

*College of Science, Literature, and the Arts*

1959-1961



The Library is central to  
the College program

**Bulletin**

*of the UNIVERSITY of MINNESOTA*

## How to Use This Bulletin

This bulletin gives information about the College of Science, Literature, and the Arts. Keep it at hand for ready reference.

*Section I, General Information*, discusses the purposes and programs of the College as well as the chief regulations. Read this portion carefully to insure wise and accurate program planning.

*Section II, Course Offerings and Major Requirements*, describes the courses offered in the College with the instructors for each and it also lists the departmental major requirements.

*Section III, Preprofessional Curriculums in SLA*, tells about the Lower Division programs that are prerequisite for students wishing to transfer to various professional schools after 2 or 3 years.

While this bulletin gives information necessary for program planning, you must also consult the *Class Schedule* published just prior to each quarter to ascertain room numbers, hours, and days of class sessions, and any last-minute changes in offerings. For any changes in regulations made after publication of this bulletin, you should consult the appropriate college office.

Do not attempt to register from the *Class Schedule* alone. This SLA bulletin is essential for securing course descriptions, college rules and requirements, and the other information necessary for sound program planning. Since the fall quarter *Class Schedule* gives the hours and days of courses throughout the year, you should retain it for long-range program planning.

For an extensive account of the aims, materials, and procedures used in a freshman-sophomore course, you may consult the mimeographed book of *Descriptions of Courses in SLA Lower Division*. It is found in advisers' and college offices, Walter and Johnston libraries, and in several dormitories.

You will also wish to read the *Bulletin of General Information* telling about the University as a whole. New students will be interested in *The Moccasin*, a handbook describing personnel services and campus activities.

Copies of all bulletins of the University can be obtained at the Information Window in the Administration Building.

The explanation of course numbers  
and symbols is given on page 24.

# UNIVERSITY OF MINNESOTA

## Board of Regents

The Board of Regents is composed of The Honorable Ray J. Quinlivan, St. Cloud, First Vice President and Chairman; The Honorable George W. Lawson, St. Paul, Second Vice President; The Honorable James F. Bell, Minneapolis; The Honorable Edward B. Cosgrove, Le Sueur; The Honorable Daniel C. Gainey, Owatonna; The Honorable Richard L. Griggs, Duluth; The Honorable Marjorie J. Howard (Mrs. C. Edward), Excelsior; The Honorable A. I. Johnson, Benson; The Honorable Lester A. Malkerson, Minneapolis; The Honorable Charles W. Mayo, M.D., Rochester; The Honorable A. J. Olson, Renville; and The Honorable Herman F. Skyberg, Fisher.

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Malcolm M. Willey, Vice President, Academic Administration  
Laurence R. Lunden, Vice President, Business Administration  
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## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

### Administration

Errett W. McDiarmid, Dean (215 Johnston Hall)  
J. William Buchta, Associate Dean, Assistant Dean for Upper Division (225 Johnston Hall)  
Roger B. Page, Assistant Dean for Lower Division, Chairman of the Committee on Student Scholastic Standing (208 Johnston Hall)  
Mabel K. Powers, Co-ordinator of Advising in Upper Division, Representative of Committee on Student Scholastic Standing (225 Johnston Hall)

### College Offices

Office of the Dean, 215 Johnston Hall

#### Upper Division Offices

Assistant Dean for the Upper Division, 225 Johnston Hall  
Scholastic Committee Representatives, 225 Johnston Hall  
Upper Division Counselors, 225 Johnston Hall  
Placement Consultant, 201 Johnston Hall

#### Lower Division Offices

Assistant Dean for the Lower Division, 208 Johnston Hall  
Scholastic Committee Representatives, 214 Johnston Hall  
Lower Division Freshman Advisers, 220 Johnston Hall

Tally Office, 210 Johnston Hall

## Department Chairmen, Heads, and Directors

- American Studies—Bernard Bowron (101 TSF)  
Anthropology—E. Adamson Hoebel (309 Ford Hall)  
Art—H. Harvard Arnason (108 Jones Hall)  
Astronomy—Willem J. Luyten (359 Physics Building)  
Botany—Allan H. Brown (8 Botany Building)  
Classics—Norman J. DeWitt (310 Folwell Hall)  
Comparative Literature—Eugene H. Falk (200A Folwell Hall)  
English—John W. Clark (219 Folwell Hall)  
Geography—John R. Borchert (290B Ford Hall)  
Geological Survey—George M. Schwartz (207 Pillsbury Hall)  
Geology—George H. Thiel (108 Pillsbury Hall)  
German—Herman Ramras (210 Folwell Hall)  
History—John Bowditch (200 Ford Hall)  
Interdepartmental Courses and General Education  
    Communication—Harold B. Allen (317 Folwell Hall)  
    Family Life—Gerhard Neubeck (205 TNM)  
    Humanities—(212 TNM)  
    Natural Science—J. William Buchta (225 Johnston Hall)  
    Personal Orientation—Kenneth E. Clark (112A Psychology Building)  
    Social Science—(212 TNM)  
International Relations and Area Studies—Harold Deutsch (250 Ford Hall)  
Journalism—Robert L. Jones (112 Murphy Hall)  
Library School—David K. Berninghausen (3 Walter Library)  
Linguistics—Donald C. Swanson (310 Folwell Hall)  
Mathematics—Robert H. Cameron (119 Folwell Hall)  
Music—Paul M. Oberg (106 Scott Hall)  
Philosophy—Alan Donagan (100 Westbrook Hall)  
Political Science—Lloyd M. Short (395 Ford Hall)  
Psychology—Kenneth E. Clark (112A Psychology Building)  
Public Administration Center—Lloyd M. Short (395 Ford Hall)  
Romance Languages—Walter T. Pattison (200B Folwell Hall)  
Scandinavian—Alrik Gustafson (13 Folwell Hall)  
Slavic and Oriental Languages—(322 Folwell Hall)  
Social Work—John C. Kidneigh (400 Folwell Hall)  
Sociology—Elio D. Monachesi (439 Ford Hall)  
Speech and Theater Arts—Donald K. Smith (309 Folwell Hall)  
Statistics—Palmer O. Johnson (216 Burton Hall)  
Zoology—Nelson T. Spratt, Jr. (108 Zoology Building)

# *College of Science, Literature, and the Arts*

## I. General Information

### Purpose of the College

The College has planned its programs to offer University students both liberal and special education, looking toward the development of satisfying and useful lives.

The term "liberal education" is difficult to define. The goal of the College is to aid students toward becoming the upright and humane men and women who are the ideal of our civilization. Among the characteristics of such men and women are a vigorous and humble curiosity about the world and its peoples; a seeking mind, open to ideas attractive or repugnant, and trained in the means of gaining more knowledge about them; the power to discriminate between what is honest and good, and what is fraudulent and mean; compelling interest in the arts and concepts through which men have caught order and beauty from the world; and a sense of personal responsibility for the advancement of learning and the improvement of the human condition.

Toward these ends the College provides the ablest and most stimulating faculty it can obtain and programs that permit each student to develop an educational plan that will serve him, as an individual, most effectively.

No two Arts College students move toward their goals by routes precisely alike. But all work toward liberal education through educational experiences that will acquaint them with the principal fields of general knowledge—literature, the arts, and other humanistic subjects; the social sciences such as politics, economics, and history; the physical and biological sciences. And as they explore a variety of fields to increase understanding of their cultural heritage and the surrounding world, they select particular areas in which they find it worth while to dig more deeply.

In these particular areas students achieve several educational goals: they acquire specialized knowledge leading toward professional and vocational objectives; they may equip themselves for advanced study in fields in which they find themselves well suited; they learn to understand and respect the integrity of the searching scholarly investigation on which the advancement of knowledge and of man's perspective is based.

But pervading all such special education is the broad context of liberal education—the opportunity to gain thorough and penetrating understanding of today's world as an outgrowth of yesterday's and forerunner of tomorrow's, and to develop an informed and constructively critical approach to the life and problems of the day.

The College provides many guides toward the planning of educational programs to achieve these goals, both the procedural guides outlined in this bulletin and the counsel of skilled advisers. Students are urged to use such help freely. They are urged too to take advantage of noncurricular educa-

8 YRS  
7 YRS  
6 YRS  
5 YRS  
4 YRS  
3 YRS  
2 YRS  
1 YR

**GRADUATE SCHOOL**

**PH. D. (Dr. of Philosophy)**  
M. A. OR M. S. (MASTER OF ARTS OR SCIENCE)  
INTENSE SPECIALIZATION FOR RESEARCH. COLLEGE TEACHING, HIGHLY TECHNICAL WORK.  
1 TO 7 YEARS BEYOND BACHELORS OR FIRST PROFESSIONAL DEGREE

**M.D.**  
**B.M.**  
Med. School - Dr. of Medicine

**LL.B.**  
**B.A.**  
LAW SCHOOL

**DDS**  
School of Dentistry - Dr. of Dental Surgery

**X-Ray B.S.**  
Med. School - Med. Techn.

**B.S.**  
Med. School - Occup. Therapy

**B.S.**  
Med. School - Phy. Therapists

**R.N.**  
Med. School - Nursing

**S.L.A. AND COLLEGE OF EDUCATION**

**UPPER DIVISION - S.L.A.**  
**B.A. DEGREE (BACHELOR OF ARTS)**  
SPECIALIZATION AND ADDITIONAL LIBERAL EDUCATION FOR VOCATIONAL, CULTURAL AND SPECIAL INTEREST PURPOSES. MAJORS IN THIRTY DEPARTMENTS OR INTERDEPARTMENTAL PROGRAMS.

American Studies	Botany	German	Mathematics	Psychology
Anthropology	Chemistry	History	Musical	Romance Langs
Architecture	Classics	Humanities	Philosophy	Scandinavian
Art	Economics	Internat. Rel. &	Physics	Slavic & Oriental L.
Astronomy	English	Area Studies	Physiology	Soc. & Pre-Soc. Writ
Bacteriology	Geography	Journalism	Pol. Science	Speech-Theatre
Biostatistics	Geol. & Mineral.	Linguistics	Pre-Library	Zoology

**COLL. OF EDUCATION**  
**B.S. (BACHELOR OF SCIENCE IN ED.)**  
Business and Distributive Ed.  
Care Curriculum  
English  
German  
Journalism \*  
Language Arts  
Latin  
Library Science  
Mathematics  
Natural Science  
Public Health \*  
Romance Languages  
Social Studies  
Speech  
Speech Pathology  
Visiting Teacher  
\* Minor Only

**SCHOOL OF BUSINESS ADMINISTRATION**  
B.S. IN BUSINESS  
REGULAR OR GENERAL PROGRAM ACCOUNTING PROGRAM  
B.S. (ECONOMICS OR STATISTICS)

**B.S. Pharm**  
College of Pharmacy

**LOWER DIVISION OF SCIENCE, LITERATURE, AND THE ARTS (S.L.A.)**  
**A.L.A. Degree (Associate in Liberal Arts)**  
General education: preparation for more advanced courses; exploration and try-out courses. Upper Division (S.L.A.) and most professional schools require some courses in each of the several broad divisions of knowledge (social studies, natural science and mathematics, and humanities) plus introductory courses in the field of proposed major.

tional opportunities such as lectures, concerts and the theater, participation in many types of student activity, and the use of libraries and museums.

Certain fundamental aspects of liberal education that should be the common possession of all cultivated men and women are called general education. More specifically, as its objectives, the curriculum for general education ideally should contribute to your ability to:

1. Understand and evaluate ideas through reading and listening and, in turn, express your own ideas effectively.
2. Understand and participate intelligently in the solution of social, economic, and political problems.
3. Understand familiar phenomena of the universe in which we live; understand the fundamental ideas and discoveries of science and mathematics and their influence on human welfare and the development of thought and institutions; understand the basic attitudes and methods of scientists and use them in the solution of concrete problems.
4. Enjoy and appreciate literature, art, music, and other cultural activities with taste and judgment.
5. Understand human behavior and the structure of social relationships.
6. Maintain your own physical and mental health and that of the community.
7. Choose a useful and personally satisfying field of specialization through experience with typical courses in various fields.
8. Think critically and constructively, collect and weigh pertinent facts, analyze problems and situations, and approach their solutions with integrity and a sound sense of values.

## Organization of the College

**Upper and Lower Divisions**—To help you attain the purposes outlined above, the College of Science, Literature, and the Arts is divided into a Lower Division and an Upper Division. Each has a dean and college office as noted on page 2. In the Lower Division, which embraces the freshman and sophomore classes, you will be encouraged to spread out your work in many fields to broaden your education while at the same time taking any necessary preprofessional courses. Unless you transfer to a professional school, you will spend the last 2 years in the Upper Division specializing in some field of interest while at the same time continuing your liberal education. The opportunities and requirements of both divisions are explained more fully in the following pages.

**Departments**—For purposes of instruction the College is divided into 31 departments covering the 3 broad areas of the natural sciences, the social sciences, and the humanities. You will find the courses, requirements, and instructors of these departments listed in Section II of this bulletin.

**SLA Intermediary Board**—Students have an important part in the College organization through the SLA Intermediary Board. This board is a representative group elected by SLA students to represent them in discussions with the faculty concerning educational problems. Through this board the students may offer proposals for new courses, regulations, services, and other matters affecting their welfare. The board sponsors SLA Week each fall and promotes many faculty-student projects. It has established three divisional councils, enabling students to consult on educational problems in the humanities, social sciences, and natural sciences. The board sponsors also an SLA Freshman Advisory Council which meets regularly with college deans and other faculty members to discuss freshman problems. The board nominates the student members of most student-faculty committees.

The board's five standing committees deal with student personnel, improvement of instruction, curriculum, board organization, and general relations. If you are interested in serving on a committee or wish further information about the board, apply at the board office, 101 Johnston Hall.

A number of departments have student clubs to foster programs and projects pertinent to their field. Consult the respective departmental offices or the SLA Intermediary Board Office for details.

### Admission Requirements

You will find the requirements for admission listed in the University's *Bulletin of General Information*. They apply to students seeking admission on the basis of a high school diploma, by special examination without diploma, or through transfer from another college.

#### Lower Division Programs for Entering the Upper Division

While your general education should continue into the Upper Division, and indeed throughout life, this phase of development is especially emphasized in the Lower Division. Together with any preprofessional work this will absorb at least 2 years of study.

**Distribution Requirements**—In order to assure you a reasonably broad, general education adapted to your particular backgrounds and needs, the following distribution (or group) requirements have been established. You will note that these requirements contribute to the essential objectives of general education listed on page 5 of this bulletin. It is your job, in consultation with a faculty adviser, to determine which specific courses within these requirements will most effectively round out your development.

You should complete these distribution requirements during the 2 years in Lower Division, and the Upper Division years may then be devoted to fulfilling a major sequence and achieving a still stronger general and liberal education. Under some circumstances, you may be permitted to complete 1 or 2 distribution requirements after entering the Upper Division. Distribution requirements for entering professional colleges are listed in Part III of this bulletin.

All students who enter SLA after June 1, 1959, must meet the distribution requirements under the "Single Plan" described below. Those who entered as *freshmen* after June 1, 1957, must also use the Single Plan. Others may elect the old Plan I or Plan II, explained on page 164. They must in any case fulfill all requirements of the plan selected.

#### *Single Distribution Plan for the B.A. Degree*

##### A. Freshman English

Engl A-B-C (Freshman Literature and Composition, composition portion 6 credits) or Engl 1A-2A-3A (Freshman English, composition portion, 6 credits) or Engl 1B-2B-3B (Freshman English, composition portion, 9 credits) or Comm 1-2-3 (Communication, 12 credits) or exemption from the requirement. All students are required to have an English Classification Card before registration for one of these courses.

##### B. Foreign Language. From 0 to 15 credits according to the following schedule.

Amount Presented from High School	Additional Amount Required in College**
None	15 credits in one language
1 year	(a) 10 college credits in the same language, or (b) 15 college credits in a different language
2 years in 1 language	(a) 5 college credits in the same language, or (b) 10 college credits in a different language

\*\* While experience shows these equivalents to be reasonable for most students, anyone believing his preparation to be above average should consult his registration adviser about a more appropriate assignment.



- 3 or more years in 1 language                      No college requirement if the high school work is validated by the appropriate college department
- 2 years in each of 2 languages                      No college requirement if 1 language is validated at the 2-year level by the appropriate college department

A student may include foreign language in his freshman program only if

- (a) He has studied foreign language in high school, or
- (b) He is in the upper half of the freshman class, or
- (c) He is given special permission by the Scholastic Committee.

**C. Social Science**

At least 15 credits in 2 or more of the following departments. At least 5 credits must be offered in a department to count.

- 1. Anthropology
- 2. Economics and Business Administration\*\*
- 3. Geography
- 4. History
- 5. Political Science
- 6. Psychology
- 7. Sociology
- 8. Social Science (Interdepartmental Courses)

**D. Natural Science**

At least 15 credits (of which a minimum of 8 must be in courses that include laboratory)†† from 2 or more of the following groups. At least 5 credits must be offered from a department to count.

- 1. Biological sciences: Botany, psychology, zoology, General Biology (Biol 1-2-3, 1A-2A-3A or old NSci 7-8-9)
- 2. Physical sciences: Astronomy, chemistry, geology, physics, Physical World (NSci 4-5-6)
- 3. Mathematics (except Math H, 20, 21)
- 4. Orientation in the Natural Sciences (NSci 1-2-3)  
(A student presenting credit in only NSci 1-2 must take his additional work in other than group D2)

**E. Humanities**

At least 15 credits from 2 or more of the following categories. At least 5 credits must be offered in a department to count.

- 1. Art
- 2. English literature
- 3. Foreign literature
- 4. History
- 5. Humanities
- 6. Mathematics (except Math H, T, C, 20, 21)
- 7. Music
- 8. Philosophy
- 9. Speech and theater arts (except Spch 6, 6A, 8, and 39)

**F. Health**

PubH 2 (Personal and Public Health, 2 credits) or PubH 3 (Personal Health, 2 credits) or equivalent.

**Notes**

1. If courses from the Departments of History, Mathematics, or Psychology are used to satisfy the requirements in one area, courses from the same department may not be used to satisfy the requirement in a second area.

2. Courses of an interdepartmental character (humanities, natural science, social science) may be used to satisfy distribution requirements in only 2 of the 3 areas, C, D, and E.

\*\* BA 24-25-26, 27, 32, 33, 34, 36, 37-38-39, 43, 79A-79B and old Econ 40-41 may not be used to satisfy the social science requirement.

†† Introductory natural science courses which count toward the laboratory portion of the requirement are: Bot 1-2-3; InCh 4-5, 24-25; Biol 1-2-3, 1A-2A-3A; Geol 1 with A, 2 with B, 8 with A, 23-24-25; NSci 4-5-6, old 7-8-9; Phys 1-2-3 with 1A-2A-3A, 4-5-6, 7-8-9, 11-12-13; Psy 1-2 with 4-5; Zool 1-2-3, old 14-15. Nonlaboratory courses include Ast 11, 20; Bot 10, 12, 14; Geol 1, 2, 8; Math T, 10, 40; NSci 1-2-3; Phys 1-2-3; Psy 1-2.

3. A student may gain exemption from any requirement or part of a requirement by examination and thereby move more quickly into advanced and more specialized courses or begin more quickly concentration in areas of his choice. Students with outstanding high school records should be able to gain exemption from one or more requirements.

4. Students transferring into this College with advanced standing who can demonstrate to the Scholastic Committee special hardship in satisfying requirement B as stated may use the 50-51-52 sequence to meet this requirement. These credits may not be used toward a minor or the 15 credits outside the major and minor.

**Prerequisites for Major**—In planning your program, you must also take note of the Lower Division prerequisite courses which should be taken in preparation for an Upper Division departmental or interdepartmental major. The requirements for the various majors in the Upper Division are described in Section II of this bulletin. You should study these requirements carefully in order that you may take the necessary Lower Division courses at the proper time. If you have several possible majors in mind, plan your program to cover all the possibilities.

**Credits and Quality Required**—For entrance into the Upper Division, you must earn at least 84 credits (most students have 90) with a scholarship average of C. Some of these credits may be "quality credits" as explained on page 20. Admission on probation may be approved in special cases when scholarship average is slightly less than C.

**Sophomore Culture Tests**—Upon entering the Upper Division you may be required to take a standardized test designed to measure your general background in history, literature, science, mathematics, social science, and the arts. Some advisers and departments require the test and some students request it, for it provides information often very helpful in planning their remaining programs. Majors for whom it is currently required are those in anthropology, geology, zoology, and interdepartmental programs. Students for whom this test is required must make arrangements in 223 Johnston Hall to take it.

**Application for Entrance into Upper Division**—It is important that you enter the Upper Division as soon as you are eligible in order that you may plan your further work with a major adviser and may fulfill properly the residence and other requirements of the Upper Division. To encourage this transfer at the proper time, the assistant dean of the Upper Division may, upon your application, permit the completion in Upper Division of any distribution requirements not yet fulfilled. You probably will not be permitted to continue in Lower Division after earning 95 credits.

You should apply for entrance to the Upper Division early in the quarter in which you will complete 84 credits—certainly before the last week of classes. It is essential that you bring a complete copy of your previous College record.

**Transfer Students**—If you are entering the College with advanced standing from some other institution, you must complete the same credit and group requirements expected of other students and must have at least a C average in all work applicable toward the degree—that taken at the University and the total taken here and elsewhere.

The grades earned in other colleges of this University, except General College, will carry the appropriate grade points, provided the courses are accepted by this College. If you have any failures in acceptable courses

taken in other colleges of the University, these also will be transferred and you must make up any such grade point deficiency. General College credits are transferred without grades attached.

### Two-Year Program for Associate in Liberal Arts Degree

If you are not sure whether you can complete the 4-year Bachelor's degree you may wish to plan for the 2-year A.L.A. degree. It indicates the successful completion of a program devoted largely to general education. Students find this degree desirable as an evidence of liberal arts achievement if they are transferring to a professional school or if forced to drop out for a time.

The requirements for the degree are as follows:

1. You must earn at least 90 credits, exclusive of quality credits. While the grade point average is not a factor in this degree, you must maintain satisfactory progress while in the College.
2. You must earn the degree in not more than 7 quarters of University residence. If you enter the College with advanced standing, you must spend the last 3 quarters before graduation in residence and must earn at least 45 of the required credits in residence.
3. You must meet the requirement in English (A) and at least 3 of the other 4 distribution requirements; Foreign Language (B); Social Science (C); Natural Science (D); Humanities (E) as outlined in the Single Plan, page 8.

If you entered SLA before fall quarter, 1958, you may petition the Scholastic Committee to substitute the old Plan I or Plan II in meeting these requirements.

If you meet these requirements you are eligible for the degree even though you should continue in the Upper Division or a professional school. To make application, inquire at the Office of Admissions and Records.

### Upper Division Programs Leading to Bachelor of Arts Degree

**Approval of Your Program**—When you apply for admission to the Upper Division you will be asked to attend an orientation meeting, at which time the policies and practices of the College will be explained. You will also be given an official folder on which you will be expected to list your proposed program of courses fulfilling the requirements for a B.A. degree. You may register for your first quarter in the Upper Division before completing the folder. This gives you time to work out your tentative degree program with your major adviser. The program must be completed and turned in to the Upper Division office, however, before you register for a second quarter. When approved by your adviser and by the Upper Division Office, the program becomes an agreement between you and the College and can be changed only by filing in the Upper Division Office an official amendment approved by your adviser.

In working out your Upper Division program you will have wide freedom to choose courses particularly adapted to your purposes, though a few simple requirements must be observed. These are listed below. Be sure that your program will fulfill them.

At the beginning of your next to final quarter you should check your record with the Upper Division Office and make application for graduation.

**Credits in Residence**—You should transfer to the Upper Division when you have completed the equivalent of 2 years' (84 credits or more) work. Whether transferring from the Lower Division or from some other college you must earn a minimum of 45 credits in Upper Division and spend 2

quarters (30 credits) of the senior year in residence in the Upper Division. An average of C must be obtained on all courses taken while in Upper Division. If you have only 1 year of residence, it must be your senior year.

**Major Sequence**—While in the Upper Division, you will be expected to concentrate a portion of your efforts in some field of special interest. Your purpose may be vocational or avocational; the field may be departmental or interdepartmental.

This field of concentration, known as a major sequence, must be composed of Upper Division courses. Of the 3 types of sequences listed below, you should choose the 1 that best suits your purpose.

### 1. *A Departmental Major and Minor Sequence*

- a. A departmental major (usually 27 to 36 credits) is offered in nearly every department of the College. The description of each major and its specific requirements are indicated for each department in Section II of this bulletin. You must maintain a C average in this major.
- b. A minor sequence (15 credits) or 2 half-minors (9 credits each) must be taken in some department or departments other than that which you have chosen for your major. These minor credits must be in Upper Division courses listed in this bulletin.
- c. Fifteen credit hours in Upper Division courses must be taken outside the major and minor departments, and these also must be in Upper Division courses listed in this bulletin.

2. *An Interdepartmental Major*—If you believe your special interest cannot be satisfied in a single department you may have a major tailor-made for your particular needs. In applying for a major of this type you should submit a statement of your reasons for choosing this major and a plan of courses to the Upper Division Office. Thereupon you will be assigned to an appropriate interdepartmental adviser. An interdepartmental program includes 75 or more Upper Division credits to be approved as an interdepartmental major.

The courses must be intelligently arranged around a central purpose and usually there will be concentration in four or more departments. An unsystematic and aimless scattering of courses will not be approved. You must maintain a C average in Upper Division courses.

A wide variety of study programs may be recognized on this basis. A few that have been elected so frequently that they have become standardized are those in International Relations and Area Studies, Preprofessional Curriculum for Social Work, Preparation for Theological Training, American Studies, and Humanities, described in Section II of this bulletin.

If your needs are so broad that they cannot be met by an SLA interdepartmental major, you may wish to enter the University College.

3. *A Major in a Combined Course*—A third type of concentration may be worked out in co-operation with a professional school. In this case, part of your work in the professional school may be used to help satisfy requirements for the Bachelor's degree from this College. Details of these courses are listed with the respective college professional programs in Section III of this bulletin. At least 1 year (45 credits) must be spent in residence in the Upper Division and the usual C average must be maintained. The combinations are:

- a. Combined course in Arts and Law—3 years of work must be taken in College of SLA and at least 1 additional year in the Law School.
- b. Combined course in Arts and Medicine—first 3 years of work are taken in College of SLA and fourth year is taken in Medical School.

- c. Combined course in Arts and Dentistry—first 3 years of work are taken in College of SLA and 2 additional years of work must be completed in School of Dentistry.
- d. Course leading to the degrees of graduate dental hygienist and bachelor of arts—first 2 years are spent in School of Dentistry and 2 years or longer in College of SLA depending upon the credits transferrable from the School of Dentistry or elsewhere.
- e. Combined course in Arts and Education—first 3 years of work are taken in College of SLA and about 5 additional quarters in the College of Education.

**English Proficiency**—Every degree candidate must demonstrate ability to write English satisfactorily. Demonstration consists in passing the English Proficiency Test (offered each quarter for Upper Division students) or, for those who fail it, in completing a noncredit English composition course with a grade of C or better. Upper Division students are urged to take the test as early in their Upper Division careers as possible.

**Summary of Graduation Requirements**—Briefly, the requirements for a Bachelor's degree, as discussed in the preceding paragraphs, are as follows:

1. **Minimum Required Credits**, 180. These may include both course credits and quality credits (see page 20).
2. **Residence in Upper Division**. Ordinarily a student will complete about 90 credit hours while he is in the Upper Division. In any case he must earn 45 credits after admission to Upper Division and spend 2 quarters of the senior year in Upper Division residence.
3. **Distribution Requirements**. All students must complete the distribution requirements under the Single Plan (or Plans I and II if permissible), preferably before entering the Upper Division.
4. **Major (field of concentration) and Minors**. Students must complete a departmental major and minor (or two half-minors) or an interdepartmental major or a combination course with a professional school. For those with a departmental major, 15 credits in Upper Division courses are required outside the major and minor departments. These must be in Upper Division courses listed in this bulletin.
5. **Quality of Work**. Students must earn a C average in all work presented from the University and in toto, a C average while in Upper Division, and a C average in the major (Upper Division courses). In calculating the over-all grade point ratio, the Scholastic Committee may, in rare cases, approve the omission of certain quarters of work done in the Lower Division. Students must also meet the Upper Division English proficiency requirement.

**Graduation Honors**—The Bachelor's degree is awarded with special honors to those who have done outstanding work. If you seek the higher honors—*magna cum laude* or *summa cum laude*—application should be made to the Upper Division Office at the beginning of the second quarter before graduation, or earlier. At that time information regarding special tests, oral examinations, and other particulars will be given to you.

*Cum laude*—You must have a grade point average of at least 3.0 in all work for your degree and in Upper Division courses calculated separately.

*Magna cum laude*—You must have a grade point average of 3.25 in all work and in Upper Division courses calculated separately. (The grade point average for this honor is calculated at the end of the quarter preceding the quarter in which you graduate.) You must take the Area Tests of the Graduate Record Examination and obtain a satisfactory score.

*Summa cum laude*—You must have a grade point average of 3.4 in all work and in Upper Division courses calculated separately. (The grade point average for this honor is calculated at the end of the quarter preceding the quarter in which you graduate.) You must write a *summa* thesis and obtain a satisfactory score on the Area Tests of the Graduate Record Examination. An oral examination

may be required if your grade point average and your score on the Area Tests are not sufficiently high.

For any of these honors you must have earned 60 credits, exclusive of quality credits, in Upper Division courses at the University of Minnesota.

### University College

An administrative unit known as the University College has been created under a committee which may register students who find they must cross college lines to obtain a program fulfilling their needs. Any student who finds that his specific objectives cannot be satisfied by the program in any one college of the University should call at 225 Johnston Hall to make an appointment to see the chairman of the committee, Professor J. W. Buchta, who also serves as assistant dean for the Upper Division.

Admission to University College is based on the student's previous record and the program he proposes. The program may contain courses in any college or school of the University but must show definite evidence of contributing to the objectives of the student and be deemed worthy of a degree by faculty members consulted by the chairman of the committee.

The degree of bachelor of arts or bachelor of science is granted by this unit of the University.

### Registration Procedures

Registration enables you to enroll in the particular courses you will take for the coming quarter. It encourages you to re-examine your educational goal in light of your activities both in and outside the classroom.

If you are a new student, be sure to obtain your admission certificate from the Office of Admissions and Records in the Administration Building before seeking to register. At registration time you will also be given a health examination, a speech examination, and certain tests to assist later in educational planning.

The College will issue printed instructions with the registration materials and if you follow these carefully the process will be relatively simple.

**Registration Dates**—Registration for students on campus begins several weeks before the opening of the quarter and is announced in the Official Daily Bulletin of the *Minnesota Daily*. The expiration date is listed in the University Calendar which is included in the *Class Schedule* and the University's *Bulletin of General Information*. Only in exceptional circumstances may you register after that date and then you must pay a special privilege fee.

New students entering in the fall come to the University in small groups for 2 days of orientation and registration throughout the month of August and the early part of September. Those unable to come then and those entering the winter or spring quarters are given a modified 2-day program shortly before classes begin. New students transferring with advanced standing are given a 1-day program.

The fee for the privilege of late registration or for the late payment of fees is \$2 through the third day of classes and then increases 50 cents per day to a maximum of \$5.

**Change of Registration**—If you have planned your program carefully you will seldom need to change a course after completing registration. The

ability to plan a program wisely and then stay by it is one mark of the good student. If occasionally a change should become necessary, the procedure is essentially the same as with the original registration. Mere cessation of class attendance does not constitute official cancellation! Follow these procedures:

1. When canceling, if in Lower Division, you should fill out a "Change of Registration" form obtained in the Lower Division Office, seek approval from your adviser, and tally in the Tally Office. It is wise to discuss the proposed withdrawal with your instructor. If you are a junior or senior, get this form and seek approval in the Upper Division Office before tallying. After the sixth week, cancellations also require approval of the Scholastic Committee and a notation from the instructor concerning your standing.
2. If the change of registration involves adding a course, seek your adviser's approval as above, and after the third day of classes you also must obtain approval from a representative of the Scholastic Committee. In most cases he will require the concurrence of the instructor.

If cancellation is permitted during the first 6 weeks of classes, the grade in the course is recorded as W. After 6 weeks, cancellation of a course in which you are failing is recorded as a fail; only if you are passing is it recorded as W (cancellation with no grade). During the last week before the beginning of final examinations, cancellation is not permitted except under the most unusual circumstances.

