classroom teaching today. Prerequisite: Admission to M.A.T. program or permission of the instructor.

Ed. 602 Master of Arts in Teaching
Sominar 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. Prerequisite: Admission to M.A.T. program and M.A.T. Seminar I or permission of instructor.

Ed. 604 Diagnosis and Correction of Reading
Deficiencies
$(3+0)$
3 Credits As demand warrant
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. Prerequisite: Ed. 409 plus experience in the teaching of reading.

Ed. 608 The Improvement of Elementary
Teaching $\quad(3+0) \quad 3$ 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. Prerequisite; 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. Prerequisite: Ed. 313 and graduate standing in education.

Ed. 623 Principles of Individual
Counseling $(3+0) \quad 3$ 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. Prerequisite: Ed. 426, Psy. 304 or 406 and permission of instructor.

Ed. 624 Group Counseling $(3+0) \quad 3$ 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. Prerequisite: Ed. 426 and 623.

Ed. 627 Education Research $(3+0)$
3 Credits
Fall
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 $(3+0) \quad 3$ Credits As demand warrants
Means of acguiring data pertinent to the Individual. Interpreting data and formulating case reports conducive to greater understanding. Prerequisite: Ed, 426.

Individual intelligence tests with emphasis on the revised Stanford-Binet Intelligence Scale and the Wechsler Intelligence Scales. Prerequisite: Ed. 332 and permission of instructor.
Ed. 630 Laboratory in Individual Tests
of Intelligence $\quad(0+6) \quad 2^{-}$Credits As demand
3 warrants
Provides laboratory experience in administration of the Revised Stanford-Binet Intelligence Scale or the Wechsler Intelligence Scales. Prerequisite: Ed. 629 and permission of instructor.
Ed. 631 Advanced Educational Psychology:
Developmental

$(3+0)$ 3 Credits $\begin{array}{r}\text { As demand } \\ \text { warrants }\end{array}$
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 $(3+0) \quad 3$ 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. Prerequisite: Graduate standing, Ed. 426, and permission of instructor.

## Ed. 633 Organization, Administration and Supervision <br> of Guidance $\quad 2$ 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. 426.
Ed. 634 Counseling Practicum $(1+4)$
3 Credits
Arr.
Provides supervised field experience, including preparatory activities in an educational setting. Prerequisite: Approval of Head of Education Department; Ed. 426, Ed. 623, Psy. 304 or 406, Psy. 321.
Ed. 636 Advanced Public School Administration:
Cases and Concepts $\quad 2$ 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. Prerequisites: 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. Prerequisite: Ed. 446 and graduate standing in Education.
Ed. 638 Supervision and Improvement of
Instruction $(3+0) \quad 3$ Credits As demand warrants
Development, purpose, organization of supervisory programs; special attention to current in-service education programs.
Ed. 639 Public School Finance $(3+0) \quad 3$ Credits As demand warrants
Contemporary basis for raising and distributing Federal, State and Local education funds; problems of school financing in Alaska. Open only to advanced students in education.
Ed. 641 School Law (2+0)
2 Credits As demand $\begin{array}{r}\text { warrants }\end{array}$
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. As demand
warrants
Current topics in education. Maximum credit allowed toward advanced degrees: 4 credits. Admission by arrangement.
Ed. 693 Special Topics
Credits Arr.
Fall
694
Credits Arr.
Spring
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 696
Independent project in lieu of thesis. Admission by arrangement. Prerequisite: Ed. 627.

| Ed. 697 | Thesis |  |  | Credits Arr. Credits Arr. |  | Fall Spring |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Offered | as | demand | warrants. | Prerequisite: | Ed. | 627 |

## ELECTRICAL ENGINEERING

E.E. $102 \begin{gathered}\text { Electrical Engineering Shop } \\ \text { Practica } \\ (0+6)\end{gathered}$

2 Credits
Spring
Essentials of metal-working, use of hand and machine tools, chassis construction; wiring and soldering; construction of electronic equipment. Enrollment limited. Prerequisite: Registration in electrical engineering or consent 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
$(2+3)$

| 3 Credits | Fall |
| :--- | ---: |
| 3 Credits | Spring |

Primarily for students of Civil, Mining, Mechanical and Chemical Engineering. Circuits, machines, electronics, instrumentation. Prerequisite: Phys. 212.

| E.E. | 333 | Eloctronics | $(3+3)$ | 4 Credits |
| :--- | :--- | :--- | :--- | :--- |
|  | 334 | 4 Credits | Fall |  |
|  |  | Spring |  |  |

Characterization of electronic devices including semiconductors and vacuum tubes. Theory and design of basic circuits including amplifiers, oscillators, rectifiers and detectors. Prerequisite: E.E. 204. Offered in alternate years; next offered 1969-70.
E.E. 403 Machines and Power $(3+3) \quad 4$ Credits Fall 404

Spring
Electrical machines, with introductions to power; D.C. and A.C. machines, including motors, generators, transformers, alternators, and selsyns; laboratory study of typical machine characteristics. Prerequisite: E.E. 204. Offered in alternate years; next offered in 1970-71.
E.E. 432 Fields, Lines, and Antennas $(3+3) \quad 4$ Credits Spring

Use of Maxwell's equations in the analysis of waveguides, cavity resonators, and transmission lines; retarded potentials; antennas for radio and microwave frequencles. Prerequisite: Math. 302, Phys. 331. Offered in alternate years; next offered 1970-71.
E.E. 442 Digital Computers ( $4+0$ )

4 Credits
Fall
Design and functioning of digital computers; system organization, programming, computer arithmetic, combinational and sequential circuits, methods of control, electronic circuitry. Prerequisite: Upper division standing in electrical engineering, mathematics or physics, or consent of instructor. Offered in alternate years, next offered 1969-70.
E.E. 453 Circuit Theory $(4+0) \quad 4$ Credits Fall $454 \quad 4$ Credits Spring
Transient analysis, Fourier Analysis, network theorems, transmission lines, filters; circuit analysis by the Laplace Transform; theory of servomechanisms. Prerequisite: E.E. 204, credit or registration in Math. 302. Offered in altemate years, next offered 1969-70.
E.E. 462 Communication Systems $(3+3) \quad 4$ 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 and E.E. 432.
E.E. 471 Control $(3+3) \quad 4$ Credits Fall

Theory and practice in automatic control systems. Characterization and stability of feedback systems. Root locus. Nyquist and Bode diagrams. Transducers. Prerequisite: E.E. 204, 454. Offered in alternate years, next offered 1970-71.
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. Prerequisite: E.S. 207, E.E. 314, or permission of 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: Upper-division standing. Offered in alternate years, next offered 1969-70.

| E.E. 491 | Seminar | $(1+0)$ | 1 Credit |
| :--- | :--- | :--- | :--- |
| 492 |  | 1 Credit | Fall |
|  |  | Spring |  |

Current topics. Students will have an opportunity to present papers. Prerequisite: Senior standing in electrical engineering.

E.E. 493 Special Topics \begin{tabular}{lll}

\& Credits Arranged \& | Fall |
| ---: |
|  |
| 494 | <br>

Credits Arranged
\end{tabular}

Various subjects studied.

## E.E. 635 Advanced Electronic Circuit Design ( $3+0$ ) 3 Credits <br> 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 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: Differential Equations.
E.E. 674 Instrumenfation Systems (3+0) 3 Credits Spring

Design of complete engineering and scientific instrumentation systems; test methodology; cost, reliability, and accuracy considerations; environmental hazards; space applications. Prerequisite: E.E. 474.
E.E. 676 Instrumentation Lab $11(0+3) \quad 1$ Credit Spring

Building and testing systems designed in E.E. 674 (Fee: \$20.00). Corequisite: 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 Arranged <br>  <br> 694 | Fall <br> Credits Arranged |
| :--- | :--- | :--- | :--- | ---: |
| Epring |  |  |  |

## ELECTRONIC TECHNOLOGY

## E.T. 50 General Science of Modern Electronics 2 Credits Fall

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 Electronic Technology Programs.
E.T. 51 DC Circuits (5+12)

4 Credits
Fall
The first course in electricity for electronics technicians. Basic physics, electrical terms and units, meters and their use, resistance, Ohms' law, simple circuits, magnetic fundamentals, batteries, Kirchoff's laws, DC circuit analysis, inductance, capacitance.
E.T. 52 DC Circuits $(5+12) \quad 4$ Credits Fall

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.
E.T. 55 Electronics Practice ( $0+12$ )

3 Credits
Fall
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 $(5+3) \quad 5$ Credits Fall

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.

## E.T. 61 Tubes and Semiconductors <br> 4 Credits Spring

Vacuum tubes, semiconductors, transistors. Fundamentals, construction, characteristics, parameters, specifications. Prerequisites: E.T. 51, 52, 59.

## E.T. 62 Electronic Circuits $1 \quad(8+15) \quad 3$ Credits Spring

Power supplies, basic amplifiers, loud speakers, microphones and pickups, basic oscillators. Prerequisites: E.T. 51, 52, 59

## E.T. 63 Electronic Systems I

4 Credits
Spring
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 bank and communications. Prerequisites: E.T. 51, 52, 59.
E.T. 66 Electronics Practice II $(0+12) \quad 3$ Credits Spring

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 |
| :--- | :--- | :--- | :--- | :--- |
| 72 | Electronic Circuits III $(0+15)$ | 4 Credits | Summer |
| 75 | Microwave Electronics | 4 Credits | Summer |

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. Prerequisite: E.T. 61, 62, 63.
E.T. 77 System Maintenance $\quad(0+12) \quad 4$ Credits Summer

Principles and practice of system maintenance. Experience with a system, such as a transmitter or carrier communications system, including work with system drawings, the logbook, routine maintenance, and repair of troubles. Prerequisite: Registration or credit in E.T. 71, 72, 75.
E.T. 83 Test Instruments $(3+3) \quad 3$ Credits Fall

- Use, theory, and limitations of electronic test instruments including multimeter, vacuum-tube voltmeter, oscilloscope, bridges, swept-frequency RF generator, digital voltmeter, counter. Procedures for VSWR, noise figure, gain, band width. Prerequisite: Registration or credit in E.T. 72, 75.
E.T. 84 Eloctronic Systems II $(5+3) \quad 5$ Credits Fall

Theory, organization, functioning and maintenance of large electronic digital computers Prerequisite: E.T. 72, 75.

## 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 equations and blas stability, feedback, noise, transistor oscillators and negative impedance devices, digital switching circuits, high frequency description of transistors, circuit aspects of field effect transistors. Prerequisite: Permission of instructor.

## ENGINEERING MANAGEMENT

## E.M. 401 Construction Cost Estimating and Bid Preparation (3+0)

Credits Arranged 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 Advancod Engineoring 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 maximinization, methods improvement, pricing, modification of controls, and other management problems. Prerequisite: E.M. 611 and E.M. 605.
E.M. 613 Engineering Management $(3+0) \quad 3$ 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.

## ENGINEERING SCIENCE

| E.S. | 101 | Graphics | $(0+6)$ |
| :--- | :--- | :--- | :--- |
| 102 |  | 2 Credits | Fall |
|  | 2 Credits | Spring |  |

Fall semester: Orthographic projection, pictorial drawing, sketching, lettering, geometric construction. Charts, graphs and diagrams.
Spring semester: Descriptive geometry; graphic solution of 3 dimensional problems.
E.S. 111 Engineering Science $(2+3) \quad 3$ 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 (fall) and Math. 200 (spring).
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 presentation. Prerequisite: E.S. 111 or consent of instructor.

## E.S. 207 Measurements ( $2+3$ ) <br> 3 Credits <br> Fall

Theory of measurement, precision, dispersion, distribution of error; with practiceproblems taken from various fields of engineering. Prerequisite: E.S. 111.
E.S. 208 Mechanics $(3+3) \quad 4$ 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. 122 and Math 200.
E.S. 331 Mechanics of Materials $(2+3) \quad 3$ 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.
E.S. 341 Fluid Mechanics $(3+3) \quad 4$ Credits Fall Statics and dynamics of fluids. Basic equations of hydrodynamics, dimensional analysis, simple hydraulic machinery. Prerequisite: E.S. 208, Math. 201.
E.S. 346 Basic Thermodynamics $(3+0) \quad 3$ Credits Spring Systems, properties, processes and cycles. Fundamental principles of thermodynamics (first and second laws), elementary applications. Prerequisite: Math. 202, Phys. 212.
E.S. 450 Engineering Management and

$$
\text { Operations } \quad(3+0)
$$

3 Credits
Spring
Fundamentals of Engineering Economy; contracts, specifications, legal and ethical principles, management. Prerequisite: Senior standing or permission.
E.S. 491
Enginearing Seminar
Credits Arr. Fall or Spring
492
Credits Arr. Fall or Spring

Oral and written exposition on current engineering topics.

## ENGLISH

Engl. 1 Elementary English $(3+0) \quad 0$ Credit Fall/Spring
For students inadequately prepared for English 101. Intensive practice in written and oral comprehension. Frequent writing assignments.


Engl. 58
Arr.
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.


Intensive instruction in orderly thought, clear expression and analysis of creative literature.

Engl. 201 Masterpieces of World Literature (3+0) 3 Credits Fall/Spring 2023 Credits Fall/Spring Masterworks of literature, studies to acquire a broad background and develop standards of literary judgment. Prerequisite: 101 and 102.

Engl. 213 Advanced Exposition (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.
Engl. 239 Forms and Techniques of Pootry ( $3+0$ ) 3 Credits Fall
Devices, esthetic and criticism of verse composition. Prerequisite: Engl. 101 and 102.
Engl. 240 Form and Tochnique of Fiction (3+0) 3 Credits Spring
Devices, esthetic and criticism of prose composition. Prerequisite: Engl. 101 and 102.

Engl. 314 Research Writing ( $3+0$ )
3 Credits
Spring Organizing reports, documenting research, language and style in scholarly articles. Papers in students' fields prepared for conference and class. Prerequisite: Engl. 213 or by arrangement.
Engl. 318 Modern Grammar (3+0)
3 Credits Spring
The linguistic approaches to the study of grammar with emphasis on structural and transformational (generative) grammars. Recommended for all students majoring in elementary education and for all students with a teaching major or minor in English.
Engl. 321 The Renaissance $(3+0) \quad 3$ Credits Fall Poetry and prose of the sixteenth century. Next offered 1968-69.
Engl. 322 Nooclassical Ago $(3+0) 3$ Credits Spring Poetry and prose from John Dryden through Samuel Johnson. Next offered in 1968-69.
Engl. 323 Romantic Period $(3+0) \quad 3$ Credits Fall
Poetry and prose from the late 1700 's to 1830. Next offered 1969-70.
Engl. 324 Vietorian Period $(3+0) \quad 3$ Credits Spring Poetry and non-fictional prose, 1830-1902. Next offered 1969-70.
Engl. 328 19th Contury Amorican Prose ( $3+0$ ) 3 Credits Fall The works of Emerson, Hawthorne, Melville, Adams, Twain, Howell and James. Next offered 1968-69.
Engl. 336 20th Century American Prose (3+0) 1-3 Credits Fall or Spring The major fiction of Lewis, Fitzgerald, Hemingway, Faulkner, and Steinbeck.
Engl. 337 20th Cenfury Amorican Poetry ( $3+0$ ) 3 Credits Fall The poetry of Whitman, Dickinson, Robinson, Frost, Stevens, Roethke and others. Next offered 1969-70.
Engl. 341 20th Century British Literature (3+0) 3 Credits Fall Major achievements of modern British poetry and prose. Next offered 1969-70.
Engl. 342 20th Cenfury Drama ( $3+0$ ) 3 Credits Spring From Chekhov to Ionesco, the major dramatists and their achievements. Next of fered 1969-70.
Engl. 352 The British Noval to $1900(3+0) \quad 3$ Credits Spring Origin and development of the novel with concentration on Richardson, Fielding, Austen, E. Bronte, Dickens, Conrad and Hardy. Next offered 1969-70.

## Engl. 413 Old and Middle English

Literature $\quad(3+0)$
3 Credits
Fall
Old English literature in translation; representative Middle English texts exclusive of Chaucer. Next offered 1968-69.

## Engl. 421 Chaucer <br> 3 Credits <br> Fall

Chaucer's poetry, with emphasis on The Canterbury Tales.
Engl. 423 Elizabethan Drama $(3+0) \quad 3$ Credits Fall
Major plays of Elizabethan dramatists and early plays of Shakespeare.
Engl. 424 Shakespeare $(3+0) \quad 3$ Credits Spring
Major works, emphasis on the later plays and review of Shakespearian criticism.

Engl. 426 Milson (3+0)
3 Credits
Spring
The poetry, selected prose, and survey of the criticism of Milton.
Engl. 431 Creative Writers Workshop ( $3+0$ ) 1-3 Credits
1-3 Credits
Fall Spring
Writing fiction and poetry. Critique of student productions.
Engl. 443 Greek and Roman Literature (3+0) 3 Credits Fall Greek and Roman Literature in English translation. Next offered 1969-70.

Engl. 444 European Literafure (3+0) 3 Credits Fall or Spring Studies in major European writers and periods. Next offered 1969-70.

Engl. 472 History of English Language (3+0) 3 Credits Spring Origin and development of the English language; modern syntax and usage.

| Engl. | 493 | Special Topics | $(3+0)$ | 3 Credits |
| :--- | :--- | :--- | :--- | :--- |$\quad$ Fall

Various subjects in American, British and Comparative Literature.
Engl. 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 stdents in English.

| Engl. | 605 | Studies in Drama | $(3+0)$ | 3 Credits | Fall |
| :--- | :--- | :--- | :--- | :--- | ---: |
| Engl. | 610 | Studies in Fietion | $(3+0)$ | 3 Credits | Spring |
| Engl. | 615 | Studies in Pootry | $(3+0)$ | 3 Credits | Fall |
| Engl. | 620 | Studies in Criticism | $(3+0)$ | 3 Credits | Spring |
| Engl. | 625 | Studies in Middio <br> Literature | $(3+0)$ | 3 Credits | Fall |

Engl. 630 Studies in Literafure of the English Renaissance ( $3+0$ ) Credits Spring
Engl. $635 \begin{gathered}\text { Studies in 17th Century } \\ \text { English Litorature } \\ (3+0)\end{gathered} 3$ Credits Fall
Engl. $640 \begin{gathered}\text { Studies in 18th Century English } \\ \text { Literaturo } \\ (3+0)\end{gathered} \quad 3$ Credits Spring
Engl. $645 \begin{gathered}\text { Studies in the Liferature of the } \\ \text { British Remantic Period } \\ (3+0)\end{gathered} 3$ Credits Fall
$\begin{array}{cc}\text { Engl. } 650 & \begin{array}{c}\text { Studies in the Litarature of the } \\ \text { Victorian Period }(3+0)\end{array} \quad 3 \text { Credits Spring }\end{array}$
Engl. $655 \begin{gathered}\text { Studies in 20th Contury British } \\ \text { Literature } \\ (3+0)\end{gathered} \quad 3$ Credits Fall
Engl. 660 Studies in 20th Contury American Literature (3+0)

3 Credits Spring
Engl. 665 Studies in 19th Century American Literature $\quad 3$ Credits

Fall
Engl. 670 Studies in Camparative Litarature ( $3+0$ ) 3 Credits Spring

| Engl. | $\begin{aligned} & 691 \\ & 692 \end{aligned}$ | Seminar | Credits Arr. Credits Arr. | Fall Spring | T |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Various Topics. Admission by arrangement. |  |  |  |  |  |
| Engl. | $\begin{aligned} & 693 \\ & 694 \end{aligned}$ | Special Topics Special Topics | Credits Arr. Credits Arr. | Fall Spring | $\sim$ |
| Engl. | $\begin{aligned} & 695 \\ & 696 \end{aligned}$ | Research | Credits Arr. Credits Arr. | Fall Spring |  |
| Engl. | $\begin{aligned} & 697 \\ & 698 \end{aligned}$ | Thesis | Credits Arr. Credits Arr. | Fall Spring |  |
| WRITER'S WORKSHOP |  |  |  |  |  |
| Engl. | 675 | Writing Drama | Credits Arr. | Spring | $T$ |
| Engl. | 681 | Writing Fiction | Credits Arr. | Spring |  |
| Engl. | 685 | Writing Verso | Credits Arr. | Spring |  |

## ENVIRONMENTAL HEALTH ENGINEERING

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. Prerequisite: Biol. 341 and E.H.E. 606.
E.H.E. 605 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. Prerequisite: graduate standing.
E.H.E. 606 Advanced Wasto 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

Processos $(0+6) \quad 2$ 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, stream analysis, and advanced laboratory techniques. Prerequisite; E.H.E. 605 and E.H.E. 606 and registration in E.H.E. 601.
E.H.E. 610 Arctic Environmantal Health

Enginoering Design $\quad(1+3) \quad 2$ 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 Sominar
E.H.E. 692 Special Topics 693 694

Credits Arr. Spring or Fall
Credits Arr. Spring
Credits Arr. Fall
Credits Arr. Spring

Various subjects including: air pollution, solid wastes, tertiary treatment, radiological health, industrial wastes, aquatic biology, etc. Prerequisite: permission of instructor.
E.H.E. 697 Thesis

Credits Arr.
Fall
698
Credits Arr.
Spring

## ESKIMO

See Linguistics.

## FRENCH

| Fren. | 101 | Elementary French | $(5+0)$ |
| :--- | :--- | :--- | :--- |
| 102 |  | 5 Credits | 5 Credits |

Development of the four skills (listening comprehension, speaking, reading, and writing) with emphasis on oral work, practice in the language laboratory, basic grammar, and vocabulary.
Fren. 108 French 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.
Fren. 201 Intermediate French $(3+0) \quad 3$ Credits Fall
2023 Credits Spring

Continuation of Fren. 102. Increasing emphasis on reading ability and cultural material. Conducted in French. Prerequisite: Fren. 102 or 2 years of high school French.
Fren. 203 Composition and Conversation (2+0) 2 Credits Fall $204 \quad 2$ 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.
Fren. 301 Advanced French $(3+0) \quad 3$ Credits Fall 3023 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.
Fren. 321 Studies in French Literature (3+0) 3 Credits Fall 3223 Credits Spring
Choice of authors, genres, or periods of French literature for intensive study. Conducted in French. Prerequisite: Fren. 202 or equicalent. Students may repeat course for credit when topic varies.