**Maximum and Minimum Credits per Quarter**—Most students take about 15 credits of work each quarter. To take less than 12 you must secure permission from the Scholastic Committee. Students holding jobs requiring over 20 hours of work a week are advised to take no more than 12 credits, and if working 30 hours or more they should take still less.

The maximum number of credits for which you may register is ordinarily 17. After 2 quarters of residence you may register for 18 credits provided you have a scholarship average of 2.5 for the 2 quarters before registration, and no failure for the quarter immediately preceding registration. Registration for credits in excess of these limits must be approved by the Scholastic Committee.

**Registration for Courses in Other Colleges of the University**—All courses offered in other colleges that are regularly open to students of this College are listed in Section II of this bulletin. Other courses in those colleges may be taken only with the approval of the college concerned and will carry credit in this College only by permission of the Scholastic Committee. Approval for more than 12 of these credits is seldom granted.

**Courses in the General Extension Division**—If you are enrolled in the College of SLA you may take courses in the General Extension Division with permission of the Scholastic Committee, and acceptable credits in those courses may be transferred to this College upon your application to the Office of Admissions and Records. For further details, see index reference to General Extension Division.

**Credits in the Graduate School**—If you are lacking not more than 9 credits for graduation you may, upon petition, get graduate credit for a limited amount of work taken as an undergraduate. No graduate credit will be given unless you have made previous arrangements with the Graduate School. Courses taken for graduate credit will not carry credit toward the Bachelor's degree.

With the permission of the assistant dean for the Upper Division, an undergraduate lacking not more than 6 credits for graduation may be registered in the Graduate School while completing requirements for the Bachelor's degree.

**Honors Sections**—In some departments, such as Psychology and Economics special sections of introductory courses are provided for students of outstanding scholarship. If you think you are eligible, you should inquire about them at the time of registration.

**Courses Without Credit**—Under certain circumstances you may register for a course without credit with the permission of the Scholastic Committee. This will entitle you to participate in class activities to an extent agreed upon in advance with the instructor. The usual arrangement, when permission is granted, is for full participation with a final grade recorded on the permanent record, but the credits and grade points do not count in computing grade point ratios in the College. The procedure is particularly useful for returning students who may wish to repeat a course for review.

**Audited Courses**—Auditing a course differs from taking it without credit in that the student may not normally participate in the activities of the class nor take the final examination, and no grade is recorded. Moreover, you may not later take for credit a course which you have audited. If you wish to audit you must obtain the approval of the Scholastic Committee, and the course will count as part of the academic load.

**Repeating a Course**—You may, without special permission, repeat a course which you have failed and both the old and new grades will then stand on the record. You need not repeat the failed course, however, unless it is a prerequisite to other courses you wish to take or is required for graduation.

You may not, without permission of the Scholastic Committee, repeat a course for which you have already received credit. When permission is given the Scholastic Committee will determine how the second grade shall be counted in the grade point average.

**Repeating a High School Course**—Ordinarily you should register in the college course in mathematics or language for which your high school units in these subjects make you eligible. If for any reason you feel that you are not equipped to take that level of college language course, you should consult with the appropriate department chairman about the possibility of being assigned to a college course which repeats what you had in high school. If this repetition is approved by the department chairman and the Scholastic Committee, credit will be allowed. No approval is necessary if you have to repeat high school trigonometry or higher algebra, but the latter course when repeated in college will give you only 3 instead of 5 credits.

**Credit for Courses Prerequisite to Courses Accredited**—If, by some mistake, you should take a course without fulfilling a prerequisite, you may not later take this prerequisite course for credit, except by permission of the Scholastic Committee.

**Canceling Out of College**—If you should wish to cancel out of college during a quarter or plan not to return in the succeeding quarter, you should report to the SLA window in the Administration Building (window 14) to check on your financial status, cancel courses for the current or succeeding quarter, and generally clarify your relationship with the University. This always involves referral to the College Office, since members of the College staff are interested in being of any assistance possible. You probably will want to discuss your academic standing in the College and possibilities of return or transfer, grades to be awarded, wisdom of the decision to cancel, financial needs, job placement, or other topics.



## Student Personnel Services

**Faculty Advisers**—As you go through college you may need help with such matters as getting registered, selecting courses, choosing your vocation, arranging finances, entering student activities, or solving other personal problems. Much of this assistance is provided by the College, though for some problems you may wish to take advantage also of the all-University personnel services. You will be given the services of a faculty adviser as follows:

1. When you enter the College as a freshman or sophomore, a special adviser will discuss your objectives and plans with you and assist in planning a program of courses. If you are a freshman without previous college work, the person you see will usually be your adviser for the remainder of the year. Feel free to go to him with any problem that arises. You may reach him through the Lower Division Advisers' Office, 220 Johnston Hall.

If at any time you decide to enter one of the following programs, you should report to 220 Johnston Hall for referral to a special adviser: medical technology, music, nursing, occupational therapy, and physical therapy.

If you have had previous college work, you may be assigned to a faculty adviser chosen on the basis of your particular interests. Watch for a card in the mail listing his name.

2. Before registering for the fall quarter of your second year, you will have the opportunity to express a preference for your new faculty adviser. His name will be given you at the time or sent to you by mail soon after.
3. When you are a third-quarter sophomore and almost ready to enter the Upper Division or a professional school, you should seek counsel from the Upper Division Office or the professional school.
4. When you enter the Upper Division you will be assigned a major adviser to help plan your work for the junior and senior years. This assignment is usually made in the departmental office of your major.

Before going to see your adviser, you should study the bulletin carefully and come with a tentative program and specific questions in mind. You should bring any records from the Office of Admissions and Records indicating credit already earned at this University or elsewhere. If you should ever wish to change your adviser, this can usually be arranged if you apply at the Lower Division Office or, if in the Upper Division, at the departmental office of your major.

**Scholastic Committee**—Almost every student has occasion from time to time to consult the Committee on Student Scholastic Standing (usually called the Scholastic Committee). It is important, therefore, that its functions be clearly understood.

*What is it?* It is a committee of the faculty charged with the interpretation and enforcement of faculty regulations. It is empowered also to make exceptions to faculty regulations when those regulations work to the educational disadvantage of a particular student, provided the basic spirit of the regulation is maintained.

*How can it help you?* Often a student is in doubt about his obligations or some rule seems to stand in the way of his objective. The Scholastic Committee is designed to help with such problems. It has special counselors available for consultation, and often an adjustment can be worked out.

*How does one use it?* When help is needed, go to your College office. A representative of the committee will be glad to talk with you. To be exempted from a regulation, you must prepare a written petition which is turned in at your College office. Since this process takes time, allow a few days for the committee's decision. You should drop back later to pick up your copy.

*Who makes up the committee?* The three assistant deans of the College. Roger B. Page is chairman and Mabel Powers serves as secretary. The committee representatives from both Lower and Upper Division Offices attend committee meetings.

*Who are the advisory members?* The dean appoints 3 faculty members and 2 students to meet periodically with the committee to help determine policies and procedures.

**Conduct Committee**—If a student is charged with academic dishonesty, such as cheating or plagiarism, his case will be referred to the Student Scholastic Conduct Committee for judgment.

Actions taken by the committee are based on its twofold responsibility for rehabilitating the student and for maintaining the college community's high standards of integrity. The committee has authority to place students on disciplinary probation, fail them in courses, suspend them from college, or take such other action as the improper behavior seems to justify.

The committee is composed of Professor William Fletcher serving as chairman, an executive secretary, student members appointed by the dean of the College upon the recommendation of the SLA Intermediary Board, and faculty members designated by the dean. Action on some cases, with the consent of the student and the instructor who noted the problem, may be taken by the chairman alone, subject to general rules of procedure formulated by the committee.

Disciplinary matters of nonacademic nature or those involving two or more colleges are handled by the All-University Committee on Student Behavior.

**Orientation Programs**—The College of SLA joins with other divisions of the University in helping new students, both freshmen and those with advanced standing, to get acquainted with one another and with the College program. Usually this involves 2 days of testing, counseling, and group activities.

Even if you are a Lower Division student entering Upper Division, you will profit from an hour's group discussion of the requirements and opportunities available. For questions that arise later, you can always consult your faculty adviser or College office.

**College Placement Services**—The College offers aid in securing a job for you upon graduation. Many departments are aware of opportunities and you should ask their help. This departmental service is supplemented by a central placement service associated with the Upper Division Office and directed by the placement consultant, Maxwell E. Alvord.

The central office attempts to help you appraise your assets and learn of job opportunities. You should register there at least 2 quarters before you expect to graduate. Placement cannot be guaranteed through these services but assistance is available to all who have been registered in the College.

**Personnel Staff**—Approximately 300 faculty members participate in the College advisory program. Of these, about 120 are Upper Division advisers of major students and are listed under the appropriate departmental headings in Section II of this bulletin. The remaining advisers are for the Lower Division and are assigned to students on a basis of congenial interests. To find the offices of these counselors, consult the *Staff Directory* or inquire at the appropriate College office.

**All-University Personnel Services**—In addition to faculty advising within the College, you are invited to use the several specialized personnel services provided by the University for all students. For example:

If you want professional help on a personal problem or vocational choice, go to the Student Counseling Bureau, 101 Eddy Hall.

To learn about student activities, visit the Student Activities Bureau at 106 TSMa or the Coffman Union Program office in 229 Coffman Memorial Union.

If you need financial help apply at the Bureau of Student Loans and Scholarships, 201 Eddy Hall.

For a part-time job on or off campus, apply at the Student Employment Office, 153 TSF. For help in improving your reading or other study skills, use the Educational Skills Clinic, 101 Eddy Hall.

For aid with speech difficulties, consult the Speech and Hearing Clinic, 205 Shevlin Hall. For questions concerning veterans' benefits, go to 102 Administration Building.

For help in finding a room or apartment, see the Student Housing Bureau, 209 Eddy Hall. If you are a foreign student, by all means keep in contact with the Foreign Student Adviser, 302 Eddy Hall.

If you have any health problems, go to the University Health Service building.

If you have legal troubles, consult the Legal Aid Clinic, 139 Fraser Hall.

If you have any doubts concerning what service would be most appropriate, consult your faculty adviser or College Office.

## College Regulations

**Petition for Exemption from College Regulations**—The faculty has set up certain regulations to help students achieve a good education and to facilitate the operations of the College. These rules are believed wise for most students most of the time, but occasionally they may work to the educational disadvantage of a particular person. In this event, he may ask for exemption in his case through a petition to the Scholastic Committee.

Regular petition blanks are available in the Scholastic Committee offices of the Lower and Upper Divisions. An endorsement from the faculty adviser or instructor should be secured if appropriate. If the student desires, he will be given an opportunity to discuss his situation with a committee representative. When the committee has taken action, the reply can be picked up in the College office.

**Registration Regulations**—Special rules pertaining to registration procedures are discussed in a preceding part of this section.

**Classification of Students**—A student with less than 39 credits (including quality credits) is a freshman. A student with 39 or more credits is a sophomore until admitted to the Upper Division. A student in Upper Division who has less than 135 credits is a junior; one with 135 or more credits is a senior.

**Credits**—Amount of work is expressed in *credits*. Each credit demands, on the average, 3 hours a week of a student's time; that is, 1 recitation with 2 hours of preparation, or 3 hours of laboratory work.

**Grades**—There are four permanent passing grades, A (highest), B, C, and D (lowest), showing the quality of work in a course. A grade of F (failure) indicates that the student did not successfully complete the course.

A temporary grade of I (incomplete) is assigned when the instructor has insufficient information to permit a permanent grade. It indicates that some required work is unfinished or that the student, though officially registered, did not appear or left without official canceling. (If the student drops out or cancels after the sixth week while failing, an F is assigned). An undergraduate student receiving an I must make it up by the end of the sixth week in the next quarter of his residence or it will be changed to

an F (unless, upon petition, the Scholastic Committee should permit an extension of time.)

A registration symbol W (withdrawal) indicates that a student has been permitted to cancel officially without grade. It is assigned during the first 6 weeks irrespective of the student's class standing. After that time an F is recorded unless he is doing passing work.

There is a symbol X which may be reported in continuation courses for which a grade cannot be determined until the sequence is completed. Upon completion, the X is changed to a permanent grade.

A registration symbol V (visitor) indicates registration as an auditor or visitor.

**Grade Points**—Quality of work is indicated by *grade points*. Grade points are assigned to course grades as follows: to each credit with a grade of A, 4 grade points; to each credit with grade of B, 3 grade points; to each credit with grade of C, 2 grade points; to each credit with grade of D, 1 grade point. An F carries no grade points. Thus for a 3-credit course completed with a grade of B a student would be assigned 9 grade points.

**Grade Point Average**—Grade point ratio is defined as the number of grade points earned divided by the total number of credits earned (grades A to D) and failed. A grade point ratio of 2.0 (C average) is the minimum standard required for satisfactory progress toward the B.A. degree.

**Quality Credits**—While in the Lower Division a student may earn "quality credits." These are not granted through course work but are awarded on the basis of the number of grade points earned above a C average (grade point ratio of 2.0). For every 5 grade points above those required for a C average, one quality credit is granted. Quality credits are granted on course credits earned by the end of that quarter in which 84 credits (course and quality) are accumulated, but not later.

Quality credits are used as electives. They may not be used to fulfill group requirements, major or minor or resident requirements, or specified courses. They are granted only on courses completed in this University, exclusive of the General College.

*Example:* Suppose a Lower Division student completed 10 course credits with grade of A, 5 credits with grade of B, 10 with grade of C, 5 with grade of D, and failed a 5-credit course. He would have accumulated 80 grade points on 35 credits as follows:

Credits	Grade	Grade Points
10	A	40
5	B	15
10	C	20
5	D	5
5	F	0
<u>35</u>		<u>80</u>

$$\text{Grade point average is } \frac{80}{35} = 2.28$$

$$\text{Quality credits are } \frac{80 - (2 \times 35)}{5} = \frac{10}{5} = 2$$

**Satisfactory Progress**—A student in this College is expected to make satisfactory progress in the curriculum he has selected. For those who are candidates for a Bachelor's degree, this is interpreted to mean a C average.

The cases of students who are not reaching this standard are considered by the Scholastic Committee.

During the quarter, instructors are asked to report to the committee the names of students who are likely to fail. These students are invited to confer with a special counselor to discuss their situation and to see what may be done to help them. It is always best for a student to see his class instructor or his faculty adviser as soon as he feels himself in difficulty rather than to wait until he has already received a poor grade.

**Scholastic Probation**—When the grades at the end of a quarter indicate that a student is in serious scholastic difficulty, he is placed on probation. While on this status he is afforded special aid in discovering the reasons for his difficulty and in finding ways of overcoming it. He is given 1 quarter to show improvement. Usually the probation period will not be extended beyond 2 quarters unless the Scholastic Committee is convinced that the causes of the student's poor work are beyond his control and will soon disappear.

The probationary status indicates serious doubt whether the student will succeed in college. While poor grades are a primary factor in determining this status, a record of many cancellations and incompletes likewise indicates scholastic weakness.

In addition to the above general regulations, a Lower Division student will always be placed on probation if the following conditions arise:

1. Failing grades in at least half his work for any quarter.
2. A grade point average under 1.50 at the end of 2 quarters.
3. A grade point average under 1.60 at the end of 3 quarters.
4. A grade point average under 1.70 at the end of 4 quarters.
5. A grade point average under 1.75 at the end of 5 quarters.
6. A deficiency of 10 or more grade points on 85 or more credits.

A student in the Upper Division will always be placed on probation if:

1. He is admitted from the Lower Division with an average of less than 2 grade points per credit.
2. If at any time he is 9 or more grade points below a C average (over-all, in major, or in Upper Division residence) or if any deficiency continues beyond 2 quarters.

When the student's work improves to a point where he has a C average and is again making normal progress toward a degree, he will be notified of his removal from probationary status.

**Exclusion from College**—Students may be excluded from the College under one of the following headings:

1. *Dropped for low scholarship*—A student who fails to meet the terms of his probation may expect to be dropped.
2. *Hold for committee clearance*—Sometimes a student's scholastic difficulty indicates that he should not continue for the time being even though the record hardly requires official drop action. In such case his later return must be approved by the Scholastic Committee.
3. *Discontinued*—If a student is pursuing an appropriate course but is handicapped by conditions he cannot control (ill health, necessary outside work, etc.), he may be required to discontinue his registration until these conditions have improved. When discontinuance takes place at any time other than the end of the quarter, the courses for which he is registered may be recorded as canceled without grade.

**Readmission to College**—Students excluded from the College are allowed to return only with the permission of the Scholastic Committee.

Students classified as discontinued must present evidence that the conditions which hindered their work have been remedied.

A student who has been dropped may petition for readmission after an interval of 1 year. The petition must present specific evidence that he is now likely to succeed with college work.

Extension courses or work in another college, taken while a student is excluded from this College, will not be recognized for eventual credit in this College unless approved by the Scholastic Committee. Such approval should be obtained prior to registration for such courses.

Students who return under the provision of the preceding paragraphs will be registered on strict probation. They may be dropped at any time that their work is unsatisfactory.

**Class Attendance**—Every student in the College has a responsibility for class attendance. All departments hold students responsible for work of the course but differ somewhat in their treatment of absences. The student must, therefore, learn the policy of his particular instructor and (if he has a legitimate excuse such as illness) arrange with him for making up the work. Either the instructor or student may consult with the Scholastic Committee concerning the validity of the excuse.

**Final Examinations**—The all-University final examination schedule is published each quarter in the *Class Schedule*. Students are required to take examinations at the scheduled time. However, if any student has a conflict in examinations or if he has 3 examinations in 1 day, he should report that fact to the Lower Division Office for possible adjustment on or before the date indicated in the examination announcement of the current *Class Schedule*. Any other examination schedule problems should be presented to the Scholastic Committee.

If a student misses a final examination without being excused, an I (incomplete) is assigned if he was doing passing work and a failing grade if he was not. Remember that if the I is not made up it will be changed to an F (fail).

**Examination for Credit**—Credit for material mastered outside of class (exclusive of high school work) may be obtained by special examination. A student who believes that he is as well informed in a particular subject as the students successfully completing the course should apply to the Scholastic Committee for a special examination. If the application is approved, the committee will appoint a special faculty committee to administer the examination. The fee for such examination is \$5. Usually no grade is assigned.

**Examinations to Demonstrate Proficiency in Prerequisite Courses**—If a student wishes to carry a course for which he does not have the prerequisite he may apply to the Scholastic Committee for permission to take an examination to demonstrate his proficiency in the prerequisite. A satisfactory showing in the examination will admit the student to the course but will not entitle him to credit in the prerequisite course. There is no fee for this examination.

**Adult Special Students**—Special facilities are available for those students who wish a special and limited program and who are not candidates for a degree. If you seek admission as an adult special student you should ask for an application blank at the Office of Admissions and Records. The application must receive the approval of the dean of that office and of the Scholastic Committee.

Ordinarily, to be accepted you must be 24 years of age or older or a person who has received a Bachelor's degree, and you must be seeking a special and limited course of study.

As an adult special student, you will proceed under the following regulations:

1. You may take any course for which you have the necessary prerequisites.
2. You cannot become a candidate for a degree without the approval of the College. After completing 1 full year of work (45 credits) with a C average, you may apply to the dean of admissions and records for regular classification.
3. Credit obtained by work in other institutions or by special examination will not be recorded while you remain in adult special status.
4. You may audit courses according to the procedure described on page 16 of this bulletin.
5. Your registration each quarter must be approved by a representative of the Scholastic Committee. Undergraduates go to 214 Johnston Hall and graduates to 225 Johnston Hall.

**General Extension Division**—A student who takes courses in General Extension Division classes in St. Paul, Minneapolis, or Duluth and wishes to count them toward a Bachelor's degree given by the College of Science, Literature, and the Arts must meet all curricular requirements of the College as stated in this bulletin. Only approved courses may be counted.

1. Before beginning work in the Upper Division with a view to graduation, the student must apply for Upper Division standing.
2. He will be assigned to an Upper Division adviser for approval of his program.
3. He must complete any required work, either of major or minor sequences or of any other nature, in this College if it is not offered in the General Extension Division.
4. For the adjustment of irregularities in his curriculum the student may get advice from the assistant dean for the Upper Division or from his major adviser.
5. A student who does not conform to the above regulations may apply for standing in the Upper Division on the same terms as a student transferred from some other institution.
6. Class work taken in the three cities named will help meet the residence requirements. Work done elsewhere does not count as residence even though accepted for graduation.
7. A student dropped from the College may not take Extension courses without explicit approval of the Scholastic Committee. Any Extension credits thereafter earned are applicable to an SLA degree only if accepted by this Committee.

Work taken in correspondence may be applied toward a degree though not more than 3 credits may count toward a major in the Upper Division. Correspondence credits are not regarded as credits earned in residence.

### Fees and Expenses

For information concerning fees and expenses, consult the *Bulletin of General Information*.

### Scholarships and Awards in This College

In addition to the all-University aids available through the Bureau of Student Loans and Scholarships, 201 Eddy Hall, there are a number of scholarships and awards given by the following departments: Art, Classics, English, German, History, Journalism, Library School, Music, Political Science, Scandinavian Area Studies, Sociology, and Speech and Theater Arts, as well as the SLA College offices. Students seeking further information concerning these awards should apply directly to the department office concerned.

## II. Course Offerings and Major Requirements

(College of Science, Literature, and the Arts)

### Explanctions

**Course Numbering**—A course is designated by an abbreviation of the department name and a number or a letter. It has the same number in whatever quarter it is offered. The quarter is indicated by a letter following the number (f, fall; w, winter; s, spring; su, summer).

Examples:

- 1f-2w, a 2-quarter course given in the fall and winter.
- 1w-2s, the same course given in the winter and spring.
- 3f,w,s, a 1-quarter course given each quarter.

A course sequence separated by hyphens (1f-2w-3s) must be taken *in the order listed* unless there is a ‡ mark indicating that a student may enter any quarter. If no prerequisites are listed, there are none, except insofar as the student must be a sophomore, junior, or senior.

**Symbols**—The following symbols are used throughout the course descriptions and will not carry any page footnotes:

- † To receive credit, all courses listed before the dagger must be completed.
- ‡ Double dagger. Students may enter any quarter preceding the symbol.
- § Section mark. No credit if credit was received for equivalent course after symbol.
- ¶ Means "concurrent registration in."
- ‡ Sharp. Means "consent of instructor."
- △ Means "consent of the department offering course."

**Statement of Credits**—The number of credits stated for 2- and 3-quarter courses is the number for the entire course, not the number for each quarter unless so stated.

**Lower Division and Upper Division Courses**—The College of SLA distinguishes between Lower Division courses (numbered 1 through 49), intended primarily for freshmen and sophomores, and Upper Division courses (numbered 50 or above), intended primarily for juniors and seniors.

Upper Division courses numbered between 50-99 are open to juniors and seniors while those numbered between 100-199 are open to juniors, seniors, and graduates unless otherwise indicated.

Most Upper Division courses numbered between 50-99 are open to sophomores who have an average grade of at least C in the prerequisite courses. They are listed beneath the heading "Upper Division Courses" in departmental statements in this bulletin. When a course is offered at both levels, a student should take the section appropriate for him. Upper Division courses numbered 100-199 are open to third-quarter sophomores by special permission of the Scholastic Committee. The committee will usually grant such permission to students who have an average grade of at least C in all their work and in the prerequisite courses. Requests for special permission should be presented to the Lower Division Office, 214 Johnston Hall.



## AIR SCIENCE

(Air Force ROTC)

**Program Chairman**—Colonel Arthur W. Dern

The program in Air Science, leading to a commission in the Air Force Officers Reserve Corps, is available for students in SLA as well as for those in other colleges of the University. For information concerning the requirements and the opportunities in this program, consult the *Bulletin of the Army-Navy-Air Force ROTC*.

SLA will accept credits from basic and advanced courses in air science to fulfill a minor toward the B.A. degree.

### Program of Air Force Science

#### Basic Courses

- 31f. Air Science I. (1 cr)
- 32w. Air Science I. (1 cr; prereq 31)
- 33s. Air Science I. (1 cr; prereq 32)
- 34f. Air Science II. (1 cr; prereq 33)
- 35w. Air Science II. (1 cr; prereq 34)
- 36s. Air Science II. (1 cr; prereq 35)

#### Advanced Courses

- 131f. Air Science III. (3 cr; prereq 36)
- 132w. Air Science III. (3 cr; prereq 131)
- 133s. Air Science III. (3 cr; prereq 132)
- 134f. Air Science IV. (3 cr; prereq 133)
- 135w. Air Science IV. (3 cr; prereq 134)
- 136s. Air Science IV. (3 cr; prereq 135)

## AMERICAN STUDIES

**Program Chairman**—Bernard Bowron

**Major Advisers in SLA**—Associate Professor Bowron (candidates for the Ph.D.); Assistant Professor Weber (candidates for the M.A.); Associate Professor Turpie (candidates for the B.A.).

A major in American Studies for the B.A. is offered to students under the general provisions of an interdepartmental major as stated on page 12. The Upper Division courses which constitute this major will include 15 credits in courses dealing with foreign civilization and 51 credits in courses concerned with civilization in the United States as follows:

- A. 42 credits in approved courses in the following 4 fields, including at least 9 credits in each field: American history; American literature; American art and philosophy; social sciences in the United States.
- B. 9 credits in AmSt 90-91-92.

Prerequisite: Hum 21-22-23, American Life, or Hum 71-72-73, Humanities in the United States.

**Special Provisions for Nonmajors**—Any senior who wishes to deepen his knowledge of American civilization past and present, while integrating his more specialized studies by means of intensive reading and some independent research, may enroll in AmSt 90-91-92 after consultation with the instructor. This course is not restricted to American Studies majors.

#### Lower Division Courses

- Hum 21f.\*\* American Life I. (3 cr) Kwiat, Noble, Turpie, Weber
- Hum 22w.\*\* American Life II. (3 cr) Kwiat, Noble, Turpie, Weber
- Hum 23s.\*\* American Life III. (3 cr) Kwiat, Noble, Turpie, Weber

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\*\* A student may take any combination of 21, 22, 23, 71, 72, 73 up to a maximum of 9 credits.

### Upper Division Courses

Hum 71f-72w-73s.†\*\* Humanities in the United States. (9 cr) Levenson  
 90f-91w-92s. **Proseminar in American Studies.** Conferences and readings correlating the students' work in American civilization. (9 cr; prereq sr and Δ) Weber

### For Graduate Students Only

200-201-202. **Introduction to American Studies**  
 210. **Seminar in American Studies: Bibliography**  
 211-212-213. **Seminar in American Studies: Problems and Methods**  
 240-241-242. **Materials for the Study of American Civilization**  
 250-251-252. **Readings in American Civilization**

For courses in the participating departments (History, English, Philosophy, Sociology, etc.) which are accepted for the B.A., the M.A., or the Ph.D. degree in American Studies, see the publication entitled *Program in American Studies*.

## ANATOMY (HUMAN)

(College of Medical Sciences)

**Department Head**—Arnold Lazarow

For complete list of courses, see the *Bulletin of the Medical School*.

Students in SLA may elect courses in human anatomy other than Anat 3 or 4 only by arrangement with the head of the Department of Anatomy and the SLA Scholastic Committee.

- 3f. **Elementary Anatomy.** (4 cr; prereq 3-yr nurses in Extension Division, dental hygienists; others take Anat 4s unless granted Δ)  
 4s. **Elementary Anatomy.** (5 cr; primarily for 5-yr nurses and med techs; prereq Zool 1-2-3 or Biol 1A-2A-3A)

## ANTHROPOLOGY

**Department Chairman**—E. Adamson Hoebel

**Major Advisers in SLA**—Professors Hoebel, Spencer; Assistant Professors Johnson, Murrill

**Major Sequence in SLA**—Anth 80, 90, 169; a minimum of 3 additional credits in Ethnology (I); a minimum of 6 additional credits in Cultural Anthropology (II); 12 additional elective credits to make a total minimum of 30 credits of Upper Division courses in anthropology. Majors will be given a senior comprehensive examination.

Prerequisites: Anth 1A and 2A or 100.

Students planning to take graduate work in anthropology should consult immediately with a major adviser for detailed planning of the major program.

The fact that anthropology concerns itself with man and his cultures in all times and places lends to it a uniquely appropriate quality for general and liberal education. The two introductory courses (1A, 2A) are recommended for general education background.

### Lower Division Courses

- 1A<sub>f,w,s</sub>. **Introduction to Anthropology: Prehistoric Man and Culture.** Origins of man and development of modern races. Growth and differentiation of the cultures of man from the Dawn Stone Age of early glacial times through the Old and New Stone Ages to the dawn of civilization in the Bronze and Iron Ages. (5 cr) Hoebel, Johnson, Murrill, Spencer  
 2A<sub>f,w,s</sub>. **Introduction to Anthropology: Cultural Anthropology.** The varieties and range of human behavior as revealed through the study of primitive societies in all parts of the world. A scientific analysis of the ways in which primitive men organize their lives, directed toward a deeper and broader understanding of human capacities and purposes. (5 cr) Gibbs, Hoebel, Johnson, Spencer

\*\* A student may take any combination of 21, 22, 23, 71, 72, 73 up to a maximum of 9 credits.

## Upper Division Courses

- 100f. Principles of Anthropology.** Intensive introduction to the elements of anthropology. Pre-historic development of man and culture. Analysis of primitive societies with respect to range and variability of human behavior. Principles of cultural dynamics. (3 cr, \$1A or 2A; may be taken in lieu of 1A-2A) Johnson

## Group I—ETHNOLOGY

Anth 80 and 90 are open to sophomores who have a grade of at least C in 2A. Other Upper Division courses are open also to sophomores under conditions explained on page 24.

Attention of students is called to Ortl 75-76-77, Asian Civilizations, see Slavic and Oriental Languages.

- 80f. The American Indian.** The peopling of North and South America. Physical and cultural characteristics of the tribes of the major culture areas. (3 cr; prereq 2A or 100 recommended) Johnson
- 90w. Archaeology of North America.** Archaeological record of prehistoric cultures. (3 cr; prereq 1A) Johnson
- 115s. Indians of the Great Plains.** Prehistoric origins of the tribes of the Plains area. Cultures of the Missouri River tribes and the nomads of the Plains. (3 cr; prereq 2A or 100 or  $\Delta$ ) Hoebel
- 116. Indians of the Southwest.** Prehistoric origins of Southwestern (New Mexico, Arizona, southern Utah and California, and northern Mexico) Indians. Cultures of the Pueblos, Navaho, Apache, and Yuman tribes. (3 cr; prereq 2A, 100, or  $\Delta$ ; offered when feasible) Hoebel
- 117f. Indians of South America.** Ethnographic survey of South American Indians. Prehistory of the various areas. Spanish and Portuguese contact and the adjustment of the various tribes to modern conditions. (3 cr; prereq 2A or 100) Johnson
- 118w. Pre-Columbian Civilizations of Middle America.** Prehistoric origins and cultures of the Middle-American area. The Mayas, Aztecs, and their neighbors. (3 cr; prereq 1A or 100 or  $\Delta$ ) Johnson
- 119. Contemporary Middle-American Communities.** Mexican and Guatemalan village communities, particularly those composed entirely or in part of Indian-speaking peoples. Application of anthropological concepts and methods to the study of folk cultures. (3 cr; prereq 2A or 100, waived for majors in Latin-American Area Studies; offered 1960-61 and alt yrs)
- 120f. Peoples and Cultures of Africa.** Racial groupings and tribes of Africa, excluding the Mediterranean civilizations. (3 cr; prereq 1A and 2A or 100) Gibbs
- 121. Peoples and Cultures of the South Seas.** Survey of the races and cultures of the Pacific Islands (Oceania, Polynesia, Micronesia, and Melanesia). (3 cr; prereq 1A and 2A or 100; offered when feasible)
- 124. The Culture Sphere of China.** Development of Chinese institutions and other cultural manifestations. Their influences in the development of the cultures of Vietnam, Korea, and Japan. (3 cr; prereq 2A or 100 or  $\Delta$ ; offered 1960-61 and alt yrs) Spencer
- 125f. Peoples and Cultures of India.** Survey of the primitive tribes, Hindu caste society, and the modern communities of India. (3 cr; prereq 2A or 100 or  $\Delta$ ) Spencer
- 126s. Peoples and Cultures of Southeast Asia and Indonesia.** Cultures of the peoples of Burma, Siam, French Indochina, and the Malaysian archipelago. Influences from India on the area. Islamic influences in Indonesia. Modern ethnic, national, and colonial problems. (3 cr; prereq 2A or 100 or  $\Delta$ ) Spencer
- 127. The Islamic Culture Sphere.** Mohammed and the founding of Islam. Islamic culture as an intermediary between (a) classical and the ancient oriental civilizations, and (b) medieval Europe. Legal, political, and theological developments in Islam. (3 cr; prereq 1A and 2A or 100, or  $\Delta$ ; offered 1960-61 and alt yrs) Spencer

## Group II—ARCHAEOLOGY

- 130s. Archaeological Methods and Techniques.** Lectures and laboratory exercises in the techniques of excavations, recordation, and methodological interpretations of archaeological data. (3 cr; prereq sr, 90 and  $\Delta$ ; 4 hrs per wk) Johnson
- 132. Archaeology of the Mississippi Drainage.** Archaeological record of prehistoric cultures of the Mississippi River area from Minnesota to the Gulf of Mexico. (3 cr; prereq 90 or  $\Delta$ ; offered 1960-61 and alt yrs)
- 133. Archaeology of the Southwest.** Archaeological record of prehistoric cultures of the southwest area of the United States. Paleo-Indian, Basket Maker, and Pueblo prehistory. (3 cr; prereq 1A or 100; offered when feasible)

- 136s. Prehistoric Archaeology of the Old World.** Archaeological record of cultural evolution in Europe, Africa, and Asia. (3 cr; prereq 1A or 100 and  $\Delta$ ) Johnson
- 140su. Field Research in Archaeology.** Archaeological field excavation, survey, and research in prehistoric sites in the state of Minnesota. Intensive training in excavation techniques, recordation, analysis, and interpretation of archaeological materials. (6-12 cr [may be taken for cr only once]; prereq  $\Delta$ ) Johnson

### Group III—CULTURAL ANTHROPOLOGY

- 150w. The Contact of Cultures.** Processes of acculturation. Impact of civilizations on native cultures. (3 cr; prereq 1A and 2A or 100) Merrill
- 151. Applied Anthropology.** Application of the methods and techniques of anthropology to current problems of government, industry, education, and social welfare planning. The role of anthropology in UNESCO and technical aid, public health, and other administrative activities for native peoples in the modern world. (3 cr; prereq sr, 150 or  $\Delta$ ; offered 1960-61 and alt yrs) Merrill
- 152. The Stability of Cultures.** Critical examination of theories of cultural stability with special emphasis on values and value systems in various cultures. (3 cr; prereq 2A or 100, waived for majors in other social sciences; offered when feasible)
- 154w. Ethnological Field Techniques.** Introduction to field interviewing techniques, recordation, and interpretation of results through report writing. Laboratory exercises with informants from American Indian, African, or Asiatic societies. (3 cr; prereq  $\#$ ; 4 lab hrs per wk) Gibbs
- 160w. Law-Ways of Primitive Man.** Social control, law, and government in primitive societies. Theory and method of comparative legal dynamics. Relation of law to whole cultures. Functions and evolution of law revealed in study of type primitive societies ranging from the simplest to the most complex. (3 cr; prereq 2A or 100, waived for majors in other social sciences or law) Hoebel
- 161f. Primitive Religion.** Beliefs and practices in primitive religious systems, the roles of sacred, the supernatural, and beliefs in continuance of life after death, and the role of the dead in the life-ways of primitive peoples. (3 cr; prereq 2A or 100) Spencer
- 162. Primitive Technology.** Analysis of the material culture of primitive peoples; historical development and distribution; techniques and methods of manufacture; use and function within a society. Problems of art and design. The role of the craftsman in primitive societies. (3 cr; prereq 1A and 2A or 100; offered when feasible) Johnson
- 163f. Economic Activities in Primitive Cultures.** Varied systems of making a living in pre-literate groups. Economy of hunting and fishing tribes, primitive agriculturists, and simple herders. Relations between habitat, technology, social organization and goals and attitudes as focused in the area of economic life. (3 cr; prereq 2A or 100, waived for majors in economics and business administration) Merrill
- 164w. Social Anthropology.** Forms of social structure, especially kinship systems and their relation to economic, religious, and politico-legal activities in primitive and folk culture. Theories and methods of structural analysis. (3 cr; prereq 2A or 100) Gibbs
- 165f,w,s. Culture and Personality.** Role of culture in the formation of personality. Problems of individual adjustments to the demands of culture. Psychological approach to culture. (3 cr; prereq sr, 2A or 100 or  $\Delta$ , waived for majors in public health nursing, psychology, sociology, and social work) Hoebel (f), Spencer (w), Gibbs (s)
- 166f. Primitive Art.** Technique, style, and symbolism in the arts of primitive peoples. Art and the artist in relation to primitive culture and society. (3 cr; prereq 2A or 100 or  $\Delta$ ; waived for art majors)
- 169s. Comprehensive Survey.** Integrated review of major anthropological concepts, methodologies, and theorists. (3 cr; prereq sr,  $\Delta$ ) Gibbs

### Group IV—PHYSICAL ANTHROPOLOGY

- 170f. Primate and Human Evolution.** Origins and relationships of extinct forms of nonhuman primates and man. (3 cr; prereq 1A or 100 and  $\Delta$ ) Murrill
- 171w-172s. Physical Anthropology.** Comparative osteology of man and the anthropoid apes. Variations related to sex, age, and race. Observations and measurements on the skeleton. Anthropometry—measurement of the living. Body size, proportions, and statistical analysis. (8 cr; 2 lect and 4 lab hrs per wk) Murrill
- 173s. Human Biology.** Evolutionary processes in the differential development of races. Physical characteristics, distribution, and relationships of living races of mankind. Human genetics, particularly of blood types in racial analysis. Influence of various environments on man. (3 cr; prereq 1A or  $\Delta$ ) Murrill
- 175s. Human Physical Growth and Development.** Period of growth—prenatal, birth, infancy, childhood, and adolescence. Sex differences in growth. Skeletal maturation. Development and growth of the head. Growth and eruption of teeth. Comparative adolescent physiology. (3 cr; prereq 1A or  $\#$ , or waived for majors in child development) Murrill

## Group V—LINGUISTICS

- 180f. Phonetics and Phonemics.** A survey of speech sounds followed by practice in phonetic recording. Analysis of phonetic patterns in language. Practical work in dictation of Chippewa, Dakota, Finnish, and other languages. (3 cr)
- 181w. Descriptive Linguistics.** Problems relating to phonetic patterning, morphology, syntax, and semantics of language; attention directed to the varieties of language structures outside of our own speech family. (4 cr; prereq 180; 3 lect and 2 lab hrs per wk) Spencer
- 182s. Language and Culture.** The relation of language to behavior; languages as systems of thought, logic, and orientation and their impact on cultures. Semantics and symbols in linguistic structures across the world; analysis of selected linguistic and cultural systems. Glottochronology. (3 cr; prereq 181) Spencer

190f-191w-192s. **Directed Research.** (Cr ar; prereq sr,  $\Delta$ ) Staff

196s. **Proseminar in East and South Asia.** (Same as Geog 196 and Pol 196) Integrating course for students majoring in the East and South Asia Area Studies program. (3 cr; prereq sr) Interdepartmental staff

*For Graduate Students Only*

200-201. **Anthropology and Scientific Method**

204-205-206. **Seminar in Anthropology**

240. **Ethnological Field Session**

251-252-253. **Seminar in Culture and Personality**

## ARABIC

See Slavic and Oriental Languages

## ARCHITECTURE

(Institute of Technology)

**Department Head—Ralph Rapson**

**Major Adviser in Architecture in SLA—Assistant Professor Koeper.**

**Major Sequence in SLA—Arch 51-52-53, 81-82-83, 91-92-93.**

Prerequisites: High school or college equivalent of Math H, Higher Algebra, and solid geometry; Phys 1-2-3 and 1A-2A-3A; Art 23A-24A-25A and approval by the School of Architecture after formal application has been made. Application forms will be furnished by the School of Architecture or the Office of Admissions and Records. They must be submitted not later than July 15 preceding the beginning of the academic year for which admission is sought.

This sequence is intended for:

1. Students who for cultural or vocational reasons may want a certain degree of specialization in architecture.
2. Students preparing for further training in such special fields as city planning, landscape architecture, and interior or industrial design.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

A special modification of this sequence is available for students taking the 6-year combined course in arts and architecture leading to both the liberal arts and professional architectural degrees, B.A. and B.Arch. Such students should include, in addition to the courses listed above, Math 10, T, C, 40, 53; MM 92-93; Art 60A-61A-62A. Also CE 38-39-41 or Arch 71-72-73 is desirable although neither carries credit toward the B.A. degree. For further information concerning the 6-year combined course, see page 148 of this bulletin.

**NOTE—Consult the *Bulletin of the Institute of Technology* for additional courses.**

### Lower Division Courses

- 1s. Introduction to Architecture.** Philosophy and principles of architecture as an art, a science, and a profession. (1 cr; 1 lect hr per wk)
- 11f-12w-13s. Architectural Drawing.** Drafting techniques, orthographic, isometric, oblique, and perspective projections; architectural conventions, intersections, developments, shades and shadows, architectural lettering. (2 cr per qtr; 6 lect and lab hrs per wk)

### Upper Division Courses

- 51f-52w-53s. History of Architecture.** Significant architecture of the past, with particular reference to the geographic, social, and technical influences which produced it. (4 cr per qtr)
- 81-82-83.† Architectural Design I.** Basic exercises in composition of line, form, proportion, color, and texture. Elements of architectural design. Architectural drawing. Model making. (18 cr, normally 6 cr per qtr; prereq  $\Delta$ ; entrance fall qtr only)
- 91-92-93f,w,s.† Architectural Design II.** Continuation of design principles with emphasis on development of structures as an integral part of design. Research techniques. (18 cr, normally 6 cr per qtr; prereq 83)
- 101-102-103f,w,s. Tutorial Work in History of Architecture.** Reading and written reports on special historical problems. (2 cr per qtr; prereq 53)
- 104f. Planning.** (Same as Econ 110, Pol 123, Soc 106) Social, economic, political, geographic, and technical phases of modern city planning. (3 cr; prereq sr)
- 105w. Seminar in Planning.** (3 cr; prereq 104; 3 seminar hrs per wk)
- 106s. Planning.** Technical phases of modern city planning with special reference to the architect's function therein. (3 cr; prereq 105)

## ART

**Department Chairman—H. Harvard Arnason**

**Major Advisers for All Art Courses in SLA—Professors Arnason, Eitner, Rood, Tselos, Young; Associate Professors Downs, Morton, Myers, Quirt, Rollins, Thomas, Torbert; Lecturer Booth.**

The principal objective of the Department of Art is to contribute to the general education of all students at the University of Minnesota. With this end in view, all courses in both history and practice lay particular stress on the problems and needs of the nonprofessional student interested in acquiring some knowledge of the theory and practice of art within the framework of a liberal education.

For those students interested in acquiring a liberal education and then proceeding to advanced work in history or studio, the Department of Art offers professionally oriented courses at the Upper Division level and graduate courses leading to the degrees of the M.A. and Ph.D. in history and criticism, and to the M.F.A. in the practice of art.

**NOTE—**Superior students in art may be required to leave permanently with the department 1 or 2 examples of their work. These examples will be used for exhibition purposes and as a continuing record. Such students will be compensated for materials used.

**Major Sequences in SLA—**In the Department of Art it is possible to major in the history and criticism or the practice of art, or in various combinations of these. The student intending to major in art should consult one of the departmental advisers as soon after entrance to college as is practicable.

**A. History and Criticism of Art.** Prerequisites: Art 1, 2, 3, Introduction to Art; Art 23, 24, Drawing and Design I. Requirements: 27 credits in history of art courses numbered above 50; reading knowledge of 1 foreign language. The following areas are recommended as minors for students majoring in the history and criticism of art: humanities, literature, philosophy, or languages.

**B. Studio Course Major.** Prerequisites: Art 1, 2, 3, Introduction to Art; Art 23, 24, 25, Drawing and Design I (Art 32, Printmaking, or Art 10, Photography, may be substituted for Art 25), Art 40, 41, 42, Sculpture I (Art 45, Ceramic Processes, may be substituted for Art 42). Requirements: Art 51 and 10 Upper Division

credits selected from any 1 of the following areas: design, painting, prints, sculpture, film, and photography; 9 additional credits in studio courses numbered above 50; 9 Upper Division credits in art history.

NOTE—Art 10, Photography, is strongly recommended for all majors in the department.

**Suggested Minor Sequences in SLA**—In the Department of Art it is possible to minor in the history and criticism or the practice of art or in various combinations of these. The following categories indicate two methods of attaining a minor:

A. A minor sequence which presents a comprehensive introduction to the basic problems of art is offered by the Department of Art. The courses, Art 63, 64, 68 (with other 2- or 3-credit Upper Division courses) constitute the sequence and present the theory and practice of drawing, painting, design, and sculpture. Art 65 may be elected to complete this sequence or may be taken as an independent course without prerequisites. Other courses which may be elected to complete the sequence and for which Art 63 and 64 may serve as the prerequisites are Art 60B, 70B, 80, or 90. Art 63, 64, and 65 are not credited to art or art education majors.

B. It is also possible to minor in art by registering for regular Upper Division courses in such areas as history of art or drawing and painting. The student intending to minor in art is invited to consult one of the departmental advisers.

To facilitate reference to the several art sequences, the following index will be helpful:

#### Lower Division Courses

Art History—1, 2, 3  
Ceramics—45  
Drawing and Design—20, 23, 24, 25  
Photography—10, 11, 12  
Printmaking—32  
Sculpture and Design Workshop—40, 41, 42,  
43, 44

#### Upper Division Courses

Art History—50, 56, 57, 58, 66, 67, 68, 76, 77,  
86, 87, 88, 100, 101, 102, 103, 104, 105, 106,  
107, 108, 111, 112, 116, 117, 118, 126, 127, 128,  
129, 130, 131, 132, 133, 136, 137, 138, 140, 141,  
142, 146, 147, 148, 156, 157, 158, 166, 167, 168,  
176, 177, 178, 186, 196, 197, 198  
Ceramics—94, 95  
Design—65, 73, 74, 75, 143, 144, 145, 193,  
194, 195  
Drawing, Painting, and Composition—51, 52,  
53, 54, 55, 60, 61, 60B, 61B, 62B, 69, 70, 71,  
72, 70B, 71B, 72B, 120, 121, 122, 150, 151,  
152, 150B, 151B, 152B  
Jewelry Design—113, 114, 115  
Photography and Film—83, 84, 85, 123, 124,  
125  
Printmaking—90, 91, 92, 190, 191, 192  
Sculpture—64, 80, 81, 82, 80A, 81A, 82A, 180,  
181, 182

#### For Graduate Students Only

Art History—206 through 238

Studio—200 through 252

Courses especially recommended for general education purposes are Art 1, 2, 3, 50, 56, 57, 58, 66, 67, 68.

### Art History and Criticism

#### Lower Division Courses

##### If, w, s-2w-3s. Introduction to Art

If, w, s. Principles of Art. Lecture and laboratory course introducing the student to basic problems of art. Examples from the painting, sculpture, and architecture of various periods will be used to illustrate general cultural factors that influence the pro-

duction of art as well as basic problems of design and of technique. The laboratory-discussion sessions will introduce the student to practical problems arising from the nature of the materials of the visual arts. (5 cr, \$50; prereq fr and soph only; Upper Division students see Art 50 for equiv) Eitner

- 2w. **Principles of Ancient and Medieval Art.** Introduction to art criticism based on a number of selected monuments of ancient and medieval art. A broad critical analysis of Egyptian, Mesopotamian, Greek, Hellenistic, Roman, and Medieval art as separate but related expressions of the culture in the periods indicated. (3 cr; prereq 1) Thomas
- 3s. **Principles of Renaissance and Modern Art.** Second course of a series on introduction to the principles of art criticism. A selected number of monuments for the general study of Renaissance, Baroque, and modern art and culture. (3 cr; prereq 1) Waldfoegel

### Upper Division Courses

- 50f,w,s. **Introduction to the Visual Arts.** Similar to Art 1 in organization and basic content. An expanded program of reading and more extensive contact with works of art. (3 cr, \$1) Torbert
- 56f. **Renaissance and Baroque Art: 1300-1500.** Painting, sculpture, and architecture in Europe from Duccio to Raphael. Giotto and the 14th century in Italy. Architecture of the early Renaissance. The Van Eycks, Masaccio, Donatello, and the 15th century in Italy and Flanders. Leonardo, Raphael, Dürer, and the High Renaissance. (3 cr [may not be credited toward an art major]; prereq 1 or 50 or  $\Delta$ ) Thomas
- 57w. **Renaissance and Baroque Art: 1500-1650.** Painting, sculpture, and architecture in Europe from Michelangelo to Rubens. Titian, Tintoretto, and the 16th century in Venice. Palladio and the academic attitude in architecture. Caravaggio, El Greco, and the early Baroque style of Bernini and Velasquez. (3 cr [may not be credited toward an art major]; prereq 1 or 50 or  $\Delta$ ) Thomas
- 58s. **Renaissance and Baroque Art: 1650-1800.** Painting, sculpture, and architecture in Europe from Rembrandt to David. Seventeenth-century art of Holland, Poussin and the classical tradition in France and England. Watteau, Boucher, and 18th-century decoration. The English portraitists. The rise of Neoclassicism in Italy and France. (3 cr [may not be credited toward an art major]; prereq 1 or 50 or  $\Delta$ ) Thomas
- 66f. **Modern Art: Classicism and Romanticism.** Development of painting, sculpture, and architecture from the period of the French Revolution to about 1850 in France, Germany, Spain, and England, with an introduction to parallel movements in the United States. (3 cr [may not be credited toward an art major]; prereq 1 or 50 or  $\Delta$ ) Waldfoegel
- 67w. **Modern Art: Realism and Impressionism.** Painting, sculpture, and architecture during the second half of the 19th century with particular emphasis on the schools of Paris, their influence and parallels in England, Germany, and the United States. (3 cr [may not be credited toward an art major]; prereq 1 or 50 or  $\Delta$ ) Waldfoegel
- 68s. **Modern Art: Contemporary Art in Europe and America.** Development of painting, sculpture, and architecture in Europe and the United States during the 20th century. (3 cr [may not be credited toward an art major]; prereq 1 or 50 or  $\Delta$ ) Waldfoegel
- 76f. **Art of Latin America.** Painting, sculpture, and architecture in Latin America, treating the pre-Columbian traditions, the development of the various colonial styles and the most significant of the national schools in the periods prior to the 20th century. (3 cr; prereq 1 or 50 or  $\Delta$ ...157 or 126 recommended)
- 77w. **Art of Latin America.** Latin-American arts in the 20th century with particular emphasis on painting and architecture in Mexico and South America. (3 cr; prereq 1 or 50 or  $\Delta$ ...176 or 157 or 126 recommended)
- 86f-87w-88s. **The Art of the Film.** Critical study and analysis of the motion picture as an art form. Emphasis on the finished product, demonstrated in a select program of films of exceptional merit or specific interest. Lectures, demonstration, and discussions. Analysis of films of various categories, such as narrative, poetic, documentary, experimental, etc. (3 cr; prereq 9 cr in art or 9 cr in speech incl Spch 31) Amberg
- 100f. **Art in Ancient Egypt, Mesopotamia, and Greece.** Architecture, sculpture, and painting of the pre-Hellenic civilizations in Egypt, Mesopotamia, and the Aegean. Development of Greek art from its beginning to the Periclean age. (3 cr; prereq \*\*) Simon
- 101w. **Hellenistic Through Early Christian Art.** Art of the Hellenistic kingdoms. Hellenic and Etruscan art in Italy. Art of the Roman Empire. Transformation of classical styles under the influence of oriental traditions and of Christian religion. Development of Christian art. Art of the Byzantine Empire. Survivals of classical forms in early medieval art. (3 cr; prereq \*\*) Simon
- 102s. **Romanesque and Gothic Art.** Development of architecture, sculpture, and painting in western Europe and Italy from the 10th until the 15th century. The art of the cathedrals.

\*\* Prerequisite is 9 credits in history of art, or 9 credits in literature or history with consent of department.



- Romanesque and Gothic monumental and manuscript painting. Development of Gothic art as manifestation of currents in medieval culture. (3 cr; prereq \*\*) Simon
- 103f-104w-105s. **Ancient Art.** Studies in pre-Hellenic, Greek, Hellenistic, and Roman art. In each quarter an independent discussion centered around major styles, regions, and problems of iconography. Lectures and discussions. (3 cr; prereq sr and art majors, \*\*; offered when feasible)
- 106f-107w-108s. **Medieval Art.** Studies in early Christian, Byzantine, Carolingian, Romanesque, and Gothic art. In each quarter an independent discussion centered around major styles, regions, and problems of iconography. Lectures and discussions. (3 cr; prereq sr and art majors, \*\*; offered when feasible)
- 111s. **Art of China.** Development of painting, sculpture, and the minor arts in China from earliest times to the present. (3 cr; prereq \*\*...Hist 62-63 recommended) Mather
112. **Art of Japan.** Development of painting, sculpture, and minor arts in Japan from earliest times to the present. (3 cr; prereq \*\*; offered when feasible)
- 116f-117w-118s. **Renaissance and Baroque Art in Italy and Spain.** Studies in Italian and Spanish art of the 15th, 16th, 17th, and 18th centuries. In each quarter an independent discussion centered around major personalities, styles, regions, and problems of iconography. Lectures and discussions. (3 cr; prereq sr and art majors, \*\*) Thomas
- 126f-127w-128s. **Renaissance and Baroque Art in the North.** Studies in Flemish, French, German, Dutch, and English art of the 15th, 16th, 17th, and 18th centuries. In each quarter an independent discussion centered around major personalities, styles, regions, and problems of iconography. Lectures and discussions. (3 cr; prereq sr and art majors, \*\*; offered 1960-61 and alt yrs) Thomas
- 129s. **History of the Graphic Arts.** Origins of the woodcut and of engraving. Renaissance and Baroque master etchers and engravers. Mantegna, Raimondi, Schongauer, Dürer, Holbein, Lucas van Leyden, Callot, Rembrandt. Reproductive and portrait engraving of the 17th and 18th centuries. Lithography. Gericault, Delacroix, Daumier. Twentieth-century print-making. (3 cr; prereq 1 and \*\*) Thomas
130. **Master Drawings.** Detailed study of the various techniques and styles of fine drawings from the 14th through the 20th centuries. The most extensive possible use of original drawings in class and in collections in this area. Considerable amount of specific reading, class discussions, and papers. A companion course to Art 129. (3 cr; prereq sr and art majors, \*\*; offered when feasible)
- 131f. **The Illuminated Book in Antiquity and the Middle Ages.** Origins of the illuminated book; the role of the book in Christian art; Carolingian and Ottonian scriptoria; Byzantine tradition; Romanesque and Gothic illuminations; growth of secular book illustration. (3 cr; prereq \*\*) Tselos
- 132w. **The Illustrated Book from the Renaissance to the Rococo.** The origins of a new style of painting in the Books of Hours of about 1400; Italian books of the Renaissance; invention of printing and its impact on the illustrated book; masters of woodcut illustration; Dürer, Holbein; Italian and French illustrators; rise of engraving as chief medium of illustration; illustrators of the Baroque; the French illustrated book of the 18th century. (3 cr; prereq \*\*) Thomas
- 133s. **Book Illustration in the Modern World.** Development of the illustrated book from the Romantic period to the present. Great painters as illustrators: Manet, Toulouse-Lautrec, Gauguin, Redon. Illustrated periodicals; the poster as a work of art. Picasso, Rouault, Matisse, and other contemporary artists as illustrators. (3 cr; prereq \*\*) Eitner
- 136f. **Art in the United States.** Origins: painting, sculpture, and architecture from the beginnings through the colonial and Revolutionary periods. Relations with England and the European continent. Copley, Stuart, West, and their followers. Early weeks of the quarter are devoted to analysis of the means of visual expression common to architecture, sculpture, and painting. (3 cr; prereq \*\*) Torbert
- 137w. **Art in the United States.** Jefferson and his influence. Rise of a national style in landscape and realistic genre. Homer, Eakins, Ryder, and their influence. Impressionism and relations with Europe after the Civil War. Beginnings of modern architecture. (3 cr; prereq \*\*) Torbert
- 138s. **Art in the United States.** Contemporary movements. The Armory Show and development of modern realism, expressionism, and abstraction. Frank Lloyd Wright and modern American architecture. (3 cr; prereq \*\*) Torbert
- 140f. **Scandinavian Architecture.** Main emphasis will be on the development of the native tradition in architecture from the medieval stave churches, through folk architecture, to the modern style. There will also be a survey of important architectural monuments in Scandinavia which are less native in character, but which have contributed to the local development. (3 cr; prereq \*\*) Nelson
- 141w. **Scandinavian Painting.** The course will have three areas of concentration: Medieval wall and panel painting; folk painting and tapestry weaving in the 17th, 18th, and 19th

\*\* Prerequisite is 9 credits in history of art, or 9 credits in literature or history with consent of department.

- centuries; and modern painting. In the last section special attention will be given to Edward Munch and Norwegian mural painting. (3 cr; prereq \*\*) Nelson
- 142s. **Scandinavian Sculpture and the Minor Arts.** The major part of the course will be devoted to the decorative wood carving from the Viking period to the 19th century, and to the wood sculpture of the Middle Ages. The modern period will be represented chiefly by Carl Milles, Gustav Vigeland, and Kai Nielsen. The section on jewelry and metal will have its concentration in the pre-Christian era, while the present day will be given the most emphasis in the discussion of ceramics and glass. (3 cr; prereq \*\*) Nelson
- 146f. **European and American Architecture: 1775-1850.** Revivalist and progressive movements; Neoclassic and Neogothic styles; genesis of modern style under rationalism and industrial revolution. Special emphasis on contributions of most important architects of France, England, and United States. (3 cr; prereq 1 and \*\*; offered 1959-60 and alt yrs) Tselos
- 147w. **European and American Architecture: 1850-1900.** Victorian Gothic eclecticism, and rise of modern pragmatism in architecture within historical and anti-historical currents; influence of Victorian Gothic and French academism on American architecture and the divergent reactions. (3 cr; prereq ††; offered 1959-60 and alt yrs) Tselos
- 148s. **Modern Architecture: 1900-1950.** Rise of proto-modern architecture in European and American centers; development of the new international style in its various phases; its relation to modern sculpture and painting and its meaning in the new aesthetic directions. (3 cr; prereq ††; offered 1959-60 and alt yrs) Tselos
- 156f-157w-158s. **European and American Painting: 1775-1900.** Origins of Neoclassicism and Neo-Baroque romanticism; parallel development of modern realism in France, England, and the United States; rise of landscape painting and its importance for the realist movement. Growth of realist painting in Courbet's time and its climax in Impressionism; Post-impressionist reactions and their significance for modern art; diffusion of Impressionist and Postimpressionist phases in America and the conservative lag in pre-Raphaelite England. (9 cr; prereq sr, ††; offered 1960-61 and alt yrs) Eitner, Tselos
- 166f. **The Renaissance Tradition in Sculpture.** After a rapid survey of the sculptural background from the 15th to the mid-18th centuries the course will concentrate on the Neoclassic movement in Europe and America, the academic and realistic currents culminating in the impressionistic realism of Rodin. (3 cr; prereq sr, ††; offered 1960-61 and alt yrs) Arnason
- 167w. **The Origins of Modern Sculpture.** Maillol, Rodin, and the streams of classicism and romantic realism. Painters as sculptors. German expressionism; the direction toward the archaic, primitive, and medieval. Impact of abstract painting. (3 cr; prereq sr, ††; offered 1960-61 and alt yrs) Arnason
- 168s. **Contemporary Sculpture.** Constructivism and experiment with new materials. Kinetic sculpture. Growing influence of the United States. New directions in English and Italian sculpture. Problems of realism and abstraction at the mid-century. (3 cr; prereq sr, ††; offered 1960-61 and alt yrs) Arnason
- 176f-177w-178s.‡ **Twentieth-Century European and American Painting.** Growth of modern painting and of the Postimpressionist inheritance; French Fauves and German expressionists; impact of primitive art and its assimilation in cubism; purist defections and rise of Dada and surrealism; the new objectivity, the new romanticism, and the new eclecticism; special attention will be given to peculiarly American assimilation of the European phases of painting. (9 cr; prereq sr, ††; offered 1959-60 and alt yrs) Eitner, Tselos
- 186s. **The Art of the Film.** Aesthetics of the film medium. Evaluation and analysis of the motion picture as an art form. Discussions of editing, montage, sound, and the use of the camera, etc. Course will be illustrated with feature-length films and short subjects. (3 cr; prereq 87 or Δ) Amberg
- 196f-197w-198s. **Readings in Art History and Criticism.** (9 cr; prereq sr, Δ) Arnason, Tselos, Eitner, Thomas, Torbert, Waldfoel

### For Graduate Students Only

- 206-207-208.† Seminar: **European and American Architecture**  
 216-217-218.† Seminar: **European and American Painting**  
 236-237-238.† Seminar: **Problems in Art History and Criticism**

\*\* Prerequisite is 9 credits in history of art, or 9 credits in literature or history with consent of department.

†† Prerequisite is Art 1 or 50 and 9 credits in history of art, or 9 credits in history or literature with consent of instructor.