Fren. 323 Survey of French Literature (3+0) | 3 | Credits |  |  |
| :--- | :--- | :--- | :--- |
| 324 |  |  |  | Reading of texts representative of literary currents, Conducted in French Priations Crent in Fren. 301 or 302 recommended. Next offered 1968-69:

Fren. 404 Advanced Syntax and
Oral Expression $(3+0) \quad 3$ Credits 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.
Fron. 439 Literature of the Classical Age $(3+0) \quad 3$ Credits Fall Close study of outstanding literary works of di?erent genres. Conducted in French. Next offered 1969-70.
Fren. 452 The French Novel of the 20th Century $(3+0) \quad 3$ Credits Spring
Representative novelists and their works. Conducted in French. Next offered 1969-70.
Fren. 493 Special Topics Credits Arr. Fall 494

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.
Fron. 635 The Renaissance $\quad(3+0) \quad 3$ 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.
Fren. 641 The Age of Enlightenment (3+0) 3 Credits Fall A critical study of a variety of texts, philosophical as well as literary. Conducted in French. Offered as demand warrants.

Fren. 646 The 19 th Century Novel $(3+0) \quad 3$ Credits Spring
Fron. 452 The French Noval of the

## GEOGRAPHY

Geog, 101 Infroductory Geography ( $3+0$ ) 3 Credits Fall
World regions; an analysis of environment.
Geog. 201 Elements of Physical Geography $(3+0) 3$ Credits Fall Description of physical enviranment and introduction to techniques of geographic analysis. Prerequisite: Geo. 101.
Geog. 302 Geography of Alaska (3+0) 3 Credits Spring Regional geography of Alaska. Prerequisite: Geography 201, or by permission.
Goog. 307 Physical Geography of Asiatic Russia 3 Credits Fall or Spring A description and analysis of the resources, landforms, vegetation and climate of Asiatic Russia with emphasis on that part adjacent to Alaska. Admission by arrangement.
Goog. 309 Carfography ( $1+6$ ) Credits Fall or Spring Graphic techniques for presenting geographic data through the construction of maps, projections and charts. Admission by arrangement.
Goog. 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: Geography 201 or by permission.
Geog. 327 Cold Lands ( $3+0$ ) 3 Credits Fall Climate, natural resources and man's adjustment to environment in cold lands. Prerequisite: Anth. 101, or by permission.
Gaog. 401 Weather and Climate $(3+0) 3$ Credits Fall or Spring Introduction to the study of weather and classification of climates. Prerequisite: Geography 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.

Geog. 493 Special Topics | 494 | Credits Arr. | Fall |
| :--- | :--- | ---: |
|  | Credits Arr. | Spring |

Various subjects studied. Admission by arrangement.

## 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 Hisforical 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 structure sections. Prerequisite: Geol. 101. 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. 213 Mineralogy $(3+6) 5$ 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, and the theory and use of the petrographic microscope. May be taken for 4 credits by arrangement. Prerequisttes: Math 106, 200. Chem. 101, 102.
Geol. 214 Petrology ( $3+6$ )
5 Credits Spring 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. Prerequisite: Geol. 213.

Geol. 304 Geomorphology $(3+0) \quad 3$ Credits Fall
Study of landforms and the processes which create and modify them. Prerequisite: Geol. 102.

Geol. 314 Structural Geology $(2+3) \quad 3$ Credits Spring Origin and interpretation of primary and secondary geologic structures. Graphical solution of structural problems. (Field trips.) Prerequisite: Geol. 101, recommended, Geol. 102, Phys. 103, or by arrangement.

Geol. 321 Principles of Sedimentation $(2+3) \quad 3$ 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 table maps, and presentation of results in a professional report and finished geologic map. Prerequisite: Junior status in Geology.
Students pay own transportation, subsistence, and course tuition fee. Entrance by preregistration only.
Geol. 400 Earth Sciences Seminar ( $1+0$ ) No Credits Fall and Spring Attendance required by upper division geology majors and graduate students.
Geol. 401 Invertebrate Paleontology $(3+3) \quad 4$ Credits Fall Paleontological theory and practice. Systematic study of fossil invertebrates. Prerequisites: Geol. 101, recommended Biol. 305 (Invertebrate Zool.).
Geol. 402 Principles of Stratigraphy $(2+3) \quad 3$ Credits Spring
The history of the development of stratigraphy, its principles and application. Prerequisites: Geol. 101, recommended Geol. 321, 401.
Geol. 406 Ore Deposits (3+0)
3 Credits Fall
Form structure, mineralogy, petrology, and mode of origin of ore deposits. Prerequisites: Ceol. 214, 314.

Geol. 408 Map Interpretation ( $1+6$ )
3 Credits Spring
Use of topographic maps, geologic maps, and aerial photographs in the analysis of geologic structures and landforms. Prerequisite: Ceol. 304.

Gool. 410 Micropaleontology $(2+3) \quad 3$ Credits Fall or Spring Mirofossils and their use in stratigraphic correlation. Prerequisite: Geol. 102. Offered as demand warrants.

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 status in a disciplinary science, mathematics or engineering.

Geol. 412 Geology of Alaska $(2+3) \quad 3$ Credits Fall or Spring Study and interpretation of the geology of Alaska (Field trips.) Prerequisites: Geol. 102, 314, 304. Offered as demand warrants.

Geol. 413 Verfebrate Paleontology $(2+3) \quad 3$ Credits Fall Systematic study of the fossil vertebrates 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 $(3+0) \quad 3$ Credits Fall Historical introduction, observational seismology, seismometry, simple elastic wave propogation. Admission by arrangement.

Geol. 462 Glacial and Pleisfocene 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 | | Seminar in Geology | Credits Arr. |
| :--- | :--- |

Various subjects studied. Admission by arrangement;
Geol. 493 Special Topics - Problems in Various
Fields of Geology
Credits Arr. Fall
494 Special Topics - Problems in Various
Fields of Geology
Credits Arr. Spring
Geology problems of the student's choice approved by instructor. Transportation expenses met by student. No more than 3 credits allowed per semester. Admission by arrangement.

Geol. 605 Glaciology $1 \quad(2+3) \quad 3$ 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 $(2+3)$ <br> 3 credits <br> Spring

Physical properties of ice from various environments including seasonal and perennially frozen ground. Glaciers, distribution, classification, heat and temperature relations and glacier flow. Glaciation - alpine and continental. Laboratory and field work. Admission by arrangement.

## Geol. 608 Seminar in Pleistocene Environmont 1 Credit Spring

 Discussion of glaciations, land bridges, Mackenzie Corridor problem, permafrost in relation to biogeography including coming of man. Faculty panel of geologists, glaciologists, anthropologists, biologists, and botanists. Prerequisites: Geol. 304, 605, 606, or by arrangement. One seminar. Offered as demand warrants.Geol. 611 Stratigraphic Paleontology (Paloozoic) $\quad(2+3)$

3 Credits
Fall
North American index fossils and stratigraphy of North American and Europe. Prerequisites: Geol. 401, 402. Offered in alternate years; next offered 1969-70.
Geol. 612 Stratigraphic Paleontology
(Mesozoic and Cenozoic) $\quad(2+3) \quad 3$ Credits Spring
North American index fossils and stratigraphy of North America and Europe. Prerequisites: Geol. 401, 402. 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 status in Ceology or appropriate interdisciplinary programs, or by permission of the instructor.
Geol. 622 Advanced Metamorphic Potrology (2+6) 4 Credits Fall
Prerequisites: Geol. 214, 314; Offered in alternate years; next offered 1969-70.
Geol. 624 Advanced Igneous Petrology ( $2+6$ ) 4 Credits Fall Prerequisites: Geol. 214, 314. Offered in alternate years; next offered 1968-69.

Geol. 627 Advanced Structural Geology 1 (3+0) 3 Credits Spring Large scale structural features, time and place in orogenesis, theories of orogenesis. Prerequisite: Geol. 314. Offered in alternate years; next offered 1968-69.
Geol. 628 Advanced Structural Goology II (3+0) 3 Credits Spring Structural petrology, mechanisms of folding, theoretical basis for mechanical behavior of rocks. Prerequisites: Geol. 214, 314. Offered in altemate years, next offered 1969-70.

Geol. 631 Marine Geochemistry $(3+0) \quad 3$ 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 by permission of the instructor.

Geol. 693 Spocial Topics
Credits Arr. Fall 694

Credits Arr.
Spring
Research in various fields.

| Geol. | 697 | Thesis or Dissertation | Credits Arr. |
| :--- | :--- | :--- | :--- | | Fall |
| ---: |
| 698 |$\quad$| Credits Arr. |
| :--- |

By arrangement. Transportation expenses met by the student.

## GERMAN

Ger. 101 Elementary German $(5+0) \quad 5$ Credits Fall 1025 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.
Gor. 108 German for Reading Ability $(3+0) \quad 3$ 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 $\mathbf{( 3 + 0 )} 3$ Credits Fall 202 3 Credits Spring
Continuation of Ger. 102. Increasing emphasis on reading ability and cultural material. Conducted in German. Prerequisite: Ger. 102 or 2 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. Prerequistte: Cer. 102 or equivalent.
Gar. 321 Studies in German Literature. ( $3+0$ ) 3 Credits Fall 3223 Credits Spring
Choice of authors, genres, or periods of German literature for intensive study. Conducted in German. Prerequisite: Ger. 202 or equivalent. Students may repeat course for credit when topic varies.

Gor. 404 Advanced Syntax and Oral
Exprossion (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 Credits Arr. Fall 494 Credits Arr. Spring
Various subjects for advanced students. Admission by arrangement. Offered as demand warrants.

## HISTORY DEPARTMENT

Hist. 101 Western Civilization $(3+0) \quad 3$ Credits Fall The origins and major political, economic, social and intellectual developments of western civilization to $\mathbf{1 5 0 0}$.

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. $\quad(3+0) \quad 3$ Credits Fall 132

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 $(3+0) \quad 3$ Credits Fall 222 3 Credits 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 Hisfory ( $3+0$ )
3 Credits Fall or Spring Political, social, economic and cultural development of the ancient Near East, Greece and Rome.

Hist. 254 Hisfory 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 $(3+0) \quad 3$ Credits Fall Origins of Russia. Kievan Russia. The Mongol Era and the Rise of Muscovy. Modern Russia to the 20th Century.

Hist. 302 The Old Regime, the Enlightenment and the French Revolution ( $3+0$ )

3 Credits
Fall
The political, social and economic structure of the Old Regime; intellectual developments in the 18th century; the Revolution and the Napoleonic period; influence of France upon European development in the 18th 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 altemate years.

Hist. 315 Contomporary Europe $(3+0) 3$ Credits Fall or Spring Europe from 1914 to the present. Prerequisite: Hist. 101, 102 or by arrangement. Offered in alternate years.

Hist. 341 Hisfory of Alaska $\quad 3$ 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. Prerequisite: Hist. 101, 102. Offered in alternate years.
Hist. 363 The Far East in Modern Times ( $3+0$ ) 3 Credits Fall or Spring Nations of eastern Asia; their relations with the West since the early nineteenth century. Prerequisite: Admission by arrangement. Offered as demand warrants.

| Hist. 393 | Special Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- |
| 394 |  | Credits Arr. | Spring |

Hist. 416 The Renaissance $(3+0) \quad 3$ Credits Fall or Spring Political, social, economic, and cultural developments in the Age of the Renaissance. Prerequisite: Hist. 101, 102. Offer ${ }_{3}$ d in altemate years.
Hist. 417 The Reformation $(3+0) \quad 3$ Credits Fall or Spring The Protestant and Catholic Reformations. Political, economic, social and religious conflicts, 1500-1600. Prerequisite: Hist. 101, 102. Offered in alternate years.
Hist. 430 Amarican 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. Prerequisite: Hist. 131, 132. Offered in alternate years.
Hisf. 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. Prerequisite: Hist. 131, 132. Offered in alternate years. Hist. 440 Tho Westward Movement $(3+0) \quad 3$ Credits Fall or Spring Westward Migration; establishment of new states and political institutions. Influences of the West. Prerequisite: Hist. 131, 132. Offered in alternate years.
Hist. 450 Twentieth Century America $(3+0) \quad 3$ Credits Fall or Spring United States from the Progressive Movement to the present day, with emphasis on domestic developments. Prerequisite: Hist. 131, 132. Offered in alternate years.
Hist. 452 Twentieth Century American Diplomacy $\quad(3+0) \quad 3$ Credits Fall or Spring Foreign relations from the United States' rise to world power through the Eisenhower administration. Prerequisite: Hist. 131, 132. Offered in alternate years.

## Hist. 461 American Intellectual and <br> Cultural History

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. Prerequiste: Hist. 131, 132. Offered in altemate years.

Hist. 475 Introduction to Historical Mathod (3+0) 3 Credits
Fall Methods of historical research. Preparation and criticism of student research papers on selected topics. Admission by arrangement.

| Hist. 493 | Special Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- |
| 494 |  | Credits Arr. | Spring |

Hist. 601 Historiography ( $3+0$ ) 3 Credits Fall or Spring History of historical writing. Study and analysis of works of selected major historians.

| Hist. 691 | Seminar in European History $(3+0)$ | 3 Credits | Fall or Spring |
| :--- | :--- | :--- | ---: |
| Hist. 692 | Seminar in American History $(3+0)$ | 3 Credits | Fall or Spring |
| Hist. 693 | Special Topics $(3+0)$ | Credits Arr. | Fall |
| 694 |  | Credits Arr. | Spring |
| Hist. 697 | Thesis | Credits Arr. | Fall |
| 698 |  | Credits Arr. | 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 $(1+3) \quad 2$ Credits Fall 122
$\begin{array}{lr}2 \text { Credits } & \text { Fall } \\ 2 \text { Credits } & \text { Spring }\end{array}$
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 $(3+0) \quad 3$ 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. Credit depends on the time of residence in the University Home Management House. 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 $(2+3) \quad 3$ Credits Fall or Spring

Food selection and preparation based on composition, nutrition and basic scientific principles and comparison of methods. Food preservation. Prerequisite: 3 hours of Biol. and 3 hours of Chem.

## H.E. 304 Nutrition $(3+0) \quad 3$ Credits Fall or Spring

Nutritional value of foods. Planning and evaluation of diets. Practical application to daily living.
H.E. 305 Child Dovolopment (2+9)

5 Credits Fall and Spring
(Same as Psy. 305)
Theory and laboratory of human mental, emotional, social, and physical development. Prerequistte: Psy. 101, 45 collegiate credits, and permission of instructor.
H.E. 311 Costumo Study: Hisfory 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 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 by arrangement.
H.E. 401 Consumor 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. or Psy. 305 and permission of instructor.
H.E. 404 Quantity Cookery $(1+6) \quad 3$ Credits Fall or Spring Cooking for large groups; institutional management. Prerequiste: H.E. 302. Offered as demand warrants.
H.E. 405 Camp Cookery $(0+3) \quad 1$ 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. Prerequistte: H.E. 404. Offered as demand warrants.
H.E. 412 Clothing Probloms ( $0+6$ ) 2 Credits Fall or Spring

Advanced work in clothing selection and construction. 1 Freedom in the selection and execution of problems. Prerequisite: H.E. 312. Offered as demand warrants.
H.E. 413 Paftern 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.
$\begin{array}{llll}\text { H.E. } 422 \text { Weaving }(0+3) & 1 \text { Credit } & \text { Fall } \\ 424 & 1 \text { Credit } & \text { Spring }\end{array}$
Hand weaving of textiles, including rugs. Several looms used. Laboratory time averages three hours per week. Offered as demand warrants.
H.E. 441 Family Hoalth $(1+3) \quad 2$ Credits Fall

Family and community health; home nursing, first aid. Offered in alternate years.
H.E. 445 Homo Managemont $(3+0) \quad 3$ Credits Fall or Spring Time, energy, finance, housing, and other management problems in relation to family living. Prerequiste: 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 | Sominar | $(1+0)$ | Credits Arr. <br> 492 | Fall <br> Credits Arr. |
| :--- | :--- | :--- | :--- | :--- |
| Spring |  |  |  |  |

Selected topics in Home Economics.
H.E. 493 Spocial 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 Elomentary Japanese $(5+0) \quad 5$ Credits Fall 1025 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 Informediafo Japanose $(3+0) \quad 3$ Credits Fall 202

3 Credits Spring
Continuation of Jap. 102 with increasing emphasis on reading ability and cultural material. Standard Japanese texts for reading including selections from modern Japenese literature. Prerequisite: Jap. 102 or equivalent.

## JOURNALISM

Jour. 201 Introduction to Journalism $(2+3) \quad 3$ Credits Fall 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 by arrangement. Ability to type is essential.
Jour. 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. Prerequistte: Journalism 201. Jour. 203 Basic Photography $(2+3) \quad 3$ Credits Fall or Spring Theory and practice of picture-taking and processing; emphasis on the camera in the modern press.
Jour. 204 Journalism Laboratory $(0+3) \quad 1$ Credit Fall or Spring
Credits arranged for students holding editorial or other positions on university publications or obtaining other similarly supervised experience in journalism practices. Prerequisite: Engl. 102 or permission. By arrangement.
Jour. 303 Advanced Photography $(1+3) \quad 3$ Credits Fall or Spring Continuation of the basic course, with emphasis on the picture story and free lance photography.

Jour. 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.

Jour. 312 Editing $(3+0) \quad 3$ Credits Spring
Editorial writing, editing copy, writing headlines; newspaper layout; general study of mechanical, circulation, editorial, and advertising departments. Prerequistte: Jour. 202.

Jour. 320 Journalism in Perspective $(3+0) \quad 3$ Credits Fall
A survey of the history and principles of Journalism examined in the light of today's problems and future goals.

Jour. 324 Nowspapor 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.

Jour. 412 Advanced Edifing 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.

Jour. 433 Public Relations $(2+3) \quad 3$ Credits Spring
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.
Jour. 444 Foreign Correspondence 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 Spocial Topics Credits Arr. Fall 494 Credits Arr. . Spring
Various subjects in journalism. Offered as demand warrants. Admission by arrangement.

Jour. 691 Journalism Seminar
692

| Jour. | 693 | Spocial Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- | ---: |
|  | 694 |  | Credits Arr. | Spring |
| Various subjects principally by directed study, discussion and research. |  |  |  |  |
| Jour. | 695 | Rosearch |  | Credits Arr. |$\quad$ Fall

## LAND RESOURCES

Land Res. 101 Conservation of Natural
Rosources $(2+0) \quad 2$ Credits Fall
Conservation of renewable and non-renewable natural resources, emphasizing the United States situation.

Land Ros. 311 Soils $(2+3) \quad 3$ Credits Spring
Origin and development, weathering, classification, terminology; physical and chemical properties, biology, aeration and moisture; reaction and liming; manures and fertilizers; management; problems in Alaska. Prerequisite: Chem. 101. Offered alternate years; next offered 1969-70.

| Land Res. | 491 | Seminar | Credits Arr. <br> 492 |
| :--- | ---: | ---: | ---: |
| Topics in land resources. Offered as demand warrants. | Fall <br> Spring |  |  |


| Land Res. | 493 | Special Topics | Credits Arr. |
| :--- | :--- | :--- | ---: |$r$ Fall


| Land Res. | 693 | Spocial Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- | ---: |
|  | 694 |  | Credits Arr. | Spring |
| Land Res. | 697 | Thesis | Credits Arr. | Fall |
|  | 698 |  | Credits Arr. | Spring |

Admission by arrangement.

## LINGUISTICS

Ling. 381 Structural Linguistics and $(3+0) \quad 3$ 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 uarrants.

| Ling. | 285, 385 | Alaskan Eskimo | $(3+0)$ | 3 Credits | Fall |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 286, 386 |  |  | 3 Credits | Sprin |

Analysis of the living language with native speaker in the classroom. Learning to read and write the language. Admission by arrangement. Offered as demand warrants.

Ling. 388 Alaskan Athapaskan $(3+0) \quad 3$ Credits Spring
Athapaskan 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 <br> Credits Arr. <br> Fall <br> 486 <br> Credits Arr. <br> 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 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 $\mathbf{C}$ is received in the prerequisite course.
Math. 105 Intermediato Algobra $(2+3) \quad 3$ Credits Fall or Spring Elements of Set Theory, the natural numbers, integers, rational numbers, real numbers, inequalities, linear and quadratic equations, exponents, polynomials and functions.
Math. 106 College Algobra and Trigonomotry (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 $\langle 3+0\rangle \quad 3$ 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.
Math. 108 Trigonometry $(2+0) \quad 2$ Credits Fall or Spring Plane trigonometry with emphasis on the analytical and periodic properties of trigonometric functions. Prerequisite: Math. 105 or equivalent.
$\star$ Math. 109 Analytic Geometry ( $3+0$ ) 3 Credits Fall or Spring
Rectangular coordinate system, the straight line, conic sections, transcendental curves, polar coordinates, parametric equations, and solid analytic geometry. Prerequisite: High School trigonometry or Math. 108.
Math. 110 Mathematics of Financo (3+0) 3 credits Spring Simple and compound interest, discount, annuities, amortization, sinking funds, depreciation and capitalization. Prerequisite: Math 105 or by arrangement.
*Math. 111 Beginning Calculus $(3+0) \quad 3$ Credits Fall or Spring Sequences, limits, differentiation and applications, integration and applications, differentiation of algebraic and transcendental functions. Prerequisite: Math. 109.
Math. 121 Introduction to Modorn Algebra and Analysis $(4+0) \quad 4$ Credits

Fall
4 Credits Spring
First semester: Sets, logic, groups and fields, vectors, analytic geometry, relations and functions.
Second semester: Complex numbers, exponential functions, logarithmic functions, trigonometry.

Math. 200 Calculus (4+0)
201
202
4 Credits
Fall or Spring
4 Credits Fall or Spring
4 Credits 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 Math. 121.
Math. 302 Differential Equations ( $3+0$ )
3 Credits Fall
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 Fall A critical examination of the familiar real and complex number system from a postulational point of view, followed by generalizations to groups, rings, and fields.

* Not offered on college campus.