## Studio

### Lower Division Courses

- 10f,w,s. Photography.** Introduction to the photographic medium, its background and meaning today. Lectures in contemporary and historical use of photography. Problems in the use of the camera, printing, and enlarging. (3 cr) Downs, Liebling
- 11w,s. Photography.** For students who have had previous instruction in photography or have worked in photography and know the principles of developing and printing. Develops a personal photographic perception in the student through lectures on photographic history and contemporary trends in photography. Intensive field work. (3 cr; enrollment limited; prereq 10 or practical experience and  $\Delta$ ) Downs, Liebling
- 12s. Photography.** History and criticism. Its use in illustration, printing, advertising, and its relationship to film and television. Field project in creative photography. (3 cr; prereq 11 or  $\Delta$ ) Downs, Liebling
- 20f,w,s. Elements of Drawing.** Elementary course introducing basic problems in drawing. No previous experience required. Work in various drawing mediums. Subject matter: still life, figure, landscape, and nature study. (2 cr) Quirt
- 23f-24w-25s. Drawing and Design I.** Foundation sequence for future work in the Art Department. Investigation through discussion and studio work of the characteristics and principles common to all visual arts.
- 23f. Drawing and Design I.** Experience in handling the tools and materials of drawing. Source material in nature, and problems in descriptive and imaginative drawing. Investigation of design principles through drawing and elementary perspective. (3 cr; prereq 1 or  $\Phi$ 1) Downs, Rollins, Young
- 24w. Drawing and Design I.** Introduction to the basic tools of the artist, the elements and principles of design. Line, shape, texture, value, and color are considered separately and as they relate to one another. (3 cr; prereq 23) Downs, Rollins, Young
- 25s. Drawing and Design I.** Development of the work in Art 24 with primary emphasis on the means of organization, through projects in such areas as: illustration, graphic design, photography, and certain printing processes. (3 cr; prereq 24) Downs, Rollins, Young
- 23Af. Drawing and Painting I.** (For architects only) (2 cr) Quirt, Rollins
- 24Aw. Drawing and Painting I.** (For architects only) (2 cr; prereq 23A) Quirt, Rollins
- 25As. Drawing and Painting I.** (For architects only) (2 cr; prereq 24A) Quirt, Rollins
- 32f,w,s. Elements of Printmaking.** Foundation course designed to familiarize the student with the mediums of printmaking in general. Problems in engraving, etching, and other techniques employed in working on metal plate, as well as lithography, wood cuts, and combined processes. (3 cr) Myers
- 40f,w. Sculpture I. Beginning course.** Intensive study of structure in nature with emphasis on accurate observation. Life drawing prepares the student for each sculpture problem. The sculpture medium is clay. Some instruction in plaster casting. (3 cr; prereq 1 or  $\Phi$ 1) Rood, Morton
- 41w,s. Sculpture I.** Integrates basic principles examined in Art 40. Natural form is studied for its sculptural possibilities. A more imaginative approach to the study of nature is encouraged. In addition to clay, direct plaster construction is the principal medium. Drawing from life precedes each problem. (3 cr; prereq 40) Rood, Morton
- 42f,s. Sculpture I: Design Workshop.** Free exploration of wood, metal, and ceramics. Emphasis is placed on abstract application of structural principles. Fundamental hand and machine tools are introduced. (3 cr; prereq 1) Rood, Morton
- 43w. Design Workshop.** Problems of three-dimensional space organization, ranging from jewelry to display presentations. Emphasis is upon design principles and metal processes and techniques. (3 cr; prereq 42)
- 44s. Design Workshop.** Special problems in three-dimensional design. Advanced projects, such as display, furniture, together with historical, functional, and market aspects of product design. (3 cr; prereq 43)
- 45f,w,s. Ceramic Processes.** Introduction to building pottery by hand and forming on the potter's wheel. Experiments with decorative techniques on wet clay and on bisque fired pottery. Primarily concerned with pottery as a creative expression but includes technical considerations of clays, glazes, and kilns. (3 cr) MacKenzie

### Upper Division Courses

- 51f,w,s. Principles of Pictorial Design.** The stages of observing objectively the plastic qualities and abstract relationships which make painting significant as an art. Investigation of the ways in which painters of various periods have organized their materials to meet their individual purposes. In conjunction with this, individual creative efforts are developed in simple mediums. (2 cr; prereq 25) Booth
- 52f-53w. Drawing II.** Drawing from model, still life, and nature. Principles of anatomy. (3 cr per qtr; prereq 25 or equiv, with  $\Delta$ ) Booth, Rollins, Young

- 54s-55f. Life Drawing.** (Continuation of Art 52-53) Places particular emphasis on drawing from the model. Related studies of past and contemporary drawing and painting employing the human figure. (3 cr per qtr; prereq 52 or equiv, with  $\Delta$ ) Booth, Rollins, Young
- 60w-61s. Composition.** Progressive exercises in interpretive drawing, stressing representation, space, movement, abstract relationships, and expression. Introduction to color. (3 cr per qtr; prereq 54 or equiv, with  $\Delta$ ) Booth
- 60A-61A-62Af, w.s. Drawing and Painting II.** (For architects) (2 cr per qtr; prereq 25A)
- 60B-61B-62Bf, w.s. Water Color.** Introduction to transparent water color, gouache, casein, and tempera. General course introducing the student to a variety of drawing and painting mediums. Figure, still life, landscape, and abstract design. (2 cr per qtr [elective cr for students majoring in art]; prereq 20 or 23 or equiv, with  $\Delta$ ) Rollins
- 63f. Drawing, Painting, and Design.** Introduces the student to the tools and materials and the basic problems of drawing, painting, and design. Studio work, discussion, and lecture. (5 cr; not open to art or art education majors...see suggested minor sequences)
- 64w. Sculpture and Three-Dimensional Design.** Introduces the student to the tools and materials and the basic problems of sculpture and three-dimensional design. Studio work, discussion, and lecture. (5 cr; not open to art or art education majors...see suggested minor sequences)
- 65w.s. Commercial Design.** Problems in design and drawing emphasizing the application of design principles to commercial art situations. (3 cr; not open to art or art education majors...see suggested minor sequences)
- 69w.s. Lettering.** Introduction to lettering: formation of letters, spacing, composition of the lettered page, and procedures related to reproduction lettering. (3 cr; prereq 25) Young
- 70-71-72f, w.s. Oil Painting.** Introduction to medium of oil; individual projects and instruction. (3 cr per qtr; prereq 54) Booth, Quirt, Rollins
- 70B-71B-72Bf, w.s. Oil Painting.** (For general students) (2 cr per qtr, §70-71-72 [no cr for art majors; prereq 20 or 23 or equiv, with  $\Delta$ ] Quirt
- 73f-74w-75s. Presentation Techniques.** The visual means of communicating ideas in the fields of exhibition techniques, illustration, and advertising. Investigation of the characteristics and the creative use of various mediums.
- 73f. Presentation Techniques.** Experiments and instruction in the use of wash techniques, water-color, gouache, inks, and the use of mechanical instruments. Presentation problems using the medium's limitations as a starting point. (3 cr; prereq 25; no prereq for architects)
- 74w. Presentation Techniques.** Experiments and instruction in the use of photomechanical and related print processes, mechanical patterns, air-brush, scratch board, and photostat. Elementary problems in relationship between organizational means and content. (3 cr; prereq 25; no prereq for architects)
- 75s. Presentation Techniques.** Practice in the use of associative relationships and symbols in complete communication problems in the fields of display illustration and advertising. (3 cr; prereq 73 or 74, both recommended)
- 80-81-82f, w.s. Sculpture II.** Direct carving in stone and wood with attention given to possibilities of materials and sculptural design. Experimental work in metal, plastics, and combinations of sculptural materials. Some direct modeling in plaster. (3 cr per qtr; prereq 42 or equiv) Rood
- 80Af-81Aw-82As. Metal Sculpture.**
- 80Af. Direct Metal Sculpture and Constructions.** Work with direct metal sculpture, constructions, and mobiles, with attention given to sculptural form. (3 cr; prereq 42 or  $\Delta$ ) Morton
- 81Aw. Metal Sculpture in Relief and Repoussé.** Construction and repoussé methods of sculpture. Problems of sculptural expression and space organization in relation to interiors and architecture. (3 cr; prereq 80A) Morton
- 82As. Bronze Casting and Wax Modeling.** Aesthetic and technical problems of modeling in clay and wax with reference to bronze metal forms and the technical problems of lost-wax casting are introduced. (3 cr; prereq 81A) Morton
- 83f-84w-85s. Photography II.** Gives advanced students an opportunity to carry out creative problems in color development and printing. Experiments in photographic controls to illustrate limitations and capacities. Use of photography to interpret the visual environment, and the photographer's responsibilities in this use. (3 cr per qtr; prereq 12 or Jour 12 or  $\Delta$ ; offered 1960-61 and alt yrs) Downs, Liebling
- 90-91-92f, w.s. Printmaking.** Problems in engraving, etching, and the other techniques employed in working on metal plate, as well as lithography, woodcuts, and combined processes. (3 cr per qtr; prereq 32 or  $\Delta$ ) Myers
- 94-95f, w.s. Ceramic Design.** (Continuation of Art 45) Greater emphasis on wheel throwing. Advanced design problems and an introduction to glaze and clay experimentation. Emphasis on the development of personal expression in ceramic medium. (3 cr per qtr; prereq 45 or  $\Delta$ ) MacKenzie
- 113f, w.s. Design in Jewelry.** Introduction to the problems of design as applied to jewelry. Basic techniques of soldering, forming, forging are taught. Lectures correlate the contemporary craft movement with modern art. (3 cr; prereq 25 and  $\Delta$ ) Morton

- 114f, w.s. **Advanced Design in Jewelry.** More complex problems of three-dimensional design are introduced and additional metal techniques are utilized; engraving, chasing, and repoussé. Exercises in drawing and rendering form the basis for experimental work in metal. (3 cr; prereq 113) Morton
- 115f, w.s. **Special Problems in Jewelry Design.** Special projects in jewelry and metal are assigned to students as means of developing skill in design. A wide range of problems give art education students a background for setting up or carrying on an adequate high school teaching program. (3 cr; prereq 114) Morton
- 120-121-122f, w.s. **Advanced Drawing.** (Primarily for painting majors) Drawing in all mediums from life and from imagination. Studies of the history of drawing. (3 cr per qtr; prereq 54 or equiv, T70-71-72) Booth
- 123f-124w-125s. **Film Workshop.** Practical study of the motion picture as an art form. Studio problems in script preparation, camera technique, and editing, with an emphasis on the visual aspects of film making. Analysis of selected professional films and visits to local studios. In winter and spring quarters, a concentration on production, editing, and technical problems through the making of a short film. Production will be limited to descriptive and experimental work. (3 cr per qtr; prereq art or humanities or music or theater major and  $\Delta$ ) Downs
- 143f-144w-145s. **Design in Industry.** Analysis of products designed for industrial production; historical survey of design in industry; practical workshop problems. Effects of industrial processes and production techniques on concepts of design in contemporary society; relationship between design, function, and manufacturing processes. Leads to a final experimental problem. (3 cr; prereq  $\Delta$ )
- 150-151-152f, w.s. **Problems in Painting.** (Cr ar; prereq 72 and  $\Delta$ ) Booth, Quirt
- 150B-151B-152Bf, w.s. **Problems in Painting.** (For general students) (2 cr [elective cr for studio majors]; prereq 72B) Quirt
- 180-181-182f, w.s. **Problems in Sculpture.** Advanced work in wood, stone, plaster, metal, and other materials of sculpture. Students work individually on projects. (Cr ar; prereq 82, 82A or  $\Delta$ ) Rood, Morton
- 190-191-192f, w.s. **Problems in Printmaking.** (For advanced students) Includes work in black and white and color in metal, lithographs, and wood blocks. (Cr ar; prereq 92 or  $\Delta$ ) Myers
- 193f-194w-195s. **Advanced Problems in Design.** Offers the advanced student an opportunity to carry out a creative problem in design with guidance in practice and research methods. Discussions concerned with common denominators of art as they occur in commercial art, illustration, display, and museum techniques, industrial design, and also aesthetic, economic, and social implications of design. (Cr ar up to 9; prereq 9 Upper Division cr in design and consent of major adviser)

### For Graduate Students Only

- 200-201-202. **Advanced Problems in Studio Work**  
 250-251-252.† **Thesis Seminar**

## ASTRONOMY

Department Chairman—Willem J. Luyten

Major Adviser in SLA—Professor Luyten.

Major Sequence in SLA—Ast 51-52-53, 101, and Math 53, 54, 55 and 59.

Prerequisites: Math T-10, or Math T and at least 5 credits in chemistry, geology, or physics.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

For those who do not intend to pursue further studies in astronomy, either as a major or as a minor, the following two courses are recommended: Ast 11 for those who merely wish to become acquainted with the field, and who do not intend to go on in any other science; Ast 51 for those who, while not continuing in astronomy, are intending to take up some other field of science.

### Lower Division Courses

- 11f, s. **Descriptive Astronomy.** Brief survey of what is known about the sun, the moon, the planets and their motions, followed by a description of the constellations and a summary of our knowledge of the stellar universe to which the sun belongs. This course is completely nonmathematical. (5 cr, \$51) Luyten

**20w. Astronomy for Celestial Navigation.** Deals with the principles and the practice of navigation of planes and ships by using the stars in the sky. Some dead-reckoning navigation is included. (5 cr) Luyten

### Upper Division Courses

Upper Division courses in this department are open to Lower Division students only by special permission of the Scholastic Committee. See a statement on page 24.

**51w. General Astronomy.** An outline of our knowledge of the planetary system and its motions, including those of the earth and the moon. (3 cr, §11; prereq Math T) Danby

**52w. Astrophysics.** (4 cr; prereq Math 53 and Phys 50 [or Phys 7-8-9] with §) Danby

**53s. Stellar Astronomy.** (3 cr; prereq Math 53 and Ast 11 or Phys 7-8-9) Danby

**101f. Celestial Mechanics.** (3 cr; prereq Math 59) Danby

## BACTERIOLOGY

(College of Medical Sciences)

**Department Chairman—Jerome T. Syverton**

**Major Advisers in SLA—Drs. Syverton, Watson, Lichstein, Johansson, Schmidt, McLaren, Bradley, Crowell, Deal.**

**Major Sequence in SLA—Bact 53, 116, 121 and 16 additional Upper Division credits in bacteriology or approved related subjects.**

**Prerequisites:** Math 10 and 40; 12 credits of college physics (these subjects may be taken concurrently with bacteriology courses); 10 credits in biological science; 15 credits in inorganic chemistry and analytical chemistry, and 8 credits in organic chemistry; a foreign language is strongly recommended.

Modification of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

### Upper Division Courses

Bact 53 is open to Lower Division students who have a grade of at least C in the prerequisite courses. Other Upper Division courses are open to sophomores under conditions explain on page 24.

**53f,w,s.\*\* General Bacteriology.** Lectures, demonstrations, and laboratory instruction in the morphology, physiology, taxonomy, and ecology of bacteria. The practical applications of fundamental principles are emphasized. (5 cr; prereq soph with a C average in prerequisite courses, or jr, 10 cr in chemistry and 4 cr in biological sciences or §) Johansson, Schmidt, McLaren, Crowell

**NOTE—Bact 1, Elementary Bacteriology (Extension Division, winter quarter)** is open to students of occupational therapy and dental hygiene by obtaining special permission from the Department of Bacteriology.

**102w.\*\* Medical Bacteriology.** Pathogenic bacteria, especially in their relationship to disease; principles of infection and immunity; microbiological techniques for laboratory diagnosis with antibiotic determination. (4 cr; for students other than medical students; prereq 116) Watson and staff

**103s. Soil Microbiology.** Bacteria, fungi, and actinomycetes of the soil, with emphasis on the biochemical activities of the soil microflora. (4 cr; prereq 53, 8 cr in organic chemistry and §) Schmidt

**110w. Microbial Genetics.** Genetic mechanisms in the bacteria, bacteriophages, fungi, protozoa, and algae. Mutagenesis; selection; adaptation; cytoplasmic inheritance; patterns of genic recombination; fine structure of genetic material. (3 cr; prereq 53 or §; offered 1960-61 and alt yrs) Bradley

**111s. Advanced Laboratory.** Techniques employed in study of microbial genetics and mycology. Laboratory exercises illustrate recombination in bacteria and fungi, antibiosis,

\*\* Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

- morphogenesis in bacteria and fungi, and other techniques. (3 cr; prereq 110 or 112 or #; offered 1960-61 and alt yrs) Bradley
- 112w. **General Mycology.** Physiology; genetics; development; ecology; evolution; taxonomy; economic importance of the yeasts, molds, actinomycetes, and other fungi. (3 cr; prereq 53 or #; offered 1959-60 and alt yrs) Bradley
- 114s. **Medical Mycology.** Pathogenic fungi and mycotic infections in man and animals; emphasis on diagnostic procedures. (3 cr; prereq 102; offered 1959-60 and alt yrs) Bradley
- 116w. **Immunology.** Mechanisms of the interactions between host and parasite. Techniques and theories of serologic procedures, laws of hemolysis, quantitative relationship between antigen and antibody, opsonins, serums, vaccines, toxin, antitoxin, complement fixation, neutralization, precipitative and agglutinative reactions, blood grouping, atopy, anaphylaxis. (4 cr; prereq 53) Watson
- 121f. **Physiology of Bacteria.** Chemical and physical structure; staining; growth; influence of environment on growth; nutrition; enzymes; metabolism. (3 cr; required of all grad students in bacteriology and open to others by #; prereq 53 [minimal grade of C] and 8 cr in organic chemistry or biochemistry) Lichstein
- 122w. **Physiology of Bacteria Laboratory.** Techniques employed in the study of bacterial physiology and metabolism. (3 cr; required of all grad students in bacteriology and open to others by #; prereq 121) Lichstein
- 123s. **Bacterial Metabolism.** Advanced treatment of metabolism; enzymes; biological energy; fermentation; respiration; nitrogen metabolism. (3 cr; required of all grad students in bacteriology and open to others by #; prereq 121, 122 or equiv and introductory biochemistry; offered 1959-60 and alt yrs) Lichstein
- 124f. **Principles of Virology and Animal Cell Culture.** Lectures on biology of animal cell cultures; nature of viruses and rickettsia; etiology, epidemiology, and laboratory diagnosis of viral and rickettsial infections. (3 cr; prereq 102 and 116 or 105 and 106) McLaren, Ross
- 152f,w.s. **Special Problems.** (Cr ar; prereq #) Staff
- 153f,w.s.\*\* **General Bacteriology.** Lectures, demonstrations, and laboratory exercises are employed for instruction in the morphology, physiology, taxonomy, and ecology of bacteria. Practical applications of fundamental principles are emphasized. (3 cr; prereq 10 cr in chemistry and 4 cr in biological sciences or #) Johansson, Schmidt

## BIOLOGY

See Botany or Zoology

## BIostatistics

See Public Health

## BOTANY

Department Chairman—Allan H. Brown

Major Advisers in SLA—Professor Hall; Miss Hansen

Major Sequence in SLA—

1. One course from each of 5 of the following 6 groups:

- Group A—Bot 50 or 130
- Group B—Bot 51 or 140
- Group C—Bot 52
- Group D—Bot 53 or 118 or 121
- Group E—Bot 54
- Group F—Agro 31 or Zool 83

2. Two quarters of organic chemistry (OrCh 61-62) or agricultural biochemistry (AgBi 1, 3).

3. One course in biological science at the Lake Itasca Forestry and Biological Station.

\*\* Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

Prerequisites: Bot 1, 2, 3 (or 4, 5su) and Zool 1, 2, 3 (or old 14-15), Biol 1-2-3 (or old NSci 7, 8, 9), 2 quarters of inorganic chemistry, e.g., InCh 4, 5; Math 40 (or preferably 53); German through Ger 3.

Recommended electives for botany majors: Bot 10, 12; PIPa 56; Bact 112; Phys 1, 2, 3 and 1A, 2A, 3A or 4, 5, 6 or 7, 8, 9; French through Fren 3; PubH 110, 111; Zool 82; Bact 53; Geol 1, 2, and A, B; courses in social science or humanities.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

**Minor Sequence in SLA**—Bot 1, 2, 3, or 4, 5 or Biol 1-2-3 or old NSci 7, 8, 9 plus 15 credits in Upper Division botany courses.

**Major Adviser in the College of Education**—Professor Abbe

For the specialized curriculum in natural science see the *Bulletin of the College of Education*.

The following courses in biology and botany are recommended as general education courses and are available to nonmajor students: Biol 1, 2, 3; and 1A, 2A, 3A; Bot 10, 12, 14.

### Lower Division Courses

Bot 1-2-3, and 4-5su are not open to students who have taken Biol 1-2-3 or 1A-2A-3A or old NSci 7-8-9.

- Biol 1f-2w-3s.† General Biology.** Introduction to living things both plant and animal, and to the major biological concepts. Structure, function, classification, and evolution of organisms. (10 cr, §Bot 1-2-3, 4-5, Zool 1-2-3 or old 14-15, old NSci 7-8-9)
- Biol 1Af-2Aw-3As.† General Biology.** Introduction to living things and the major biological concepts. A terminal course primarily for nonmajors and students not pursuing a pre-professional program related to the biological sciences. (7 cr, §Bot 1-2-3, 4-5, Zool 1-2-3 or old 14-15, old NSci 7-8-9)
- 1f-2w-3s. General Botany.** Survey lecture and laboratory course on the form, structure, and functions of plants; reproduction in plants and the principles of inheritance and variation; relations of plants to environment; principal groups of plants; and organic evolution. (10 cr) Norris, Roshal
- 10s.\*\* Minnesota Plant Life.** Nontechnical survey of all the groups of plants native to Minnesota with special reference to identification and distribution. Suitable for nonmajors. (3 cr) Morley
- 12w.\*\* Plants Useful to Man.** Survey of the world's useful plants and plant products, their sources, characteristics, and uses. Demonstration of material. Plants and man: the origin and history of cultivated plants. Suitable for nonmajors. (4 cr) Lawrence
- 14f.\*\* Plant Life Through the Ages.** Survey of the fossil plant record. Identification of fossil plants; factors influencing distribution and change in fossil floras; composition of fossil floras. Suitable for nonmajors. (3 cr; offered when feasible) Hall

### Upper Division Courses

Bot 50, 51, 52, 53, 54 are open to sophomores who have an average grade of at least C in Bot 1-2-3 or 4-5 or in Biol 1-2-3 or old NSci 7-8-9. Other Upper Division courses in this department are open to Lower Division students only by special permission of the Scholastic Committee. See a statement on page 24.

- 50f.s. General Plant Ecology.** Introduction to interrelations of plants and environment, to provide a foundation for further ecological work in pure or applied fields and to provide a basis for understanding the relationships of man to biotic resources. (3 cr; prereq 3 or 5 or Biol 3 or old NSci 9) Martin
- 50Af.s. General Plant Ecology Laboratory.** Laboratory and field exercises to accompany Bot 50. (2 cr; prereq 10 cr in botany or biology or §) Lawrence, Martin
- 51s. General Plant Physiology.** Introduction to plant physiology. Emphasis on fundamental principles requisite to understanding physiological phenomena encountered in higher land plants. Cellular physiology, enzymes, respiration, fermentation, photosynthesis, mineral nutrition, water and solute metabolism, hormones, tropisms. (5 cr; prereq introductory course in botany or biology, Chem 5 or 25 or §) Frenkel

\*\* This course does not satisfy any part of the laboratory science requirement of SLA.



- 52f.s. **Elementary Taxonomy.** Introduction to taxonomy of ferns and flowering plants, with representative material drawn largely from Minnesota spring flora. Families of plants and their relationships; floral structure; taxonomic terms; nomenclature; literature; methods of collection and identification; 2 or 3 field trips. (3 cr; prereq 3 or 5 or Biol 3 or old NSci 9) Morley
- 53w. **Plant Anatomy.** Structure and development of plants with especial reference to vascular plants. (5 cr, §121; prereq 3 or 5 or Biol 3 or old NSci 9) Abbe, Hall
- 54s. **Survey of the Plant Kingdom.** Brief consideration of evolutionary relationships throughout the plant kingdom, especially as illustrated by life histories. (5 cr; prereq 3 or 5 or Biol 3 or old NSci 9) Abbe
- PIPa 56f. **Introduction to the Study of Fungi.** Structure, development, and identification of fungi, especially those of economic importance. (3 cr; prereq 9 cr in botany or §) Christensen
- 103f. **Plant Embryology.** Early stages of somatic development with emphasis on vascular plants. (3 cr; prereq 54 or 104 or §; offered when feasible) Abbe
- 104s. **Survey of the Plant Kingdom.** A brief consideration of evolutionary relationships throughout the plant kingdom, especially as illustrated by life histories. (5 cr; prereq 3 or 5 or Biol 3 or old NSci 9) Abbe
- 106w. **A Survey of Angiosperm Families.** Detailed study of the characteristics of the orders and families of flowering plants on a world-wide basis. (5 cr; prereq 52 or §; offered 1960-61 and alt yrs) Morley
- 108f. **Pteridophytes.** Classification of living ferns and fern allies with special attention to temperate North America; terminology; keys; geographic distribution; distinguishing characters of families, genera, and species. (3 cr; prereq 52 or §; offered 1959-60 and alt yrs) Ownbey
- 110f. **Gymnosperms.** Survey of the taxonomy and phylogeny of the gymnosperms with special emphasis on living representatives. (3 cr; prereq 52 or 54 or §; offered 1960-61 and alt yrs) Ownbey
- Bact 112w. **General Mycology.** (3 cr; prereq Bact 53 or §) Bradley
- 112su. **Aquatic Flowering Plants.** The higher plants of aquatic and marsh habitats. Identification, adaptive morphology and food value to wild life. (4 cr; prereq 10 cr in botany, zoology, or biology, or §; offered only at Itasca Forestry and Biological Station)
- 114w. **Principles of Angiosperm Phylogeny.** Evolutionary relationships and the various means of judging them within the angiosperms. Laboratory investigation of representative and critical groups. (3 cr; prereq 52 or §; offered 1959-60 and alt yrs) Morley
- 115s. **Flora of Minnesota.** The vascular plants of the state; taxonomic and floristic relationships; geographical distribution and variation; speciation; collecting and identification; field trips. (4 cr; prereq 52 or §) Ownbey
- 116su. **Summer Flora of Minnesota.** (Offered only at Itasca Forestry and Biological Station) (1-4 cr; prereq 10 cr in botany or zoology or §)
- 118f. **General Cytology.** Introductory analysis of structure and related functions of intact cells and protoplasmic systems. The nature of cytoplasm, nuclei, and cell walls. Relationship of cytological data to life cycles, cytogenetics, cytotaxonomy, and cytochemistry. (5 cr; prereq 10 cr in biology, botany, or zoology, elementary genetics or §) Dahl
- 119w. **Experimental Cytology.** Experimental analysis of suitable, specialized phases of cytological materials. Application of phase contrast and electron microscopy, together with other specialized methods, to analyses of cells *in vivo* and *in vitro*. The use of tissue culture methods in cytology. (5 cr; prereq 118 or Zool 161; offered 1960-61 and alt yrs) Dahl
- 120s. **Research Methods in Cytology.** Principles and practice in preparing materials for cytological investigation; methods of investigating such preparations and presenting the results. (3-5 cr; prereq 3 or 5 or Biol 3 or old NSci 9, 118 or 119, and §; offered 1960-61 and alt yrs) Dahl, Hansen
- 121w. **Plant Anatomy.** Microscopic structure of vascular plants with particular attention to development in the root, stem, and leaf. (5 cr, §53; prereq 10 cr in botany or zoology) Abbe, Hall
- 125f. **Morphogenesis.** Consideration of the development of form and structure in ontogeny and phylogeny, with especial attention to the phenomena and genetical factors involved. (5 cr; prereq 10 cr in botany or biology; offered when feasible) Abbe
- 127f. **Morphology of Vascular Plants.** Vegetative and reproductive structure of living and fossil vascular plants. Their evolutionary relationships based on phylogenetic principles. (5 cr; prereq 54 or 104 or §) Abbe, Hall
- 128s. **Introduction to Paleobotany.** Identification and structure of fossil plants. Emphasis on stratigraphic correlation of plant remains and on the relationship of fossil plants to modern groups. (3 cr; prereq §) Hall
- 130f.s. **General Plant Ecology.** Introduction to interrelations of plants and environment, to provide a foundation for further ecological work in pure or applied fields, and to provide a basis for understanding the relationships of man to biotic resources. (3 cr; prereq sr, 10 cr in botany or biology)
- 130Af.s. **General Plant Ecology Laboratory.** Laboratory and field exercises to accompany Bot 130. (2 cr; prereq 10 cr in botany or biology or §) Lawrence, Martin

- 133w. Phytogeography.** Ecological principles of plant distribution and landscape analysis, vegetation regions of North America, interpretation of regional vegetation patterns. (3 cr [with lab 5 cr]; prereq 50 or 130 or #)
- 136su. Organism, Microclimate, and Weather.** (Offered only at Itasca Forestry and Biological Station) (4 cr; prereq 10 cr in biology, botany, or zoology . . . physics recommended)
- 137s. Advanced Ecology.** Research methods in descriptive, experimental, and analytical ecology—vegetation sampling, mapping, presentation and interpretation of data, experimental design and co-ordination, measurement of environmental factors, etc. (5 cr; prereq 50 and 50A or 130 and 130A, and #)
- 140s. Advanced Survey of Plant Physiology.** Advanced study of major topics in plant physiology. Cell physiology including: membrane phenomena, enzyme catalysis, respiration, fermentation, and photosynthesis; mineral nutrition; water metabolism; translocation of solutes; growth; hormones; tropisms. (3 or 5 cr [students registering for 5 cr will take lab work in the use of modern methods and apparatus for physiological research]; students who have had Bot 51 should not enroll in 140; prereq elementary course in botany, zoology, or biology, or #, and a course in organic chemistry or biochemistry) Brown
- 150f. Phycology I.** Reproduction, anatomy, and phylogeny of the algae including the Green algae, Euglenophyta, Chrysophyta, and Dinoflagellates. (5 cr; prereq 10 cr in botany or biology or #; offered 1960-61 and alt yrs) Norris
- 151f. Phycology II.** Reproduction, anatomy, and phylogeny of the algae including the Brown algae, Red algae, and Blue-green algae. (5 cr; prereq 10 cr in botany or biology or #; offered 1959-60 and alt yrs) Norris
- 154. Spectroscopy and Photochemistry Applied to Biology.** (3-5 cr; offered when feasible)
- 155s.su. Fresh-Water Algae.** Morphology and taxonomy of fresh-water algae; collection and identification of local algae. (4 cr; prereq 10 cr in biology or #; in summer offered only at Itasca Forestry and Biological Station)
- 157su. Bryophytes and Pteridophytes.** (4 cr; prereq 10 cr in biology or #; offered only at Itasca Forestry and Biological Station)
- 165w. Introduction to Pollen Analysis.** Ontogeny, comparative morphology, and identification of pollen grains; preparation of reference collections, applications of pollen analysis to allergy, ecology, and phylogeny; practice in atmospheric analysis. (3 cr; prereq #; offered 1959-60 and alt yrs) Dahl
- 166s. Introduction to Palynological Analysis.** The application of techniques of pollen-spore investigations to research analyses of atmosphere, recent and ancient deposits, systematic materials, allergology, etc. (5 cr; prereq 165 or Zool 161 or #; offered 1959-60 and alt yrs) Dahl
- 177w. Photosynthesis.** Detailed survey of the present state of knowledge of the photosynthesis of organic matter by plants. (3 cr; prereq sr, 51 or 140, 20 cr in chemistry or agricultural biochemistry, PCh 101, 102, 103, or #) Brown, Frenkel
- 182f. Advanced Topics in Plant Physiology.** A detailed consideration of special areas of research interest. (3 cr; prereq 51 or 140 or #) Brown, Frenkel
- 185w. Physiology of Algae.** The isolation and culture of algae. Emphasis on the use of pure cultures of algae for studies in the fields of respiration, intermediary metabolism, and photosynthesis. (2-5 cr; prereq 51 or 140 or #; offered 1960-61 and alt yrs) Frenkel
- 197f, 198w, 199s. Problems.** Advanced work in a specialized field. (1-5 cr per qtr; prereq 20 cr in natural science and #)

### For Graduate Students Only

- 201, 202, 203. Research Problems in the Morphology of Vascular Plants**
- 205, 206, 207. Research Problems in Taxonomy and Floristic Plant Geography**
- 209, 210, 211. Research Problems in Paleobotany**
- 221, 222, 223. Research Problems in Ecology**
- 225, 226, 227. Research Problems in Plant Physiology**
- 229, 230, 231. Research Problems in Cytology**
- 233, 234, 235. Research Problems in Phycology**
- 240, 241, 242. Seminar in Morphology**
- 243, 244, 245. Seminar in Taxonomy**
- 246, 247, 248. Seminar in Paleobotany**
- 249, 250, 251. Seminar in Ecology**
- 252, 253, 254. Seminar in Plant Physiology**
- Agro 252. Cytogenetics**
- 255, 256, 257. Seminar in Cytology**
- 258, 259, 260. Seminar in Cryptogamic Plants**

## Plant Pathology and Botany and Agronomy and Plant Genetics

The following courses in the College of Agriculture, Forestry, and Home Economics regularly carry credit in SLA without petition:

Agro 31, Genetics  
PlPa 1, Plant Pathology  
PlPa 56, Study of Fungi

Students in this College may elect other courses in plant pathology and botany and in agronomy and plant genetics by arrangement with the departments concerned. See the *Bulletin of the College of Agriculture, Forestry, and Home Economics*.

## BUSINESS ADMINISTRATION

(School of Business Administration)

**Department Chairman**—Robert J. Holloway

The following courses in business administration are open to students in SLA as electives without special petition. There is no provision for a major in business administration in the College of Science, Literature, and the Arts although a few of the following courses may count toward a major in the Department of Economics. See Economics, page 54.

### Lower Division Courses

- BA 1f,s. Business and the American Economy.** Descriptive survey of the American economy with emphasis on the business segment. Includes some attention to functions to be performed by any economic system and within typical businesses; kinds of decisions to be made and examples of information needed for making selected decisions. (3 cr; prereq fr or soph with no previous business administration, or social studies majors in education with no previous business administration) Gaumnitz
- BA 5f,w,s. Elements of Statistics.** Elementary concepts in statistical methods. Sources and collection of data; tabular and graphic presentation: frequency distributions; probability; sampling; introduction to statistical estimation and decision-making. (4 cr, §151, §Soc 45; prereq Math 10 or equiv) Hastings and staff
- BA 24f,w,s-25f,w,s-26f,w,s. Principles of Accounting.** Methods of recording, reporting, and interpreting business events. Use of accounting as a tool of business management. (9 cr, §55A-55B; prereq 3rd qtr fr; students who have high school course or experience in bookkeeping may be admitted to BA 25 by passing placement test normally given first day of each qtr) Bentley and staff
- BA 27s. Accounting Survey.** For prelaw and law students. Special emphasis on accounting for corporations and for income. (5 cr, §24-25, §55A; prereq soph, law and prelaw students only) Bentley and staff
- BA 32f,w,s. Beginning Typewriting.** Correct typewriting techniques; arrangement of typewritten material in basic letter forms, manuscripts, and simple tabulations. (1 cr) Stanley
- BA 33f,w,s. Intermediate Typewriting.** Knowledge and skills in letter arrangement; envelopes; carbons; tabulations; manuscripts; speed building. (1 cr; prereq 32 or 1 yr high school typewriting with speed of 30 words a minute) Stanley
- BA 34f,w,s. Typewriting Procedures.** Machine transcription; operation of electric typewriters and duplicating machines; footnotes, bibliographies, proofreading, manuscripts; legal documents and office forms; tabulations. (2 cr; prereq soph, 33 or 2 yrs high school typewriting with speed of 45 words a minute) Peterson
- BA 36f. Office Procedures.** Editing and revising correspondence; communications; basic indexing and filing problems; intra-office relationships. (3 cr; prereq soph, 34 or §) Donaldson
- BA 37f-38w-39s.† Shorthand.** Elementary course in Gregg Shorthand Simplified. A large vocabulary of high-frequency words is developed. Emphasis is placed on transcription of mailable letters. (9 cr; prereq soph, 33 for 37, 34 or §34 for 39; students who have 1 yr high school shorthand are admitted to BA 38; students who have 2 yrs high school shorthand are admitted to BA 39) Donaldson
- BA 43f. Shorthand Theory.** Study of Gregg shorthand principles. Experience in techniques of dictating and blackboard writing. Designed for majors in business education. (2 cr; prereq soph, 34, 39 and §) Donaldson

## Upper Division Courses

- BA 50f,w,s. Production Management.** Introduction to the management of the production function. The techniques, the managerial problems, and the decision-making processes in planning and controlling the production activity. Emphasis is on production as a function of the enterprise rather than as a strictly manufacturing activity. Research and development, the role of standards, physical facilities, systems and procedures analysis, work measurement, materials control, quality control, and production planning and control. (3 cr, §150; prereq Econ 2 or equiv) Wickesberg and staff
- BA 51f,w,s. Business Statistics.** Basic concepts of regression and correlation; statistical estimation and decision-making, with applications to such fields as survey sampling, acceptance sampling, and statistical quality control; introduction to time series analysis and index numbers. (3 cr, §161; prereq soph with #, 5 or equiv) Hastings and staff
- BA 52f,w,s. Modern Industrial Relations: Labor Marketing.** An introduction to current employment relationships, emphasizing an economic approach and analysis. Fundamentals of the application and conservation of human resources in employment with consideration of related social and economic problems. Labor marketing, collective bargaining, unions and employer associations, industrial unrest and conflict, employment and unemployment, wage problems. (3 cr, §152; prereq Econ 2 or equiv) Yoder and staff
- BA 53f,w,s. Insurance Principles.** Risk and its adverse economic effects; methods of handling risk; theory of insurance and insurable risks; insurable personal, property, and liability risks; risk management; personal, property, and liability insurance contracts; types of insurers; production, underwriting, actuarial, finance, and claims functions of insurers; industry and government regulation; social insurance. (3 cr, §153; prereq Econ 2 or equiv) Williams and staff
- BA 54f,w,s. Transportation I: Principles.** Introduction to the roles, interests, and relationships of users of the service, carriers, and regulatory agencies in the transportation field, emphasizing the national transportation policy approach. Organization of the transportation industry and administration of the transportation function by users of the service in their business activities. Economic aspects of railway, highway, pipeline, water, and air transportation. Current transportation problems and evaluation of national transportation policy. (3 cr, §154; prereq Econ 2 or equiv) Nightingale and staff
- BA 56f,w,s. Corporation Finance.** The corporation in comparison with other types of business units. Organization and capital structure, raising fixed and circulating capital, treatment of corporate earnings, incentives to and forms of combination, trusteeship, and reorganization. (3 cr, §156; prereq 1) Sutton and staff
- BA 57f,w,s. Principles of Marketing.** Marketing functions and institutions. Channels of distribution. Retail and wholesale trade. Pricing policies and practices. Marketing policies and methods for consumers' goods, producers' goods, and raw materials. (3 cr, §157; prereq Econ 2 or equiv) Holloway and staff
- BA 79Af-79Bw. Administrative Secretarial Studies.** Office situations and problems in the work of an administrative assistant to an executive. This includes knowledge of office procedures and secretarial dictation and transcription. (6 cr; prereq 34, 39) Peterson
- BA 142f,w. Settlement of Industrial Relations Disputes.** The nature of industrial conflict in the employment relations pointing up the stresses contributing to conflict and dispute situations; public and private approaches to the prevention, reduction, and resolution of conflicts. (3 cr; prereq 52 or 152) Seltzer
- BA 187w. Price Policy.** Selected topics on managerial and economic problems concerning market price and price policy. Methods by which goods and services are priced on industrial and consumer markets. Price behavior, administered pricing, price leadership, price lining, and government intervention. (3 cr; prereq 57) Harper
- BA 191A-191B. Statistical Methods in Business Administration.** Statistical methods of use in the solution of problems in business administration. Tests on nature of population and population characteristics. Normal,  $t$ , Chi-square,  $F$  distributions. Multiple linear regression and correlation. Curvilinear simple and multiple regression and correlation. Other measures and tests of association. Introduction to design and analysis of experiments. Nonparametric estimation and tests. Stress is placed on conditions when a particular statistical method is appropriate, and on illustrations of applications of statistical methods in business administration. (6 cr; prereq 51 or 161 or Econ 121A or #)

## CHEMISTRY

(Institute of Technology)

Department Chairman—Bryce Crawford, Jr.

Major Advisers in SLA—Chemistry Staff.

Major Sequence in SLA—AnCh 51, 52, 53 and 54; OrCh 61, 62, 63 and 64; PCh 101-102-103 with appropriate amount of laboratory in PCh 104-105-106.

Prerequisites: InCh 24, 25, 26 or their equivalent; Phys 7-8-9 or their equivalent; mathematics through integral calculus (TM 25A or Math 54).

In addition to the courses required for the major sequence, Arts students majoring in chemistry are advised to take 8 credits in advanced courses in chemistry, 2 credits of which are to be in laboratory work. These additional courses will enable the student to meet the minimum requirements set for the Bachelor's degree by the American Chemical Society. Two full years of chemistry are required for admission to these courses.

Students majoring in chemistry are advised to arrange their work so that they can take physical chemistry in the junior year and they must take sufficient courses in German to give a reading knowledge of the chemical literature.

A 4-year professional course in chemistry is available in both SLA and I.T. As many students find programming a professional course somewhat easier in I.T., those interested in chemistry as a major field are advised to consult both SLA and I.T. bulletins.

Special training, adequate for a career as a technical librarian, is possible in SLA. The program includes a major in chemistry and a minor taken in the Library School.

**Major Adviser in the College of Education**—Professor P. O. Johnson.

For the specialized curriculums in natural science and physical science see the *Bulletin of the College of Education*.

## Inorganic Chemistry

- 4f,w-5w,s,† General Inorganic Chemistry.** Introduction to chemistry from the standpoint of atomic structure; periodic properties of the elements and compounds derivable from structural considerations; laws governing the behavior of matter, theories of solution, acids, bases, and equilibrium. (5 cr per qtr; prereq course in high school algebra; 3 lect, 1 quiz, 1 rec, and 3 lab hrs per wk) Brasted and staff
- 11f,s. Semimicro Qualitative Analysis.** Laboratory work in systematic qualitative analysis of cations with lectures on solutions, ionization, chemical and physical equilibria, oxidation and reduction, etc. (4 cr; prereq 5 or 25; 3 lect and 4 lab hrs per wk) Brasted and staff
- 24f,w-25w,s†-26f,s. Introduction to Chemical Principles.** Lectures deal primarily with the basic theories of chemistry: atomic structure, kinetic theory, chemical stoichiometry, the chemical bond, oxidation-reduction, solution theory, chemical equilibrium. Examples are drawn from all fields of chemistry. Much of the laboratory program involves qualitative analysis, including cation and anion analysis. (5 cr per qtr; for students whose major is chemistry or chemical engineering; 3 lect, 1 quiz, 1 rec, and 5 lab hrs per wk) O'Connor and staff
- 50f-51w. Modern Chemistry.** A nonmathematical study of modern chemistry. For juniors and seniors who have not had college chemistry. (3 cr per qtr; 3 lect hrs per wk) Bent and staff
- 96f-97w-98s. Senior Thesis.** (1-6 cr per qtr; prereq sr) Staff
- 103f. Atomic Structure and the Properties of the Elements Based Thereon.** Systematic treatment of the nature of atomic and molecular electronic systems and the properties of various elements, including the transition elements. (3 cr; prereq PCh 103; 3 lect hrs per wk) Hugus, Reynolds
- 104w. Chemistry of the More Representative Elements.** Detailed discussion of the preparation, reactions, and chemical properties of the regular group elements and their compounds. (3 cr for undergrad, 4 cr for grad; prereq 103 or #; 3 lect hrs per wk) Brasted, Britton
- 105s. Co-ordination Compounds.** Systematic study of the nature of complex ions, their preparation, bond structure and isomerism (including kinetics and mechanisms of reaction). Brief consideration of compounds closely allied to the classical co-ordination compounds such as carbonyls, nitroso complexes, porphyrins, and metal-containing dyes. (3 cr; prereq 103 or #; 3 lect hrs per wk) Brasted
- 106w. Chemistry of the Less Familiar Elements.** Detailed discussion of the preparation, reactions, and chemical properties of the elements and their compounds, not previously discussed in 104. Transition elements and inner transition elements are emphasized. (3 cr; prereq 104 or #; 3 lect hrs per wk; offered 1960-61 and alt yrs) Johnson
- 107s. Oxidation-Reduction Systematics.** Discussion of the application of tabulated thermodynamic data, including potential diagrams, to the prediction of chemical reactions. (3 cr; prereq PCh 101; 3 lect hrs per wk; offered 1960-61 and alt yrs) Hugus
- 111f. Silicon and Related Elements.** Review of current studies of silicon, germanium, tin and lead, with emphasis on recent silicon chemistry. (3 cr; prereq OrCh 62; 3 lect hrs per wk; offered 1959-60 and alt yrs) Johnson
- 112f. Radioactivity and Nuclear Chemistry.** Properties of nuclei, disintegration, properties of radiation; natural and artificial radioactivity; modern views of nuclear structure. (3 cr; prereq PCh 103; 3 lect hrs per wk; offered 1960-61 and alt yrs) O'Connor

- 113w. **Mechanisms of Inorganic Reactions.** Discussion of the prevalent ideas concerning the mechanisms of inorganic oxidation-reduction and substitution reactions. (3 cr; prereq PCh 103; 3 lect hrs per wk; offered 1959-60 and alt yrs) Reynolds
- 122s. **Advanced Inorganic Chemistry Laboratory.** Measurements of the equilibria and kinetics of selected inorganic reactions, and advanced synthetic methods. (2 cr; prereq AnCh 51, 52, 53, 54; PCh 103, 105) Hugus, Reynolds, Britton
- 134f-135w-136s. **Seminar: Modern Problems in Inorganic Chemistry.** (1 cr per qtr; prereq PCh 103)

### For Graduate Students Only

208. **Atomic Structure and the Chemical Bond**
- 211, 212, 213. **Selected Topics in Inorganic Chemistry**
- 220-221-222. **Advanced Inorganic Chemistry Laboratory Methods**
260. **Survey of Inorganic Chemistry**
- 301-302-303. **Research in Inorganic Chemistry**

### Analytical Chemistry

- 51w-52s. **Quantitative Analysis.** Introductory lecture courses covering the general principles and theoretical foundations of quantitative analysis. 51: Gravimetric analysis. 52: Volumetric analysis. (2 cr per qtr; prereq InCh 26) Meehan
- 53w-54s. **Quantitative Analysis Laboratory.** Introductory courses covering the methods of quantitative analysis. 53: Gravimetric analysis. 54: Volumetric analysis. (3 cr per qtr; prereq 51 or 151 for 53, 52 or 152 for 54) Meehan
- 57f.s. **Quantitative Analysis.** Introductory course covering the general principles and methods of gravimetric and volumetric analysis. Typical problems are assigned and attention is given to proper laboratory practice. (4 cr; primarily for premed students; prereq InCh 11 or 26) Meehan, Herr
- 96f-97w-98s. **Senior Thesis.** (1-6 cr per qtr; prereq sr) Kolthoff, Sandell, Meehan, Bruckenstein
- 101w-102s. **Quantitative Analysis.** General principles, methods, and procedures of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice. (5 cr per qtr; prereq InCh 26) Meehan
- 103s. **Quantitative Inorganic Microanalysis.** Representative methods of micro- and semi-micro-analysis, gravimetric, volumetric, and colorimetric. (3 cr; limited to 16 students; prereq 51-52, 53-54) Sandell
- 104f. **Qualitative Inorganic Microanalysis.** Use of microscope. Technique of handling small amounts of materials. Inorganic qualitative analysis by means of crystal reactions and modern spot reactions. (3 cr; limited to 16 students; prereq 51-52, 53-54) Sandell
- 105w. **Polarizing Microscope.** Its use and application to chemistry. Identification of substances. (3 cr; limited to 16 students; prereq PCh 101) Sandell
- 106f-107w-108s. **General Technical Analysis.** Analysis of commercially important materials such as iron, steel, nonferrous alloys, ores, and glass; use of microscope in technical problems, quantitative analysis of heterogeneous mixtures, particle size determinations. (2 or 3 cr per qtr; prereq 51-52, 53-54) Sandell
- 109f,w,s. **Rock Analysis.** Laboratory course covering the technique of rock analysis. (3 cr; regis limited; prereq 51-52, 53-54, §) Goldich
- 122s. **Advanced Analytical Chemistry.** Condensed review of modern fundamentals of gravimetric and volumetric analysis. (2 cr; prereq 51-52, 53-54) Meehan
- 123f. **Advanced Analytical Chemistry.** Analysis of complex materials by modern methods. (3 cr; prereq 51-52, 53-54 or §) Meehan
- 127f-128w. **Theoretical and Practical Fundamentals of Instrumental Methods.** (3 cr per qtr; prereq PCh 103) Meehan and staff
- 131f. **Application of Indicators in Neutralization Reactions and pH Determinations.** (3 cr with lab, 2 cr without lab; prereq 51-52, 53-54 and PCh 103) Bruckenstein
- 132w. **Electrometric Measurements and Titrations.** Application of potentiometric and conductometric methods in analytical work. (3 cr with lab, 2 cr without lab; prereq 51-52, 53-54 and PCh 103) Kolthoff, Bruckenstein
- 133s. **Voltammetry and Amperometric Titrations.** Lecture course. Use of the dropping mercury electrode (polarograph) and the platinum microelectrode in pure and applied chemistry. (2 cr; prereq 51-52, 53-54 and PCh 103) Kolthoff
- 134f,w,s. **Voltammetry and Amperometric Titrations.** Laboratory course. (2 cr; prereq 133 or 1133) Bruckenstein
- 135f-136w-137s. **Seminar: Modern Problems in Analytical Chemistry.** (1 cr per qtr; prereq sr, 51-52, 53-54 and PCh 103) Kolthoff
- 138s. **Advanced Volumetric Analysis.** (3 cr; prereq 131) Kolthoff
- 140w. **Water Analysis.** Analysis of potable water with interpretation of results. (2 cr; prereq 51-52, 53-54) Sandell
- 141w. **Instrumental Methods in Analytical Chemistry.** (Lab course) Quantitative applications of electrochemical, optical, and other instrumental techniques of analysis. (1-3 cr; prereq 127) Bruckenstein

*For Graduate Students Only*

- 201-202-203. Selected Topics in Analytical Chemistry  
235-236-237. Research Seminar  
262. General Survey of Analytical Chemistry  
301-302-303. Research in Quantitative Analysis

**Organic Chemistry**

- 61f,w-62w,s,† **Elementary Organic Chemistry.** Discussion of important classes of organic compounds, both aliphatic and aromatic together with some heterocyclic compounds. Laboratory work includes the preparation of typical substances. (4 cr per qtr; for chemistry, chemical engineering, premedical, pre dental, and pharmacy students; prereq 12-15 cr in chemistry) Kreevoy and Noland (61f-62w), Koelsch (61w-62s)
- 63f,s. **Elementary Organic Chemistry.** (Continuation of 61-62) Lecture course. (3 cr; 63 is prereq to all other advanced courses in organic chemistry; prereq 62) Parham
- 64f,s. **Elementary Organic Chemistry Laboratory.** (3 cr; 64 is prereq to all other advanced courses in organic chemistry; prereq 63 or 163) Leete
- 96f-97w-98s. **Senior Thesis.** May be taken with any member of the Organic Chemistry Division staff. (1-6 cr per qtr; prereq sr, 63 and 64 or equiv)
- 101w. **Intermediate Organic Chemistry.** Survey course in which are considered important modern topics such as unusual types of aliphatic, aromatic, and heterocyclic compounds, natural products, and industrial processes. (3 cr; prereq 64 or equiv) Lauer
- 102f. **Organic Qualitative Analysis.** (Elementary course) Reactions of typical functional groups and introduction to the methods of organic qualitative analysis. (4 cr; prereq 64 or equiv) Leete
- 106w-107s. **Organic Chemistry.** (Advanced course) Descriptive course covering the field of organic chemistry, together with an introduction to the literature of organic chemistry. Lectures and outside reading. (3 cr per qtr; prereq 64 or equiv) Smith
- 110w. **Heterocyclic Compounds.** Discussion of typical classes of heterocyclic compounds, their chemical and physical properties and uses, and the ring closures leading to heterocycles. (3 cr; prereq 64; offered 1960-61 and alt yrs) Leete
- 130s. **Organic Quantitative Analysis.** Methods of proximate and ultimate analysis of organic compounds, with special attention to semimicro methods. (3 cr; regis limited; prereq 64 and AnCh 51-52, 53-54, ‡) Lauer
- 139w. **Advanced Organic Chemistry Laboratory Work.** Selected laboratory problems of an advanced nature, including some original work. (2-5 cr; limited to 20 students; prereq 64, ability to read German) Noland
- 140w. **Advanced Organic Chemistry.** Functional Group Survey, synthesis using primarily aromatic systems, the theory of aromatic substitution (3 cr; prereq 64) Fenton
- 141f. **Reagents in Organic Chemistry.** Discussion of typical reagents used in organic reactions; their limits of applicability, methods of use, and types of substances with which they react. (3 cr; prereq 64; offered 1960-61 and alt yrs) Koelsch
- 142w. **The Chemistry of Natural Products.** Discussion of the organic chemistry of important classes of natural products. (3 cr; prereq 64; offered 1959-60 and alt yrs) Leete
- 163f. **Intermediate Organic Chemistry.** Theory and synthesis. Lectures and outside reading. (3 cr, §63; prereq 62) Parham
- 164w. **Advanced Organic Chemistry.** Descriptive course covering the field of organic chemistry, together with an introduction to the literature of organic chemistry. Lectures and outside reading. (3 cr; prereq 63 and 64; offered 1960-61 and alt yrs) Parham
- 165s. **Mechanisms of Organic Reactions.** Survey of currently accepted mechanisms of polar and free radical reactions, including methods used in the study of reaction mechanisms; introduction to current electronic formulations of organic reactions. (3 cr; prereq 63 or 163 and 106, 140 or 164) Noland

*For Graduate Students Only*

- 201-202-203. Organic Chemistry Seminar  
205. Stereochemistry  
206. Polymerization and High Polymers  
210. Organic Qualitative Analysis  
215. Theoretical Organic Chemistry  
239. Organic Research Techniques  
261. General Survey of Organic Chemistry  
301-302-303. Research in Organic Chemistry

## Physical Chemistry

- 96f-97w-98s. Senior Thesis. (1-6 cr per qtr)
- 101f-102w-103s. Physical Chemistry. (4 cr per qtr; prereq 1 yr college chemistry, Phys 7, 8, 9 or ¶7, 8, 9 by §, Math 53; 3 lect and 1 rec-quiz hr per wk) Livingston, Wertz
- 104f-105w-106s. Physical Chemistry Laboratory. (1 or 2 cr per qtr; prereq 101 or ¶101 for 104, 102 or ¶102 for 105, 103 or ¶103 for 106)
- 107f-108w.† Elementary Physical Chemistry. (3 cr per qtr; for premed students only; prereq 1 yr college chemistry, 1 yr college physics and Math 40)
- 109f. Physical Chemistry. Elementary atomic and molecular structure, nuclear chemistry, photochemistry. (4 cr; prereq 103; 3 lect and 1 rec-quiz hr per wk)
- 110f. Experimental Research Techniques I. Physical manipulations, including use of tools and machines as well as a course in glass blowing with demonstrations and practice. (2 or 3 cr; prereq 103 and §; offered 1960-61 and alt yrs) Wertz
- 111w. Experimental Research Techniques II. Materials of research, high vacuum techniques, characteristics of thermionic tubes, rectifiers, amplifiers, oscillators, photocells. (2 or 3 cr; prereq 110; offered 1960-61 and alt yrs) Wertz
- 112s. Advanced Physicochemical Experiments. Precise measurements in various fields such as thermochemistry, conductance, surface tension, magnetic susceptibility, dielectric constant, characteristics of the photographic plate, and ionization potentials of a gas. (2 or 3 cr; prereq 111; offered 1960-61 and alt yrs) Wertz
- 115w. History of Chemistry. Development of the basic concepts of chemistry and the related sciences as they arose in the changing historical periods. (3 cr; prereq 2 yrs college chemistry) Reyerson
- 116f. Thermodynamics and Chemistry. Detailed study of the principles of thermodynamics and their application to physical and chemical phenomena. (4 cr; prereq 103 and calculus) Mead
- 117s. Fundamentals of Reaction Kinetics. Empirical analysis of rate measurements, collision theory, transition state theory, chain reactions. (3 cr; prereq 103) Crawford
- 118w. Advanced Physical Chemistry. Methods of determining molecular structure with simple applications. Chemical and physical properties in terms of the nature of chemical bonds. (3 cr; prereq 103) Lipscomb
- 119s. Kinetics of Reactions: Selected Topics. Effect of solvents and electrolytes on reaction velocity, diffusion processes; induced reactions; homogeneous and heterogeneous catalysis. (3 cr; prereq 117; offered 1959-60 and alt yrs) Livingston
- 128f. Colloid Chemistry. Fundamental principles of colloid chemistry, surface chemistry, electrokinetic phenomena, lyophobic and lyophilic colloids. (3 cr; prereq PCh 103) Reyerson
- 129w. Adsorption and Catalysis. Fundamental principles of adsorption at the different interfaces and the application of these principles to heterogeneous catalysis. (3 cr; prereq 128) Reyerson
- 130s. Colloids in Industry. The important applications of colloid chemistry to many of the fields of chemical industry. (3 cr; prereq 128; offered 1960-61 and alt yrs) Reyerson
- 131s. Colloidal Processes. Survey of the important colloidal processes; coagulation, sol-gel transformation, thixotropy, and dilatancy. (3 cr; prereq 128; offered 1959-60 and alt yrs) Reyerson
- 132f-133w-134s. Colloid Chemistry Laboratory. (1 or 2 cr per qtr; prereq 128 or ¶128) Reyerson
- 175s. Photochemistry. General survey, including a discussion of spectroscopy, with particular reference to the visible and ultraviolet absorption spectra of molecular gases. (3 cr; prereq 103 and Phys 9; offered 1960-61 and alt yrs) Livingston

For other courses in physical chemistry see the *Bulletin of the Institute of Technology*.

## Agricultural Biochemistry

Students in SLA may elect courses in agricultural biochemistry by arrangement with the department. See the *Bulletin of the College of Agriculture, Forestry, and Home Economics*. Particular attention is called to the special sequence in food technology.

## CHILD DEVELOPMENT AND WELFARE

(College of Education)

Department Director—

Major Advisers in SLA—Professors Anderson, Roff, Templin; Associate Professors Grams, Wirt; Assistant Professors Hurst, Palermo, Robinson.



**Major Sequence in SLA**—Prerequisites: Psy 1-2, Soc 1, CD 40 or FL 25. Required courses: CD 80, 83, 90, 140, 185, Psy 70, and 9 to 15 additional credits from Upper Division child development courses or from the following courses in related fields: EdCI 63; HE 171; Lib 171; Psy 52, 125, 126; PubH 57, 59; Soc 50, 115, 126, 141; Spch 131; Zoology 83. BA 5 or Soc 45 may be substituted for Psy 70 but will not count as part of the Upper Division credits required for the major.

The major in child development is designed for students who wish to acquaint themselves in a general way with the scientific and practical literature concerning child and human development. Supplemented by appropriate courses in literature and the arts, it can lay the basis for a broad human understanding of child growth and development and the problems of adaptation of the child to his peers, to his family, and to society. Students who wish to do advanced work in the scientific field of child growth and development should plan to take Math 40 and a statistics course, as well as acquire a broad background in biological and social sciences.

The sequence of courses recommended for the major includes certain courses from related fields. While a minimum of 27 hours is required, the major is limited to 33 hours in the sequence of courses indicated. This is in accordance with the general principle that a liberal arts degree should not involve overspecialization. If any of the above listed courses from related fields are not presented in the major, they may, with the adviser's approval, be counted toward a minor or used as electives.

**Honors Course**—Students interested in the work of an honors course should consult the director of the department.

For a specialized curriculum in nursery school and kindergarten education, see the *Bulletin of the College of Education*.

### Lower Division Courses

- 10s. **Introduction to Child Study.** Orientation in child development through a survey of the preschool, parent education, and mental health approaches. (2 cr; prereq 3rd qtr fr; offered 1960-61 and alt yrs) Peterson
- 40f,w,s.\*\* **Child Training.** Development and training of young children. Observations in the demonstration schools. (3 cr; prereq soph, Psy 1-2) Robinson (f), Helgerson (w), Robinson (w), Peterson (s)

NOTE—See also FL 25f,w,s (Child Development and Adjustment) under Inter-departmental Courses and General Education.

### Upper Division Courses

CD 80 is open to sophomores who have an average grade of at least C in Psy 1-2. Other Upper Division courses are open also to sophomores under conditions explained on page 24.

- 80f,w,s. **Child Psychology.** Science of child development and its applications. (3 cr; prereq Psy 2) Palermo (f,w) Palermo, Robinson (s)
- 83f. **Development and Guidance of Children's Activities.** Development of interests and activities. (3 cr; prereq 80) Robinson
- 90s. **The Psychology of Parent-Child Relationships.** Relation of adults and children within the family; discussion of family problems such as finance, discipline, recreation, marital adjustment, etc., as related to children. (2 cr; prereq 80) Robinson
- 95f,w,s. **Problems in Child Development.** (1, 2, or 3 cr; prereq 18 major credits including CD 80, Soc 45 or Psy 70, and §) Templin
- 100f. **Observation and Experimental Study of Children.** Experience with various techniques of observing behavior, record keeping, and analyzing and interpreting behavior records. (1 or 2 cr; prereq sr, CD 80 or equiv, 3 cr in statistics, §) Hurst
- 125s. **Experimental Child Psychology.** Introduction to methods, techniques, and problems in the experimental laboratory. (3 cr; prereq sr, CD 80 or equiv, Psy 5, and 12 credits in psychology, educational psychology, or sociology) Palermo

\*\* Not open to home economics students, who should take HEEd 90, which is offered fall and spring on the St. Paul Campus. See program of the College of Education.

- 130f. **Development of Skill, Language, and Thought in the Child.** Interpretation of the scientific literature. (3 cr; prereq sr, 12 cr in psychology or equiv) Templin
- 131w. **Development of Personality and Social Behavior in the Child.** Interpretation of the scientific literature. (3 cr; prereq sr, 12 cr in psychology or equiv) Palermo
- 132s. **Adolescent Development.** Growth; mental, social, emotional, and personality development. (3 cr; prereq sr, 12 cr in psychology) Hurst
- 140w.s. **Behavior Problems.** Types, origin, development, and treatment of behavior problems in children and adolescents. (3 cr; prereq sr, 12 cr in psychology, educational psychology, or sociology) Ar (w), Grams (s)
- 142s. **Psychology of Atypical Children.** Physical and mental deviations and handicaps; personal, social, and vocational adjustment. (3 cr; prereq sr, 12 cr in psychology) Templin
- 143f. **Problems of Mental Deficiency.** Diagnosis, care, training; social and vocational problems; legal aspects. (3 cr; prereq sr, 12 cr in psychology or equiv) Blodgett
- 144s. **Psychology of the Gifted Child.** Psychology and development of high intellectual ability and of special talents. (3 cr; prereq CD 80 or equiv and 9 credits in psychology, educational psychology, sociology, and home economics) Anderson
- 155s. **History of Child Development.** (2 cr; prereq CD 130-131 or equiv) Anderson
- 160w. **Physical Growth and Development.** From early fetal life to maturity. (3 cr; prereq sr, 12 cr in psychology or equiv) Roff
- 166f. **Maturity and Old Age.** Developmental changes in the aging and aged; adjustment and care. (2 cr; prereq sr, 12 cr in psychology, education, or sociology; offered 1959-60 and alt yrs) Anderson
- 170w. **Parent Education.** Programs, materials, methods, organization, and administration. Demonstrations of group procedures. (3 cr; prereq sr, 12 cr in child development or home economics or education or psychology or sociology or public health) Grams
- 172f. **Principles of Parent Interviewing.** Introduction to interviewing and counseling parents. (2 cr; prereq sr, 12 cr in psychology, education, educational psychology, or sociology)
- 185w. **Children in a Changing World.** Effects of social change, depressions, wars, and catastrophes upon children. (3 cr; prereq sr, 12 cr in psychology, educational psychology, or sociology) Templin
- 190w. **Use and Interpretation of Tests for Children.** Survey of mental tests for social worker, teacher, etc. (2 cr; prereq sr, 12 cr in psychology, educational psychology, or sociology) Hurst
- 191w. **Laboratory in Use and Interpretation of Mental Tests with Children.** Practice in giving certain of the more common mental tests to young children. (2 cr; prereq sr, §190, §) Hurst

### For Graduate Students Only

210. **Psychology of Cognitive, Motor and Intellectual Development**
211. **Psychology of Emotional, Social and Personality Development**
- 220-221-222. **Seminar in Current Research**
- 223-224-225. **Seminar in Developmental Theory**
227. **Multiple Factor Analysis**
- 230-231-232. **Seminar in Recent Literature**
- 233-234. **Research Methods**
- 237-238. **Seminar in Human Development**
- 240-241-242. **Practicum in Behavior Problems**
- 247-248.† **Clinical Child Psychology**
249. **Treatment of Disturbed Children**
250. **Internship in Professional Work with Children**
260. **Seminar: Forecasting and Predicting Development**
- 270-271-272. **Reading and Research in Child Development**
- 274-275. **Technique and Field Work in Parent Education**
- 290-291-292. **Psychometric Clerkship with Young Children**
295. **Projective Methods with Children and Adolescents**

## CLASSICS

Department Chairman—Norman J. DeWitt

Major Advisers in SLA—Professors DeWitt, McDonald.

Major Sequences in SLA—

## Greek

Twenty-seven credits in Greek courses numbered above 50; or 18 credits in such courses with (a) 9 credits in Latin courses numbered above 50, or (b) 6 credits from Classics courses above 50 and 6 credits in the area of classical civilization offered by the departments of art, history, philosophy.

A suggested minor sequence in Greek is as follows: 18 credits in Greek courses numbered above 50; or 12 credits in such courses with 9 credits from Classics courses or in the area of classical civilization offered by the departments of art, history, philosophy.

## Latin

Twenty-seven credits in Latin courses numbered above 50; or 18 credits in such courses with (a) 9 credits in Greek courses numbered above 50, or (b) 6 credits from Classics courses above 50 and 6 credits in the area of classical civilization offered by the departments of art, history, philosophy.

A suggested minor sequence in Latin is as follows: 18 credits in Latin courses numbered above 50; or 12 credits in such courses with 9 credits from Classics courses or in the area of classical civilization offered by the departments of art, history, philosophy.

**Major Adviser in the College of Education—Professor DeWitt.**

**Requirements for a Teacher's Certificate in Latin** (applicable only to students in the College of Education)—*Major recommendations:* Lat 51-52-53, 73, 6 credits from 171-172-173, Clas 56, and 9 credits in Classics courses or in the area of classical civilization offered by the departments of art, history, philosophy. *Minor recommendations:* 23 credits of which 21 should be chosen from the following: Lat 51-52-53, 73, Clas 56, and at least 6 additional credits in Classics courses or in the area of classical civilization offered by the departments of art, history, philosophy.