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, FORTRAN, and Algol. Directed primarily to needs of scientific and statistical calculation. Emphasis on individual use of the IBM 1620. Prerequisite: Math. 202 or Math. 204 or permission of instructor.
Math. 310 Numerical Analysis ( $3+0$ ) 3 Credits Spring Finite differences, numerical solutions of differential equations, relaxation methods, interpolation, equations and matrices. Prerequisite: Math 302 and Math. 309.
Math. 312 Numerical Methods for Engineers (3+0) 3 Credits
Spring
Numerical analysis 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.

Math. 314 Linear Algebra $(3+0) 3$ Credits Spring
Linear equations, 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
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 intormal and intuitive geometry and its relationship with number systems is included.

Math. 371 Probability ( $3+0$ ) 372

| 3 Credits | Fall |
| :--- | ---: |
| 3 Credits | Spring |

Definitions, sample spaces, combinatorial analysis, occupancy and ordering problems, conditional probability. Poisson bionominal and normal distributions, random variables, expectation, law of large numbers, characteristic functions. Prerequisite: Math. 202.

Math. 401 Advanced Calculus $(3+0) 3$ Credits Fall 4023 Credits Spring
Partial differentiation, vectors, Stieltjes integral, multiple integrals, line and surface integrals, series, convergence of improper integrals. Fourtier series. Prerequisite: Math. 202 or consent of instructor. To be offered in alternate years.

Math. 405 Applied Mathomatics $(3+0) 3$ Credits Fall 406 3.Credits Spring
Determinants and matrices, integrals, vector calculus, linear differential equations. Fourier series and integrals. Laplace transforms, network theory, random functions. Prerequisite: Math. 302 or consent of instructor. To be offered in alternate years.
$\begin{array}{llll}\text { Math. } 407 & \text { Mathematical Statistics } & (3+0) & 3 \text { Credits } \\ 408 & & 3 \text { Credits } & \text { Fall }\end{array}$
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. 409 Experimental Design $(3+0) \quad 3$ Credits Fall Methods of analyzing data; constructing and analyzing data; constructing and analyzing designs for experimental investigations; completely randomized, randomized block and Latin-square designs, split-plot design, incomplete block design, simple and partially compounded factorial designs, lattice and cubic lattice designs, treament of missing data, comparison of designs, Prerequisite: Math. 202. Offered as demand warrants.

Math. 415 Game Theory and Linear Programming ( $3+0$ )

3 Credits
Fall
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 $418 \quad 3$ Credits Spring
Differential geometry of curves and space in Euclidean three-space and extensions to Riemannian n-space.
Math. 421 Vector and Tensor Analysis ( $3+0$ ) 3 Credits Fall Fundamental operations on vectors and tensors, consideration of gradient, divergence, and cural; applications in physics and mechanics. Offered as demand warrants. Math. 471 Stochastic Processes $(3+0) \quad 3$ Credits Fall 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.
Credits Arr. Fall

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 494
Credits Arr.
Spring

Primarily for mathematics majors. Various topics studied.
Math. 601 Complex Function Theory ( $3+0$ ) 3 Credits Fall 602

3 Credits
Spring
Analytic functions, singularities, analytic continuation, integration, Reimann surfaces, the logarithmic function, conformal representation. Prerequisite: Math. 402 or by arrangement. Offered as demand warrants.

Math. 605 Real Function Theory (3+0) 3 Credits Fall 606 3 Credits Spring
Real number system, sequences, topological spaces, measure theory. Lebesque integral. Prerequisite: Math. 402, or by arrangement. Offered as demand warrants.
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 by arrangement. Offered as demand warrants.

Math. 609 Modern Algebra (3+0) |  | 3 Credits Fall |  |
| :--- | :--- | ---: |
| 610 | 3 Credits | Spring | $610 \quad 3$ Credits Spring

Groups, rings, fields, matrices, lattices, vector spaces, representation. Prerequisite: Math. 303. Offered as demand warrants.

| Math. 611 | Mathematics of Physics 2 Engineering | 3 Credits | 3 Credits |
| :---: | :---: | :---: | ---: |
| 612 | $(3+0)$ | Fall |  |

Infinite series, functions of several variables, algebra and geometry of vectors, matrices, vector field theory, partial differential equations, complex variables. Prerequisite: Math. 302. Offered as demand warrants.

Math. 693 Special Topics
694
Various subjects studied.
Math. 697 Thesis 698

Credits Arr.
Credits Arr.
Fall Spring

Credits Arr.
Fall Credits Arr. Spring

## MECHANICAL ENGINEERING

M.E. 302 Kinematics of Machines $(2+3) \quad 3$ Credits Spring Velocity and acceleration analysis of mechanisms and machines; principles of transforming and transmitting motion, including linkages, cams, gear, belts, chains, and trains of mechanism; dimensional synthesis. Prerequisite: Math. 202, E.S. 208. M.E. 321 Industrial Processes $(3+0) \quad 3$ 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. Prerequisite: 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. Prerequisite: E.S. 341, E.S. 346, M.E. 441.
M.E. 413 Mechanical Engineering

$$
\text { Thermodynamics }(3+0)
$$

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. Prerequisite: E.S. 346, E.S. 341.
M.E. 418 Power Analysis $(3+3) \quad 4$ 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 $(2+3) \quad 3$ Credits Fall or Spring Automatic control and instrumentation of equipment including mechanical, hydraulic, pneumatic, electric and electronic systems. As demand warrants. Prerequisite: Senior standing.

## METALLURGY

Mot. 304 Introduction to Motallurgy (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 $(0+6) \quad 2$ 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 Mefallurgy and Mefallography 4 Credits Spring $(3+3)$
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.
Mat. 493 Special Topics
Credits Arr.
Fall 494
Credits Arr. Spring

Various subjects studied, principally through directed reading and discussions. Admission by arrangement.

| Met. 693 | Special Topics | Credits Arr. | Fall <br> 694 |
| :--- | :--- | :--- | :--- |
| Credits Arr. |  |  |  |

Various subjects studied. Admission by arrangement.

## MINERAL PREPARATION ENGINEERING

M.Pr. 313 Introduction to Mineral Praparation (2+3) 3 Credits

Fall
Elementary theory and principles of unit processes of liberation, concentration are solid-fluid separation as applied to mineral beneficiation. Prerequisite: Junior standing or by permission.
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 scalc. Prerequisite: Min. Pr. 313.
M.Pr. 418 Emission Spectroscopy, X-ray Spoctroscopy
and Electron Mieroscopy $(2+3) \quad 3$ Credits Spring
Can be taken for an combination of Parts A, B, C.
M.Pr. 418A - Theory and application of emission spectrography; two, one hour classes; one three hour lab per week for five weeks. 1 Credit.
M.Pr. 418B - Theory and application of x-ray spectrograph; two, one hour

Classes; one three hour lab per week for five weeks. 1 Credit.
M.Pr. 418C - Theory and application of electron microscope; two, one
hour classes; one, three hour lab per week for five weeks. 1 Credit.
Admission by Arrangement.
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. Prerequisites: Min. Pr. 313.
M.Pr. 493 Special Topics
Credits Arr. Fall 494 Special Topics 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 ( $1+6$ ) 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 694
Various subjects studied. Admission by arrangement.

Credits Arr. Fall
Credits Arr. Spring
M.Pr. 695 Minoral Preparation Research $(1+6) 3$ Credits Fall 6963 Credits 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 |
| :--- | :--- | :--- | :--- |
| 698 | 3 Credits | Fall |  |
|  | 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.

## MILITARY SCIENCE

Mil. 101

102 First-Year Military Science \begin{tabular}{lll}

$(2+1)$ \& $11 / 2$ Credits \& | Fall |
| ---: |
| Spring |

\end{tabular}

First-uear basic: Organization of the Army; individual weapons and marksmanship; U.S. Army and National secunity; school of the soldier and exercise of command.
Mil. 201 Second-Year Milifary Science ( $2+1$ )
11/2 Credits
Fall
$202 \quad 1 \frac{1}{2}$ 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 |  | 3 Credits | 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 $(3+1) \quad 3$ Credits Fall 4023 Credits 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 thirty-six and one-half hours of flight; includes FAA flight check.

## MINING ENGINEERING

Min. 102 Mining Enginooring Systoms A, B, C $(4+0) 4$ Credits Spring Can be taken for 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 4 weeks. 1 Credit.
Min. 102B - Utilization and application of mining explosives. Four, one hour classes for 4 weeks. 1 Credit.
Min. 102C - Fundamentals of Mining systems for bedded, massive, vein and surface deposits. Four, one hour classes per week for 8 weeks. 2 Credits.
Min. 302 Mine Survoying $(2+3) \quad 3$ Credits Spring Surveying principles for surface and underground control of mining properties. Field and office procedures for preparation of maps and engineering data. Prerequisite: E.S. 112.
Min. 303 Mining Plant Engineering (3+3) 4 Credits Fall
Principles of mine ventilation, haulage, pumping and energy transmission systems. Prerequisites: Min. 102, Phys. 212 and E.S. 341 (concurrent).

Min. 306 Rock Mechanics $(2+3) \quad 3$ Credits Spring 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.
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 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. 405 Geophysical and Geochemical
Exploration $(2+3) \quad 3$ Credits Fall
Theory and techniques of geopoysical and geochemical exploration. Chemical, gravimetric, seismic, electrical, magnetic and radioactive measurements. Prerequisites: Chem. 202, Phys. 212.
Min. 408 Minoral 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.
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. Prerequisite: Senior standing and by permisston. Fee: Field trip expenses to be paid by student. Offered as demand warrants.

Min. 493 Special Topics Credits Arr. Fall 494 Special Topics Credits Arr. Spring
Various subjects studied, principally through directed reading and discussion. Admission by arrangement.
Min. 496 Mining or Mineral Research $(1+6) \quad 3$ Credits Spring Selected mining, mineral preparation or mineral economic research problems. Prerequisite: Senior standing or permission.
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.

Min. 691 Seminar 692

Credits Arr. Credits Arr. Fall Spring
Reading and report required. Admission by arrangement.
Min. 693 Special Toples 694
Various subjects studied. Admission by arrangement.
Min. 697 Thesis
698

Credits Arr.
Credits Arr.
Fall Spring

Credits Arr.
Credits Arr.

Fall
Spring

## MUSIC

APPLIED MUSIC

| Mus. | 101 | Chorus (0+3) | 1 Credit 1 Credit | Fall Spring |
| :---: | :---: | :---: | :---: | :---: |
| Mus. | 109 | R.O.T.C. Band ( $0+3$ ) | 1 Credit 1 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 <br> 1 Credit | Fall Spring |
| Mus. | 307 | Chamber Music ( $0+3$ ) | 1 Credit <br> 1 Credit | Fall Spring |
| Mus. | 313 | Opera Workshop (0+3, 6, or 9 ) | 1, 2, 3, Credits 1, 2, 3, Credits | Fall Spring |
| Mus. | 317 | Collegium Musicum (0+3) | 1 Credit <br> 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 towards graduation.

Mus. 151, 152 Class Lessons ( $0+3$ ) 1 Credit Fall
251, $252 \quad 1$ Credit Spring

Class instruction in piano, voice, or orchestral instrument.
Fees for Class lessons:
Practice Room Rental
$\$ 7.50$
Lesson Fee
$\$ 15.00$
Above fees waived for students enrolled in 7 or more credit hours and majoring or minoring in Music or Music Education.

| Mus. | 161,261 | Private Lessons | $(1+0)$ | 2 Credits | Fall and <br> Spring |
| :--- | :--- | :--- | :--- | :--- | ---: |
|  | 162,262 |  |  | 2 or 4 Credits | Fall and |
| Mus. | 361,461 | Private Lessons | $(1+0)$ |  | Spring |
|  | 362,462 |  |  |  |  |

Private instruction in piano, voice or orchestral instrument. Music majors who have certified to junior standing may enroll for 4 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 7 or more credit hours and majoring In Music or Music Education.
MUSIC THEORY AND HISTORY
Mus. 51 Music Fundamentals 3 Credits Fall
523 Credits Spring
Rudiments of music for students with little or no prior training in music reading.

Mus. 123 Introduction to Music $\quad(2+3) \quad 3$ Credits Fall
1243 Credits Spring
Cultivation of the understanding and intelligent enjoyment of music through a study of its elements, forms, and historical styles. Open to all students, including music majors.

| Mus. | 131 | Basic Theory | $(2+3)$ |
| :--- | :--- | :--- | :--- |
| 132 |  | 3 Credits | Fall |
|  |  | 3 Credits | Spring |

Rhythmic, melodic, and harmonic dictation; keyboard harmony, including resolution of figured bass; sight-singing and ear training; stylistic analysis of works of eighteenth and nineteenth century composers. Semesters must be taken in sequence.
Mus. 231 Advanced Theory $(2+3) \quad 3$ Credits Fall $232 \quad 3$ Credits Spring
Continuation of Music 131-132, which is prerequisite. Development of greater keyboard facility and more advanced harmonic vocabulary; analysis of works by some twentieth century composers. Semesters must be taken in sequence.

Mus. 293 Special Topics
Credits Arr.
Fall
294
Credit Arr.
Spring

Various subjects. Admission by arrangement.
Mus. 321 Hisfory of Music $\quad(3+0) \quad 3$ Credits Fall $322 \quad 3$ Credits Spring
Fall Semester: Music before 1750. Spring Semester: Music since 1750.
Prerequisite: Music 232 or permission of instructor.
Mus. 331 Form and Analysis $(1+3) \quad 2$ Credits Fall
332
2 Credits 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: Music 232 or consent of the instructor. Semesters must be taken in sequence.

Mus. 351 Choral Conducting ( $2+0$ )
2 Credits
Fall
Principles of conducting and interpretation with vocal ensembles. Prerequiste: Music 232.

Mus. 352 Instrumental Conducting (2+0) 2 Credits Spring Principles of conducting and interpretation with instrumental ensembles. Prerequisite: Music 232.
Mus. 393 Special Topics
Credit Arr.
Fall
394
Credit Arr.
Spring
Various subjects. Admission by arrangement.
Mus. 431 Counterpoint $(3+0) \quad 3$ Credits Fall
The contrapuntal style and techniques of the sixteenth century, acquaintance with species counterpoint. Prerequisite: Music 232.
Mus. 432 Orchestration and Arranging (3+0) 3 Credits Spring Principles and practices of instrumentation and arranging for vocal and instrumental ensembles.

| Mus. 491 | Senior Seminar | $(2+0)$ | 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 <br> Spring |
| :--- | :--- | :--- | ---: |
| Various subjects. Admission by arrangement. | Credit Arr. |  |  |
| Mus. 693 | Special Topics |  |  |
|  | 694 |  | Credit Arr. |

Various subjects. Admission by arrangement.

Mus. | 315 | Instrumontal Methods and Techniques (1+3) | 2 Credits |
| :--- | :--- | :--- |
|  | 316 | 2 Credits |

Playing and teaching of band instruments. Fall Semester: Brass instruments. Spring Semester: Woodwinds. Prerequisite: Music 232 or permission of instructor.
Mus. 309 Elementary School Music Methods (3+0) 3 Credits Fall or Spring
Principles, procedures, and materials for teaching music to children at the elementary level. Prerequisite: Ed. 313 and prerequisites thereto.
Mus. 405 Mothods of Teaching Music (3+0) 3 Credits As demand warrants
See description under Ed; 405, Methods of Teaching Music.
Mus. 415 Instrumental Methods and Techniques (1+3) $\begin{array}{lll}2 \text { Credits Fall } \\ & 416\end{array}$
Playing and teaching of string instruments. Fall Semester: Violin and Viola. Spring Semester: Cello and Bass. Prerequisite: Music 232 or permission of instructor.

## OCEANOGRAPHY \& OCEAN ENGINEERING

## OCN 411 General Oceanography 3 Credits

Description to 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 status in a disciplinary science, mathematics or engineering.
OCN 613 Marine Geology 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 status in Geology or appropriate interdisciplinary programs; or by permission of the instructor.
OCN 620 Introduction to Physical Oceanography 3 Credits
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.

Theories of ocean circulation, wind currents and boundary currents. Topographic influences on currents, origin of water masses, instruments and observations. Prerequisites: OCN 620.

## OCN 620 Estuarine Dynamics 3 Credits

Physical and chemical properties of estuarine waters including kinematics and dynamics of motion. Classification of estuaries by geomorphological and oceanographic parameters. Prerequisites: Introduction to Physical Oceanography 620 and Math 302.

## OCN 650 Introduction to Biological Oceanography 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 <br> 3 Credits

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 and 332, or permission of instructor.

## OCN 663 Chemical Oceanography II 3 Credits

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. Prerequisites: Chemical Oceanography I, or permission of the instructor.

| OCN | 690 | Colloquium | 3 Credits |
| :--- | :--- | :--- | :--- |
| OCN | 691 | Seminar | 3 Credits |
|  | 692 |  |  |
| OCN | 693 | Special Topics | 3 Credits |
|  | 694 |  |  |
| OCN | 697 | Thesis | 3 Credits |
|  | 698 |  |  |
| OCE | 670 | Waves and Tides | 3 Credits |

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 Credits

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 Credits

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 Credits
Review of deep and shallow water waves, littoral drift, coastal structures, pollution problems, harbor seiches. Prerequisite: OCE 670 - Waves and Tides.

## OCE

680 Ocean Engineering Field Work
3 Credits
Field experience either on a vessel or at an ocean englueering site selected by the student in consultation with his graduate committee. Usual duration of the field work is approximately two months.

## OFFICE ADMINISTRATION

O.A. 61 Clerical Skills $\quad(3+0) \quad 3$ Credits Fall Instruction in various duplicating processes, filing, responsibilities and duties of a clerical worker.
O.A. 63 Adding and Caleulating Machines $(1+2) 3$ Credits Spring or Fall Basic operation of adding and calculating machines.
O.A. 65 Dictaphone Transeription $(3+0) \quad 3$ Credits Fall

Transcription from various voice-writing machines with special emphasis on spelling, word choice, and grammar.
O.A. 66 Dictaphone Transcription $(3+0) \quad 3$ Credits Spring Transcription training, with emphasis on mailable material and efficient office routine and setting up letters.

| O.A. | 93 | Special Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- | ---: |
|  | 94 | Special Topics | Credits Arr. | Spring |
| O.A. | 99 | Office Practice | $(2+10)$ | 6 Credits |

Same as O.A. 299

| O.A. 101 | Shorthand | $(2+2)$ | 3 Credits |
| :--- | :--- | :--- | :--- |
| 102 | 3 Credits | Fall |  |
|  |  | Spring |  |

Beginning Gregg Shorthand for secretarial students. Theory and reading practice first semester; dictation and transcription practice second semester.
O.A. 103 Elomentary Typowriting $(2+2) \quad 2$ Credits Fall or Spring Basic typewriting skills, techniques of copy work and introduction to letter writing and simple tabulations. For students who have had no previous typewriting.
O.A. 105 Infermediate Typewriting (2+2) 2 Credits Fall or Spring Speed development and application of typewriting skill to special letter problems, tabulations and office problems. Prerequistte: 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. Prerequisite: O.A. 105 or equivalent and speed of $\mathbf{4 0}$ words per minute.
O.A. 107 Advanced Dictaphone Transcription(3+0)3 Credits Fall or Spring Advanced transcription training with emphasis on mailability, speed, meeting deadlines, and working under pressure.
O.A. 193 Special Topics

194 Spactal Toples 194
O.A. 201 Intormediate Stenography (2+2) 202 Advanced Stenography

| Credits Arr. | Fall |
| :--- | ---: |
| Credits Arr. | Spring |
| 3 Credits | Fall |
| 3 Credits | Spring |

High speed shorthand dictation and transcription. Prerequisite: O. A. 102 and O. A. 106 or equivalent.
O.A. 203 Offico 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 ( $3+0$ ) 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. 293 Special Topics
Credits Arr.
Fall 294
O.A. 299 Office Practice $(2+10)$
Credits Arr.
Spring

Actual office experience. Students are required to work in selected offices on campus for 10 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. Prerequisite: By permission of instructor.
O.A. 302 Secratarial Training $(3+0) \quad 3$ 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 2 credits to be earned by any student.
O.A. 360
C.P.S. Coaching
$(3+0)$
3 Credits Fall or Spring

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 approval of instructor.
O.A.

393 Special Topics
Credits Arr.
Fall
394 Special Topics
O.A. 493 Special Topics Special Topics
O.A. 499 Office Practice ( $2+10$ )

Credits Arr. Spring
Credits Arr. Fall
Credits Arr. Spring
6 Credits Spring
Description same as O.A. 299.

## PHILOSOPHY

Phil. 201 Infroduction to Philosophy ( $3+0$ ) 3 Credits Fall and Spring
Terms, concepts and problems as reffected in writings of great philosophers. Prerequisite: Engl. 102, Sophomore standing and permission of instructor.
Phil. 204 Introduction to Logic $(3+0) \quad 3$ Credits Spring
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. Three classes 1 hour.
Phil. 321 Aesthetics $(3+0) \quad 3$ 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 1969-70.
Phil. 341 Epistemology $\quad(3+0) \quad 3$ Credits Fall
The nature of knowledge, truth and certainty; Offered in alternate years, next offered 1968-69. Prerequisite: Phil. 201.
Phil. 342 Metophysics $(3+0) \quad 3$ Credits Spring
The nature of reality comprising both ontology and cosmology. Offered in alternate years, next offered 1968-69. Prerequisite: Phil. 201.
Phil. 351 History of Philosophy (3+0) 3 Credits Fall Ancient and Medieval periods. Prerequisite: 6 credits in Philosophy or Social Science. Phil. 352 Hisfory of Philosophy $\quad(3+0) \quad 3$ Credits Spring Renaissance, Modern, and Recent periods. Prerequisite: 6 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: 9 credits in Philosophy or permission of instructor.
Phil. 481 Philosophy of Scienco $\quad(3+0) \quad 3$ Credits Fall
Comparison and discussion of various contemporary methodological positions. Prerequisite: Junior standing.
Phil. 482 Comparative Religion $(3+0) \quad 3$ Credits Spring
Seven world faiths represent answers to questions of man's duty, his destiny, and his nature. Prerequisite: Permission of instructor.
Phil. 484 Philosophy of History $(3+0) \quad 3$ Credits Spring
Critical examination of the nature of history and historical inquiry. Prerequisite: 9 credits in Philosophy or Social Sctence.

| Phil. 493 | Spocial Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- |
| 494 | Credits Arr. | Spring |  |

Various subjects Credits arranged.

## PHYSICAL EDUCATION

P.E. 100 Physical. Education Activities $(0+3) \quad 1$ 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 Fundamontals of Sports - Tennis and Badminton $\quad(0+2)$

1 Credit
Fall
Skills, rules, strategies, terminology of tennis and badminton.

## P.E. 211 Fundamentals of Sports - Volleyball

 and Soccer ( $0+2$ ) 1 CreditSpring
Skills, rules, strategies, terminology of Volleyball and Soccer.
P.E. 212 Fundamentals of Sports - Recreational

Activities $\quad(0+2) \quad 1$ 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 Fall 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 Fundamontals of Sports - Tumbling
and Gymnastics (Men) $\quad(0+2) \quad 1$ Credit Fall
Skills, techniques, terminology of tumbling and gymnastics.
P.E. 216 Fundamentals of Sports - Rhythms $(0+2) 1$ Credit Spring Skills, terminology and basic patterns of movement.
P.E. 217 Fundamontals of Sports - Tumbling and

Apparatus Gymnastics (Women)( $0+2$ ) 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 $(2+0) \quad 2$ Credits Fall or Spring Knowledge and skills necessary to provide efficient aid and treatment in emergencies.
$\begin{array}{ccc}\text { P.E. } 301 & \begin{array}{c}\text { Techniques in Physical Education - Basketball } \\ (M 2) \\ (2+1)\end{array} & 2 \text { Credits }\end{array} \quad$ Fall
Methods of coaching and training basketball teams; strategy, methods, and psychology of offense and defense.
P.E. 302 Techniques in Physical Education - Track and Field $\quad(2+1)$

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.
P.E. 303 Techniques in Physical Education - Team
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 $\quad(2+3) \quad 3$ 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. Prerequisite: Ed. 313 and prerequisite thereto.
P.E. 311 Principles of Physical Education $(4+0) \quad 4$ Credits Fall

Basic principles and philosophy of physical education; its relation to general education; biological, sociological, and psychological bases.
P.E. 331 Sports Officiating $(1+3) \quad 2$ Credits Fall

Ethics of sports officiating; mastery, interpretation and application of sports rules; laboratory consists of game officiating in the intramural program.
P.E. 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.

## P.E. 400 Techniques in Physical Education - Tumbling

and Gymnastics $\quad(2+1) \quad 2$ Credits Spring
Methods and practice in teaching túmbling and gymnastics. Prerequisite: P.E. 215 or P.E. 217.
P.E. 401 Techniquas in Physical Education - Aquatics
and Rhythms $\quad(2+1) \quad 2$ Credits Fall
Methods and materials, techniques and practice in teaching aquatics and rhythms. Prerequisite: P.E. 213 and P.E. 216.

## P.E. 425 Organization and Administration of

Physical Education $\quad(3+0)$
3 Credits
Fall
Philosophy, methodology and problems of planning, organizing and directing the total physical education program at the secondary school level.
P.E. 440 Prevention and Care of Athletic

Injuries $\quad(2+1)$
2 Credits
Spring
Athletic injuries; practical and theoretical aspects of taping, bandaging and massage; physical therapeutic procedures.

## PHYSICS

Phys. 103 College Physics $(3+3)$ 104

4 Credits
Fall
4 Credits
Spring
Unified classical and modern physics. Prerequisite: High school algebra and geometry.

Phys. 211 General Physics $\quad(3+3) \quad 4$ 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
276
3 Credits
Spring
Science elective for the general student. Fall: Stellar astronomy. Nature of radiation, physical properties and distribution of stars, galactic structure and cosmology. Spring: 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 Techniquo ( $0+3$ )
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 instructor.

Phys. 281 Astronomy Laboratory $(0+3) \quad 1$ 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.

Phys. 301 Applied Physics $(2+3) \quad 3$ Credits Fall 302 3 Credits Spring Applied physics for majors in the arts, biological sciences, and education. Electronics, atomic structure and spectra, nuclear structure and reactions, radioactivity, tracer techniques, nuclear power. Prerequisite: Phys. 104, Math. 102.

| Phys. | 311 | Classical Physics | $(4+0)$ | 4 Credits |
| :--- | :--- | :--- | :--- | ---: |$\quad$ Fall

Selected topics from mechanics, thermodynamics, kinetic gas theory, statistical mechanics, acoustics, geometric and physical optics. Prerequisites: Phys. 212, Math. 202, or permission of instructor. Physics 312 and 313 are offered in alternate years in the spring.
$\begin{array}{lllll}\text { Phys. } & 331 & \text { Electricity and Magnetism } & (3+0) & 3 \text { Credits } \\ & 332\end{array}$ Electrostatics, dielectrics, magnetostatics, magnetic materials, electromagnetism. Maxwell's equations, plane electromagnetic waves, radiation, selected topics from circuit theory and electronics. Prerequisite: Phys. 212, Math. 202.

Phys. 351 Introduction to Dynamic Meteorology 3 Credits Fall 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. Prerequisite: Math. 201 and Math. 202 taken concurrently.

Phys. 361 General Geophysics $(3+0) \quad 3$ Credits Fall 362

3 Credits Spring
Introduction to basic geophysics including terrestrial electricity and magnetism, meteorology and seismology, geodesy and vulcanology, glaciology, oceanography and techtonophysics. Prerequiste; Junior standing. Phys. 104 or 212, Math. 102, one semester of Geology. Offered as demand warrants.
Phys. 381 Physics Laboratory Credits Arr. Fall 382 Credits Arr. Spring
Laboratory experiments illustrating and supplementing Phys. 311-313, and Phys. 331-332. Enrollment limited. Prerequisite: Permission of Instructor.

Phys. 411 Modern Physics $(3+0)$ Fall 412 3-4 Credits Spring
Relativity, elementary particles, atomic structure, x-rays, solid state physics, nuclear structure and reactions. Engineering majors take the 3 credits lecture course only. Physics majors are required to take a supplementary 1 credit reading course. Prerequisite: Physics 212, 332, Math. 302.

Phys. 445 Solid State Physics $(3+0) \quad 3$ Credits Fall Theory of matter in the solid state, especially semiconductors. Prerequisite: 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. Prerequisite: Phys. 212, Math. 202. Offered as demand warrants.

Phys. 460 Geophysical Prospecting $(2+3) \quad 3$ Credits Fall or Spring Basic Methods in geophysical exploration and measurements, gravimetric, seismic, electrical magnetic and radioactive. Prerequisite: Phys. 212, Geol. 101, 102, and 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. Prerequisite: Phys. 104 or 212, Math. 102. Offered as demand warrants.

Phys. 470 Astronautics $(3+0) \quad 3$ Credits Fall or Spring Principles of astronomy, foundations of mechanics, and dynamics of space flight Prerequisite: Phys. 212, Math. 202. Offered as demand warrants.

Phys. 475 Astrophysics $(3+0) 3$ Credits Fall or Spring Introduction to stellar spectroscopy, atomic theory and astrophysics, stellar luminosities. luminosities, atmospheres and interior, energy production and evolution of the stars. Admission by arrangement. Offered as demand warrants.


#### Abstract

Phys. 481 Advanced Physics Laboratory Credits Arr. Fall Spring Laboratory experiments illustrating and supplementing Phys. 411, 412, 445, 455, 475. Enrollment limited. Prerequisite: Permission of instructor.


Phys. 485 Experimental Physics \begin{tabular}{l}
Credits Arranged <br>
486

 

Fall <br>
Spring
\end{tabular}

Credits Arranged Spring
Senior projects in experimental physics. Enrollment limited. Prerequisite: Senior standing and permission of instructor.

Phys. 491 Physics Seminar Credits Arranged Fall 492 Credits Arranged Spring
Seminar courses in various topics selected according to needs and interest of students. Primarily for physics majors. Prerequisite: Permission of instructor.

Phys. 493 Special Topics $\begin{aligned} & \text { Credits Arranged } \\ & 494\end{aligned} \begin{array}{r}\text { Fall } \\ \text { Credits Arranged }\end{array}$
Various subjects. Admission by arrangement.
Phys. 600 Roviow of Physics
Credits Arr. Fall or Spring
A reading course in theoretical physics to review and unify from an advanced standpoint the material of the basic physics courses. Primarily for advanced students. Admission by arrangement. Offered as demand warrants.

Phys. 610 Mathematical Physics $(3+0) 3$ Credits Fall or Spring Linear spaces, operator theory, generalized functions, variational methods in theoretical physics, Prerequisite: Math. 612 or permission of instructor. Offered as demand warrants.

Phys. 611 Theoretical Physics $(3+0) \quad 3$ Credits $\quad$ 3 Credits $\quad$| Fall |  |  |
| ---: | :--- | ---: | ---: |
| 612 |  | 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 mechanies, matrices, perturbation theory; atomic structure, statistical physies, asymptotic expansions. Admission by arrangement.

Phys. 620 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. 621 Classical Mechanics (3+0) 3 Credits Fall Lagrange's equations, two-body problem, rigid bedy motion, special relativity, canonical equations, transformation theory and Hamilton-Jacobi method. Admission by 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 $(3+0) \quad 3$ Credits Spring Fundamental equations of magnetohydrodynamics, magnetohydrodynamic waves. Invariants of the motion of a charged particle in a magnetic field. Dynamics of a plasma, plasma waves. Admission by arrangement. Offered as demand warrants. Phys. 631 Electromagnotic Theory $(3+0) \quad 3$ Credits Fall 632

3 Credits 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 $(3+0) \quad 3$ Credits Fall or Spring Selected topics from ionospheric absorption, diffraction and scattering of radio waves. Admission by arrangement. Offered as demand warrants.
Phys. 651 Quantum Mechanics $(3+0) \quad 3$ Credits Fall
Schrodinger's equations, operator tormalism, correspondence principle, central force problems, matrix representations, perturbation theory, quantum-statistic mechanics. Admission by arrangernent.
Phys. 652 Applied Quantum Mechanies (3+0) 3 Credits Spring
Applications of quantum mechanics to collision problems, radiation and spectroscopy. Prerequisite: Phys. 651 or consent of instructor. Offered as demand warrants. rants.
Phys. 655 Nuclear Physics $(3+0) \quad 3$ 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 $(3+0) \quad 3$ 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 tho Upper
Atmosphero $(2+0) \quad 2$ Credits Spring
Aerostatics, composition. Kinetic theory. Properties, viscosity, thermal conductivity 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 lonospheric Phenomena $(2+0) \quad 2$ 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 $(2+0) \quad 2$ 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 $\quad(2+0) \quad 2$ 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 Mefoorology $(3+0) \quad 3$ Credits Fall or Spring Atmospheric statics, thermodynamics, radiation and dynamics; atmospheric turbulence; general circulation; perturbation theory. Admission by arrangement. Offered as demand warrants.

Phys. 670 Solar Physics $\quad(3+0) \quad$ Credits 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 $\quad(2+0) \quad 2$ 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.

Phys. 675 Radio Astonomy (3+0)
3 Credits Fall or Spring
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. 681 Genoral Laboratory Credits Arranged Fall 682 Credits Arranged Spring
Basic laboratory experiments in physics for graduate students. Admission by arrangement.

Phys. 683 Experimental Electronics Credits Arranged Fall 684 Credits Arranged Spring
Advanced work in experimental electronics, particularly low noise receivers; design, construction, and stablization of parametric and tunnel diode devices. Admission by arrangement. Offered as demand warrants.

Phys. 685 Experimental Physics 686

Credits Arranged Fall Credits Arranged Spring
Advanced work in experimental physics. Admission by arrangement. Offered as demand warrants.
Phys. 690 colloquium

0 Credits $\quad$ Fall or | Spring |
| :--- |
| Credits Arranged |
| Fredits Arranged |$\quad$ Spring

Various topics. Admission by arrangement.
Phys. 693 Special Topics
Credits Arranged
Fall 694

Credits Arranged Spring
Various subjects. Admission by arrangement.
Phys. 697 Thesis or Dissortation
698
Phys. 770 Theoretical Astrophysics (3+0)

| Credits Arranged | Fall |
| :--- | ---: |
| Credits Arranged | Spring |

Radiative transfer and stellar hydrodynamics; theory of continuous and line spectrum from stellar atmospheres; solar photosphere, chromosphere and corona. Admission by arrangement. Offéred as demand warrants.

## POLITICAL SCIENCE

P.S. 101 Introduction to American Government and3 Credits
Fall
102 Political Science $(3+0) \quad 3$ Credits Spring
U.S. Constitution and its philosophy; evolution of the branches of government; political process; contemporary political issues; goals, methods, and levels of government.
P.S. 193 Special Topics
Credits Arr.
Fall
194
Credits Arr.
Spring
P.S. 201 Comparative Politics: The Political Process ( $3+0$ )

3 Credits
Fall
Different constitutional molds in which the political process operates; the effect on political processes of modern techniques; and emerging political forms.
P.S. 202 Comparative Politics: Case Studies $(3+0) 3$ Credits Spring

Case studies from selected nations grouped into four classes; Western Democracies, Russian Communism, Chinese Communism, and "emerging" nations.
P.S. 211 State and Local Government (3+0) 3 Credits Fall or Spring

Organization and politics of State and local government in the United States; the Alaskan Constitution; and problems of statehood in Alaska. Prerequisite: P.S. 101.

| P.S. 293 | Special Topics | Credits Arr. | Fall |
| :--- | :--- | :--- | ---: | ---: |
| 294 | Special Topics | Credits Arr. | Spring |
| P.S. 301 | Public Administration $(3+0)$ | 3 Credits Fall or Spring |  |
| Techniques and problems of administering public policy. The changing role of |  |  |  |
| the Executive Branch in the political process. Prerequisite: P.S. 101. |  |  |  |

P.S. 321 International Affairs $(3+0) \quad 3$ Credits Fall

322 International Affairs: Case Studies (3+0) 3 Credits Spring
Development of internationalism in relation to nationalism and imperialism; attempts at world government. The League of Nations and the United Nations. International Law. The role of national governments in the development of foreign policy.
P.S. 332 Infernational Law and Organization 3 Credits Fall or Spring Development, structure, policies and problems of public international law and organizations. Accomplishments and limitations of universal and regional organizations and law.

| P.S. | 393 | Special Topics |  | Credits Arr. | Fall |
| :--- | :--- | :--- | :--- | :--- | ---: |
|  | 394 |  | Credits Arr. | Spring |  |
| P.S. | $\mathbf{4 0 1}$ | Political Behavior | $(3+0)$ | 3 Credits | Fall |
|  | $\mathbf{4 0 2}$ |  |  | 3 Credits | Spring |

Behavior of political organizations, parties, groups, politicians and individual citizens. Prerequisite: P.S. 101 and 102.

| P.S. 411 | Political Theory | $(3+0)$ | 3 Credits | Fall |
| :--- | :--- | :--- | :--- | ---: |
| 412 |  | Credits | Spring |  | Ancient, classical, medieval and modern political concepts, and their effects on political behavior.

P.S. 415 Recent Political Thought $(3+0) \quad 3$ Credits Fall or Spring A discussion of the contributions of modern thinkers to political theory.
P.S. 434 American Constitution $(3+0) \quad 3$ 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) <br> 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 | 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 and human behavior.

Psy. 102 Introduction to Psychology (3+0) 3 Credits Spring The principal areas of general psychology. A continuation of Psy. 101. Prerequisite: Psy. 101.

Psy. 205 Statistics for Behavioral Sciences (3+0) 3 Credits Fall or Spring 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. Requires high school algebra.
Psy. 209 Social Psychology (3+0) 3 Credits Fall
Social influences on human behavior. Prerequisite: 6 hours in Psy. and/or Soc.
Psy. 213 Experimental Psychology 3 Credits Fall
Supervised experiments in sensory psychology and animal and human learning. Data collection and analysis; report writing. Prerequisite: Psy. 101 and 102, and Psy. 205.

Psy. 214 Experimental Psychology (2+3) 3 Credits Spring Continuation of Psy. 213. Experimental design and experiments in interpersonal relations and psychodynamics. Prerequisite: Psy. 213.
Psy. 252 Psychology of Adolescence $(2+3) \quad 3$ Credits Spring Mental, 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 instructor.
Psy. 303 Industrial Psychology $(3+0) \quad 3$ Credits Fall Job and worker analysis, selection, training, fatigue, worker adjustment, morale, labor-management relations. Prerequisite: Psy. 101 and 102 or permission.

Psy. 304 Abnormal Psychology ( $3+0$ ) 3 Credits Spring Abnormalities of human behavior. Prerequisite: Psy. 101 and 102.
Psy. 305 Child Development $(2+9) \quad 5$ Credits Fall and Spring
(Same as H.E. 305)
Theory and laboratory of human mental, emotional, social, and physical development. Prerequisite: Psy. 101, 45 collegiate credits, and permission of instructor.
Psy. 312 Comparative and Physiological Psychology ( $3+0$ )

3 Credits Spring
Neural and hormonal basis of behavior; evolution of sensory, motor, and cerebral systems; inter-species comparisons; current research methods in these areas. Prerequisite: Psy. 101 and 102, and Biol. 105 and 106.
Psy. 321 Psychological Testing $(3+0) \quad 3$ Credits Spring
Standardized psychological tests in various applied areas -- administration, scoring, and interpretation of established tests. Prerequisite: Psy. 101 and 102.
Psy. 392 Porception in Human Behavior (3+0) 3 Credits Spring Physiological, developmental, and social effects on interpretation of sensory processes. Prerequisite: Psy. 101 and 102.
Psy. 406 Theories of Personality $\quad(3+0) \quad 3$ Credits Spring Current psychological theories, with a critical examination of the different approaches used in theory construction. Admission by arrangement.
Psy. 421 Psychology of Learning $\quad(3+0) \quad 3$ Credits Fall Theories of human and animal learning. Prerequisite: Psy. 101 and 102.

Psy. 434 Social Science Research Methods (3+0) 3 Credits
Spring (Same as Soc. 434)
Techniques of social research - sampling, questionnaire construction, interviewIng and data analysis in surveys; field and laboratory experiments; attitude scaling. Prerequistes: Psy. 101 and 102, or Soc. 101 and 102.
Psy. 491 Seminar in Human Behavior $\quad(2+0) \quad 2$ Credits Fall (Same as Soc. 491)
Integrated behavioral approach emphasizing the major sociological and psychological theories with special attention to current literature. Prerequisite: Major in sociology or psychology or permission of instructor.
Psy. 493 Spocial Topies 494
Various subjects. Admission by arrangement.

## RUSSIAN

Russ. 101 Elementary Russian $\quad(5+0) \quad 5$ Credits Fall 1025 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.
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 2 years of high school Russian.
Russ. 321 Studies In Russian Literature (3+0) 3 Credits Fall $322 \quad 3$ Credits 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 $(3+0) \quad 3$ Credits Fall or Spring 1023 Credits Fall or Spring Man's relationship to the society in which he lives.

- Functions and development of modern social welfare and the distinctive features of the profession.


## Soc. 201 Social Problems 3 Credits Fall

Problems of contemporary society; analysis of factors giving rise to them. Prerequisite: Soc. 101 and 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 and 102.

Soc. 207 Population $\quad(3+0) \quad$ Credits

- 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. Prerequisite: Soc. 101 and 102.

Soc. 209 Urban Sociology $\quad 3$ 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. Prerequisite: Soc. 101 and 102.

## Soc. 232 Family and Society (3+0) 3 Credits Spring

The family as a social institution; its dynamics in the socialization process; social change and social values. Prerequisite: Soc. 101 and 102.
Soc. 302 Minority and Ethnic Groups $(3+0) 3$ Credits Spring
Social stratification; the status of the chief minorities in the continental United States; development and effects of selective immigration, assimilationism, racism. Prerequisite: Soc. 101 and 102.

Soc. 304 Culture and Personality (3+0) 3 Credits Spring

- Theories of relation of variation in personality to culture and group life in primitive and modern societies; influence of the social role on behavior. Prerequisite: Soc. 101 and 102.

Soc. 306 Community and Ecology $(3+0) 3$ Credits Spring Modern, industrial, centralized society, and institutional structure of community life - political, economic, religious - with reference to internal structure and external sources of control and domination. Prerequisite: Soc. 101 and 102.

Soc. 308 Field Practice Community Service Laboratory

Credits Arr. Fall or Spring
Individual programs of self-help projects dealing with community needs and resources; theoretical analysis of experienced situations; learning through laboratory method. Prerequisite: Soc. 101, 102, 106, 205, or by arrangement.

Soc. 321 Introduction to Social Work (3+0) 3 Credits Fall Scope and methods of social work with its specialized treatment and process areas. Prerequisite: Soc. 101 and Psy. 101.

Soc. 322 Introduction to Social Work (3+0) 3 Credits Spring Historical and philosophical development of social work as an institution and profession in the United States and abroad. Prerequisite: Soc. 101 and Psy. 101.
Soc. 345 Sociology of Education $(3+0) \quad 3$ 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. 401 Sociology of Deviant Bohavior (3+0) 3 Credits Fall Crime and criminality in American Culture. Prerequisite: Soc. 101 and 102.
Soc. 404 Sociology of Adolescence $\quad(3+0) \quad 3$ Credits Spring Motivations, attitudes, beliefs, behavior of this age group, including delinquent or norm-violating behavior. Prerequisite: Soc. 101 and 102. Offered in alternate years.

## Soc. 405 Social Change $(3+0) 3$ Credits Fall

Social change in long-time perspective, with emphasis on social movements. Prerequisite: Soc. 101 and 102.
Soc. 410 Sociology Theory $\quad 3+0) \quad 3$ Credits Spring
Major sociological theories and theorists of Western civilization; review of important contributions and approaches of various "national schools" with emphasis on current American and European trends.
Soc. 434 Social Science Research Methods (3+0) 3 Credits Spring (Same as Psy. 434)
Techniques of social research - sampling, questionnaire construction, interviewing and data analysis in surveys; field and laboratory experiments; attitude scaling. Prerequistte: Psy. 101 and 102, or Soc. 101 and 102.
Soc. 491 Seminar in Human Bohavior ( $2+0$ ) 2 Credits Fall (Same as Psy. 491)
Integrated behavioral approach emphasizing the major sociological and psychological theories with special attention to current literature. Prerequisite: Major in sociology or psychology, or permission of instructor.