## Greek

### Lower Division Courses

**Grk 1f-2w.† Beginning Greek.** Planned to acquaint students with the "real" language from the start. Grammar is not avoided, but the structure of the language is gradually brought out in the context of graded reading materials. Before the end of one quarter, students are reading sizable selections from the New Testament, Aesop, Xenophon, and Plato. Considerable stress is placed on aural-oral techniques. (10 cr; prereq for 2, 1 or equiv) McDonald

**Grk 3s. Selections from Attic Prose.** (5 cr; prereq 2 or equiv) McDonald

### Upper Division Courses

**Grk 51f. Plato: Selections.** (3 cr; prereq 3 or equiv) Staff

**Grk 52w. Greek Tragic Drama.** (3 cr; prereq 3 or equiv) Staff

**Grk 53s. Homer.** (3 cr; prereq 3 or equiv) Staff

**Grk 73s. Hellenistic Greek.** The koiné language used in the New Testament, the papyri, and other contemporary documents. (3 cr; prereq Δ) Swanson

**Grk 121f-122w-123s.† Advanced Prose Composition.** (9 cr; prereq 24 cr in Greek)

**Grk 151f. Plato: Selections.** (3 cr; prereq 3)

**Grk 152w. Greek Tragic Drama.** (3 cr; prereq 3)

**Grk 153s. Homer.** (3 cr; prereq 3)

**Grk 171f-172w-173s. Advanced Reading in \_\_\_\_\_** (e.g., Aeschylus, Sophocles, Pindar, Herodotus, Thucydides, Hellenistic prose). Since the authors to be read vary from quarter to quarter and from year to year, the course may be repeated for credit. (3 cr per qtr; prereq 53 or Δ)

### For Graduate Students Only

**Grk 211-212-213. Seminar: Greek Epic.** (Offered 1959-60)

## Latin

## Lower Division Courses

- Lat 1f-2w.† Beginning Latn.** Based on the "descriptive" or "linguistic" approach to a new language, i.e., development of language skills through laboratory techniques. Film strips and tape and disc recordings are used to give practice in quick recognition of phrase and sentence patterns. As the student's proficiency develops, reading materials are introduced, relating to the understanding of Roman culture and its contributions to Western civilization. Direct experience with real or original Latin documents is stressed. (10 cr; prereq for 2, 1 or equiv; classes held in Folwell Phonetics Center) Forbes
- Lat 3s. Intermediate Latin.** (Continuation of 2) Emphasis on the further development of reading proficiency. (5 cr; prereq 2 or equiv or 1 yr high school Latin) Forbes
- Lat 10f. Introduction to Latin Reading.** A review course for students at any level in the University. Beginning with simple narrative and expository prose, reviews the fundamentals of Latin reading skill, and advances by the end of the quarter to poetry and prose on the "classical" level, preparing the student for the 51-52-53 sequence. Grammar, vocabulary, and sentence patterns are reviewed in context as they occur. (5 cr; prereq 1 yr high school Latin, or Δ) Forbes

## Upper Division Courses

- Lat 51f-52w-53s. Survey of Latin Literature.** (9 cr, §151-152-153; prereq 3 or 21 or Δ) Staff
- Lat 73s. Prose Composition.** (3 cr; prereq 3 yrs high school Latin or Δ) McDonald
- Lat 111f-112w-113s.† Advanced Prose Composition.** (2 cr per qtr; prereq 73) DeWitt
- Lat 133s. Vulgar Latin.** Development of Latin into Romance. (3 cr; open to advanced students of Latin or a Romance language with §) D Swanson
- Lat 135s. Medieval Latin.** Survey of Latin civilization from the 5th through the 12th century; special attention to Carolingian and 12th-century Renaissance movement. (3 cr; prereq advanced students of Latin or §) R Swanson
- Lat 151f-152w-153s. Survey of Latin Literature.** (3 cr, §51-52-53; prereq 3 or 21 or §)
- Lat 171f, 172w, 173s. Advanced Reading in** ..... e.g., Plautus, Horace, Lucretius, Juvenal, Cicero, Livy, Tacitus, Suetonius). Since the authors to be read vary from quarter to quarter and from year to year, the course may be repeated for credit. (3 cr per qtr; prereq 53 or Δ) Staff

## For Graduate Students Only

- Lat 251-252-253. Graduate Seminar: Roman Drama** (Offered 1960-61)

## Classics

## (Courses for Which No Knowledge of Greek or Latin Is Required)

- Hist 14f-15w-16s.‡ Ancient Civilization.** (9 cr) Jones
- Clas 24f,w,s. Technical Terms of Science, Medicine, and the Humanities.** Presentation in English contexts of Greek and Latin prefixes, suffixes, and root words basic in modern technical vocabularies. (3 cr; prereq soph) Staff
- Clas 42f,s. Greek Mythology.** Classical myths; acquaints the student with the stories of gods, demigods, and heroes which are a basic component of the European cultural heritage, with attention to their artistic, religious, psychological, and anthropological implications. (2 cr; prereq soph) Forbes
- Clas 43w. Ancient Mythology in Relation to Literature and Art.** The great myths are studied from the historical point of view, as a source of subject matter, allusion, and symbolism in the European cultural tradition. (2 cr; prereq soph) Forbes
- CLit 45f-46w-47s. The Nature of Literature.** (9 cr; prereq soph) DeWitt, Falk, Wood
- Phil 50f-51w. General History of Western Philosophy.** (10 cr) Staff
- Clas 56f. Elementary Linguistics.** Introduction to modern language science, involving brief history of the field and its methods, summary of the chief language families, basic phonetics of the European languages, how words are made and how they are analyzed, principles of language change, reconstruction of earlier stages in a language from extant dialects, and applications of linguistic science to language teaching and learning. (3 cr; prereq 1 yr foreign language study on college level or equiv, or §) D Swanson
- Clas 81f. Greek Tragedy in Translation (Aeschylus, Sophocles, Euripides).** Introductory lectures on the origin of drama as a distinct literary form, on the characteristics of Greek tragedy, and the ancient theaters and theatrical conventions. Careful discussion of about 12 of the tragedies. Major emphasis on understanding the problems posed in terms of the total cultural pattern of the time. (3 cr, §Clas 181; prereq 9 cr in English literature, English beyond C, or foreign literature, or Δ) McDonald

- Clas 82w. Aristophanes and Roman Drama in Translation** (Aristophanes, Menander, Plautus, Terence, Seneca). Introductory material organized as in Clas 81, but with the emphasis on the tradition of comedy. Similar treatment of about 12 comedies and 3 Senecan tragedies. More attention to the influence of the Roman plays on later drama. (3 cr, §182; prereq same as 81) McDonald
- Art 100f. Art in Ancient Egypt, Mesopotamia, and Greece.** (3 cr; prereq 9 cr in history of art, or 9 cr in lit or history with  $\Delta$ ) Simon
- Art 101w. Hellenistic Through Early Christian Art.** (3 cr; prereq 9 cr in history of art, or 9 cr in lit or history with  $\Delta$ ) Simon
- Art 102s. Romanesque and Gothic Art.** (3 cr; prereq 9 cr in history of art, or 9 cr in lit or history with  $\Delta$ ) Simon
- Hist 100f-101w-102s. History of the Ancient Near East.** (9 cr; offered 1960-61 and every 3rd yr) Jones
- Hist 100Af-101Aw-102As. History of Greece to 200 B.C.** (9 cr; offered 1961-62 and every 3rd yr) Jones
- Hist 100Bf-101Bw-103Bs. History of Rome.** (9 cr; offered 1959-60 and every 3rd yr) Jones
- Clas 106w-107s. Introduction to the Study of Language.** 106: Deals with general and descriptive linguistics, with special attention to phonology and morphemic analysis. 107: Deals with historical and comparative linguistics. (3 cr per qtr; prereq 56 or  $\Delta$ ) D Swanson
- Phil 115. Greek Philosophy after Aristotle.** (3 cr; prereq 52 or 137 or  $\#$ ; offered when feasible)
- Clas 122w. Introduction to Greek Archaeology.** Methods and techniques of modern field archaeology; history of major excavations at sites dating from the neolithic period down to the Roman conquest of the eastern Mediterranean; chronological development and regional peculiarities of architecture, sculpture, painting, and other special fields. Illustrated lectures, readings, and student reports. (3 cr) McDonald
- Clas 123s. Introduction to Roman Archaeology.** (Continuation of 122) Pre-Roman Italy and the expansion of Roman power in the entire Mediterranean and adjacent areas. (3 cr) McDonald
- Clas 124f,s. Technical Terminology.** Intensive study of the semantics and derivation of modern technical vocabularies with presentation in English of Greek and Latin prefixes, suffixes, and root words. (3 cr, §24) Staff
- Clas 181f. Greek Tragedy in Translation.** (3 cr, §81; prereq grad; meets with 81, but students will do addtl independent work in consultation with instructor) McDonald
- Clas 182w. Aristophanes and Roman Drama in Translation.** (3 cr, §82; prereq grad; meets with 82, but students will do addtl independent work in consultation with instructor) McDonald
- Clas 190f. Proseminar in Classical Archaeology.** Intensive study of one of the major archaeological subdivisions such as topography and monuments, epigraphy, sculpture, ceramics, architecture. (3 cr; prereq 122, 123 or  $\#$ ) McDonald
- Clas 191f, 192w, 193s. Classical Literary Traditions.** Readings from classical literature, with lectures on the origin of literary forms and their traditions in European literature. Topics include: (fall) epic, didactic, choral, and personal lyric poetry; (winter) drama and dramatic prose (dialog), the rhetorical tradition; (spring) expository and narrative prose including history, romantic fiction, literary criticism. (3 cr per qtr; prereq 9 cr in English literature, English beyond A-B-C or foreign literature) DeWitt

### Sanskrit

- Skt 128f-129w-130s. Readings in Sanskrit.** (9 cr; prereq sr with  $\#$ , at least two Upper Division courses in early European languages; offered 1960-61 and alt yrs) D Swanson
- Skt 131-132. Introduction to Sanskrit.** (6 cr; prereq sr with  $\#$ , at least two Upper Division courses in early Indo-European languages, preferably Greek, Gothic, or Latin; offered when feasible)

### COMMUNICATION

See Interdepartmental Courses and General Education

### COMPOSITION

See English

### COMPARATIVE LITERATURE

Program Chairman—Eugene H. Falk

For complete description of the Graduate Program in Comparative Literature, see *Bulletin of the Graduate School*.

### Lower Division Courses

The following course is designed for general education:

**CLit 45f-46w-47s. The Nature of Literature.** Guided reading of major works of European literature with emphasis on the techniques of criticism: the analysis of a work of literature as such, and the encouragement of appreciation, sensitivity, and independent judgment of literary arts. While the works to be read are different each quarter, the reading material will range from the Homeric epics to the best of contemporary writing. (9 cr; prereq soph) De Witt, Falk, Wood

### Upper Division Courses

Courses especially helpful in developing a knowledge of comparative literature include the following:

Clas 191, 192, 193; Engl 129, 134, 180, 184, 185, 186; Scan 161, 171, 172

### For Graduate Students Only

**CLit 211. Epic Poetry of the Middle Ages**

**CLit 212. Lyric Poetry of the Middle Ages**

**CLit 213. Romances and Tales of the Middle Ages**

**CLit 221-222-223. Seminar in Comparative Literature**

## ECONOMICS

The Department of Economics provides (a) a program for a major in economics, (b) a program for a minor in economics, and (c) a pattern of courses available to SLA students. The student contemplating graduate work or desiring a 4-year liberal arts program would be advised to consider a major in economics.

The program for a major in economics, outlined below, is designed to give the liberal arts student a broad understanding of the way in which the economic system functions, and in addition some appreciation of and ability to use the analytical and research techniques required in business enterprises, government agencies, and various research units. Students more specifically interested in a degree in business administration or in the quantitative approach to economics provided by the B.S. in Economics degree, with a major in either economics or statistics, should consult the *Bulletin of the School of Business Administration*.

**Department Chairman**—Walter W. Heller

**Major Advisers in SLA**—Professors Bronfenbrenner, Brownlee; Hurwicz; Associate Professors Borak, Buttrick, Chipman, Coen, Schmoekler, Smith; Assistant Professors Gregory, Kareken, Maynes.

**Prelaw Economics Adviser**—Professor Turnbull.

Assignment of advisers is done through the Department of Economics office. Please contact the departmental secretary.

**Major Sequence in SLA**—Lower Division prerequisites: Econ 1, 2 or equivalent (6 credits). Upper Division credits: A student majoring in economics is required to take 33 credits in Upper Division courses as follows:

1. Required courses: Econ 65, 66, 75
2. Three of the following courses: Econ 67, 69, 104, 178A, BA 52
3. Economics electives: 15 hours in any additional economics courses subject to the approval of the adviser

It is considered highly desirable that the student also take some accounting and statistics. A 1-quarter introduction to statistics (BA 5) might best be taken as part of the Lower Division program; if taken in Upper Division it may be taken without petition, though it cannot be included in the 33 credits required

for the major sequence. BA 52 is available as an economics elective for SLA credit without petition. For the student interested in bringing his economics to bear upon business problems and practices, elective courses are listed under business administration in this bulletin; as many as 2 of the following courses may be taken without petition for SLA credit as part of the 33 credits required in economics: BA 50, 51, 53, 54, 56, 57. Students may petition for a limited number of credits in other Upper Division courses in statistics and accounting and if petition is approved, such credits may be used for total credit requirement but for no other specific degree requirement.

## General Economics

### Lower Division Courses

- Econ Bw. The Scope, Methods, and Application of Economics.** An overview of economics for the student who wants to know what the subject is about. An opportunity is provided to hear different members of the economics profession explain the type of work done in their special fields. Attention is directed to the types of problems for which a study of economics is useful. (3 cr) Smith
- Econ Cs. Introduction to Economic Analysis.** A concentrated course in economic principles, omitting much of the descriptive and institutional background provided in other courses. May substitute for Econ 1-2 as prerequisite for advanced courses in economics, except for majors in business administration. (3 cr, §1-2, §IT-2T; prereq B or 50A, 50B) Smith
- Econ 1f,w,s-2f,w,s. Principles of Economics.** A study of the principles underlying economic activity and of the way these principles work out through our economic institutions. 1: Demand and supply, competition and monopoly, and the distribution of income. 2: National income, money and banking, business cycles, and international trade. Econ 1-2 or equivalent are prerequisite for most advanced courses in business administration and economics. (3 cr per qtr, §1T-2T, §C, §50A-50B; prereq 3rd qtr fr for 1, 1 for 2) Boddy, Smith, and staff
- FL 20s. Consumer Education.** (3 cr, and cr must be added to SLA graduation requirement)
- Econ 40. Decision Making and Scientific Inference.** A nontechnical introduction to problems of decision making under uncertainty, with applications to economics, statistical inference, and games of strategy. (3 cr; prereq Phil 40 or §) Hurwicz, Chipman

### Upper Division Courses

- Econ 50A-50B. Economic Problems of the American Economy.** Open to students who have had no formal courses in economic principles. A nontechnical course designed to supply the need for general education in economics for the average citizen. (3 cr per qtr, §1-2, §IT-2T) Smith
- Econ 80f. Survey of Economic Ideas.** Development of economic thinking from Adam Smith to J. M. Keynes, with emphasis on impact of industrial revolution and business cycle on the information of theory. (3 cr; prereq 2 or equiv) Buttrick
- Econ 90s. Honors Course in Economics.** A special course designed to help students integrate and apply the material learned during their economics training. Open to economics majors who have completed (or are currently completing) their major requirements. (3 cr; prereq consent of adviser) Staff
- Econ 110f. City Planning.** (Same as Arch 104, Pol 123, Soc 106) Social, economic, political, geographic, and technical phases of city planning. (3 cr; prereq sr) Staff
- Econ 120w. Economics of Consumption.** Theories and research relating to saving and spending; the utility and indifference approaches, the behaviorist approach (Katona, Morgan, etc); the consumption function literature; the forecasting of consumer spending; the role of buying plans. (3 cr; prereq 2 or equiv) Maynes
- Econ 150A, 150B. Current Economic Issues.** Current controversies over economic policy and the problems that underlie the controversies. Special study of selected topics. (3 cr each qtr [with § course may be taken more than once]; prereq 65, 66 or equiv) Smith
- Econ 160f. Comparative Economic Systems.** The contribution of economics to a consideration of the issues between capitalism and communism and other economic systems. The theories on which the various systems are based and the way they work out in practice are analyzed in terms of economic principles and the vital economic functions performed in each system. (3 cr; prereq 2 or equiv) Maynes
- Econ 170. Economics, Ethics, and Economic Philosophy.** A discussion of the literature, and the issues it raises, on the relation of ethics to economic organization, practice, and policy. Different economic philosophies and consideration of the elements involved in the formulation of an economic philosophy. (3 cr; prereq 2 or equiv) Smith

**Econ 190f, w.s. Readings in Economics.** Arranged to cover areas in economics useful to individual programs and objectives but not available in regular course offerings. (Cr arr; prereq consent of adviser and instructor in field covered) Staff

### For Graduate Students Only

**Econ 280A. The History of Economic Thought: Before 1870**

**Econ 280B. The History of Economic Thought: After 1870**

**Econ 300. Seminar in Economic Methodology**

**Econ 320. Seminar on Consumer Behavior**

## Econometrics and Statistics

### Lower Division Courses

**Econ 40. Decision Making and Scientific Inference.** (3 cr; prereq Phil 40 or §) Hurwicz, Chipman

### Upper Division Courses

**Econ 101Af. Foundations of Mathematics for Social Scientists.** Sets. Relations. Partially ordered systems. Functional relations. Elements of logical calculus. Groups. Matrices. Applications mostly in economics, decision and game theory, some in statistics. (3 cr; prereq Math 10 or equiv or §) Hurwicz, Chipman

**Econ 101Bw. Introduction to Decision Theory.** Elements of probability. Basic concepts in statistical decision theory. Relationship to game theory and other types of decision problems. Prediction and inference. Likelihood methods. Problems of specification. Models underlying statistical analysis in economics and certain other fields (simultaneous equation systems; factor analysis models). Identification. (3 cr; prereq BA 5, Econ 101A or §...Math 40 advised) Hurwicz, Chipman

**Econ 101Cs. Elements of Econometrics.** Statistical inference in models, arising in economics and certain other fields, involving multivariate distributions. Least squares method, regression theory and their relationship to simultaneous equation and factor analysis problems. Specification error. Identification. Time series. Problems. Aggregation. Examples: production functions, demand functions, factor analysis. Covers some of the same ground as Econ 101B, but on a more advanced level. (3 cr; prereq Math 40, Econ 101B or ¶Econ 121C or §) Hurwicz, Chipman

**Econ 121Af. Introduction to the Theory of Statistics.** Acquaints the nonspecialist with some of the basic concepts and methods of classical statistics. Serves as a preparation for the more systematic and intensive treatment in Econ 121B-121C. Focuses on problems of hypothesis testing and estimation. (3 cr; prereq Math 7 or 10 or §) Savage

**Econ 121Bw. Theory of Statistics I.** Primarily one-variable problems. Normal and related univariate distributions. Some large sample theory, including the law of large numbers. Likelihood methods in hypothesis testing and estimation; applications to regression and analysis of variance. Confidence intervals. Sequential methods. (3 cr; prereq 121A and ¶Math 53 or §) Savage

**Econ 121Cs. Theory of Statistics II.** Primarily an extension to the many-variable case of the concepts treated in Econ 121B. Analysis of co-variance. Discriminant analysis and statistical selection. Distribution-free methods. (3 cr; prereq 121B, Math 53 or §) Savage

**Econ 181Af, 181Bw, 181Cs. Topics in Statistics.** In each quarter this course is devoted to a specialized field of statistical methodology. The emphasis may be either on a topic in theory (e.g., estimation, hypothesis testing, nonparametric inference) or on a statistical model of applied interest (e.g., finite population sampling, population statistics, statistical quality control, time series). The objective of the course is to bring the student to the level where he can formulate and solve significant problems in the field covered. (3 cr each qtr; prereq 121C or ¶121C or §) Neter and staff

### For Graduate Students Only

**Econ 201A. Econometrics A**

**Econ 201B. Econometrics B**

**Econ 201C. Econometrics C**

**Econ 281A, 281B, 281C. Advanced Topics in Statistics**

**Econ 301. Seminar in Statistical Inference and Econometrics**



## Labor

### Upper Division Courses

- Econ 152f,w. Labor Movements.** Origins and growth of labor organizations and their problems under various forms of government; economic and social consequences of these developments. (3 cr; prereq BA 52 or 152) Gregory
- Econ 162w,s. Union Government and Policies.** Internal administration and government of unions, economic and social issues; hours, wages, and other conditions of employment. (3 cr; prereq BA 52 or 152) Seltzer, Gregory
- Econ 172f,w. Public Policy: Labor Relations.** Employer-employee-union relationships and their social control; legislative, executive, and judicial attempts to deal with these issues; economic and social implications. (3 cr; prereq BA 52 or 152) Turnbull
- Econ 182f,s. Economic Security.** Origins and development of economic and social problems of the individual worker; public and private attempts to deal with these issues; economic and social implications. (3 cr; prereq BA 52 or 152) Turnbull
- Econ 192s. Contemporary Labor Issues.** Designed to synthesize into an integrated whole the various specialized phases of the labor field and in so doing to treat various currently important labor problem areas. (3 cr; prereq BA 52 or 152) Staff

### For Graduate Students Only

- Econ 372. Seminar in Trade Unionism**
- Econ 392. Seminar in Economic Security**

## Economic Development

### Upper Division Courses

- Econ 103s. Economic Development.** Conditions necessary for increasing income, capital formation, measurement of economic growth, and problems of "underdeveloped" areas. (3 cr; prereq 65, 66 or equiv or §) Schmookler, Buttrick
- Econ 133. The Development of American Industry.** Analysis of relations between long-run changes in technology, output, price, location, and market structure in major American industries, against the background of American institutions, the changing international environment, the growth of population, and per capita income. (3 cr; prereq 65 or 165) Schmookler

### For Graduate Students Only

- Econ 333. Seminar in Technological Progress and Economic Development**

## International Economics and Area Studies

### Upper Division Courses

- Econ 104f. International Economics.** An introductory treatment of the principal issues involved in international economic relationships. Significance of foreign trade and investment, international payments and foreign exchange, the gold standard, the International Monetary Fund and Bank, and the arguments over tariffs and foreign aid policies. (3 cr; prereq 2 or equiv) Coen, Smith
- Econ 114w. Balance of Payments Theory.** More intensive study of balance of payments theory covered at introductory level in Econ 104. Evaluation of alternative techniques which a country may employ in order to attain twin objectives of external financial solvency and full employment. (3 cr; prereq 66 or 67) Coen, Chipman
- Econ 154. The Economy of Western Europe.** Structure and organization of the economy of countries in Western Europe. Analysis of current internal and external economic problems and policies. Recent developments in production, public finance, income levels, and income distribution. Will commonly emphasize one particular country of Western Europe, not necessarily the same from year to year. (3 cr; prereq 2 or equiv) Staff
- Econ 164. The Economy of the U.S.S.R.** Rise of the Soviet economic system. Development of economic organization of the state, planning and control of use of resources, and distribution of product. Performance of the economy in agriculture and industry under the 5-year plans. Internal and external economic policy. Public finance, income distribution, and economic incentives under the Soviet system. (3 cr; prereq 2 or equiv) Boddy

- Econ 174. The Economy of Latin America.** The structure of the economy of Latin America. Analysis of current internal and external problems. (3 cr; prereq 2 or equiv) Brownlee
- Econ 184. Economic Problems of the Far East.** Economic development of the Far East following contact with Western civilization. Some present problems: population, growth, capital formation, international economic relations, choice between types of economic organization. (3 cr; prereq 2 or equiv) Bronfenbrenner
- Econ 194s. International Economic Problems.** Current issues of international economic policy. (3 cr; prereq 104) Staff

*For Graduate Students Only*

- Econ 224. International Trade**  
**Econ 304. Seminar in International Economics**

**Micro-Economics, Welfare Economics, Mathematical Economics***Upper Division Courses*

- Econ 65f, w.s. Intermediate Economic Analysis: The Firm.** Examination of the behavior of firms under competitive and monopolistic conditions with particular attention to factors influencing the firm's decisions regarding production, output, and prices. (3 cr, \$165; prereq 2 or equiv) Boddy and staff
- Econ 75s. Intermediate Economic Analysis: The Household and Policy.** Consideration of decision problems faced by the household and the development of elementary welfare economics; application of evaluative techniques to various market phenomena and government policies. (3 cr, \$175; prereq 65) Boddy and staff
- Econ 165f, w.s. Economic Analysis: The Firm.** Analysis of individual decision-making by firms under conditions of monopoly, competition, and monopolistic competition. (3 cr, \$65; prereq grad, 2 or equiv) Boddy and staff
- Econ 175s. Economic Analysis: The Household and Policy.** Consideration of decision problems faced by the household and the development of elementary welfare economics; application of evaluative techniques to various market phenomena and government policies. (3 cr, \$75; prereq grad, 65 or 165) Boddy and staff
- Econ 185Aw. Price Theory.** Theories of choice as applied to consumers, firms, and resource owners, economic behavior in competitive and monopoly market situations. (3 cr; prereq 65 or 165) Boddy
- Econ 185Bs. Market Structure.** Price and output policies under conditions of imperfect competition, competitive behavior in monopolistic types of market structure, problems of choice under conditions of uncertainty. (3 cr; prereq 185A or #) Boddy
- Econ 185Cs. Income Distribution.** Statistics of personal and functional income distribution. Wages, rent, interest, and profit under pure and imperfect competition. Aggregative theories of distribution as a whole. "Exploitation" and "maldistribution" problems. (3 cr; prereq 65, 66) Bronfenbrenner
- Econ 195Aw. Analytical Methods in Business Decision Making: A.** Some recently developed methods for solving selected problems in business choice. Maxima (or minima) subject to constraints. Maximization of linear functions subject to inequalities. Applications to production, advertising, and purchasing decisions. (3 cr; prereq 65 or equiv, Math 40 or equiv or #) Brownlee, Chipman, Hurwicz
- Econ 195Bs. Analytical Methods in Business Decision Making: B.** Maximization of nonlinear functions. Decisions involving risk. Applications to inventory and insurance problems. Information processing as related to choice of organizational structure. (3 cr; prereq 195A or #) Brownlee, Chipman, Hurwicz
- Econ 195C. Analytical Methods in Business Decision Making: C.** A more intensive study of certain problems within the area covered by Econ 195A and 195B. (3 cr; prereq 195B or #) Chipman, Hurwicz

*For Graduate Students Only*

- Econ 215A. Welfare Economics: A**  
**Econ 215B. Welfare Economics: B**  
**Econ 225. General Equilibrium Theory**  
**Econ 235. Elements of Mathematical Economics**  
**Econ 245A, 245B, 245C. Mathematical Economics: A, B, C**  
**Econ 285A, 285B, 285C. Advanced Price Theory: A, B, C**  
**Econ 335. Seminar in Mathematical Economics**  
**Econ 385. Seminar in Micro-Economics**

## Macro-Economics

### Upper Division Courses

- Econ 66f, w.s. Intermediate Economic Analysis: Income and Employment.** Determinants of national income, employment, and price level, with particular attention to aggregate consumption and investment. (3 cr, §166; prereq 2 or equiv or §) Brownlee and staff
- Econ 116w. National Income Analysis.** Conceptual framework for study of income flows, use of statistical materials within this framework, and use of the results for measurement and welfare. (3 cr; prereq 66 or equiv) Staff
- Econ 166f, w.s. Economic Analysis: Income and Employment.** Determinants of national income, employment, and price level, with particular attention to aggregate consumption and investment. (3 cr, §66; prereq grad, 2 or equiv) Brownlee
- Econ 176Aw. Theory of Employment, National Income, and the Price Level I.** Equilibrium values for real output, employment, price level, and rate of interest under specified assumptions regarding the demand for and supply of labor, technical conditions of production, and the investment and consumption functions. (3 cr; prereq 66 or 166) Brownlee
- Econ 176Bs. Theory of Employment, National Income, and the Price Level II.** Effects of governmental monetary and fiscal policies upon equilibrium levels of output, employment, prices, and interest rates. Dynamic analysis. (3 cr; prereq 176A) Brownlee

### For Graduate Students Only

- Econ 276A, 276B. Advanced Theory of Employment**  
**Econ 376. Seminar in Macro-Economics**

## Money and Banking and Business Cycles

### Upper Division Courses

- Econ 67f, w.s. Money and Banking.** Historical development, present pattern, and economic role of financial institutions, with special emphasis on commercial banks, the money supply, and the Federal Reserve System. (3 cr; prereq 2 or equiv) Smith and staff
- Econ 157w. Business Cycles.** A study of the ups and downs of business; various explanations of the causes, the statistical data on such fluctuations, the relationship of cycles to economic growth, methods of forecasting, and an examination of proposals for economic stabilization. (3 cr; prereq 66, 67 or equiv) Smith, Kareken
- Econ 167f, w.s. Economics of Money and Banking.** Historical development, present pattern, and economic role of financial institutions, with special emphasis on commercial banks, the money supply, and the Federal Reserve System. (3 cr, §67; prereq grad, 66, 67 or equiv) Smith, Kareken
- Econ 177f. Intermediate Money and Banking.** Analysis of the determinants of the value of money and of the principal problems of monetary policy. (3 cr; prereq grad, 66, 67 or equiv) Smith, Kareken

### For Graduate Students Only

- Econ 257. Business Cycles and the Structure of Production**  
**Econ 277A-277B. The Development of Monetary Theory**  
**Econ 357. Seminar in Business Cycles**  
**Econ 377. Seminar in Monetary Policy**

## Public Finance

### Upper Division Courses

- Econ 68f, w.s. Elements of Public Finance.** Survey of government expenditures, budgeting, fiscal policy, debts, and taxes in terms of fiscal institutions, impact on business and the economy, and policy issues. Condensed course given especially for School of Business Administration students. (3 cr, §168, §178A-178B; prereq 2 or equiv) Borak, Heller
- Econ 178Af-178Bw. Public Finance.** Government expenditures and budgeting, fiscal policy, debt management, and taxation in terms of economic effects, fiscal process, and social policy. Expenditure theory; budgetary process, alternative budgetary policies; debt burden; the taxing process; taxation, incentives, and markets; tax incidence; technical problems of income, profits, and sales taxation; defense finance. (3 cr per qtr [for 178A, §68, §168]; prereq for 178A, 2 or equiv...for 178B, 178A or 68 with grade of B or better) Heller

- Econ 188s. State and Local Taxation.** Main problems of state and local finance and proposed solutions, including interstate comparisons and co-ordination of practices and policies. (3 cr; prereq 68 or 168 or 178B; offered 1960-61 and alt yrs) Borak
- Econ 196s. Fiscal Policy.** Theoretical framework and goals; potential contribution of taxation, government expenditures, and debt transactions to full employment, price stability, and economic growth; institutional limitations to the use of fiscal policy. (3 cr; prereq 20 cr in social science, incl course in public finance, 66, 67 or equiv; offered 1959-60 and alt yrs) Heller

### For Graduate Students Only

**Econ 368A-368B. Seminar in Public Finance**

## Industrial Organization

### Upper Division Courses

- Econ 69f,w,s. Government Regulation of Business.** Economic aspects of public policy affecting the market process. Relations between market structure and economic efficiency and welfare; economic origins of monopoly and other business limitations on free competition; and purposes and effect of antitrust laws and laws relating to "unfair business practices." (3 cr, \$169; prereq 65 or 165 for business or economics majors, suitable background in law or political science for others or §) Boddy, Buttrick, Schmoockler
- Econ 169f,w,s. Government Regulation of Market Behavior.** General restraints of trade, monopoly, standards of fair competition and regulation of entry into trade and professions, and the regulation of public utility rates and services. Economic and legal analysis of federal regulation with study of state and local regulation. (3 cr, \$69; prereq grad, 65 or 165 for majors, suitable background in law or political science for others or §) Boddy, Buttrick, Schmoockler

### For Graduate Students Only

**Econ 309. Seminar in Economic Structure and Behavior**

## EDUCATIONAL PSYCHOLOGY

(College of Education)

**Department Chairman—Willis E. Dugan**

The following courses in educational psychology, offered by the College of Education, are regularly open to SLA students:

- 117w,s. Basic Principles of Measurement.** Role of measurement in educational work; developments in educational and psychological measurement; measurement theory and practice as related to appropriate statistical methods; types and uses of derived scores, and factors influencing reliability and validity of educational measurements. (3 cr; prereq 116 or 216 or Psy 70 or equiv) Collier
- 140s. Instruments and Techniques of Measurement.** Intensive study of selected instruments for measuring intelligence, achievement, interests, attitudes, and personality traits with emphasis upon their use in educational guidance, personnel work, administration, and supervision. (3 cr; prereq sr, 110 or 117 or equiv) Edson
- 142f,w. Individual Mental Testing.** Revised Stanford-Binet and Wechsler-Bellevue Adult or Wechsler Intelligence Scale for Children. Student supplies materials for at least one test. Full day or 2 mornings per week required for practice administration of tests. (3 cr; prereq sr, 110 or 117 or equiv) Reynolds

## ENGLISH

For courses in freshman English and in composition, see page 65.