Soc. 493 Special Topics 494

Credits Arr.
Credits Arr.
Fall Spring

## SPANISH

Span. 101 Elementary Spanish (5+0) 5 Credits Fall 102
Development of the four skills (listening comprehension, speaking, reading, and writing) with emphasis on oral work, practice in the language laboratory, basic grammar, and vocabulary.
Span. 201 Infermediate Spanish (3+0) Fall 3 Credits 2023 Credits Spring
Continuation of Span. 102. Increasing emphasis on reading ability and cultural material. Conducted in Spanish. Prerequisite: Span. 102 or 2 years of high school Spanish.

Span. 203 Composition and Conversation (2+0)2 Credits Fall 204

2 Credits
Spring
Supplements Span. 201/202, stressing written and oral practice. Conducted in Spanish. Concurrent enrollment in Span. 201/202 recommended. Prerequiste: Span. 102 or equicalent.
Span. 301 Advanced Spanish $\quad(3+0) \quad 3$ Credits Fall $302 \quad 3$ Credits Spring
Discussions and essays on more difficult subjects or texts, translations, stylistic exercises, special grammatical problems, systematic vocabulary building. Conducted in Spanish. Prerequisite: Span. 202 or equivalent. Next offered 1969-70.
Span. 321 Studies in Spanish Litarature (3+0) 3 Credits Fall 322

3 Credits
Spring
Choice of authors, genres, or periods of Spanish literature for intensive study. Conducted in Spanish. Prerequisite: Span. 202 or equicalent. Students may repeat course for credit when topic varies.
Span. 437 Literature of the Golden Age (3+0) 3 Credits Fall
Close study of outstanding literary works in different genres. Conducted in Spanish. Next offered 1969-70.
Span. 493 Special Topics Credits Arr. Fall
494
Credits Arr. Spring
Various subjects for advanced students. Admission by arrangement. Offered as demand warrants.

## SPEECH

Sp. 68 Elementary Public Spoaking $1 \quad(2+0) \quad 2$ Credits Fall or Spring Elementary speech composition.
Sp. 69 Elementary Public Speaking II $(2+0) \quad 2$ Credits Fall or Spring Elementary speech composition.
Sp. 111 Public Speaking $1 \quad(1+2) \quad 2$ Credits Fall or Spring Fundamentals of oral communication. Theory and practice of exposition and persuasion.
Sp. 122, 322 Theater Practicum (0+var.) 1-3 Credits Fall
222, 422 Spring
Participation in Drama Workshop or Lab Production as performer or technical staff member.
Sp. 212 Public Speaking II $(2+0) \quad 2$ 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 Debato Practicum (0+2) 1 Credit 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 8 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 $1 \quad(1+4) \quad 3$ Credits Fall or Spring
Principles of acting developed through pantomime, improvisation and sense-memory. Prerequisite: Sp. 221 or by arrangement.
Sp. 231 Introduction to Broadeasting $(3+0) \quad 3$ Credits Fall or Spring A survey of radio and television, with emphasis on the history, financing, regulation, and operation of the broadcasting industry.
Sp. 237 Announcing $\quad(1+2) \quad$ Credits Fall or Spring Microphone techniques, role of the announcer in broadcasting. Fundamentals of announcing; their practical application. Prerequisite: Sp. 111 or by arrangement.
Sp. 239 Radio Operations $(0+3) \quad 1$ 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 $\quad(1+2) \quad 2$ Credits Spring
Nature and operation of discussion groups; use of evidence, reasoning, reflective thinking, group psychology, participant and leader behavior.
Sp. 315 Phonetics $\quad(2+0) \quad 2$ Credits Fall or Spring Use of the International Phonetic Alphabet; assimilation and dialectal problems; use in acting, teaching, speech improvement. Prerequisite: Sp. 111 or by arrangement. Offered as demand warrants.
Sp. 316 Voice and Diction $\quad(1+2)$ 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 by arrangement.
Sp. 317 Oral Inferpretation $\quad 3$ 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 by arrangement.
Sp. 323 Acting II $\quad 3$ Credits Fall or Spring Building a character; role study and performance of small scenes. Prerequisite: Sp. 221, 223, or by arrangement.
Sp. 325 Theater Production $(1+4) \quad 3$ Credits Fall or Spring
Direction of short plays for Drama Lab productions. Principles of makeup, lighting and production. Prerequisite: Sp. 221, 223, or by arrangement.
Sp. 327 Makoup for Theater $\quad(1+2) \quad$ Credits Fall or Spring Theatrical makeup, designed 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.
Sp. 334 Radio-Tolevision Advortising (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 by permission.
Sp. 335 Broadeast Production $\quad(2+3) \quad 3$ Credits Fall or Spring Use of studio equipment; radio-tv production techniques; radio-tv station organization; tape editing; sound effects; television directing.

5p. 340 Speach 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 Fundamenfals 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 Processos (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. Prerequisite: Sp. 111, 315, 341, or by arrangement.
aspects). Prerequisite: $\mathbf{S p} .111$ or by arrangement.
Sp. 425 Directing (3+0) 3 Credits Spring
Directorial analysis of a major dramatic work for public presentation. Limited to senior majors with 3.00 G.P.A. in Speech.

Sp. 433 Radio-Television Nows (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 494
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. Prerequisite: Land Res. 101, Biol. 303.
W.M. 325 Scientific Sampling $\quad(2+3) \quad$ Call

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. Prerequisite: Math. 122 or 201, and Math. 204 or permission.
W.M. 410 Wildlife Tochniques $\quad(2+3) \quad 3$ Credits Spring

Field, laboratory and office techniques of collecting, analyzing, interpreting and presenting data and specimens. Prerequisite: W.M. 304 or permission.

## W.M. 417 Wildilfe Management - Forest and

Tundra $\quad(2+0) \quad 2$ 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 Wildlifo 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 $\quad 3$ Credits Fall Physical, chemical, and biological characteristics of fresh waters, emphasizing ecological aspects important to fish and other organisms. Prerequisites: Chem. 102, Biol. 105, 106, and 303 or by permission.
W.M. 424 Ecology of Fishes $\quad(2+3) \quad 3$ Credits Spring Ecology of fishes and current applications in sport and commercial fisheries. Prerequisite: Biol. 326; W.M. 304, 423. Admission by arrangement.
W.M. 426 The Analysis of Linearized Models $(2+3) 3$ Credits Spring Analysis by methods of least squares of general linearized models, including these 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, and 204.

W.M. | 491 | Seminar | $(2+0)$ | 1 Credit |
| :--- | :--- | :--- | :--- |
| 492 |  | Credit | Fall |

Various topics in wildlife management. Prerequisite: Senior standing in wildlife or by arrangement. Offered as demand warrants.
W.M. 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 | 612 | 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 $(2+3) \quad 3$ 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 $(2+0) 2$ 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. 691 Seminar $\quad(2+0) \quad$ Credit
$692 \quad 1$ 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 Rosoarch

Credits Arr.
Fall 696 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.
W.M. 697 Thesis 698
Admission by arrangement.
$\begin{array}{lr}\text { Credits Arr. } & \text { Fall } \\ \text { Credits Arr. } & \text { Spring }\end{array}$


The Upper Commons Lounge, scene of frequent art displays and photographic exhibitions, is often used for meetings and luncheons. The Commons lower floor houses student dining facilities.

## 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 R. 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., L.L.D., President
EARL H. BEISTLINE, E.M., Acting Academic Vice President
KENNETH M. RAE, Ph.D., Vice President for Research \& Advanced Study
HAROLD A. BYRD, B.B.A., Comptroller of the University
LEWIS E. HAINES, Ph.D., Director, Student Affairs
CHARLES SARGENT, M.S., Executive Director, Planning and Operations
DONALD W. MILLER, Acting Director, University Relations
ARTHUR S. BUSWELL, Ph.D., Director, Division of Statewide Services and Cooperative Extension Service
DON M. DAFOE, Ed.D., Provost of the Unitersity (South Central Region) and Dean of the Anchorage Community College
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. PATTTY, President, Emeritus
University of Washington '19, B.S.; ' 25 E.M.; University of Alaska '53, D. Engr. (1922-35, 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. (1852-1961)
DOROTHY H. NOVATNEY, Professor of English, Emeritus
Pomona College '28 B.A.; Claremont College '30, M.A.; Teachers College '38, Ed.D. (1943-1945, 1958-1983)
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 1967-1968

ABRAHAMSSON, BERNARD S. - Associate Professor of Business Administration
City College of New York - B. Baruch School of Business, '62,
B.B.A.; University of Wisconsin '64, M.S., '68, Ph.D.

AKASOFU, SYUN-ICHI - Professor of Ceophysics
University of Tohoku '53, B.S.; ${ }^{57}$, M.S.; University of Alaska '61, Ph.D.
ALLEN, LEE D. - Assistant Agricultural Engineer, Agricultural Experiment Station (Palmer) University of Idaho '57, B.S.
ALLEN, MARY BELLE - Professor of Microbtology
University of California '41, B.S.; Columbla University '46, Ph.D.
ALMASI, MICHAEL - Associate Design Engineer, Geophysical Institute
University of Budapest ' 35 , M.S.
ANDRESEN, PATRICIA - Assistant Professor of Mathematics
University of Illinois '55 B.S.; University of Missouri '59 M.A.
ANDREWS, STEPHEN E., JR. - Head, Department of Military Science and Professor
Lt. Colonel, U.S. Army; Western Maryland College, P.A.
ANNEXSTAD, JOHN - Sentor Rescarch Assistant, Geophyaical Institute
Gustavus Adolphus College '56, B.S; University of Alaska '66, M.S.
ARHELGER, MARTIN E. - Senior Research Assistant, Marine Science Institute
University of Texas '62, B.S.; Texas A \& M '67, M.S.
ATAMIAN, SARKIS - Associate Professor of Sociology
University of Phode Island '50, B.S.; Brown University '54, M.A.
AYOTTE, ELLEN P. - Agent, Home Ecomomics and Instructor of Extension
Stout State College '58, B.S.
BAILEY, EUNICE - Assistant Professor of Office Administration, Ketchikan Community College Oregon State College ' 25 , B.S.
BANDI, HANS-GEORG, Assoctate in Archacology
University of Freiburg '45, Ph.D.
BANG, MYRTLE B. - Agent, Home Economics and Assistant Professor of Extension (Palmer)
University of Minnesota '31, B.S.; University of Wisconsin '58, M.S.
BARSDATE, ROBERT J. - Associate Professor of Marine Science
Allegheny College '59, B.S.; University of Pittsburgh '63, Ph.D.
BASS, GERALD R. - Instructor of Military Science
SFC, U.S. Army
BASYE, EDMUND L. - Business Manager Geophysical Institute
University of Washington '49, B.A.
BECK, MARY L. - Instructor of English, Ketchikan Community College Stanford University ' 47 , M.A.
BEDFORD, JIMMY - Head, Deparment of Journalism and Creative Writing and Associate Professor of Joumallam
University of Missourl '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 ${ }^{\prime} 60, ~ M . A$.
BEERS, CLARENCE GEORGE - University Buyer
BEHKLE, CHARLES E. - Dean of College of Mathematics, Physical Sciences and Engineering, Director, Institute of Water Resources Research and Frofessor of Engineering Washington State Úniversity '48, B.S.; '50, M.S.; Stanford University '57, Ph.D.
BEISTLINE, EARL H. - Acting Academic Vice President; 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 University of Alaska '52, B.S.; University of California '54, M.A.
BENESCH, WALTER - Assistant 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.; Oregon State University '51, M.S.; Stanford University '52, M.A.; '55, Ph.D.
BENSON, CARL S. - Associate Professor of Geology and Geophysics University of Minnesota '50, B.A.; '56, M.S.; California Institute of Technology '60, Ph.D.
BERG, EDUARD - Professor of Geophysics University of Saarbrucken '53, Diplom Physiker; '55, Ph.D.
BERGSTROM, ROBERT - Assistant Instructing Technician of Electronic Technology
BERKEY, FRANK T. - Senior Research Assistant, Geophysical Institute Linfield College '6, B.A.; University of Alaska '64, M.S.
BETTINE, BONNIE J. - Executive Officer, Agricultural Experiment Station (Palmer)
BILLAUD, VERA A. - Assistant Professor of Marine Science University of Wisconsin '55, B.A.; '62, M.S.; University of Alaska '65, Ph.D.
BILLAUD, JEAN-PAUL - Assistant Professor of Music Ecole Normale De Musique de Paris '55, Diplome Superieur de Virtuosite; '56, Licence de Concert
BINGHAM, DOUGLAS K. - Senior Research Assistant, Geophysical Institute Yale University '62, B.A.; University of Alaska '67, M.S.
BIRKHOLZ, NORMAN J. - Associate Professor of Chemistry Montana State College '54, B.S.; '57, M.S.; '59, Ph.D.
BLAKE, J. ROGER - Senior Research Assistant, Geophysical Institute University of Melbourne '57, B.Sc.
BOWLING, SUE ANN - Senior Research Assistant, Geophysical Institute Radeliffe College '63, A.B.; University of Alaska '67, M.S.
BREWER, MAX C. - Director, Arctic Research Laboratory and Ice Physicist Washington University '50, B.S.; University of Alaska '65, D.Sc. (Hon.)
BROCKEL, CLAYTON E. - Resident Director, Kenai Peninsula Community College Montana State University '55, B.A.; Colorado State College '60, M.A. Ed.
BRODY, ARTHUR WILLIAM - Instructor in Art Harvey Mudd College '65, B.S.; '67, M.F.A.
BROOKS, BEN H. - Assistant Professor of Physical Education and Acting Director of Department of Health, Physical Education and Recreation Brigham Young University '58, B.S.; '60, M.S.
BROWN, E. STAPLES - Lecturer in Mechanical Engineering University of Maine '63, B.S.M.E.; University of Alaska '67, M.S.M.E.
BROWN, GREETA K. - Assistant Professor of Music Fort Wright College '49, B.M.; University of Idaho '53, M.M.

BROWN, J. FRANK - Head, Central Personnel and Institutional Studios Brigham Young University '60, B.S.; '65, M.B.A.
BROWN, NEAL - Senior Research Assistant, Geophysical Institute
Washington State University '61, B.S.; University of Alaska '66, M.S.
BROWN, ROBERT W. - Head, Department of Mathematics and Professor
Pacific University '50, B.S.; '52, M.S.; Oregon State University '58, Ph.D.
BRUNDAGE, ARTHUR L. - Associate Professor (Research), Dairy Husbandry, Agricultural Experiment Station (Palmer)
Cornell University '50, B.S.; University of Minnesota '52, M.S.; '55, Ph.D.
BURDICK, JOHN L. - Associate Professor of Civil Engineering
Rensslaer Polytechnic Institute '47, B.C.E.; Massachusetts Institute of Technology '48, S.M.
BURRELLL, DAVID COLIN - Assistant Professor of Marine Science Nottingham University '61, B.Sc.; '64, Ph.D.
BURTON, WAYNE E. - Assistant Professor, Agricultural Experiment Station (Palmer) (on leave)
University of Wyoming '58, B.S.; Texas A \& M '60, M.S.
BUSWELL, ARTHUR S. - Dean Division of Statewide Services; 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. - Assistant Professor of Marine Science
Wisconsin State College '55, B.S.; University of Wisconsin '61, M.S.; '64, Ph.D.
BYRD, HAROLD A. - Comptroller
University of Washington '31, B.B.A

CALKINS, RALPH N. - Associate Professor of Economics
University of New Mexico '47, B.B.A.; '49, M.A.; Columbia University '63, Ph.D.
CARLSON, AXEL R. - Farm and Home Structures Specialist and Associate Professor of Extension
Michigan State University '53, B.S.; Pennsylvania State University '66, M.S.
CARR, LEWIS C. - Program Director and Resident Counselor, Anchorage Community College Colorado State ${ }^{5} 50$, A.B.; '53, A.M.
CASEY, JAMES L. - Instructor of Military Science
Sgt. Major, U.S. Army
CASHEN, WILLIAM R. - Professor of Mathematics
University of Alaska '37, B.S.; University of Washington '48, M.A.
CASSEL, ENOLA - Assistant Professor of P.E.
Valley City State Teachers College '60, B.S.; Colorado State University '65, M.S.
CASTLE, LYNN M. - Specialist, Fur Extension
University of Alaska '66, B.S.
CAVASOS, LLOYD E. - Instructor, Agricultural Experiment Station
New Mexico State University ${ }^{\prime} 51$, B.S.
CHAPIN, ZAYE - Head, Department of Psychology and Sociology, and Assistant Professor of Sociology
University of California at L.A. '48, B.A.; University of Southern California '64, M.S.W.
CHAPMAN, SYDNEY - Advisory Scientific Director, Geophysical Institute and Professor of Geophysics
Manchester University '07, B.S.; '08, M.S.; '12, D.Sc.
CHASTAIN, CHARLETTE - Senior Research Assistant, Institute of Marine Science University of Oregon '65, B.A.
CHAUVIN, DAVID L. - Head of Technical Services, Geophysical Institute and Associate Electronic Engineer
University of Washington '50, B.S.E.E.

CHESEMORE, JANICE A. - Agent, Home Economics, Cooperatice Extension Service Stout State University, Wisconsin '61, B.A.
CHILD, VERN D. - Accountant University of Wyoming '67, B.S.
CHILDERS, ALTON J. - Assoctate Professor of Education Glenville State Teachers College '39, B.A.; West Virginia University '52, M.A. University of Pennsylvania '66, D. Ed.
CHINN, RONALD ERNEST - Head, Department of Political Science and Associate Professor Stanford University '33, A.B.; '37, M.A.; University of California at Berkeley '58, Ph.D.

CLOUGH, ALBERT H. - Marine Superintendent U.S. Coast Guard Academy

CLUTTS, CHARLES L. - Lecturer in Radlo and TV News University of Alaska '67 B.E.
CLUTTS, JOAN B. - Associate Professor of Education Colorado College '51, B.A.; University of Missouri '58, M.Ed.
COLE, MAX W. - Agent, Agriculture and Community Decelopment and Instructor in Extension, Cooperalive Extension Service (Aniak) Utah State University '63, B.S.
COLP, DOUGLAS B. - Instructing Mining Engineer University of Alaska ' 40, B.S.
COMBS, ALEX DUFF - Assistant Professor of Art, Anchorage Community College Temple University '49, B.F.A.; B.S.Ed.; '52, M.F.A.
CONNET, MARGARET B. - Regional Training Officer, Head Start Program, University of Kansas '25, B.A.; University of Chicago '47, M.A.
COOK, DONALD I. - Head, Department of Mineral Engineering, Professor of Mineral Benefication University of Alaska '47, B.S.; '52, E.M.; Pennsylvania State University '58, M.S.; '60, Ph.D.
CRESSWELL, GEORGE R. - Sentor Research Asststant, Geophysical Institute University of Western Australla 59, B.Sc.
CREVENSTEN, DANIEL C. - Executive Officer, Geophysical Institute
DAFOE, DONALD MALCOLM - Dean of Anchomage Community College; Provost of the University and Professor of Education State Teachers College '37, B.A.; University of Idaho '48, M.S.; Stanford University '61, Ed.D.
DANNER, FRANK A. - Lecturer of Accounting
University of North Dakota '55, B.S.; Indiana University '59, M.M.B.A.
DARNELL, FRANK - Extcutive Director, Alaska Rural School Project Colorado State University '51, B.S.; University of Alaska '62, M.E.D.
DAVIS, CHARLES W. - Head, Department of Music and Associate Professor State University of Iowa '37, B.A.; '48, M.A.
DAVIS, T. NEIL - Assistant Director of Geophysical Institute and Professor of Ceophysics University of Alaska, '55, B.S.; Callfornia Institute of Technology '57, M.S.; University of Alaska '61, Ph.D.
DEAN, FREDERICK C. - Head, Department of Wildlife Management, Professor of Wildlife Management and Assistant Leader, Cooperatice Wildife Research Unit University of Maine '50, B.S.; '52, M.S.; State University of New York, Callege of Forestry '57, Ph.D.
DEAN, SHARON - Data Processor and Computer, Geophysical Institute University of Alaska '67, B.S.
DEARBORN, CURTIS H. - Associate Professor, Horticulture, Agricultural Experiment Station (Palmer) University of New Hampshire '35, B.S.; Comell University '39, Ph.D.

DECKER, DORIS - Instructor in Office Administration, Anchorage Community College Husson, College "59, B.S.
DEEHR, CHARLES S. - Assistant Ceophysicist, Ceophysical Institute Reed College '58, B.S.; University of Alaska '61. M.S.
DELLENBACH, ROBERT K. - Assistant Comptroller for Management University of Utah "62, B.A.; Brigham Young University '84, M.B.A.
DETRICK, EARL W. - Assistant Professor of Physical Education and Aquatics Supervisor Graceland College '63, B.A.; Bemidji State College '64, M.S.
DIETER, EMMA R. - Senior Research Assistant, Institute of Marine Science DePaul University '59, B.S.
DIETERICH, ROBERT A. - Senior Research Assistant, Institute of Arctic Biology, University of California at Davis '61, B.S.; '65, D.V.M.
DINKINS, WILLIAM H. - Assistant Professor of Business Administration and Accounting, Lewis and Clark College '49, B.S., University of Missouri '51, A.M., Columbia University '59, A.M.
DISTAD, JOHN O. - Associate Professor of Mathematics Montana State College '53, B.S.; ${ }^{55}$, M.S.
DONNER, EUGENE - Assistant Professor of Joumalism DePaul University '53, B.A.; San Francisco State College '66, M.A.
DOYLE, JOHN P. - Insiructor of Fisheries Extension University of Washington '59, B.S.
DOYLE, MARIE C. - Assistant Professor of Psychology, Anchorage Community College University of Utah '50, B.A.; '61, Ph.D.
DRURY, HORACE F. - Director, Agricultural Experiment Station George Washington University '37, B.S.; Harvard '38 A.M.; '40, Ph.D.
D'SPAIN, HOWARD G. - Assistant Coordinator, Civil Defense Adult Education Program. Dicision of Statewide Services (Anchorage) Texas Teachers College, '54, B.E.
DUNCAN, IRIS J. A. - Assistant Professor of English Southwestern State '55, B.A.; University of Oklahoma '62, M.A.
DUNLAP, SHERRY LYNN - Instructor of Library Sclence
Bowling Green University '58, B.A.; University of Illinois '59, M.S. in L.S.