**Department Chairman—John W. Clark**

**Major Advisers in SLA—Professors Brown, Clark, C. Foster, Hornberger, O'Connor, Unger; Associate Professors Buckley, Jackson, Kwiat, Levenson, Montgomery, Moore, Stange, Turpie.**

**Major Sequence in SLA**—A total of at least 31 credits in literature for the entire sequence, comprising the following:

- A. Engl 75, Chaucer; 55-56, Shakespeare; 162, Milton.
- B. Eighteen additional credits in Upper Division courses, of which at least 12 must be from courses numbered 100 or above. A student who takes 9 credits of 97-98-99 may count 6 of these credits as part of this last requirement.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

Prerequisites: 21-22 or 22-23, or 21, 23.

All English majors shall write 3 papers of a minimum of 3,000 words in Upper Division literature courses chosen by themselves. One of these should be written in the junior year and two in the senior year. Transfer students here for the senior year only should submit two papers.

The department regards the knowledge of foreign languages, and especially of Latin, French, Greek, and German, as of particularly high value to students of the English language and English literature, and especially urges students planning to major in English to include as much foreign language study in their programs as possible and to begin such study as early as possible. Students who look forward to graduate study should consider this especially and should take into account the need for Latin in connection with English studies in certain fields.

**Major Advisers in the College of Education**—Professor Allen; Assistant Professor Kegler.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation*: Engl 21-22-23 (15 credits); Engl 55-56 (6 credits); Engl 72-73-74 (9 credits); Engl 165 (3 credits); Comp 27-28 (6 credits); 9 additional credits in English courses numbered 100 or above (6 of these 9 additional credits may be in Upper Division humanities courses). *Minor recommendation*: Engl 22-23 (10 credits); Engl 55-56 (6 credits); Engl 73-74 (6 credits); Comp 27-28 (6 credits).

Students interested in taking English as a major or minor subject in the College of Education should see also the bulletin of that college for the requirements for the language arts curriculum.

Education students who major in English are required to take EdCI 122, Literature for Adolescents.

The Department of English believes that most of its courses numbered below 100 are properly regarded as courses in general education and are suitable for nonmajor students—especially 19-20, 37-38-39, and 52-53-54, but also 21-22-23, 55-56, 66-67, and 72-73-74.

### Lower Division Courses

For courses in freshman English, see page 65.

19f-20w.‡ **Great English Writers.** Chronological study of some of the classics of English literature for students not majoring in English and not taking 21-22-23. 19: Such writers as Marlowe, Donne, Milton, Pope, Swift, Johnson, Boswell, and Goldsmith. 20: Such writers as Wordsworth, Byron, Shelley, Keats, Tennyson, Browning, and Arnold. (6 cr, \$21 or 22 or 23; prereq soph, ††; offered when feasible)

21f,w-22w,s-23f,s. **Introduction to Literature.** Chronological study of English literature with its historical background. Introduction to types of literature and literary ideas. 21: Chaucer to Milton. Marlowe, Spenser, Bacon, Browne, and Bunyan. 22: The Restoration and the 18th century. Pope, Swift, Addison and Steele, Johnson, Boswell, Fielding, and Sheridan. 23: The Romantic Movement and the Victorians. Wordsworth, Byron, Shelley, Keats, Carlyle, Tennyson, Browning, and Arnold. (15 cr; prereq ††) Buckley, R Foster, Moore (21f-22w-23s), Montgomery (23f-21w-22s)

Class 24f,w,s. **Technical Terms of Science, Medicine, and the Humanities.** (3 cr; prereq soph) Staff

37f-38w-39s.‡ **Modern Literature.** Intended for students in all departments and colleges, not particularly for English majors. Readings in 20th-century British and American fiction,

†† Engl A-B-C or Engl 1A-2A-3A or Engl 1B-2B-3B or Comm 1-2-3 or exemption from requirement.

drama, and poetry. Selected, arranged, and discussed—not to give a full historical survey—but to enhance the student's pleasure in, and understanding of, imaginative literature generally. Short critical papers are required and count in determining grades. 37: Short fiction. 38: Poetry and drama. 39: The novel since Thomas Hardy. (9 cr; prereq soph, †) R Foster, Myers

Clas 42f.s. **Greek Mythology.** (2 cr; prereq soph) Forbes

Clas 43w. **Ancient Mythology in Relation to Literature and Art.** (2 cr; prereq soph) Forbes

Attention of students is called to Hum 1-2-3, 11-12-13, and 21-22-23 (see Interdepartmental Courses and General Education), and to CLit 45-46-47 (see Comparative Literature).

### Upper Division Courses

Engl 52-53-54, 55-56, 66-67, 72-73-74, and 75 are open to Lower Division students who have a C average in the prerequisite courses. Other Upper Division courses are open to sophomores under the conditions explained on page 24.

52f-53w-54s.‡ **The English Novel.** 52: Reading of novels by such writers as Defoe, Fielding, Sterne, Smollett, and Richardson. 53: Reading of novels by such writers as Jane Austen, Scott, the Brontës, Thackeray, and Dickens. 54: Reading of novels by such writers as Trollope, George Eliot, Meredith, Hardy, Conrad, and Butler. (9 cr [for 53, §52 or 53 before 1959f; for 54, §53 before 1959f]; prereq \*\*) Frank

55f,w,s-56f,w,s. **Shakespeare.** 55: The reading of plays from Shakespeare's early and middle periods. All sections will read *Richard II*, *A Midsummer Night's Dream*, *The Merchant of Venice*, *Much Ado About Nothing*, and 2 or 3 other plays selected by the instructor from the following list: *Henry IV* (1 and 2), *Henry V*, *As You Like It*, and *Julius Caesar*. 56: Reading of plays from middle and later periods. All sections will read *Twelfth Night*, *Hamlet*, *Macbeth*, *The Tempest*, and two other plays selected by the instructor from the following list: *Troilus and Cressida*, *Othello*, *Measure for Measure*, and *Antony and Cleopatra*. (6 cr; prereq \*\*; students may not start with 56 except by Δ)

66f-67w.‡ **The Literature of the Bible.** Readings in the Old and New Testaments from the literary point of view. Selections from the historical narratives, the prophets, psalms, tales, wisdom literature, apocalypse. (6 cr; prereq \*\*) Jackson

72f,w-73w,s-74f,s. **American Literature.** 72: The Puritans to Melville. 73: Thoreau to Norris and Crane. 74: Henry Adams to the present. (9 cr [for 72, §73 before 1958f; for 73, §74 before 1958f]; prereq \*\*...72 for either 73 or 74, except for Ed minors...or ‡) C Foster, Hornberger, Levenson

75f,w,s. **Chaucer.** Reading of selections from *The Canterbury Tales* with introduction dealing with grammar and literary forms of 14th-century English. (4 cr; prereq \*\*) Clark (f), Stange (w,s)

Clas 81f. **Greek Tragedy in Translation (Aeschylus, Sophocles, Euripides).** (3 cr, §Clas 181; prereq 9 cr in English literature, English beyond C, or foreign literature, or Δ) R Swanson

Clas 82w. **Aristophanes and Roman Drama in Translation (Aristophanes, Menander, Plautus, Terence, Seneca).** (3 cr, §182; prereq same as 81) R Swanson

97f-98w-99s. **Proseminar in English Literature.** Three major periods—Renaissance, Restoration and 18th century, 19th century. Selected authors read to investigate the literary traditions and styles characteristic of each period. Long paper, written in consultation with instructor and counting as 1 of 3 long papers, required for majors (see page 61). Six credits of this course may be counted as credits numbered above 99 in the major sequence. Students are urged to take all 3 quarters. (9 cr; prereq sr, ††, B average and Δ; offered when feasible)

100f. **Old English (Anglo-Saxon).** Introduction to sounds and grammar with some prose reading. Relation to Modern English stressed. (4 cr; prereq §§) Allen

102w. **Readings in Old English Prose and Verse.** Critical reading of texts, and introduction to versification. (3 cr; prereq 100) Brown

103s. **Beowulf.** Introduction to the Old English poem, with reading of considerable portions of the text. (3 cr; prereq 100) Brown

104f. **Emerson and Thoreau.** (3 cr; prereq §§) Turpie

105w. **Hawthorne and Melville.** (3 cr; prereq §§) Weber

106s. **Whitman and Mark Twain.** (3 cr; prereq §§) Kwiat

\*\* Engl 1A-2A-3A or Engl 1B-2B-3B or Comm 1-2-3, and 5 additional credits; or Engl A-B-C; or 5 credits in 21-22-23.

†† Engl A-B-C or Engl 1A-2A-3A or Engl 1B-2B-3B or Comm 1-2-3 or exemption from requirement.

§§ Five credits in literature in this department, exclusive of classics and A-B-C.

- 109f-110w.‡ **Romantic Poets of the Early 19th Century.** 109: Wordsworth, Coleridge, Scott, etc. 110: Byron, Shelley, Keats, etc. (6 cr; prereq §§) Jackson
- 111f. **Henry Adams and Theodore Dreiser.** (3 cr; prereq §§) Levenson
- 113s. **American Short Story.** Historical examination of American short story from 18th century to the present. (3 cr; prereq §§) Turpie
- 114f. **The Midwest in Literature.** (3 cr; prereq §§; offered 1959-60 and thereafter when feasible) Buckley
- 115s. **The Development of English Prose Style.** Definition of six broad types of prose style on historical principles. (3 cr; prereq §§; offered 1960-61 and alt yrs) Brown
116. **The Development of English Prose Style.** Styles of selected writers since 1700. (3 cr; prereq §§; offered when feasible)
- 120f-121w-122s. **The Interpretation of Poetry.** Certain technical aspects of poetry in relation to poetic meaning. 120: Analysis of a number of short poems. 121: Emphasis on Coleridge, Housman, Frost, and Eliot. 122: Intensive study of six longer poems. (9 cr; prereq §§) Tate
- 123f-124w-125s.‡ **The Technique of the Novel.** Special studies in novels of the late 19th and 20th centuries, with particular regard to structure. See also Comp 101-102-103 for the writing of fiction. (9 cr; prereq for undergrad, English major with B average, or ♯) Bellow (123-124), Berryman (125)
- 126f-127w.‡ **Drama, 1660-1900.** 126: Restoration and early 18th century. The heroic play, tragedy, comedy of manners, beginnings of sentimental comedy. 127: 18th- and 19th-century English drama. The beginnings of modern realism: Ibsen and Chekhov. (6 cr; prereq §§) Hurrell (1959-60), Moore (1960-61)
- 129s. **Modern Drama.** Survey of the chief dramatists, English, American, and Continental, from 1900. (3 cr; prereq 55-56 or 126-127) Hurrell (1959-60), Moore (1960-61)
130. **Victorian Poetry I.** Early and mid-Victorians: Tennyson, the Brownings, Clough, Fitz-Gerald, Arnold, and others. (3 cr; prereq §§; offered when feasible)
- 131s. **Victorian Poetry II.** Pre-Raphaelites and after: the Rossettis, Swinburne, Morris, Wilde, and the poets of the 1890's. (3 cr; prereq §§) Montgomery
- 134s. **The Origins of American Naturalism.** (3 cr; prereq §§) Bowron
- 136f. **Advanced Shakespeare.** The work of the poet's maturity. Special attention to *Othello*, *King Lear*, *Antony and Cleopatra*, *Cymbeline*, *The Winter's Tale*. (4 cr; prereq 55-56) Hurrell (1959-60), Brown (1960-61)
- 137f-138w-139s.‡ **Nineteenth-Century Literature.** Prose, poetry, and selected fiction—particularly of the period 1830-1890. Emphasis on the critical study of particular works of major authors and their relation to the recurrent themes and literary interests of the period. (9 cr; prereq §§) Stange
- 140w-141s. **Advanced Chaucer.** The more important poems apart from *The Canterbury Tales*. Treatment primarily literary and historical. (3 cr per qtr; prereq 75 or equiv) Clark
- 142w-143s.‡ **Twentieth-Century Literature.** Survey of British and American literature from 1890 to 1955, studied for theme and technique and as part of literary and intellectual history. Emphasis in 142 will be on British authors; in 143, on American authors. (6 cr; prereq §§) O'Connor
- 147f-148w-149s. **The Literature of England in the Middle Ages Exclusive of Chaucer.** Reading includes Latin documents in translation; special attention to the period from the Norman Conquest to 1500. (9 cr; prereq 75 and 100 or †100; offered when feasible) Clark
- 151s. **Recent Poetry.** Development of 20th-century poetry in England and America. Yeats, Hardy, Housman, Robinson. Movements in the second decade—Georgians, Imagists, etc. Lawrence, Sandburg, Frost, Eliot, Jeffers, younger poets. (4 cr; prereq §§; offered 1960-61 and thereafter when feasible) Jackson
- 154f-155w.‡ **American Novel.** History of the American novel from the beginning to the present. (6 cr; prereq §§) Bowron
- 156s. **American Drama.** (3 cr; prereq §§) Hornberger
- 157w-158s. **American Poetry.** Critical survey of American poetry from Anne Bradstreet to the present, with some attention to historical and intellectual backgrounds, the chief emphasis being upon intensive study of the major figures. (6 cr; prereq §§) Levenson
- 162f,s. **Milton.** The minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes*. (3 cr; prereq 21-22 or 55-56) Jackson, Unger
- 165f,w. **Introduction to Modern English.** Scientific approach to sounds and grammar of present-day English, with some attention to syntax; implications for a reasonable attitude toward English usage in America. (3 cr; prereq §§) Allen
- 166s. **Historical Backgrounds of Modern English.** General survey of historical influences upon, and changes within, the language as both a popular and a literary medium of communication. (3 cr; prereq §§; offered 1960-61 and thereafter when feasible) Allen
- 168-169. **The Tragic in Modern Fiction.** Thematic approach to the British and American novel in the context of modern European fiction and the western literary tradition. Readings in such writers as Conrad, Lawrence, Joyce, and Faulkner, supplemented by European novelists. (6 cr; prereq §§; offered when feasible)

‡‡ Five credits in literature in this department, exclusive of classics and A-B-C.

- 170w. **Shakespeare's Later Contemporaries.** Selected plays of Chapman, Jonson, Dekker, Marston, Webster, Heywood, Beaumont and Fletcher, Middleton, Ford, and Shirley. (3 cr; prereq 55-56; offered 1960-61 and alt yrs) Brown
- 173f. **Dr. Johnson and His Circle.** Boswell; Johnson's influence on his contemporaries. (3 cr; prereq §§ and Δ; offered 1960-61 and alt yrs) Moore
- 174s. **American English.** The developing distinctiveness of the English language in America; its relationships to American cultural patterns; significant regional variations in vocabulary, pronunciation, and grammar, with an introduction to field methods of American dialect geography and with access to unpublished collections of the Linguistic Atlas of the Upper Midwest. (3 cr) Allen
- 175s. **Chaucer.** Reading of *The Canterbury Tales* with introduction dealing with grammar and literary forms of 14th-century English. (4 cr, \$75 or equiv; prereq 100) Jackson
- 176f-177w. ‡ **Study of Meter and Rhyme.** The sound and music of verse. The common lines and stanzas with their uses and variations. (6 cr; prereq §§; offered 1959-60 and thereafter when feasible) Jackson
- 178s. **The South in Literature.** (3 cr; prereq §§; offered 1960-61 and alt yrs) Tate
- 180w. **The Influence of Poe.** Influence of Poe on the French "Symboliste" school, and influence of this school on modern literature, chiefly poetry, in English. (3 cr; prereq §§; offered 1960-61 and thereafter when feasible) Tate
- 181f. **Recent Trends in Literary Criticism.** Criticism and scholarship; structure and form; science and literature; imagination and myth; isolation of the artist; political emphasis; experiments with language. (3 cr; prereq §§) O'Connor
182. **The Far West in Literature.** Expansion beyond the Mississippi as a force in American thought and letters; literature of exploration and travel; Pacific Coast regional movement; Mark Twain. (3 cr; prereq §§; offered when feasible)
- 183f. **The Poetry of T. S. Eliot.** (3 cr; prereq §§; offered 1960-61 and alt yrs) Unger
- 184f-185w-186s. ‡ **Form and Idea in Dramatic Literature.** Study of the dramatic types, in chronological sequence, with emphasis on analytical reading of selected representative plays. 184: Tragic and religious drama (classical, medieval, Renaissance, and modern); theories of tragedy. 185: Comedy (classical, Renaissance, and modern); theories of comedy. 186: Experimental and nonrealistic drama. (9 cr; prereq §§...55-56 recommended) Hurrell
- 187-188w-189s. ‡ **Eighteenth-Century Literature.** Survey of English literature from 1700 to 1780. Parallel readings and critical essays. Graduate students will submit a term paper each quarter. (9 cr; prereq §§) Monk
191. **Imagery and Symbolism in English and American Literature.** Manifold literary influences, from the 17th century onward, upon T. S. Eliot and other 20th-century writers. (3 cr; prereq §§; offered when feasible)
- 193s. **The Poetry of W. B. Yeats.** (3 cr; prereq §§; offered 1959-60 and thereafter when feasible) Unger
- 194f-195w-196s. ‡ **Elizabethan Literature: Prose, Poetry, Drama.** 194: From beginning of Tudor period to about 1580, with attention to Medieval origins of the drama. 195: From early work of Spenser and Sidney to the mid-nineties. 196: The decade centering in the last year or two of the Queen's reign. (9 cr; prereq §§) Brown
- 197f-198w-199s. ‡ **Seventeenth-Century Literature.** 197-198: Survey of the prose and nondramatic poetry of the century down to 1660. 199: Dryden and his contemporaries. (9 cr; prereq §§) Unger (197-198), Hurrell (199)

Attention is called to the following courses, in which foreign languages or literatures are studied but for which no specific foreign language courses are prerequisites: Clas 106-107, 124, 181, 182, 191-192-193; Ger 53-54-55, 140-141-142; Hum 51-52-53, 61-62-63, 71-72-73; Ital 164; Russ 101-102-103; Scan 161, 162, 171, 172, 173. Students are urged to examine the course offerings of the foreign language departments for other courses which are pertinent to English studies.

### For Graduate Students Only

204. **History of the English Language**  
 205. **Structure of Modern English**  
 206. **Studies in the English Language**  
 210-211-212. **Studies in the 17th-Century Literature**  
 213. **Bibliography and Methods of Literary Research**  
 222-223-224. **Studies in the Origins and Early Development of the American Literary Tradition**  
 225-226-227. **Elizabethan Drama**  
 231-232-233. **Shakespeare's Tragic and Comic Art**  
 234-235-236. **Studies in Medieval English Culture**

‡‡ Five credits in literature in this department, exclusive of classics and A-B-C.



- 240-241-242. *The Canterbury Tales*  
 243-244-245. *Nondramatic Literature of the 16th Century*  
 246-247. *English Literary Criticism*  
 250-251. *Studies in Modern Literature*  
 253-254-255. *American Renaissance I*  
 256-257-258. *Spenser and Milton*  
 265-266-267. *American Renaissance II*  
 268-269-270. *Studies in Aesthetics*  
 274-275-276. *The Age of Queen Anne*  
 277-278-279. *American Realism*  
 281-282-283. *Studies in the English Romantic Movement*  
 284-285-286. *Dryden and His Age*  
 287-288-289. *Studies in Victorian Literature*  
 290-291-292. *Studies in Critical Theory*  
 297-298-299. *Independent Reading*

### Freshman English; Composition

**Major and Minor Sequences**—There is no major or minor sequence in composition. A half-minor (9 credits from Comp 101-102-103, 117) is permissible under the usual college rules (see page 12), and may be taken along with a major in English.

**Concurrent Registration in Freshman English and in Composition Courses**—Students may not register for more than one of these courses at a time.

**IMPORTANT NOTE**—No student may register for any freshman course in composition or communication without presenting an "English Classification Card (Part II)" as evidence of his assignment. On the basis of various factors, including examinations, the student is assigned to 1 of 4 categories. If he is assigned to Category 1, he is not required to take any course in composition or communication—though he may, if he wishes to, take Engl A-B-C, Engl 1A-2A-3A, Engl 1B-2B-3B, or Comm 1-2-3. If assigned to Category 2, he must take Engl A-B-C, Engl 1A-2A-3A, Engl 1B-2B-3B, or Comm 1-2-3. If assigned to Category 3, he must take Engl 1B-2B-3B or Comm 1-2-3. If assigned to Category 4, he must take Comp X and he must, after passing it, take Engl 1B-2B-3B or Comm 1-2-3. Two other categories—Categories 1A and 4A—need not be explained here.

Engl A-B-C is a 15-credit course consisting of 6 credits of composition and 9 of literature; Engl 1A-2A-3A, a 12-credit course consisting of 6 credits of composition and 6 credits of literature; Engl 1B-2B-3B, a 12-credit course consisting of 9 credits of composition and 3 of literature; Comm 1-2-3 (offered in the program of Interdepartmental Courses and General Education), a 12-credit course in composition and speech. The student may satisfy the Group A requirement for graduation, and for admission to the Upper Division, by passing any of these courses or by being assigned to Category 1 or 1A. Comp X is a no-credit course in composition. Any student who has already completed 1 or more quarters of composition in another college or university must consult the Committee on Scholastic Standing of his college before registering for any freshman course in composition or communication.

### Lower Division Courses

**Comp X. Preparatory Composition.** A remedial course in composition. (No cr; prereq assignment to Category 4 [see "Important Note" above])

**Engl Af.w-Bw.s-Cf.s.\*\* Freshman Literature and Composition.** A combined course in composition (6 cr) and literature (9 cr) identical with Engl 1A-2A-3A, except that it puts even greater emphasis upon literature. It satisfies the Group A requirement for graduation. (15 cr; prereq assignment to Category 1, 1A, or 2 [see "Important Note" above])

\*\* Students absent on the first day will lose their place in this class.

- Engl 1Af,w-2Aw,s-3Af,s.\*\* Freshman English.** A combined course in composition (6 cr) and literature (6 cr) identical with Engl 1B-2B-3B, except that it puts greater emphasis upon literature. It satisfies the Group A requirement for graduation. (12 cr; prereq assignment to Category 1, 1A, or 2 [see "Important Note" above])
- Engl 1Bf,w-2Bw,s-3Bf,s.\*\* Freshman English.** A combined course in composition (9 cr) and literature (3 cr). It concentrates upon developing the student's skill in writing exposition, with an introduction to literary types as the chief means of providing subject matter for the writing. The literature read consists of novels, short stories, plays, and poems, both English and American. It satisfies the Group A requirement for graduation. (12 cr; prereq assignment to Category 1, 1A, 2 or 3 [see "Important Note" above])
- Comp 25s. Grammar and Rhetoric.** Not a remedial course or a review of elementary English grammar, but (a) a study of some of the basic concepts of grammar (e.g., syntax and the phoneme) and rhetoric (e.g., metaphor) useful in courses in language and literature; and (b) composition of papers analyzing selected literary and nonliterary texts. (3 cr; prereq Engl C, 3A, or 3B or Comm 3) Steinmann
- Comp 27f,w,s-28f,w,s.\*\* Advanced Writing.** 27: The more direct forms of expository prose. Chief topics: (a) the situation of the writer—the demands of his subject and audience; (b) definition, argument, etc.; (c) prose style. 28: The less direct forms of expository prose. Chief topics: (a) comparison, characterization, dialogue, etc.; (b) description and narration; (c) the account of personal experience. (6 cr; prereq Engl C, 3A, 3B, or Comm 3. After first day of classes students must have  $\Delta$  to attend this class)

NOTE—For journalism majors Comp 27 or 28 is required. For English and language arts majors and minors in the College of Education, both 27 and 28 are required. They may be taken in either order, but students are strongly advised to take 27 first.

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- Comp 58f,w,s. Business Reports and Letters.** Style, forms, and methods in business writing. (3 cr; open to students in business administration, and with # to others; prereq Engl C, 3A, 3B or Comm 3 or exemption) Haga
- Comp 101f-102w-103s. The Writing of Fiction and Poetry.** Principles of composition in these arts. Class meetings are devoted to analysis of examples drawn from standard sources; meetings in the first 2 quarters to fiction, those in the third to poetry; but the student's compositions may be in either form in any quarter. (9 cr; prereq for undergrad 6 cr above 50 in English literature or #) Blum
- Comp 117s. Playwriting.** (3 cr; prereq Spch 115-116 or #; offered when feasible)

NOTE—Attention is called to Engineering Engl 85-86 (Advanced Technical Communication), offered in the Institute of Technology by members of the English staff and open to SLA students by  $\Delta$ .

### For Graduate Students Only

- Comp 200-201-202. Graduate Seminar in Writing**

## FAMILY LIFE

See Interdepartmental Courses and General Education

## FINE ARTS

See Art

## FRENCH

See Romance Languages

\*\* Students absent on the first day will lose their place in this class.

## GEOGRAPHY

Department Chairman—John R. Borchert

**Major Advisers in SLA**—Professors Borchert, Broek; Associate Professor Mather; Assistant Professors Porter, Webb; Instructor Lukermann.

**Major Sequence in SLA**—30 credits in Upper Division courses in geography, including Geog 70, 138, 160 and 170. Prerequisites: Geog 1, 4, 41, and Geol 1-2 and A. In addition, the student is strongly urged to take (a) Geol B and 6 Upper Division credits in geology, preferably in geomorphology; (b) at least 9 Upper Division credits in other social sciences; (c) a course in statistics, preferably PubH 110.

Modification of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

**Major Adviser in the College of Education**—Professor Borchert.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation*: 33 to 35 credits in geography including Geog 1, 4, and 41. *Minor recommendation*: a minimum of 23 credits in geography, including Geog 1 and 4.

For a specialized curriculum in social studies, see the *Bulletin of the College of Education*.

In the Lower Division, Geog 1, 4, and 41 deal with world patterns of resources, population, and production which are an essential part of general education. In the Upper Division, the survey courses of particular countries, continents, or regions of the world offer much of interest to the nonspecialist.

## Lower Division Courses

- 1f,w,s. **Geography of Natural Resources.** Physical characteristics and geographic distribution of the world's natural resources; major regional differences in the problems of physical resource development. (5 cr) Borchert (f,w), Mather (s)
- 4f,w,s. **Human Geography.** Geography of population and principal ways of life; capacity of the earth for future population. (5 cr) Broek (f,s), Webb (w)
- 41f,w,s. **Geography of Primary Production.** Introductory economic geography with special emphasis on commodities of commercial significance. Particular attention is given to the world patterns of raw material occurrence and production, as well as to the associated centers of industrial fabrication. (5 cr) Lukermann

## Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 60f. **Maps and Map Interpretation.** Uses and abuses of maps. Interpretation of topographic and statistical maps. Survey of map sources, and air photo as a map. Emphasis on map analysis with minimum of drafting. (3 cr; prereq soph, 5 cr or #) Porter
- 67s. **Geography of Minnesota.** Geographical survey of physical resources, population, and commercial production of Minnesota. Field trips in eastern Minnesota. (3 cr; prereq 5 cr or #) Borchert
- 70f,w. **Introduction to Cartography.** Principles of map design, compilation, specification, and drafting. Map symbols. History of cartography. Projections—analysis of construction, properties, and uses. (3 cr; prereq 5 cr or #) Porter
- 100s. **Geographical Exploration and Discovery.** Extension of the geographic horizons of western society, by the discovery of the basic land-sea relationships of the earth, from Portuguese explorations along the coast of Africa down to modern times. (3 cr; prereq 10 cr or #) Webb
- 101w. **Western Europe.** The physical and human geography of western Europe considered as a whole, followed by a more intensive discussion of selected topics on the British Isles, France, the Low Countries, the Rhine basin, Norway, and Denmark. (3 cr; prereq 10 cr or #) Webb
102. **Central Europe.** The physical and human geography of Central Europe followed by a more intensive discussion of population patterns, resources, and industries in the individual countries. (3 cr; prereq 10 cr or #; offered when feasible)

- 105f. **Mediterranean Region.** Physical and human geography of lands adjacent to the Mediterranean Sea, with special emphasis on Greece, Italy, Spain, Portugal, and Southern France. (3 cr; prereq 10 cr or #) Webb
- 107w. **Soviet Union.** Character of and bases for the regional diversity of physical resources, population, agriculture, manufacturing, and transportation in the U.S.S.R. (3 cr; prereq 10 cr or #) Borchert
- 109f. **Middle America.** Physical and human geography of the West Indies and the mainland from Mexico to Venezuela. (3 cr; prereq 10 cr or #; offered 1959-60 and alt yrs) Mather
- 110w. **South America.** Regional survey of the physical resources, population, agriculture, manufacturing, and transportation in the countries of South America excluding Venezuela and Colombia. (3 cr; prereq 10 cr or #; offered 1960-61 and alt yrs) Mather
- 111f. **Canada and Alaska.** Regional analysis of the physical and human geography, with an examination of both internal and external areal relationships. (3 cr; prereq 10 cr or #) Mather
- 112s. **Western United States.** Regional analysis of the physical and human resources of western United States. (3 cr; prereq 10 cr or #) Mather
- 113w. **Eastern United States.** Regional analysis of the physical and human resources east of the Great Plains. (3 cr; prereq 10 cr or #) Mather
- 114f. **Historical Geography of North America.** Sequential analysis of settlement and economy in the changing environment and resource patterns of North America. (3 cr; prereq 10 cr or #) Lukermann
- 117w. **The Middle East.** A historical-geographical description of land and people in the changing environment of the Afro-Eurasian bridgelands with an analysis of the location and pattern of its present cultural and physical resources. (3 cr; prereq 10 cr or #) Lukermann
- 118w. **Africa.** Regional differentiation of human groups and environments in Africa with special emphasis on culture contact and problems of underdeveloped countries south of the Sahara. (3 cr; prereq 10 cr or #) Porter
120. **South Asia.** Physical and human geography of India, Pakistan, and Ceylon; geographic aspects of population pressure, development of resources, and international relations. (3 cr; prereq 10 cr or #; offered when feasible) Broek
- 121s. **Southeast Asia.** Physical and human geography of Burma, Thailand, Indochina, Malaya, Indonesia, and the Philippines; geographic aspects of population pressure, development of resources, and international relations. (3 cr; prereq 10 cr or #) Broek
122. **East Asia.** Physical and human geography of China, Korea, and Japan; geographic aspects of population pressure, development of resources and international relations. (3 cr; prereq 10 cr or #; offered when feasible)
126. **Australia and New Zealand.** Geographic survey of the physical and human resources of Australia and New Zealand. (2 cr; prereq 10 cr or #; offered when feasible)
- 133f. **Introduction to Climatology.** Content and uses of our climatic record; world patterns of temperature, atmospheric circulation, moisture, and related elements; world regional pattern of climate and its basis; uses and limitations of climatic classifications. (3 cr; prereq 1 or #) Borchert
- 134w. **Advanced Climatology.** Major climatic regions of the United States, Canada, and Central America; regional types of weather, their synthesis into climatic patterns; problems of long-term changes in the climatic pattern; introduction to literature on regional climatic problems; analogous regions on other continents. (3 cr; prereq 133 or #) Borchert
- 138w. **Statistical Cartography.** Principles of and practice in representing quantitative data on maps. Analysis of dot, line, isogram, chorogram, and central tendency techniques. Representation of terrain. (3 cr; prereq 70 or #) Porter
- 139s. **Air Photo Interpretation.** Extraction of quantitative and qualitative information from air photos. Analysis and interpretation of physical and cultural phenomena. Air photo scale control, stereoscopy, and sources. (3 cr; prereq 70 or #) Porter
- 140f. **Advanced Cartography.** Advanced statistical mapping techniques, with emphasis on the mapping of population and settlement. Measures of distribution. History of cartography. (3 cr; prereq 138) Porter
- 143w. **Political Geography.** Scope and methods of political geography as exemplified by various writers; analysis of selected areas. (3 cr; prereq 4 or #) Broek
- 150f. **Rural Geography.** Geographic components and assemblages of rural settlement. World regional occupancy and production patterns and the geographic problems of rural settlement and agricultural production on the American scene. (3 cr; prereq 10 cr or #) Mather
- 152s. **Industrial Geography.** An analysis of the localization of economic activity, the circulation of resources, and the process of industrial regionalization in the economies of the world. (3 cr; prereq 41 or #) Lukermann
- 153f. **Urban Geography.** Discussion of character and distribution of cities in present-day world, including analysis of their development. Emphasis placed on internal character of cities, their associations with rural areas, and their functional differentiation. (3 cr; prereq 4 or #) Webb
- 160f. **Development of Geographic Thought.** Objectives, subdivisions, concepts, and methods of geography, with special reference to different schools of geographic thought as expressed in literature of the last century. (3 cr; prereq sr, 15 cr) Broek

- 165. **Source Materials for Geographic Research.** Survey of bibliographic aids and archival sources of geographic material at international, national, and local levels. Particular attention will be given to methods of handling data and to preparation of written reports. (3 cr; prereq sr, 15 cr; offered when feasible)
- 170s. **Field Course.** Examination of the concepts and techniques of field work. Saturdays devoted to field study in eastern Minnesota and neighboring areas. (3 cr; prereq sr, 15 cr) Porter, Webb
- 190f, w.s. **Directed Readings.** (1-3 cr; prereq sr) Staff
- 196s. **Proseminar in East and South Asia.** (Same as Anth 196, and Pol 196) Integrating course for students majoring in the East and South Asia Area Studies program. (3 cr; prereq sr) Interdepartmental staff

*For Graduate Students Only*

- 251. **Seminar in Human Geography**
- 252. **Seminar in Economic Geography**
- 253. **Seminar in Geography**
- 254. **Seminar in Physical Geography**
- 255. **Seminar in Geography**
- 301. **Research Problems**

**GEOLOGY AND MINERALOGY**

**Department Chairman**—George A. Thiel

**Major Advisers in SLA**—Professor Swain; Associate Professor Wright; Assistant Professors Craddock, Gast, Sloan.

**Major Sequence in SLA**—(1) Geol 1-2, A-B, or equivalent; (2) Geol 23-24, 25 which should be taken as early as possible; (3) Math 53; (4) a year of college chemistry; (5) a year of college physics, preferably Phys 7-8-9 (Phys 8 and 9 are Upper Division courses recommended as part of a minor). Courses in cartography (Geog 70), geophysics, and surveying (preferably CE 17, see *Bulletin of the Institute of Technology*) are recommended.