ECHOLS, CAROL - Senior Research Assistant, Ceophysical Institute
Cornell College '54, B.S.; University of Alaska '63, M.S.
ECHOLS, F. ARNOL - Executive Officer, Office of the Vice President for Research and Advanced Study Linflield College '57, B.S.
EGAN, ROBERT - Associate Project Director, Upward Bound Montana State University '60, B.A.; Long Beach State College '65, M.A.
EMERSON, DAVID N. - Assistant Professor of Zoology
Modesto Junior College '54, A.A.; University of California at Berkeley '56, A.B.; University of South Dakota '63, M.A.; University of South Dakota '66, Ph.D.

ERICKSON, ROLAND I. - Professor of Mining Engineering University of Minnesota '30, E.M.; University of North Dakota '54, M.S.
ERION, GENE L. - Head, Department of Economics and Professor of Economics Doane College '39, A.B.; University of Wisconsin '40, M.A.; '50, Ph.D.
EVANS, KENNETH - Instructor of Military Science SFC, U.S. Army
EVERETTE, OLIVER P. - Assistant Professor of Engllsh Concordia College '33, B.A.; University of Washington '51, M.A.

FILTER, WILLIAM R. - Audio Visual Program Coordinator, Alaska Rural School Project University of Washington '62, B.A.; Eastern Washington State College '67, M.Ed.

FISCHER, VICTOR - Director, Institute of Social, Economic and Govermment Research and Professor of Political Sctence
University of Wisconsin 48, B.A.; Massachusetts Institute of Technology '50, M.C.P.
FORBES, ROBERT B. - Head, Department of Geology and Professor of Geology
University of Washingten '50, B.S.; '59, Ph.D.
FOWLER, ROBIN C. - Instructor in Speech and Drama
University of Alaska '64, B.A.; University of Hawaii '67, M.F.A.
GAINES, RICHARD H. - Assistant Professor of English, Anchorage Community College Texas Christian University '26, B.A.; University of South Carolina '62, M.A.
GaLBRAITH, ISABELLE - Assistant Professor of Library Science
Geneseo State Teachers College '45, B.S.; Syracuse University '60, M.L.S.
GALSTER, WILLIAM A. - Assistant Zoophystologist, Institute of Arctic Biology University of Wisconsin "58, B.S.: '61, M.S.
GARRISON, LUCILLE M. - University Nurse, Office of Student Affatrs St. Francis Hospital '47, R.N.; Jefferson Medical College '55, O.R.
GATZKIEWICZ, ALICE - Assistant Business Manager
GAUSS, EDWARD J. - Head, Computer Science and Associate Professor of Electrical Engineenng
California Institute of Technology '54, B.S.; University of Colorado '56, M.A.; University of Califormia at Los Angeles '60, M.S.
GEDNEY, LARRY D. - Assistant Ceophystcist
University of Nevada '60, B.S.
GELLER, STEPHEN P. - Assistant Computer Scientist
Bates College '62, B.S.; University of Alaska '64, M.A.
GENTRY, FOYE L. - Supervisor and Instructing Technician of Electronic Technology
GEORGE, ALFRED H. - Assoclate Comptroller for Research
Oregon State University '50, B.S.
GILLIAM, IVAN - Coordinator, Cieil Defense Adult Education Program, Dieision of Stateside Services (Anchorage)
William Jewell College '49, B.A.; University of Alaska, '03, M.Ed.
GOERING, JOHN JAMES - Associate Professor of Marine Science
Bethel College '56, B.S.; University of Wisconsin '60, M.S.; '62, Ph.D.
GORDON, BRUCE R. - Head Department of Linguistics and Foreign Language and Professor of French and Spanish
Brown University '37, A.B.; New York State College for teachers '42, M.A.; Syracuse University ${ }^{\circ} 50$, Ph.D.
GRANVILLE, ARNOLD - Education Specialist and Asststant Professor of Education, Alaska Rural School Prolect
Central Washington College of Education '39, B.A.; University of Oregon '57, M.Ed.
GRIESE, ARNOLD - Associate Professor of Education
Georgetown University '48, B.S.; University of Miami '57, M.Ed.; University of Arizona '60, Ph.D.
GROVES, JOANNE E. - Senior Research Assistant, Institute of Marine Science
University of Rochester '60, B.S.; University of Oregon ' 63 , M.S.
GUNTHER, ERNA - Head, Department of Anthropology and Professor of Anthropology
Barnard College '19, B.A.; Columbia University '20, M.A. '28, Ph.D.
GUTHRIE, RUSSELL D. - Assistant Professor of Zoology
University of Illinois '58, B.S.; '59, M.S.; University of Chicago '63, Ph.D.
HADRA, JAMES M. - Asststant Professor of French, Spanish and Russian
University of Texas '55, B.A.; Army Language School '59, Fordham University '65,
HAGE, ROBERT S. - Professor of Education
St. Olaf College 47, B.A.; University of Iowa '49, M.A.; '54, Ph.D.

HAINES, LEWIS E. - Director, Student Affairs (Dean of Students) and Associate Professor of Education
Middlebury College '43, B.A.; Columbia Teachers College '50, M.A.; Washington State University ${ }^{\circ} \mathbf{6 0}$, Ph.D.
HAINES, ROBERT EUGENE - Assistant Professor of English Ohio State University '54, B.A.; '56, M.A.; Stanford University '68, Ph.D.
ILALLINAN, THOMAS J. - Assistant Electronics Engineer, Ceophysical Instifute Cornell University '64, B.S.E.E.
HAMILTON, THOMAS D. - Assistant Professor of Ceology
University of Idaho '60, B.S.; University of Wisconsin '64, M.S.; University of Washington '66, Ph.D.
hanks, LEW E. - Civil Defense Specialist and Assistant Professor of Extension (Palmer) University of Idaho '50, 13.S.
HANS, CHR. STENBACK NIELSEN, - Senior Research Assistant in Ceophysics, Royal Tech. University of Denmark '65, M.S.
HARBO, SAMUEL J. - Assistant Professor of Btometrics University of Nebraska '51, B.S.; University of Naska '58, M.S.

HARING, ROBERT C. - Head, Department of Business Administration and Professor of Business Administration Indiana University '54, B.A.; '58, M.B.A.; '62, Ph.D.
HARMS, VERNON L. - Associate Professor of Botany Bethel College '55, B.S.; Kansas State Teachers College '59, M.S.; University of Kansas '63, Ph.D.
HARRIS, MARGARET P. - Assistant Professor of Library Science
William and Mary College '38, B.A.; University of Wisconsin '39, B.L.S.
HARROP, BETTIE S. - Head, Alumni Services and Graduate Placement
Alaska Agricultural College and School of Mines '35, B.S.
HART, JOHN C. - Assistant Professor of History and Political Science, Anchonage Community College
Ursinus College '49, B.A.; Temple University '39, M.Ed.
haRTMAN, CHARLES W. - Senior Research Assistant Engineer Institute of Water Resources.
Rutgers University '64, B.S., University of Alaska '67, B.S.
HAWKINS, DANIEL B. - Associate Professor of Geology
Montana State University '56, B.S.; '57, M.S.; Pennsylvania State '61, Ph.D.
HEACOCK, RICHARD - Associate Ceophysicist, Geophysical Institute
Oregon State University '44, B.S.; University of Wisconsin '46, M.Ph.
HEAD, THOMAS J. - Professor of Mathematics
University of Oklahoma 54 , B.S.; '55, M.A.; University of Kansas '62, Ph.D.
HEIMBUCH, BONNIE - Assistant Professor of Math,
Nebraska State College '48, B.A.; University of Texas '67, M.A.
HEINER, LA WRENCE - Assistant Mineral Engineer
University of Alaska '61, B.S.; '66, M.S.
heitmann, khatanga, - Senior Research Assistant, Institute of Social, Economic and Covernment Research.
University of Hawaii '62, B.A.; San Francisco State College, '68, M.A.
HENRY, HERBERT - Lecturer in Mathematics, Anchorage Community College
University of Texas ${ }^{64}$, B.A.; '65, M.A.
HENSICK, ARNOLD - Instructor in History, Juneau-Douglas Community College Ball State University '67, B.S.; '67, M.A.
HERING, MILLICENT B. - Assistant Professor of Library Science
Colorado State College "45, A.B.; University of Denver '65, M.A.
HESSLER, VICTOR P. - Professor of Ceophysics, Geophysical Institute Oregon State College '28, B.S.; Iowa State College '27, M.S.; '34, Ph.D.

HEUSSER, HENRY E., JR. - Assistant Professor of Education
University of Utah '51, B.S.; San Jose State College '62, M.A.
HILPERT, JOHN M. - Professor of Engineering Management Oregon State College '38, B.S.; George Washington University '47, M.A.; University of Iowa '56, Ph.D.
HIPPLER, ARTHUR E. - Assistant Professor of Anthropology, Institute of Social, Economic, and Government Research
University of California at Berkeley '63, A.B.
HITCHCOCK, KAY - Assistant Professor of English, Anchorage Community College University of Alaska '60, B.A.; '62, M.A.
HOBSON, K. H. - Lecturer and Supervisor of Laboratories in Civil Engineering
HOKE, DAVID O. - Assistant Professor of Mathematics, Anchorage Community College Manchester College '61, B.A.; University of Arizona '64, M.A.
HOLLERBACH, WOLF - Associate Professor of French and Spanish University of Bonn '58, State Diploma; Universite de Rennes '61, Doctorate dUniversite
HOLMGREN, MELVIN H. - Associate Design Engineer, Geophysical Institute Worcester Polytechnic Institute '54, B.S.
HOOD, DONALD W. - Director, Institute of Marine Science and Professor of Marine Science Pennsylvania State University '40, B.S.; Oklahoma State University '42, M.S.; Texas A\& M University '50, Ph.D.
HOOK, JERRY - Assistant Geophysicist, Geophysical Institute University of Alaska '58, B.S.; '63, M.S.

HOSKIN, CHARLES M. - Assistant Professor of Geology
Heidelberg College '55, B.S.; Duke University '57, A.M.; University of Texas '62, Ph.D.
HOSKINS, LEO CLARON - Assistant Professor of Chemistry
Utah State University '62, B.S.; Massachusetts Institute of Technology '65, Ph.D.
HOSLEY, EDWARD HOWARD - Assistant Professor of Anthropology
University of California at Berkeley '56, A.B.; University of California at Los Angeles '62, M.A.; '66, Ph.D.
HUBBELL, THORNE G. - Executive Officer, Institute of Social, Economic and Government Research
HUNGATE, ELEANOR S. - Supervisor Archives, Institute of Social, Economic and Government Research University of Washington '65, B.A.; '66, M.A.
HUNT, WILLIAM R. - Assistant Professor of History
Seattle University '51, B.S.S.; University of Washington '66, L.L.B.

IRANY, JAMES C. - Assistant Professor of Sociology, Anchorage Regional Center Wisconsin State College '53, B.S.C.; University of Wisconsin '56, M.S.W.
IRVING, LAURENCE - Advisory Scientific Director and Professor of Zoophysiology, Institute of Arctic Biology
Bowdoin College '46, A.B.; '59 (Hon) D.Sc.; Harvard University '17, A.M.; Stanford University '24, Ph.D.; University of Oslo '56 (Hon) M.D.

JELESKI, KATHLEEN F. - Agent, Cooperative Extension Agricultural and Youth Program, and Instructor of Extension (Juneau)
University of Arizona *66, B.S.
JEWELL, JOHN F. - Assistant Professor of Computer Science
Michigan Technological University '62, B.S.; ' 66, M.S.
JOHANSEN, KENNETH J. - Staff Counselor, Office of Student Affairs
University of Alaska, '67, B.A.
JOHNSON, GENE WILLIAM - Student Counselor, Anchorage Community College
Montana State College '60, B.S.; Rutgets '64, Ed. M.

JOHNSON, PHILIP R. - Assistant Engineer, Arctic Environmental Engineering Laboratory University of Alaska '64, B.S.; '65, M.S.
JOHNSON, ROLAND E. - Senior Research Assistant, Geophysicad Institute Howard University '55, B.S.; '64, M.S.
JOHNSON, RUTH E. - Librasiani, Anchorage Community College Mathew College of Western Reserve University ${ }^{\text {'58, A.B.; }}{ }^{5} 59$, M.S.
JOHNSON, VINCENT - Lecturer in Accounting Certified Public Accountant
JOHNSTONE, ALAN DAVID - Senior Research Assistant in Geophysics St. John's College '58, B.A.
JONES, LAURA E. - Director of Admisstons and Registrar University of Denver '41, B.A.

Kallio, aRvo - Assistant Professor (Research), Horticulture, Alaska Agricultural Experiment Station
University of Minnesota '42, B.S.; M.S.; '59, Ph.D.
KAUFMANN, DONALD L. - Assistant Professor of English
Universty of Pittsburgh '55, B.A.; '57, M. Litt.; University of Iowa '66, Ph.D.
KAUFMANN, TOHKO Y. - Visiting Assoctate Professor of Zoology
Tsuda College '40, B.A.; Hebrew University '55, M.S.; University of Munich '60, Ph.D.
KAVEN, HOLAND - Agent, Agriculture, Cooperative Extension Service Michigan State University '35, B.S.

## KAWASAKI, KOJI - Senior Research Assistant, Ceophysical Institute

University of Califomia '60, B.A.; University of Alaska '64, M.S.
KEIM, CHARLES J. - Dean, College of Arts and Letters and Professor of Journalism and Engllsh
University of Washington '48, B.A.; '50, M.A.
KESSEL, BRINA - Dean, College of Biological Sciences and Renewable Resources and Professor of Zoology
Cornell University 47, B.S.; University of Wisconsin '49, M.S.; Cornell University '51, Ph.D.
KIENLE, JURGEN - Senior Research Assistant, Geophysical Institute
Swiss Federal Institute of Technology '64, Diploma.
KIM, WONSUK - Associate Professor of Encironmental Health Engineering
Seoul National University ${ }^{5} 7$, B.S.; University of California at Berkeley, ' 60 M.S.; '63, Ph.D.

KING, ROBERT W. - Assistant Professor of English
State Unlversity of lowa '59, B.A.; Colorado State University '61, M.A. State University of lowa '65, Ph.D.
KINNEY, PATRICK J. - Research Assistant Professor of Marine Science
South Dakota School of Mines '57, B.S.; Iowa State University '63, Ph.D.
KLEBESADEL. LESLIE J. - assistant Professor, Agronomy, Alaska Agricultural Experiment Station
University of Wisconsin '54, B.S.; '55, M.S.; '58, Ph.D.
Klein, David R. - Leader, Alaska Cooperative Wildilfe Research Unit and Associate Professor of Wildilfe Management
University of Connecticut '51, B.S.; University of Alaska '53, M.S.; University of British Columbia '63, Ph.D.
KNAPP, DAVID R. - Registrar and Director of Students, Anchorage Community College University of Nebraska '52, B.S.; '55, M.Ed.
KNIGHT, GEORGE R. - Associate Professor of Cioil Engineering
University of Alaska '55, B.S.; Harvard University ${ }^{5} 56$, S.M.; '61, M.E.

KNOWLES, LEONARD I. - Assistant Professor of Marine Science University of Arkansas '57, B.A.; '59, M.S.<br>KONDRATEK, BERNARD K. - Instructor of Military Science<br>M. Sgt., U.S. Army<br>KOSCHMANN, FRED - Resident Dinector, Juneau-Douglas Community College<br>Oklahoma City University '36, B.F.A.; Eastern Washington State College '38, B.A.;<br>Dubuque Presbyterian Seminary '47, B.D.; Seattle Pacific College '62, M.Ed.<br>KRAUSS, MICHAEL E. - Associate Professor of Linguistics<br>University of Chicago '53, B.A.; Western Reserve University '54, B.A.; Columbia University 'S5, M.A.; University of Paris '56, Certificate Etudes Superierues; Harvard University '59, Ph.D.; Baccalaureatus Philologiae Islandicae, Haskoli Islands '60.

KREJCI, RUDOLPH W. - Head, Department and Associate Professor of Philosophy University of Innsbruck 59, Ph.D.

LANDE, WINIFRED D. - Acting Executive Director, Alaska Rural School Profect University of Idaho '52, B.A.; '55, M.S.
LaPOINT, GRANT C. - Assistant Design Engineer, Geophystcal Institute Merrimack College '62, A.S.E.E.

LaUGHLIN, WINSTON M. - Professor Soil Science, Alaska Agricultural Experiment Station (Palmer) University of Minnesota '41, B.S.; Michigan State College ${ }^{\text {47, }}{ }^{47}$ M.S.; '49, Ph.D.
LAWRENCE, SHERON ANNE - Instructor in Speech University of Oregon '61, B.S.
LEARY, PAUL EDWARD - Assistant Professor of Military Sclence Hardin-Simmons College '59, B.A.
LEEKLEY, JAMES R. - Assoctate Blologist and Officer in Charge, Petersburg Fur Farm Oregon State University '38, B.S.
LEPORE, HERBERT P. - Instructor of History, Kelchikan Community College Kansas State Teachers College '68, M.S.

LESH, NANCY LOU - Circulation Librarian (Anchorage Community College)
Willamette University '68, B.A.; Simmons College '67, M.S.L.S.
LICARI, LOUIS - Resident Director, Sitka Community College
St. Cloud College '58, B.S.; ' ${ }^{\text {G4, M.A. }}$
LIEBENTHAL, EDWARD W. - Agent, Agriculture and Assistant Professor of Estenston (Homer) University of Wisconsin 4B, B.S.
LINDHOLM, GEORGE F. - Assistant Engineer, Geophysical Institute University of California at Los Angeles '40, A.B.
LOGSDON, CHARLES E. - Professor, Plant Pathology, Alaska Agricultural Experiment Station (Palmer)
University of Kansas City '42, B.A.; University of Minnesota '54, Ph.D.
LOLL, LEO M., JR. - Dean. College of Business, Economics and Covernment and Professor of Business Administration
University of Colorado ${ }^{47}$, B.S.; Ohio State University '49, M.B.A.
LONGERICH, HENRY D. - Assistant Professor of Chemistry, Milliken University '63, B.S.
LONGERICH, LINDA L. - Senior Research Assistant, Institute of Marine Science Millikin University '64, B.A.; Indiana University ' 67, M.S.

LORENTZEN, LESLIE O. - Instructor of Economics, Anchorage Regional Center North Dakota State University '63, B.S.; '66, M.S.
LOYENS, WILLIAM J. - Assistant Professor of Anthropology
Gonzaga University '52, B.A.; ${ }^{5} 53$, M.A.; University of Santa Clara '59, M.A.; University of Wisconsin '68, Ph.D.
LU, CARY - Chtef Accountant, Comptroller's Office University of Alaska ' 61, B.A.
LU, FREDERICK C. J. - Assistant Professor of Mineral Engineering
Provincial Changkung University '58, B.S.; Nova Scotia Technical College '64, M.Eng.; Pennsylvania State University '67, M.S.
LUICK, JACK ROGER - Associate Professor of Nutrition
University of California '50, B.S.; '56, Ph.D.
LUPER, LINDA SUE - Instructor in Office Administration North Texns State University '66, B.B.A., '67. M.B.E.
MacDONALD, EDGAR M. - Lecturer in Business Administration University of Alaska '65, B.A.
MACHETANZ, FRED - Distinguished Associate in Art Ohio State University 30, B.A.; '35, M.A.
MAGGS, JAMES E. - Senior Research Assistant, Geophysical Institute Stanford University '65, B.S.; University of Alaska '67, M.S.
MANGUSSO, DAVID J. - Ifead, Student Services University of New Mexico '63, B.A.; '66, M.A.
MANNING. JOHN H. - Associate Professor of Engineering Management, Anchorage Regional Center
Northeastern University '39, B.S.; University of Alaska '62, M.S.
MARK ANTHONY, LEO - Associate Professor of Mining Extension University of Alaska '52, B.S.
MARROW, CHARLOTTE K. - Lecturer in Music
Agnes Scott College '51, B.A.; Juilliard School of Music '53, B.S.; '54, M.S.
MARSH, CHARLES F. - Assistant Professor, Economics, Alaska Agricultural Experiment Station (Palmer) Kansas State College 49 , B.S.; '55, M.S.

MARTIN, PAUL F. - Assistant Professor (Research), Soil Sctence, Alaska Agricultural Experiment Station (Palmer) Clark University " 39, A.B.; '41, M.A.
MASSIE, MICHAEL R. C. - Assistant Professor of Forest Management Michigan Technological University '60, B.S.; University of New Hampshire '62, M.S.; Michigan State University '65, Ph.D.
MATHER, KEITH B. - Director, Geophysical Institute and Professor of Physics Adelaide Unjversity ${ }^{\text {42, }}$, B.Sc.; 44, M.Sc.
MATTHEWS, J. BRIAN - Assistant Professor of Marine Science University of London '60, B.Sc.; '63, Ph.D.
MATTHEWS, JAMES W. - Assistant Director, Cooperative Extension Service and Associate Professor of Extension Service North Dakota State University '52, B.S.; University of Wisconsin '61, M.S.
MATTHEWS, MARY E. - Instructor of Library Science University of Rochester '65, B.A.; Columbia University '66, M.S.
MAYER, WALTER E. - Visiting Professor of Psychology Ohio Northern University '20, B.A.; University of Pittsburgh, '33, M.Ed., '39, Ph.D.
McCARTHY, PAUL H. - Assistant Professor of Library Science
St. John Fisher College '62, B.A.; Syracuse University '64, M.L.S.
McDONALD, BEATRICE G. - Associate Professor of Business Administration and Secretarial Sciences, Anchorage Community College
Salem State Teachers College '33, B.S. Ed.; Boston University '54, M.Fd.

McMILLAN, GEORGE - Special Assistant to Dean and Director Division of Statewide Services University of North Dakota '28, B.S.; University of Washington '53, M.Ed.
McROY, C. PETER - Senior Research Assistant, Institute of Marine Science Michigan State University '63, B.S.; University of Washington. '66, M.S.
McWHIRTER, RICHARD A. - Instructing Technician in Electronic Technology U.S. Army Radio School '50; U.S. Army Radar School '53

MEGGERS, SHARON E. - Instructor in Music University of Missouri '63, B.M.; Manhattan School of Music '65, M.M.
MEHNER, DENNY SAM - Instructor of Psychology Central Washington State College ${ }^{64}$, B.A.; '66, M.S.
MENDENHALL, WILLIAM W., Jr. - Professor of Cicil Engineering Cornell University '49, B.C.E.; 60. M.S.
MENG, CHING-I - Senior Research Assistant, Ceophysical Institute Tunghai University '61, B.S.; University of Alaska '65, M.S.
MENG, MARTHA S. - Senior Research Assistant, Institute of Arctic Biology Taiwan Provincial College of Agriculture '61, B.S.; Purdue University '63, M.S.
MERRITT, ROBERT P. - Assoctate Professor of Electrical Engineering - Leave of Absence Oregon State College '49, B.S.
MESSER, MARVIN A. - Executice Officer, Institute of Arctic Biology
MESSICK, JAMES - Assistant Coordinator Civil Defense Education Program, Sfutewide Services (Anchorage)
University of Colorado '59, B.A.
MICK, ALLAN H. - Assistant Director, Alaska Agricultural Experiment Station Michjgan State University '35, B.S.; '47, Ph.D.
MIKOW, DUANE J. - Assistant Professor of Music
Western State College of Colorado '51, B.A.; University of Colorado '57, M. Mus. Ed.
MILLER, ANN P. - Professional Technician, Encironmental Health Engineering Pennsylvania State Univ. '63, B.S.
MILLER, DONALD W. - Acting Director, University Relations, Head, Neus Service and Publications, Assistant Projessor of Joumallsm
University of Buffalo '52, B.Sci.; Columbia University '57, M.S.
MILLER, JOHN M. - Station Manager, Minitrack, Gcophysical Institute - On Leave University of Alaska '60, B.S.
MlLLER, L. KEITH - Assistant Professor of Zoophysiology University of Nevada '55, B.S.; '57, M.S.; University of Alaska '66, Ph.D.
MILLER, ORLANDO W. - Associate Professor of History
Muhlenberg College '47, B.A.; Columbia University '48, M.A.; '66, Ph.D.
MILLER, ROBERT E. - Instructor of Military Science
SFG, U.S. Army
MINAMI, RYOSHIN - Reseanch Assistant Professor of Economics, Institute of Social Economics and Gocernment Research Hitotsobashi University '57, B.A.; '62 Ph.D.
MIRZA, ISHAQ - Senior Research Assistant, Geophysical Institute University of Karachi '61, B.S.; '63, M.S.
MITCHELL, WILLIAM W. . Associate Professor of Agronomy, Agricultural Experiment Station (Palmer)
Montana State University '58, B.S.; Iowa State University '62, Ph.D.
MIYAO, KENJI - Visiting Assistant Pmofessor of Zoophysiology Kyoto Prefectural School of Medicine, '62, M.D.
MIYAOKA, OSAHITO - Assistant Professor of Japanese and Eskimo
Osaka University '59, B.A.; Kyoto University '63, M.A.
MOISAN, JOSEPH A. - Head, Student Activities Program
St. Cloud State College 'B4, B.A.

MOREHOUSE, THOMAS A. - Assistant Professor of Political Science Harvard College '60, B.A.; University of Minnesota '61, M.A.P.A.
MORIARTY, RICHARD V. - Assaciate Engineer, Maintenance and Operations University of Alaska '50, B.S.
MORRISON, PETER REED - Director, Institute of Arctic Biology and Professor of Zoophysiology Swarthmore College '40, A.B.; Harvard University '47, Ph.D.
MORROW, JAMES E. - Head, Department of Btological Sciences, Professor of Zoology Middlebury College '40, A.B.; '42, M.S.; Yale University '44, M.S.; '49, Ph.D.
MORTON, BRUCE R. - Computer Programmer, Geophysical Institute University of Texas ${ }^{\circ} 55$, B.A.
MUNGIU, JUDITH P. - Assistant Professor of English, Anchorage Community College Queens College '59, B.A.; '61, M.S.; New York University '63, M.A.
MURAWSKI, ROBERT - Instructing Techntctan in Electronic Technology University of Alaska '64, Electronic Technology Program
MURCRAY, WALLACE B. - Associate Professor of Physics, Ceophysical Institute University of Denver '50, B.S.; '55, M.S.
MURPHY, R. SAGE - Associate Professor of Environmental Health Engineering Southern Methodist University '57, B.S.C.E.; '59, M.S.C.E.; Pennsylvania State University '63, Ph.D.
MURRAY, JOHN S. - Assistant Professor of Physics
Oregon State University '60, B.S.; '66, M.S.; University of Alaska '67, Ph.D.
MUSGROVE, GLADYS - Agent, Home Eoonomics and Associate Professor of Extension (Nome) Washington State College '49, B.A.; Colorado State University '58, M.A.

Natarajan, K. V. - Assistant Professor of Marine Science Banaras University '55, M.S.; University of Alaska '25, Ph.D.
NAVA, JOSEPH - Administrative Assistant, Institute of Arctic Biology University of Alaska '65, B.S.
NAYUDU, Y. R. - Associate Professor of Marine Science Fergusson College '45, B.S.; '47, M.S.; University of Washington '59, Ph.D.
NEILAND, BONITA - Associate Professor of Botany
University of Oregon '49, B.S.; Oregon State College '51, M.A.; University of Wisconsin '54, Ph.D.
NEMCOVA, BOZENA - Assistant Professor in Sociology, Juneau-Douglas Community College University of Kansas '50, B.A.; Stanford University '52, M.A.
NORTHRIP, CHARLES - Acting Head, Department of Speech, Drama and Radio and Assistant Professor in Speech and Radlo University of Florida '60, A.A.; '62, B.S.; '63, M.A.

OEHRING, JAMES C. - Fiscal Consultant, Geophysical Institute University of Illinois '43, C.P.A.
OHTAKE, TAKESHI - Associate Professor of Geophysics Tohoku University '52, B.Sc.; '61, D.Sc.
OKESON, ALVIN S. - Resident Director, Matanuska-Susitna Community College Concordia College '56, B.A.; St. Cloud State College '64, M.S.
OLSON, DEAN F. - Assistant Professor of Business Administration University of Washington, '64, B.A.; '65, M.A.
OLSON, WALLACE M. - Senior Research Assistant, Institute of Social, Economic and Coo-
St. Paul Seminary '54, B.A.; '58, M.A.

ORR, SUSAN GRAHAM - Staff Counselor, Office of Student Affairs Rice University '64, B.A.; University of Kansas '67, M.A.
OTTEMILLER, WARREN W. - Assistant Professor of Art and Design Rochester Institute of Technology '61, A.A.S.; '62, B.F.A.; '63, M.F.A.
PaIGE, AMY W. - Senior Research Assistant, Institute of Soctal, Economic and Government Research
Vassar College ' 60 , A.B.; Maxwell Graduate School, Syracuse University '62, M.A.
PARKER, ALLEN H. - Distinguished Lecturer in Psychology, Anchorage Community College Oregon State College ' 43 , B.S.; University of Portland ' 51, M.S.; ${ }^{\circ} 54$ Ph.D.
PARR, CHARLES H. - Assistant Professor of German and Russian University of Maryland '51, B.A.; University of Alaska '65, M.A.
PaRTHASARATHY, RAhGAVAIYENGAR - Professor of Physics, Geophystcal Institute Annamalai University '50, B.Sc.; '52, M.A.
PEEL, EMIL M. - Assistant Field Engineer, Geophysical Institute University of Alaska ' 61, B.S.
PELOSI, MELBA F. - Head, Department and Associate Professor of Office Administration North Texas State Teachers College '46, B.S.' ${ }^{\prime 52, \text { M.B.E. }}$
PETAJAN, JACK H. - Visiting Professor of Physiology John Hopkins '53, B. A.; University of Wisconsin '59, M.D. and Ph.D.
PEYTON, HAROLD R. - Professor of Engineering, Arctic Encironmental Engineering Laboratory Oregon State College '49, B.S.; '57, M.S.; University of Alaska '67, Ph.D.
PEYTON, LEONARD J. - Assistant Zoophystologist and Coordinator for Enutronmental Services, Insitute of Arctic Biology Utah State University '51, B.S.
PHILIP, BETTY ANNE - Assistant Professor of Zoochemistry, Institute of Arctic Biology Agnes Scott College '52, B.A.; Yale University '54, M.S.; '60, Ph.D.
PHILIP, KENELM W. - Assistant Professor of Physics, Geophysical Institute Yale University '53, B.S.; '58, M.S.; '63, Ph.D.
PHILIPS, PHYLLIS BOOTH - Lecturer in Speech Correction University of Oregon '65, B.A.; '66, M.S.
PHILLIPS, ROBERT - Assistant Professor of Military Science Major, U.S. Army
PILKINGTON, H. DEAN - Associate Professor of Geology
University of Colorado '52, B.A.; '54, M.S.; University of Arizona '62, Ph.D.
PITTMAN, THEDA SUE - Instructor in Radio
Wichita State University '66, B.S.; Indiana State University '07, M.S.
POSSENTI, RICHARD G. - Assistant Professor of Psychology
St. Joseph's College '51,B.S.; University of Alabama '55, M.A.
PROBASCO, PETER M. - Agent, Agriculture and Assistant Professor of Extension (Palmer) University of Minnesota ' 56 , B.S.; ' 61, M.A.
RaE, KENNETH M. - Vice President for Research and Advanced Study and Professor of Marine Science
University College, London '35, B.Sc.; '58, Ph.D.
RAI, DHARMBIR - Associate Professor of Geophystcs
Banaras Hindu University '50, B.Sc.; '52, M.Sc.; Comell University '64, Ph.D.
RAO, PEMMASANI DHARMA - Asststant Professor of Coal Technology
Andhra University '52, B.Sc.; '54, M.Sc.; Pennsylvania University '59, M.S.; '62, Ph.D.
RASCHE, GERTRUDE G. - Professor of English
University of Wisconsin '29, B.A.; Yale University '31, M.A.; Comell '39, Ph.D.
RASCHE, HERBERT H. - Professor of Geography
University of Wisconsin '29, B.A.; 34, M.A.; Harvard '53, Ph.D.
ray, Charles K. - Dean, College of Behavioral Sciences and Education and Professor of Education

University of Colorado '51, B.A.; Columbia University '55, M.A.; '59, Ed.D.
RENNER, LOUIS L. - Assistant Professor of Cerman
Gonzaga University '50, A.B.; '51, M.A.; University of Munich '65, Ph.D.
RICE, E. F. - Head, Department of Civil Engineering and Professor
University of Idaho '48, B.S.; Oregon State College '49, M.S.; '55, Ph.D.
RICH, LEROY E. - Manager, University Bookstore Colorado State University '54, B.A.
RIEVES, JOHN MICHAEL - Senior Research Asotstant, Geophysical Institute Texas A \& M '62, B.S.; '67, M.S.
ROBERTS, THOMAS D. - Associate Professor of Physics
University of Alabama '59, B.S.; Oregon State University '65, Ph.D.
ROGERS, GEORGE W. - Research Professor of Economics
University of California at Berkeley '42, B.A.; '43, M.A.; Harvard '50, Ph.D.
ROMICK, GERALD J. - Associate Professor of Ceophysics, Ceophysical Institute University of Alaska '52, B.S.; '65, Ph.D.; University of California at Los Angeles '54, M.S.

ROOF, RAYMOND B. - Associate Design Engineer, Geophysical Institute University of Michigan '25, B.S.; '40, M.S.
ROSENBERG, DONALD H. - Assistant Professor of Marine Science Oregon State University ${ }^{\text {'60, B.S.; }}{ }^{\text {'63, M.S. }}$
ROWETT, CHARLES - Assoctate Professor of Geology Tulane University '58, B.S.; '59, M.S.; University of Oklaboma '62, Ph.D.
ROWINSKI, LUDWIG J. - Assistant Professor of Museum Science and Director of University Museum
Cornell '51, B.S.; University of Alaska '58, M.S.
ROWLETT, JOHN - Instructing Petroleum Engineer
University of Oklahoma '43, B.A.
RUFF, ALFRED DENNIS, JR, - Assistant Computer Scientist University of Alaska '62, B.Sc.
RUTHROFF, WINIFRED V. - Instructor in English. Juneau-Douglas Community College Colorado State College '45, B.A.; San Jose State College 64, M.A.
RYBERG, H. THEODORE - Direcior of Libraries Gettysburg College '55, A.B.; Western Reserve University '57, M.S.L.S.

SALISBURY, LEE H. - Professor of Speech and Theatre Arts - On Sabbatical Leace New York University '49, B.S.; Columbia University '50, M.A.
SAMUELSON, HULDAH, B. - Agent, Home Economics and Assistant Professor of Extension (Anchorage)
University of Nebraska '34, B.A.; '37, B.S.
SANDBERG, HARLEM - Stase 4-H and Youth Leader and Assistant Professor of Extension University of Minnesota '55, B.S.; Michigan State University '64, M.A.
SANDBERG, MARGARET - Supervisor, Nursery School
Michigan State University '64, B.A.
SARGENT, CHARLES - Exectutive Director, Office of Planning and Operations and Professor of Civll Engineering University of Idaho '48, B.S.C.E.; Stanford University '58, M.S.
SAUNDERS, A. DALE - Assistant Professor, Agricultural Experiment Siation (Purdue) Purdue University '48, B.S.; Montana State College ${ }^{5} 50$, M.S.
SCHINDLER, JOHN F. - Assistant Director and Assistant Biologist, Arctic Research Laboratory Michigan State University '53, B.S.; '54, M.S.

SCHMITT, JEAN B. - Lecturer in Accounting University of Alaska '65, B.B.A.; Certified Public Accountant
SCHUMACHER, GEORGE A., Visiting Professor of Human Ecology Penn State University '32, B.S.; Cornell University Medical College '36, M.D.
SENUNGETUK, RONALD WILLIAM - Assistant Professor of Design, Extension Center in Arts and Crafts
Rochester Institute of Technology '58, A.A.S.; '60, B.F.A.
SEVERNS, VIRGIL D. - Agent, Agriculture and Assistant Professor of Extension Kansas State University '51, B.S.; '56, M.S.
SHARMA, GHANSHYAM DATT - Assistant Professor of Marine Science Benaras Hindu University '52, B.S.; Swiss Federal Institute of Technology '58 Diploma of Engineering Geology; University of Michigan '61, Ph.D.
SHERIDAN, J. ROGER - Head, Department of Physics and Associate Professor Reed College '55, B.A.; University of Washington '64, Ph.D.
SHERMAN, STEVEN BARRY - Instructor of Library Science Loyola University at Los Angeles '60, B.A.; '65, M.A.; '67, M.S.
SHOEMAKER, WILLIAM F. - Staff Counselor and Instructor Columbia University Teachers College '60, M.A.
SHORT, EUGENE - Resident Director, Anchorage Community College and Assistant Professor of Education
College of the Pacific '41, A.B.; Stanford University '65, M.A.
SHROYER, PETER A. - Assistant Professor of History University of Alaska '62, B.A.; University of Oregon '65, M.A.
SIMPSON, JAMES L. - Resident Director, Ketchikan Community College and Assistant Professor of Education
Lewis and Clark College '50, B.S.; '54, M.Ed.
SKELLINGS, EDMUND G. - Associate Professor of English
University of Massachusetts '57, B.A.; State University of Iowa '62, Ph.D.
SLOTNICK, HERMAN E. - Head, Department of History and Professor University of Idaho '39, B.A.; University of Washington '58, Ph.D.
SLOTNICK, MARY H. - Assistant Professor of English University of Washington '45, B.A.: Universitv of Alaska '59. M A
SMITH, JEWELL BUSCH - Assistant Professor of Home Economics University of Wisconsin '46, B.S.; University of New Mexico 57, M.A.

SMITH, RALPH B. - Assistant Professor of History Ohio State University '47, B.A.; Rice University '48, M.A.
SMITH, ROBERT L. - Head, Department of Evening Classes and Correspondence Study and Associate Professor of Political Science College of St. Joseph '54, B.A.; University of Oklahoma '55, M.A.; American University '64, Ph.D.
SMITH, WILLIAM H. - Assistant Professor of Library Science Iowa State College '58, B.S.; Simmons College '60, M.S.L.S.
SMITH, WILLIAM LEONARD - Assistant Professor of Physical Education Western State College '54, B.S.; '58, M.S.
SOLLI, GEORGE - Marine Superintendent and Executive Officer, Institute of Marine Science University of Connecticut '58, B.S.E.
SPARTZ, GEORGE D. - Associate Professor of Sociology Montana State University '50, B.A.; University of Utah '53, M.S.W.
SPERLICH, NORBERT J. - Senior Research Assistant, Geophysical Institute Gutenburg '62, B.S.; '66, M.S.
SRIVASTAVA, BRAHMA NAND - Assistant Professor of Physics, Geophysical Institute
St. Andrews University '54, B.Sc.; University of Allahadad '56, M.S.; '62, Ph.D.
STANLEY, GLENN - Associate Geophysicist
Oregon State College '50, B.S.; '55, M.S.

STICKNEY, ROLAND F. - Assoctate Professor of Education, Anchorage Community College Plymouth Teachers College '54, B.Ed.; Boston University '55, M.Ed.; '66, D.Ed.
STONE, DAVID B. - Research Associate Professor of Ceophysics, Geophysical Institute University of Newcastle Upon Tyme '63, Ph.D.
STONES, RICHARD D. - Instructor in German
Portland State College '65, B.A.; '66, M.A.
STOWELL, ANN BUSS - Assistant Professor of French and Ge-man, Anchorage Community College
University of Minnesota '28, M.A.
STOWERS, JACQUELYN M. - Lecturer in English
University of Illinois '62, B.A.
STRANDTMANN, RUSSELL L. - Instructor of Computer Science
Texas Technological College '59, B.S., University of Alaska '62, M.S.
STRASH, VICTOR - Assistant Professor of History and Languages, Anchorage Community College University of Moscow '15, B.A.; University of Washington '31, M.A.

STRETEN, NEIL A. - Assistant Geophysicist, Geophysical Institute University of Queensland '54, B.Sc.
STRINGER, WILLIAM - Senior Research Assistant, Geophysical Institute New Mexico State University ' 62 , B.S.
STUART, CHARLOTTE - Assistant Professor of Accounting, Anchorage Regional Center University of Wichita '58, B.A.; '61, M.B.A.
SUCHANNEK, RUDOLPH G. - Senior Research Assistant, Geophysical Institute University of Hamburg '53, B.S.; 57, M.S.
SULLIVAN, JAMES W. - Senior Rescarch Assistant, Institute of Social, Economic and Government Research University of Illinois '57, B.S.
SULLIVAN, ROBERT A. - Assistant Professor of Mathematics St. Bonaventure University '52, B.S.; '61, M.S.
SULLIVAN, TROY G. - Associate Professor of Education, Anchorage Community College North Texas State Teachers College '48, B;S.; '50, M.S.; '65, Ed.D.
SUNNELL, AGNES S. - State Home Economics Leader and Associate Professor of Extension University of Washington '30, B.S.; Washington State University '44, M.S.
SUTHERLAND, JANE U. - Senior Research Assistant, Institute of Social, Economic and Covernment Research Immaculate Heart College '53, B.A.; California State College at Los Angeles '65, M.A.
SVENNINGSON, ALLLEN R. - Associate Professor of Physical Education
Winona State College ${ }^{5} 58$, B.S.; Colorado State College, ${ }^{\prime} 61$, M.S.
SVENNINGSON, ALLEN R. - Assoctate Professor of Physical Education
Winona State College ${ }^{58}$, B.S.; Colorado State College, ${ }^{61}$, M.S.
SWARTZ, L. GERARD - Assoctate Professor of Zoology University of Illinois '53, B.S.; '54, M.S.; '58, Ph.D.
SWARTZ, MARY MARGARET - Lecturer in Music University of Colorado '51, B.M.; University of Illinois '57, M.M.
SWEET, LARRY - Assistant Design Engineer, Geophysical Institute Washington State University ' 83, B.S.
sweetman, william J. - Pmfessor of Animal Hushandry, Alaska Agricultural Experiment Station (Palmer) Michigan State University '22, B.S.; '24, M.S. .
SWICK, WILLIAM A. - Coordinator Civil Defense Education Program, Division of Statewide Serotces (Anchorage)
Allegheny College '48, B.A.; Syracuse University '55, M.S.Ed.
SWIFT, DANIEL W. - Associate Professor of Geophysics, Geophysical Institute Haverford College '57, B.A.; Massachusetts Institute of Technology '59, M.S.

SYKES, DWANE J. - Head, Department of Land Resources and Agricultural science and Associate Professor of Land Resources
Utah State University '50, B.S.; Iowa State University '63, Ph.D.
TABER, WENDEL D. - Assistant Instructing Technician in Electronics Technology University of Alaska '64, A.E.T.
TAMPKE, FRED A. - Assistant University Engineer
Stanford University '64, M.S.
TAYLOR, ROSCOE L. - Associate Professor (Research), Agronomy, Alaska Agricultural Experiment Station (Palmer)
South Dakota State College '48, B.S.; Iowa State College '50, M.S.
TEAL, JOHN J. - Research Professor of Animal Husbandry and Human Ecology Harvard University '44, B.S.; Yale University '46, M.A. .
TEAS, JOHN A. - Assistant Supervisor Engineer, Geophysical Institute Texas Technology College '61, B.S.E.E.
THOMPSON, ALYMER - Visiting Professor of Geophysics
University of California '47, B.A.; 48, M.A.; '60, Ph.D.
THOMPSON, ELDON - Assistant Design Engineer, Geophysical Institute
University of Alaska '64, B.S.E.E.
TIEDEMANN, JAMES B. - Head, Department and Professor of Mechanical Engineering University of Wisconsin '45, B.S.; '49, M.S.; '55, Ph.D.
TOMCZAK, THERESA HELEN - Assistant Professor of Physical Education State University College of New York '61, B.S.; Syracuse University '66, M.S.
TOMPKINS, CHARLOTTE M. - Agent, Home Economics and Assistant Professor of Extension (Juneau)
Oklahoma A and M '34, B.S.; Colorado State University '48, M.S.
TREMARELLO, ANN - Assistant Director of Admissions and Assistant Registrar University of Alaska '57, B.B.A.
TRYON, JOHN G. - Head, Department of Electrical Engineering and Professor
University of Minnesota '41, B. of Physics; Cornell University '52, Ph.D.
TURNER, JOHN L. - Assistant Professor of Education
McMurray College '51, B.S.; North Texas State University '55, M.E.;
New Mexico State College '66, Ed.S.
TURNER, KENNETH RICHARD - Master of RIV ACONA,
Institute of Marine Science
TUSSING, ARLO - Associate Professor of Economics, Institute of Social, Economic and Government Research
University of Chicago '50, A.B.; Oregon State College '52, B.S.; University of Washington '65, Ph.D.
TUSSING, SANDRA - Education Resource Specialist, Alaska Rural School Project Hunter College '55, B.A.; Stanford University '66, M.A.

UNDERWOOD, MARTIN B. - Head, Safety and Security
Boston College '47, B.S.

VAN CLEVE, KEITH - Assistant Professor of Forestry
University of Washington '58, B.S.; University of California at Berkeley '60, M.S.; '67 Ph.D.

VAN DOORSLAER, MARGUERITE P. - Assistant Professor of French
University of North Carolina '54, B.A.; '55, M.A.; University of Texas '65, Ph.D.
VAN FLEIN, HELMUT G. - Head, Department of Art and Associate Professor of Art Schwebisch Hall Teachers College '44, B.Ed.; Paedagogisches Institut Esslingen '48, M.Ed.; Art Academy Stuttgart '51, M.F.A.; University of Colorado '58, M.F.A.

VAN HYNING, JACK M. - Associate Professor of Fisheries Biology University of Washington '48, B.S.; University of Miami' 51, M.S.
VAN VELDHUIZEN, PHILIP A. - Associate Professor of Mathematics Central College '52, B.A.; State University of Iowa '60, M.S.
VEACH, NORMAN - Associate Electrical Engineer, Geophysical Institute University of Nebraska '54, B.S.
VORKINK, PAUL - Associate Professor of Education San Diego State College 43, B.S.; University of California at Los Angeles '52, M.Ed. '64, Ed.D.

VOTH, ELVERA K. - Assistant Professor of Music, Anchorage Community College Bethel College '46, B.A.; Northwestern University '48, M.Mus. Ed.

WALLEN, DAVID - Senior Research Assistant, Institute of Marine Science University of Washington '65, B.S.
WALLIS, DON D. - Senior Research Assistant, Geophysical Institute University of Alberta '65, B.S.C.; University of Calgary '67, M.S.C.
WALSH, ANN LOUISE - Head, Department of Home Economics and Assistant Professor University of California at Santa Barbara '44, B.A.; Oregon State College '60, M.S.
WASHBURN, RICHARD H. - Associate Professor, Entomology, Alaska Agricultural Experiment Station (Palmer) Michigan State University '41, B.S.; Cornell University '48, Ph.D.
WATERFIELD, HENRY - Instructor of Mining Extension University of Alaska '61, B.S.
WEBER, ALBERT F. - Instructing Technician in Electronic Technology
WEBER, FLORENCE R. - Distinguished Lecturer in Geology University of Chicago '43, B.S.; '48, M.S.
WEBKING, EDWIN W. - Assistant Professor of Political Science Pepperdine College '58, B.A.; Califormia State College :64, M.A.
WEEDEN, JUDITH S. - Lecturer in Zoology University of Toronto '55, B.A.; '57, M.A.
WEEDEN, ROBERT B. - Associate in Wildlife University of Massachusetts '54, B.S.; University of Maine '56, M.S.; University of British Columbia '59, Ph.D.
WELLMAN, SALLY - Assistant Professor of Home Economics Marshall University '59, B.A.; California State College at Long Beach '63, M.A.
WENDLER, GERD - Assistant Professor of Geophysics, Geophysical Institute University of Innsbruck '64, Doktor der Philosophic
WESCOTT, EUGENE - Assistant Professor of Geophysics University of California at Los Angeles '55, B.A.; University of Alaska '60, M.S.; '64, Ph.D.
WEST, GEORGE C - Associate Professor of Zoophysiology, Institute of Arctic Biology Middlebury College '53, A.B.; University of Illinois '56, M.S.; '58, Ph.D.
WIIG, EDWIN O. - Head, Department of Chemistry and Chemical Engineering and Professor of Chemistry
Rensselaer Polytechnical Institute '21, B.S.; University of Wisconsin '25, M.S.; '27, Ph.D.
WILLIAMS, JANE - Head, Department of Audio-Visual Communications Otterbein College '38, B.S.; University of New Mexico '41, M.S.
WILLIAMS, WAYNE E. - Associate Comptroller for Accounting Millikin University '51, B.S.
WILSON, CHARLES R. - Associate Professor of Physics, Geophysical Institute Case Institute of Technology '51, B.S.; University of New Mexico '56, M.S.; University of Alaska '63, Ph.D.

WILSON, JAMES R. - Head, Department and Professor of English
University of Tulsa '47, B.A.; '49, M.A.; University of Oklahoma '53, Ph.D.
WILSON, WILLIAM S. - Professor of Chemistry and Ceneral Science
Brown University '31, Sc.B.; '34, Sc.M.; Yale University '36, Ph.D.
WINEY, CAROL J. - 4-H Assistant, Cooperative Extension Service (Anchorage)
Iowa State University '57, B.S.
WOLFE, DINAH E. - Lecturer and Museum Assistant
State University of Iowa '61, B.A.
WOLFE, WENDELL W. - Head Department of Summer Sessions, Conferences and Short Courses and Associate Professor of Education
North Texas University '48, B.S.; Texas College of Arts and Industries '52, M.S.; University of Texas '65, Ph.D.

WONG, YAN SUEN - Senior Research Assistant, Geophysical Institute
Memphis State University '63, B.S.; University of Alaska '65, M.S.
WOOD, WILLIAM R. - President of the University and Professor of English
Illinois College '27, B.A.; '60, L.L.D.; University of Iowa '36, M.A.; '39, Ph.D.
WRIGHT, FREDERICK F. - Research Assistant Professor of Marine Science Columbia University '55, B.S.; '59, M.A.; University of Southern California '66, Ph.D.
WYATT, LAURENCE C. - Lecturer in English
University of Texas '59, B.A.; Columbia University '61, M.A.

YOUNG, J. STEPHEN - Senior Research Assistant, Geophysical Institute University of Alaska '64, B.S.
YOUNG, MARGIE S. - Senior Research Assistant, Institute of Marine Science University of Alaska '66, B.Ed.
YOUNG, MERLE J. - Supervisor, Archives, Geophysical Institute
YOUNGBLOOD, CHESTER E. - Head, Department of Edacation and Professor
North Texas State University '49, B.A.; '51, M.Ed.; '61, Ed.D.
YOUNGBLOOD, CHESTER E. - Head, Department of Education and Associate Professor of Education
North Texas State University '49, B.A.; '51, M.Ed.; '61, Ed.D.
YOUSEF, MOHAMED K. - Visiting Professor, Institute of Arctic Biology
Einhams University, Egypt '59, B.S.; '61, M.S.; University of Missouri '63, M.S.; '62, Ph.D.

ZONGE, KENNETH L. - Assistant Professor of Electrical Engineering
University of Alaska '62, B.S.E.E.; University of Arizona '64, M.S.
Academic Regulations ..... 35
Accounting Department ..... 95
Course Descriptions ..... 123
Curriculum ..... 95
Accreditation ..... 10
Activities, Co-Curricular ..... 49
Administrative Council ..... 207
Admissions Policy ..... 14
ACT Tests ..... 18
Alaskans. ..... 14
Applying for Admissions ..... 18
Auditors ..... 17
From Secondary School ..... 14
G.E.D. Tests ..... 16
Graduate Students ..... 30
High School Seniors ..... 11
Non-Alaskans ..... 14
Post-Graduates ..... 16
Requirements, Individual Colleges ..... 15
Special Students ..... 17
Transfer Students ..... 16
Advanced Study ..... 53
Agricultural Science ..... 87
Course Descriptions ..... 125
Curriculum ..... 87
Experiment Station ..... 53
Extension ..... 61
Alaska Agricultural Experiment Station ..... 53
Alaska Cooperative Wildlife
Research Unit ..... 53
Alaska Water Laboratory ..... 57
Alumni Association ..... 25
Alumni Services ..... 12
Anchorage Community College ..... 63
Anthropology ..... 75
Course Descriptions ..... 125
Curriculum ..... 75
Apartments ..... 43
Application Fee ..... 22
Application Procedures ..... 18
Arctic Biology, Institute of ..... 54
Arctic Health Research Center ..... 57
Art Department ..... 68
Course Descriptions ..... 128
Curriculum ..... 68
Arts and Letters College ..... 67
Associate Degrees ..... 30
Associated Students of the Univer-
sity of Alaska (ASUA) ..... 22
Athletics, Eligibility ..... 50
Attendance ..... 36
Audio-Visual Communications ..... 61
Auditors ..... 17
Awards, General ..... 39
Awards, ROTC ..... 84
Behavioral Sciences \& Education, College of ..... 75
Biological Sciences ..... 88
Course Descriptions ..... 131
Curriculum ..... 88
Biological Sciences \& Renewable Resources, College of ..... 87
Board and Room Charges ..... 24
Botany ..... 90
Buildings and Facilities ..... 10
Business Administration ..... 96
Course Descriptions ..... 134
Curriculum ..... 96
Business, Economics and Government, College of ..... 95
Business Education, BBA Degree
Requirements ..... 29
Calendar, University ..... 5
Campus, Activity Fee ..... 23
Carnegie Corporation Grant ..... 10
Change of Curriculum ..... 37
Change of Registration ..... 37
Chemical Engincering ..... 111
Course Descriptions ..... 136
Curriculum ..... 111
Chemistry ..... 109
Course Descriptions ..... 136
Curriculum ..... 109
Civil Engineering ..... 111
Course Descriptions ..... 139
Curriculum ..... 111
Class Standing ..... 36
Colleges ..... 65
Arts and Letters ..... 67
Behavioral Sciences and Education ..... 75
Biological Sciences and Renewable Resources ..... 87
Business, Economics and Government ..... 95
Earth Sciences and Mineral Industry ..... 103
Mathematics, Physical Sciences and Engincering ..... 109
Community Colleges ..... 59
Conferences ..... 59
Cooperative Extension in Agriculture and Home Economics ..... 61
Cooperative Wildlife Research Unit ..... 53
Correspondence, Routing of ..... 7
Counseling
Educational ..... 40
Vocational ..... 41
Personal ..... 41
Course Descriptions ..... 123
Course Numbering System ..... 123
Credit by Examination ..... 37
Curricula (see Departments and/or Curricula)
Curriculum, Change of ..... 37
Deferment from Draft ..... 84
Deficiency, Removal of ..... 15
Degree, Associate, General Requirements ..... 30
Degree, B.A., General Requirements ..... 28
Degree, B.B.A., General Requirements ..... 29
Degree, B. Ed., General
Requirements ..... 29
Degree, B.S., General Requirements ..... 29
Degree, B.S. (Engr. Science), General Requirements ..... 29
Degrees, General Requirements for Undergraduate ..... 27
Degrees, Graduate ..... 27
Degrees, Offered ..... 27
Degrees, Professional ..... 27
Degrees, Undergraduate ..... 27
Dentistry (Pre-dentistry) ..... 90
Departments and/or Curricula ..... 67
Accounting ..... 95
Agricultural Science ..... 87
Anthropology ..... 75
Art ..... 68
Biological Sciences ..... 88
Business Administration ..... 96
Chemical Engineering ..... 111
Chemistry ..... 109
Civil Engineering ..... 111
Economics ..... 97
Education ..... 76
Electrical Engineering ..... 112
Electronics Technology Program ..... 120
Engineering Management ..... 114
English ..... 69
Environmental Health
Engineering ..... 120
General Science ..... 114
Geography ..... 103
Geology ..... 104
Health, Physical Education and Recreation ..... 81
History ..... 97
Home Economics ..... 82
Journalism ..... 70
Land Resources and Agricultural Sciences ..... 87
Linguistics and Foreign Languages ..... 70
Mathematics ..... 116
Mechanical Engineering ..... 117
Military Science ..... 83
Mineral Engineering ..... 106
Music ..... 71
Oceanography and Ocean Engineering ..... 118
Office Administration ..... 98
Philosophy ..... 73
Physics ..... 118
Political Science ..... 100
Psychology and Sociology ..... 84
Speech, Drama and Radio ..... 74
Wildlife Management ..... 91
Deposit, Dormitory Room ..... 24
Dining Facilities ..... 41
Dismissal ..... 39
Dissertations ..... 33
Dormitories ..... 41
Dramatics ..... 74
Earth Sciences and Mineral Industry, College of ..... 103
Economics ..... 97
Course Descriptions ..... 141
Curriculum ..... 97
Education ..... 76
Course Descriptions ..... 143
Curriculum ..... 76
Teaching Certificate ..... 76
Electrical Engineering ..... 112
Course Descriptions ..... 149
Curriculum ..... 112
Electronics Technology ..... 120
Course Descriptions ..... 152
Curriculum ..... 120
Eligibility, Athletics and Activities ..... 50
Emeriti and Honorary Staff ..... 207
Employment ..... 49
Engineering Accreditation ..... 10
Engineering Management ..... 114
Course Descriptions ..... 153
Curriculum ..... 114
Engineering Sciences Course Descriptions ..... 154
English ..... 69 ..... 69
Course Descriptions ..... 155
Curriculum ..... 69
Enrollment Summary (First Semester 1967-68) ..... 13
Entrance Requirements ..... 14
Environmental Health Engineering ..... 120
Course Descriptions ..... 158
Curriculum ..... 120
Evening, Off-Campus, and Correspondence Study ..... 59
Examination, Credit by ..... 37
Examination Fee ..... 22
Expenses ..... 21
Extension Services ..... 60
Agriculture ..... 61
Home Economics ..... 61
Mining ..... 60
Faculty and Staff ..... 208
Federal Agencies on Campus ..... 56
Fee, Campus Activity ..... 23
Fee, University ..... 21
Fees and Expenses ..... 21
Fees, Miscellaneous ..... 22
Fees, Music Lessons ..... 23
Fees, Payment of ..... 25
Fees, Refundable ..... 25
Fees, Student Health Service ..... 24
Financial Aids ..... 45
Financial Obligations ..... 25
< Fish and Game, State Department of ..... 56
Fisheries Biology ..... 91
Fisheries Extension Courses ..... 61
Flight Training ..... 84
Food Service ..... 41
Foreign Languages Curricula ..... 70
Forest Seryice, U.S ..... 57
French, Course Descriptions ..... 159
French, Degree Requirement ..... 70
G.E.D. Tests ..... 16
General Science Curriculum ..... 114
Geography ..... 103
Course Descriptions ..... 161
Curriculum ..... 103
Geological Engineering ..... 105
Course Descriptions ..... 161
Curriculum ..... 105
Geological Survey, U.S. Bureau of ..... 56
Geology ..... 104
Course Descriptions ..... 161
Curriculum ..... 104
Geophysical Institute ..... 54
Geophysics, Degree Requirements ..... 120
German, Course Descriptions ..... 165
German, Degree Requirements ..... 70
Grade Point Average Required ..... 38
Grade Points ..... 38
Grading System ..... 37
Graduate Study ..... 30
Graduation
Responsibility for ..... 39
With Honors ..... 39
Grants ..... 46
Health, Physical Education, and Recreation Department ..... 81
Health Service ..... 45
Health Service Fee ..... 24
Highway Testing Laboratory ..... 56
History ..... 97
Course Descriptions ..... 165
Curriculum ..... 97
History of the University ..... 9
Home Economics ..... 82
Course Descriptions ..... 168
Curriculum ..... 82
Home Economics Extension Service ..... 61
Honor Rolls ..... 39
Housing and Food Service ..... 41
Incomplete Grades ..... 38
Journalism ..... 70
Course Descriptions ..... 170
Curriculum ..... 70
Juneau-Douglas Community
College ..... 59
Kenai Peninsula Community College ..... 63
Ketchikan Community College ..... 59
Kodiak Community College ..... 63
Land Resources and Agricultural Science Dept. ..... 87
Course Descriptions ..... 172
Languages, Foreign ..... 70
Library ..... 11
Linguistics and Foreign Languages ..... 70
Course Descriptions ..... 172
Curriculum ..... 70
Loan Funds, Student ..... 48
Marine Science, Institute of ..... 55
Married Student Housing ..... 43
Matanuska-Susitna
Matanuska-Susitna Community College ..... 63
Mathematics, Physical Sciences \& Engineering, College of ..... 109
Mathematics ..... 116
Course Descriptions ..... 173
Curriculum ..... 116
Meal Tickets ..... 24
Mechanical Engineering ..... 117
Course Descriptions ..... 176
Curriculum ..... 117
Medical Technology Curriculum ..... 89
Medicine (Pre-medicine) ..... 90
Metallurgy Course Descriptions ..... 177
Military Science ..... 83
Course Descriptions ..... 179
Military Science, Credit for ..... 16
Mineral Engineering ..... 106
Course Descriptions ..... 178
Curriculum ..... 104
Mineral Industry Management, Masters Degree Requirements ..... 107
Mineral Industry Research Laboratory ..... 55
Mineral Preparation Engineering, Masters Degree Requirements ..... 107
Mines and Minerals Department of ..... 56
Mining Engineering ..... 106
Course Descriptions ..... 179
Curriculum ..... 106
Mining Extension Courses ..... 60
Mining Short Course ..... 60
Museum ..... 11
Music Department ..... 71
Course Descriptions ..... 181
Curriculum ..... 71
Fees ..... 23
Musk Ox Project ..... 55
Naval Arctic Research Laboratory (Point Barrow) ..... 54
Non-Resident Tuition ..... 22
Northern Forestry, Institute of ..... 56
Nursing (Pre-nursing) ..... 90
Objectives of the University ..... 9
Oceanography ..... 118
Course Descriptions ..... 183
Curriculum ..... 118
Office Administration ..... 98
Course Descriptions ..... 185
Curriculum ..... 98
Orientation and Placement Testing ..... 35
Part－Time Student ..... 17
Payment of Fees ..... 25
Petroleum Engineering ..... 107
Philosophy Department ..... 73
Course Descriptions ..... 187
Physical Education ..... 81
Course Descriptions ..... 188
Curriculum ..... 81
Physical Examinations ..... 19
Physics ..... 118
Course Descriptions ..... 190
Curriculum ..... 118
Placement，Fee ..... 23
Placement Service ..... 12
Political Science ..... 100
Course Descriptions ..... 195
Curriculum ..... 100
Pre－Dentistry ..... 90
Pre－Medicine ..... 90
Pre－Nursing ..... 90
Pre－Veterinary Medicine ..... 90
Probation and Suspension ..... 38
Prospector＇s Course ..... 60
Psychology ..... 84
Course Descriptions ..... 196
Curriculum ..... 84
Probation and Suspension ..... 38
Refund of Fees and Deposits ..... 25
Regents，Board of ..... 207
Registration，Change of ..... 22
Registration，Extended for
Graduate Students ..... 33
Registration，Late Penalty ..... 22
Regulations ..... 35
scademi
40
General ..... 30
Undergraduate Study ..... 27
Research Programs ..... 53
Reserve Officers Training Corps
（R．O．T．C．） ..... 83
Residence Halls ..... 42
Resident，Definition of ..... 22
Room and Board ..... 24
Room Deposit ..... 24
Russian，Course Descriptions ..... 198
Russian，Degree Requirements ..... 70
Scholarships ..... 46
Short Courses ..... 59
Sitka Community College ..... 59
Social，Economic and Government Research，Institute of ..... 55
Sociology ..... 83
Course Descriptions ..... 198
Curriculum ..... 84
Sources of Information ..... 7
Southcentral Regional Center ..... 63
Spanish，Course Descriptions ..... 200
Spanish，Degree Requirements ..... 70
Special Students ..... 17
Speech，Drama and Radio
Department ..... 74
Course Descriptions ..... 201
Curriculum ..... 74
State Agencies on Campus ..... 56
Statewide Services ..... 59
Student Affairs，Office of ..... 40
Student Health Service ..... 45
Student Loan Funds ..... 48
Student Teaching ..... 80
Study Loan ..... 36
Summer Institutes ..... 59
Summer Sessions ..... 59
Suspension ..... 38
Teaching Certificate ..... 76
Tests，Placement ..... 35
Tests，Late Fee ..... 22
Theses and Dissertations ..... 33
Transcript Fee ..... 22
Transfer Credit ..... 16
Transfer Students ..... 16
Transportation to the University ..... 25
Tuition ..... 21
U．S．A．F．I．Courses ..... 16
U．S．Coast and Geodetic Survey ..... 56
U．S．Forest Service ..... 57
U．S．Geological Survey ..... 56
Veterinary（Pre－veterinary Medicine） ..... 90
Water Resources，Institute of ..... 55
Wildlife，Cooperative Research Unit ..... 53
Wildlife Management ..... 91
Course Descriptions ..... 203
Curriculum ..... 91
Withdrawals ..... 25
Workshop on Alaska ..... 60
Yearbook fee and Deposit ..... 23
Zoology ..... 92



[^0]:    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, Metallurgical and Petroleum 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 Cart 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 Stcese Prize
    Joel Wiegert Award

[^1]:    1. Complete general requirements for a B.A. or B.S. degree as listed on pages 28 and 29.
    2. Complete 24 credits in psychology beyond Psy. 101-102, including:

    Psy. 205 - Statistics for Behavioral Sciences . . . . . . . . . . . . . . . . . . . 3 credits
    Psy. 213, 214 - Experimental Psychology . . . . . . . . . . . . . . . . . . . . . 6

[^2]:    - Math. 106 may be omitted if the student has adequate preparation.