The following Upper Division courses are required of all majors: Geol 100 or 115, 106, 107, 118, 125, 150, 151, 171, plus 2 courses selected from the following: Geol 101, 110, 112, 131.

Modification of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

Geol 1, 2, A, B, 8, 51, and 118 are designed for general education and are recommended for nonmajors who are interested in an understanding of the natural environment in which they live. The courses are designed to give the student the proper concept of time as indicated by geologic processes and their results. Open to all from any college. Highly recommended for high school general science teachers.

*Lower Division Courses*

There are 2 beginning lecture courses in geology: 1 and 8, and a laboratory course A, B. Laboratory science credit can be gained by the sequences: 1 and A (5 credits), or 8 and A (7 credits); 2 and B (5 credits) may be taken after either of these sequences.

- 1f, w.s. General Geology (Physical).** Geologic processes and the materials on which they operate. (3 cr)
- 2f, w.s. General Geology (Historical).** Résumé of the history of the earth and its inhabitants as recorded in the rocks. (3 cr; prereq 1 or 8 or 51)
- Af, w.s. General Geology Laboratory (Physical).** Physical properties of common minerals and rocks; interpretation of topographic maps. (2 cr; prereq 1 or 8 or 51 or 11 or 8 or 51)
- Bf, w.s. General Geology Laboratory (Historical).** Identification of fossils; interpretation of geologic maps. (2 cr; prereq A, 2 or 12)
- 8s. Earth Features and Their Meaning.** Introductory course. General education elective. Explanation of the natural landscape as produced by such agents as the atmosphere, water, glaciers, volcanoes, and mountain-building forces acting on the materials of the earth. (5 cr, §Geol 1 or NSci 6; may be followed or accompanied by Geol A for laboratory science requirement) Thiel

- 23f-24w. **Mineralogy.** Crystal systems; morphological, physical, and chemical characters of minerals; classification and description of common minerals. Determinative work in laboratory, blowpipe analysis, sight identification. (8 cr; prereq soph, a term of college chemistry) Zoltai
- 25s. **Rock Study.** Occurrence and origin of rocks; their mineral and chemical composition and classification. (2 cr; prereq soph, 24)

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 51f. **Principles of Physical Geology.** Geologic processes and materials; relations of geology to man. Comparable to Geol 1 in subject matter, but with broader scope and wider readings. Suitable for nonscience majors. (3 cr, \$1, \$5, \$8, or \$NSci 6; prereq 15 cr in college natural science or math) Wright
- 62s. **Mineralogy of Precious Stones.** Characteristic physical and chemical properties of gems and precious stones. Natural geological settings and occurrences. Synthetic gemstones and imitations. Fashioning of stones. History of precious stones as related to man. (3 cr) Zoltai
100. **Field Work in Northern Minnesota.** (July 15-30 approximately) Geologic field methods and study of selected areas on the iron ranges and other parts of northern Minnesota. Comprehensive report required for Graduate School credit. (3 cr; prereq 25)
- 101f. **Sedimentation.** Environments of sedimentation. Origin of sedimentary rocks and their primary structures; lithologic associations. (3 cr; prereq 24) Thiel
- 102w. **Methods of Study of Sediments.** Textural and mineralogical analysis of clastic and non-clastic sediments and sedimentary rocks. (3 cr; prereq 101, 106) Thiel
- 103w. **Micropaleontology.** Study and classification of Foraminifera, Ostracoda, and other small fossils, and their use in stratigraphy. (3 cr; prereq 107) Swain
- 104s. **Micropaleontology.** Advanced study of selected groups of microfossils. (2 cr; prereq 103; offered 1959-60 and alt yrs) Swain
- 106f. **Petrography.** Optical methods for identification of minerals in thin sections and immersion media; introduction to microscopic work on rocks. (3 cr; prereq 25) Phinney
- 107f. **Invertebrate Paleontology.** Morphology and classification of important fossil groups, principles of paleontology. (3 cr; prereq B or  $\Delta$ ) Sloan
- 108w. **Stratigraphic Paleontology.** Uses of fossils in stratigraphy; environmental analysis; detailed study of a selected fauna. (3 cr; prereq 107) Sloan
- 109s. **Advanced Invertebrate Paleontology.** Procedures in taxonomy, preparation of a paleontologic report. (3 cr; prereq 108) Sloan
- 110w-111s. **Economic Geology.** Nature, genesis, and distribution of mineral deposits; relation of mineral deposits to structure and surficial alteration. (6 cr; prereq sr, 125) Schwartz
- 112f. **Petroleum Geology.** Composition and origin of petroleum, methods of exploration, and geology of important oil-producing regions. (3 cr; prereq sr, 125 and 151) Swain
- 114s. **Geology of Minnesota and Adjoining Areas.** Structure, stratigraphy, and lithology of rocks and their associated mineral resources with emphasis on the Precambrian. (3 cr; prereq 25) Thiel
115. **Field Work in Southeastern Minnesota.** (July 15 to 30, approximately) Stratigraphic methods and principles as illustrated by study of Cambrian and Ordovician rocks. Comprehensive report will be required for Graduate School credit. (3 cr; prereq 25)
- 118f. **Geomorphology.** Origin and evolution of landforms in temperate, arctic, desert, and tropical regions in different geologic settings. Effects of structural history and climatic change on landform development. Relations of geomorphic processes to soil formation and engineering problems. Field trips; term paper or field project. (3 cr; prereq B) Wright
- 119Aw. **Geomorphology of Eastern United States.** General geology of physiographic provinces east of the Great Plains, with emphasis on the landforms and the Cenozoic history. Map study. (3 cr; prereq 118 or 125; offered 1960-61 and alt yrs) Wright
- 119Bw. **Geomorphology of Western United States.** General geology of physiographic provinces from the Great Plains westward, with emphasis on the landforms and the Cenozoic history. Complementary to Geol 119A. Map study. (3 cr; prereq 118 or 125; offered 1959-60 and alt yrs) Wright
- 120s. **Glacial Geology.** Physics of modern glaciers. Glacial erosion and deposition. Stratigraphy and chronology of the Pleistocene in glaciated and nonglaciated areas. Causes of Pleistocene climatic changes. (3 cr; prereq B) Wright
- 121f. **Crystallography.** Symmetry relations in the 32 crystal classes and 230 space groups. Crystal drawings and measurements. Projections and mathematical calculations. (3 cr; prereq trigonometry and 1 yr college chemistry) Zoltai
- 125f. **Structural Geology.** Primary and secondary structures of rocks, mechanics and modes of deformation, and structural techniques. Laboratory exercises in 3-dimensional representation and solution of selected structural problems. (4 cr; prereq 25 or #) Craddock

- 126w. **Advanced Structural Geology.** Fundamental problems and genesis of secondary structural features with emphasis on detailed analysis of typical examples. Comprehensive term paper required for graduate credit. (3 cr; prereq 125) Craddock
- 131w-132s. **Petrology.** Petrographic description, classification, and origin of rocks. 131: Sedimentary rocks. 132: Igneous and metamorphic rocks. (8 cr; prereq 106) Pinney
- 140w. **Applied Petrography.** Application of petrographic techniques to problems in mining and petroleum geology. (3 cr; prereq 131)
- 144w. **Geologic Maps.** Laboratory problems on construction and interpretation of geologic maps, cross-sections, structure contour maps, and mine maps. Fault problems and other three-dimensional analyses of geologic structures. (3 cr; prereq 125) Ar
- 145s. **Aerial Photographs.** Elements of photogrammetry, construction of mosaics and of planimetric and topographic maps, stereovision, geologic and geomorphic interpretation, field use. (3 cr; prereq 118 or 125 or #) Wright
- 146f-147w. **Soil Mineralogy.** Crystal systems; morphological, physical, and chemical characters of minerals; classification and description of common minerals. Determinative work in laboratory, blowpipe analysis, sight identification. For students in soil science, agriculture, and civil engineering. (6 cr; prereq a term of college chemistry) Zoltai
150. **Field Geology.** (June 15 to July 15) Detailed systematic field work. Preparation of geologic maps, structure sections, reports; genesis of ores and their relations to geologic structures. Field: Black Hills, South Dakota. (6 cr; prereq 125)
- 151w. **Stratigraphy I.** Principles of stratigraphic classification and correlation; biostratigraphic zones, sedimentary facies and cycles. Study of typical pre-Mesozoic sequences. (3 cr; prereq 25, 107) Swain
- 152s. **Stratigraphy II.** Typical Mesozoic and Cenozoic sequences; methods of presentation of stratigraphic data. (3 cr; prereq 151) Swain
- 153s. **Subsurface Stratigraphy.** Application of sample logs, electrical logs, and other methods to the detailed stratigraphy of the subsurface in selected areas. (2 cr; prereq 151) Swain
- 154w. **Geological Oceanography and Limnology.** Sedimentary and biological processes in modern oceans and lakes and their application to geology and paleontology. (2 cr; prereq 118 and 101, or #; offered 1959-60 and alt yrs) Swain
- 155f. **Vertebrate Paleontology.** Stratigraphic and morphologic aspects of fossil vertebrates. (3 cr; prereq 107 or Zool 22 or #; offered 1959-60 and alt yrs) Sloan
- 161w. **Advanced Mineralogy.** Systematic study of mineral groups including some of the less common ones. Laboratory study of select specimens. Special physical and chemical tests. (3 cr; prereq sr, 24) Zoltai
- 166w-167s. **Mineralography.** Methods of studying opaque minerals and applications to problems in ore genesis and history. (6 cr; prereq sr, 111, 131) Schwartz
- 170f,w,s. **Geologic Problems.** Individual research in laboratory, or field problems at Upper Division and graduate levels. (1-3 cr per qtr)
- 171f,s. **Preparation of Geologic Report.** Supervised preparation of a geologic report, with maps and other illustrations on an acceptable area or subject. Preliminary manuscript due at midquarter. (1 cr; prereq sr, 150 or  $\Delta$ )
- 175s. **Field Work in Glacial Geology and Geomorphology.** Mapping of surficial deposits and landforms of selected areas in Minnesota. One day of field work each week. (3 cr; prereq 118, 120) Wright
- 176w. **Pleistocene Geology.** Pleistocene history of glaciated and unglaciated areas, particularly North America, Europe, and the Mediterranean. Relation of Pleistocene climatic changes to soils, biogeography, and archaeology. (3 cr; prereq 120; offered 1959-60 and alt yrs) Wright
- 177w. **Advanced Geomorphology.** Geomorphology of rivers, lakes, and oceans; landforms of arctic, desert, and tropic regions; quantitative geomorphology; other selected subjects. (3 cr; prereq 118; offered 1960-61 and alt yrs) Wright
- 178f. **Advanced Course in Principles of Economic Geology.** Fundamental principles involved in the origin of ore deposits. (3 cr; prereq 111; offered 1960-61 and alt yrs) Schwartz
- 179f. **Mining Geology.** Economic geology applied to problems in mining. (3 cr; prereq 111; offered 1959-60 and alt yrs) Schwartz
- 181f. **Principles of Geochemistry.** Chemical structure and composition of the earth. Distribution of the elements within the lithosphere, hydrosphere, atmosphere, and biosphere. (3 cr; prereq 25 and 1 yr college chemistry) Gast
- 182w. **Isotopic and Nuclear Processes in Geology.** Measurement of geologic time by natural radioactivity. Variations in isotopic compositions due to radioactivity and to natural isotope fractionation processes. (3 cr; prereq 25 and physical chemistry or #) Gast
- 183s. **Advanced Geochemistry.** Detailed study of chemical evolution and heat balance of the earth, phase equilibria at high temperatures and pressures, and other selected topics. (3 cr; prereq 182, differential equations or #; offered 1959-60 and alt yrs) Gast

### For Graduate Students Only

- 211-212-213. **Research in Paleontology**  
 214. **Seminar in Economic Geology**

- 217. Research Course in Petroleum Geology
- 227. Geotectonics
- 241. Field Course in Geology
- 243-244. Research Course in Geology
- 245-246. Research Course in Sedimentation
- 247. Research in Geomorphology and Pleistocene Geology
- 248. Seminar in Geomorphology and Pleistocene Geology
- 251-252. Mineralogical Problems
- 253-254. Research Course in Economic Geology
- 260. Rock Analysis
- 261. Theoretical Mineralogy
- 262. Advanced Optical Mineralogy
- 263. Seminar in Igneous Petrology
- 264. Seminar in Metamorphic Petrology
- 265. Seminar in Special Research Fields
- 268. Seminar in Clay Mineralogy

## GERMAN

**Department Chairman**—Herman Ramras

**Major Advisers in SLA**—Professor Ramras; Associate Professor Menze.

**Major Sequence in SLA**—35 credits in courses numbered 56 or above, of which at least 18 must be in literary courses.

**Suggested Courses for a Minor**—15 credits in courses numbered 56 or above, of which at least 9 should be in literary courses.

**Major Adviser in the College of Education**—Associate Professor Menze.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation:* Ger 57, 58, 59, 61, 62, 63, 68; 6 credits in 91-92-93 or 94-95-96, 80 or Clas 56, Elementary Linguistics; and 12 additional credits in courses numbered 56 or above, of which at least 9 credits should be in literary courses. *Minor recommendation:* 23 credits including Ger 57-58-59, 61-62-63, 68 and 7 additional credits in courses numbered 56 or above.

### Lower Division Courses

**NOTE**—There are 3 course sequences in first-year German, 1A-2A-3A, 1B-2B-3B, and 1C-2C-3C, each of which prepares the student for Ger 4, the second-year course. The student should study the description of each sequence and choose the one most suited to his interests and needs. Credit cannot be earned for more than one of these sequences.

- 1Af-2Aw-3As. Beginning German: Conversational Section.** Five class meetings a week. Provides basic experience in speaking and understanding the German language through the use of texts dealing with real-life situations; provides a reading knowledge that is adequate for this level; provides necessary insight into the structure of the language by analysis of texts already learned. (15 cr) Menze
- 1Bf-2Bw-3Bs. Beginning German: Language and Culture.** Five class meetings a week. Provides, without emphasis on formal grammar, foundation of a reading knowledge adequate for cultural or professional purposes; gives an introduction to German culture and its contributions to Western civilization; encourages an understanding of the nature of language by systematic comparison between German and English. Stresses direct experience with a variety of reading material in German and English. (15 cr) Ramras
- 1Cf,w,s-2Cf,w,s-3Cf,w,s. Beginning German.** Five class meetings a week. Gives a knowledge of the elements of grammar and the facility to read and write easy German. (15 cr; students submitting 1 yr high school German for entrance take Ger 2; those offering 2 yrs take Ger 3)
- 4f,w,s. Intermediate German** (5 cr; prereq 3A or 3B or 3C, or 3 yrs high school German)
- 24f-25w-26s. Chemical German** (9 cr; for chemists)

Attention of students is called to CLit 45-46-47, The Nature of Literature. See Comparative Literature.



## Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 50f-51w-52s. **Reading German: A Beginning Course for Juniors and Seniors.** Develops reading proficiency by concentrating from the outset on vocabulary building and reading techniques and reduces presentation of formal grammar to a minimum. Intensive study of a variety of texts in class; individual projects in extensive reading. (9 cr)
- 53f-54w-55s. ‡ **German Masterpieces in English Translation.** Requires no knowledge of the German language. German literature from medieval to modern times in its relation to other literatures; representative works are read in translation. Topics include *Parzival*, *Tristan and Isolde*, *Nibelungenlied*, *Minnesinger* and *Meistersinger*; Humanism, Reformation and Counter-Reformation; Goethe, Schiller, and the new Humanism; Romanticism; Heine, Wagner, Nietzsche; Hauptmann, Mann, Rilke, Werfel. (6 cr) Wood
- 56f, w.s. **Reading and Analysis of Literary Texts.** Short stories are read to develop reading fluency and appreciation of literary values. (3 cr; prereq 4, or 4 yrs high school German) Weiss
- 57f-58w-59s. ‡ **Composition.** Review of German grammar, with emphasis upon colloquial usage, and original compositions. (6 cr; prereq 4)
- 61f-62w-63s. ‡ **Conversation.** Systematic development of vocabulary in areas relating to everyday life and practice in the use of spoken German. (6 cr; prereq 4)
- 64f-65w-66s. ‡ **Advanced Conversation and Essay Writing.** (6 cr; prereq 59 and 63)
- 68s. **German Pronunciation.** The "Hochsprache" as the established standard of correct pronunciation with practical exercises in phonetic transcription. Critical evaluation of individual pronunciation, utilizing modern recording instruments. (2 cr; prereq 4)
- 69w, s. **German Pronunciation and Diction.** Open only to candidates for German play. (1 or 2 cr; prereq 3)
- 70f-71w-72s. ‡ **Lyric Poetry from Goethe to Rilke.** 70: Goethe period. 71: Heine to the end of the 19th century. 72: Twentieth century. (2-3 cr per qtr; prereq 56, or 4 and Δ) Wood
- 73f-74w-75s. ‡ **German Drama from Lessing to the Present.** Reading and discussion of outstanding dramatic works. 73: Classical period, Lessing, Goethe, Schiller. 74: Nineteenth century, Kleist, Hebbel, Grillparzer. 75: Modern drama. Plays representing the more recent movements in German literature, naturalism, impressionism, expressionism. (9 cr; prereq 56, or 4 and Δ) Ramras
- 76f-77w-78s. ‡ **German Prose of the 19th and 20th Century.** 76: Nineteenth century. Selected *Novellen* by renowned mid-century prose writers, such as Keller, Meyer, Ludwig, Fontane. 77 and 78: Modern writers. Writers and literary movements of the 20th century are represented in selected works of Thomas and Heinrich Mann, Schnitzler, Kafka, and others. (2-3 cr per qtr; prereq 56 or 4 and Δ) Menze
80. **History of the German Language.** (3 cr; prereq 6 cr above 69; offered when feasible)
- 91f-92w-93s. ‡ **German Civilization and Culture.** Survey of important movements and leading personalities in art, music, science, religion, and education against a general historical and geographical background. Class discussions and lectures supplemented with demonstration materials. (9 cr; prereq 3 cr above 69) Prottegeier
- 94f-95w-96s. ‡ **Survey of Literature.** Recommended for all undergraduate majors. Reading of some of the more significant works, supplemented by lectures on the history and development of German literature. 94: From the beginnings to the 18th century. 95: From the 18th century to the end of the Goethe period. 96: From Romanticism to the 20th century. (9 cr; prereq 3 cr above 69) Hirschbach, Wood
- 99s. **Faust I.** (3 cr; prereq 6 cr above 69) Ramras
- For a complete list of graduate offerings see the *Bulletin of the Graduate School*. Courses numbered 100 to 199 are open to seniors upon recommendation of advisers. The prerequisites for any course between 150 and 190A are 14 credits above 69 or equivalent.
- 103f-104w-105s. ‡ **German Syntax and Composition.** Required of all graduate majors. (3 cr; prereq 66 or equiv; offered 1960-61 and alt yrs)
- 133f-134w-135s. ‡ **Bibliography and Research Methods.** Required of all graduate majors. (3 cr; prereq 11 cr above 69; offered 1959-60 and alt yrs)
- 140f-141w-142s. ‡ **Drama in Translation.** (9 cr in theater arts or literature above 50; no knowledge of German language required) Menze
- 150f-151w-152s. ‡ **The Age of Luther.** (9 cr; offered when feasible)
- 156-157. **German Literature of the 17th-Century.** (3 cr per qtr; offered when feasible) Weiss
- 160f-161w-162s. ‡ **Klopstock, Wieland, Lessing, Herder.** (9 cr; offered 1960-61 and every 3rd yr) Ramras
- 163f-164w-165s. ‡ **Goethe.** (9 cr; offered 1959-60 and every 3rd year) Ramras
- 166f-167w-168s. ‡ **Schiller.** (9 cr; offered 1961-62 and every 3rd yr) Ramras
- 170f-171w-172s. ‡ **Romanticism.** (9 cr; offered when feasible)
- 173f-174w-175s. ‡ **The 19th-Century Novel.** (9 cr; offered when feasible)

- 176f-177w-178s.‡ **The 19th-Century Drama.** (9 cr; offered when feasible) Wood  
 180f-181w-182s.‡ **The 20th-Century Novel.** (9 cr; offered when feasible) Ramras, Wood  
 183f-184w-185s.‡ **Studies in the Literature of the 20th Century.** Survey of literary movements as represented in the drama, lyric, and shorter prose forms. (9 cr; offered when feasible) Wood  
 186f-187w-188s.‡ **Lyric Poetry.** 186: Renaissance through *Sturm und Drang*. 187: Goethe through Romanticism. 188: Heine to Rilke. (9 cr; offered when feasible) Wood  
 189. **Expressionism in German Literature.** (3 cr; offered when feasible) Hirschbach  
 190f-191w-192s.‡ **English-German Literary Relations.** (9 cr; offered when feasible)  
 190Af-191Aw-192As.‡ **French-German Literary Relations.** (9 cr; offered when feasible)

### For Graduate Students Only

253. Seminar: 18th Century  
 254. Seminar: 19th Century  
 255. Seminar: 20th Century

### German Linguistics and Philology

- 110f-111w-112s. **Middle High German.** (9 cr; prereq 94 and 11 cr above 69 or equiv; offered when feasible)  
 113f-114w.‡ **Gothic.** (6 cr; prereq 80 and 11 cr above 69 or equiv; offered when feasible)  
 118f-119w-120s.‡ **Old High German.** (9 cr; prereq 94 and 11 cr above 69; offered when feasible)  
 125. **History of the German Language.** (3 cr; prereq 80 and 11 cr above 69 or equiv; offered when feasible)  
 126. **Historical German Grammar.** (3 cr; prereq 110-111-112 or 113-114; offered when feasible)  
 194s. **Old Saxon: The Heliand.** (3 cr; prereq 14 cr above 69 or equiv; offered when feasible)  
 Scan 195f-196w-197s. **Old Norse: Language and Literature.** (9 cr; prereq knowledge of 1 Germanic language other than modern English; offered when feasible)

### GREEK

See Classics

### HISTORY

Department Chairman—John Bowditch

**Major Advisers in SLA**—Professors Deutsch, Hoyt, Jones, Jordan, Thompson, Tyler, Willson, Wolf; Associate Professors Anderson, Beatty, Bowditch, Chambers, Loehr, Noble; Assistant Professors Bamford, Murphy, Stein; Instructor Wright

**Major Sequence in SLA**—Students majoring in history will be expected to take Hist 1-2-3 or 4-5-6 or 14-15-16 or 17-18-19 in the freshman year, Hist 20-21-22 in the sophomore year, and 27 hours in history courses numbered above 65 in their last 2 years. Of these Upper Division courses, at least 18 hours must consist of two 9-hour sequence courses.

In special cases students will be allowed to substitute sequence courses numbered above 65 in lieu of the courses normally taken in the first 2 years. (Courses numbered 50-64 may not be used for Upper Division credit in satisfying the major requirements.)

In 1 of the Upper Division 9-hour sequence courses, the student majoring in history will be expected to write a paper, or papers, satisfactory to the professor, and these papers must be filed with the secretary of the department as a prerequisite for graduation.

*Students planning to do advanced work in history should acquire a reading knowledge of French and German in their early undergraduate years.*

**Major Advisers in the College of Education**—Professor Tyler; Instructor Wright.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation:* a minimum of 45 credits; at least

18 credits must be in Upper Division courses. See the *Bulletin of the College of Education* for details. *Minor recommendation*: a minimum of 27 credits of which at least 9 credits must be in Upper Division courses.

No major recommendation to teach history will be given unless the candidate has taken the general course in American history, Hist 20-21-22, or equivalent. For other history courses the same provisions apply as for SLA majors in history, noted above.

For a specialized curriculum in social studies see the *Bulletin of the College of Education*.

**General Education**—The offerings of the history department numbered below 170 attract and are designed to serve the needs of students from all areas of the University. Lower Division students will find any of the courses numbered between 1 and 22 fit the category of general education as well as providing the basis for more advanced work. For Upper Division students who have had no previous work in history, the department particularly recommends the courses numbered between 50 and 65.

### Lower Division Courses

- 1f, w-2w, s-3f, s.‡ **Civilization of the Modern World.** 1: Rise of the European state system as framework within which Western civilization developed, and economic, cultural, political, intellectual, and religious implications to the emerging system. 2: Struggle for control over the Western states system, and emergence of liberal democracy in the modern world. 3: Impact of industrialism upon Western and world civilization in the 20th century. (9 cr) Stein, Wolf, and Wright (1f-2w-3s), Bamford (1w-2s-3f)
- 4f-5w-6s.‡ **English History.** 4: Conquest and settlement, feudal age, foreshadowings of limited monarchy and popular government. 5: Tudors, Stuarts, and Hanoverians, parliament versus king, colonization and American Revolution. 6: Coming of democracy, Britain and Europe, Empire and Commonwealth. (9 cr) Willson
- 11f-12w-13s.‡ **Medieval and Renaissance History.** 11: Roman heritage, "age of faith," feudal age, crusades. 12: Towns and trade, learning and literature, Gothic, early Renaissance. 13: Renaissance and Reformation, rise of national states, exploration and discovery. (9 cr; for music and art students...others by Δ) Thompson
- 14f-15w-16s. **Ancient Civilization.** Survey of rise and fall of ancient civilization. 14: Near East to 500 B.C. 15: Greek Civilization, 750-323 B.C. 16: Roman Civilization to A.D. 305 (9 cr) Jones
- 14Af-15Aw-16As. **Ancient Civilization with Basic Readings.** Students attend lectures in 14-15-16 and meet 2 additional hours per week to discuss assigned readings in the literature of the Near East, Greece, and Rome. (15 cr) Jones
- 17f-18w-19s.‡ **History of Asia.** A survey of the history of China, Japan, India, and Southeast Asia from ancient times to the present. 17: Ancient history and culture of China, Japan, and India to A.D. 1200. 18: Asia, A.D. 1200-1800: Chinese empire period; India: Muslim domination; Japanese feudalism; the beginning of western influence. 19: Modern Asia: The impact of Europe, nationalism, post-World War II Asia. (9 cr) Stein
- 20f, w-21w, s-22f, s.‡ **American History.** Survey of political, economic, and social history of United States with emphasis on forces that resulted in emergence of modern America. 20: Colonial and early national period. 21: Sectionalism and national development. 22: Modern America. (9 cr; prereq soph) Beatty, Chambers, Murphy, Noble

### Upper Division Courses

Except where otherwise stated, there are no prerequisites for the courses numbered 50 to 169. Most of these courses are announced for f-w-s or w-s, but students may enter any quarter.

Upper Division courses are open to sophomores under conditions explained on page 24.

The first four courses listed below are survey courses designed for students who do not intend to major in history.

- 50f-51w-52s.‡ **Ancient Civilization.** (9 cr, §14-15-16) Jones
- 53f-54w-55s.‡ **Civilization of the Modern World.** (9 cr, §1-2-3)
- 56f-57w-58s.‡ **History of England.** (9 cr, §4-5-6) Willson
- 59f-60w-61s.‡ **History of Asia.** (9 cr, §17-18-19) Stein
- 62f-63w.‡ **Cultural History of China.** 62: Prehistoric times to A.D. 600. 63: A.D. 600 to the present. (6 cr; prereq 1Art 111 recommended; offered when feasible)

- 62Af-63Aw.‡ **Cultural History of Japan.** 62A: Prehistoric times to A.D. 1600. 63A: A.D. 1600 to present. (6 cr; offered when feasible)
- 70f-71w-72s.‡ **English Constitutional History.** 70: Medieval period. 71: Later medieval and early modern period. 72: Modern period. (9 cr; prereq prelegal soph with at least a C average in 4-5-6, 1-2-3, or in all their college work, or jr) Hoyt, Thompson
- 79f-80w-81s.‡ **The United States in the 20th Century.** Political, economic, diplomatic, and social history of United States from Spanish-American War to present. 79: 1898-1916. 80: 1916-1932. 81: 1932 to present. (9 cr) Chambers
- 86f-87w-88s.‡ **American Colonies.** 86: In the 17th century. 87: In the 18th century. 88: Revolutionary crisis. (9 cr) Tyler
- 89s. **Economic History of Modern War.** Economic aspects of the French Revolution and Napoleonic Wars, and of World War I and World War II. (3 cr; offered when feasible) Bowditch
- 90f-91w-92s.‡ **The American West.** Interpretation of American frontier from its establishment in the colonies to its disappearance as a factor in American life. 90: Colonial frontier. 91: Mid-America. 92: Far West. (9 cr; offered 1960-61 and alt yrs) Murphy
- 93f-94w-95s.‡ **American Diplomatic History.** 93: American diplomacy, 1776-1848. 94: Period of national development. 95: United States as a world power. (9 cr) Beatty
- 97f-98w-99s.‡ **Minnesota and the Northwest.** (9 cr) Jordan
- 100f-101w-102s.‡ **History of the Ancient Near East.** (9 cr; offered 1960-61 and every 3rd yr) Jones
- 100Af-101Aw-102As.‡ **History of Greece to 300 B.C.** (9 cr; offered 1961-62 and every 3rd yr) Jones
- 100Bf-101Bw-102Bs.‡ **History of Rome.** (9 cr; offered 1959-60 and every 3rd yr) Jones
- 103f-104w-105s.‡ **Europe in the Middle Ages.** 103: Decline of Rome; Early Middle Ages. 104: High Middle Ages. 105: Later Middle Ages and the Renaissance. (9 cr; 103-104 offered every yr; 105 offered 1959-60 and alt yrs) Hoyt
- 103Af-104Aw-105As.‡ **Renaissance and Reformation.** 103A: Age of Dante and Petrarch. 104A: Italian Renaissance. 105A: Reformation. (9 cr; 103A-104A offered when feasible; 105A offered 1960-61 and alt yrs) Hoyt
- 106f-107w-108s.‡ **Early Modern Europe.** 106: Reformation and the religious wars. 107: 17th century. 108: 18th century. (9 cr) Wolf
- 106Af-107Aw-108As.‡ **Europe in the 19th Century.** 106A: French Revolution and Napoleon. 107A: Liberalism and nationalism, revolutions of 1820, 1830, 1848. 108A: 1852-1900, unification of Italy and Germany, industrialism and imperialism. (9 cr) Bowditch
- 109f-110w-111s.‡ **Europe in the 20th Century.** 109: 1900-1918. 110: Peace conference, Soviet Union, western powers. 111: Fascist totalitarianism, origins and history of World War II. (9 cr) Deutsch
- 112f-113w-114s.‡ **Economic History of Europe.** 112: Economic life in ancient and medieval times. 113: Economic developments in early modern world. 114: Economic developments since 1750. (9 cr) Bamford
- 115f-116w-117s.‡ **European Overseas Expansion.** 115: Voyages of discovery and overseas expansion, 1400-1600. 116: Colonial rivalries in the West Indies; India, 1600-1815. 117: Imperialism since 1850. (9 cr; offered when feasible) Stein
- 120f-121w.‡ **Modern France.** 120: Political, social, and economic history of France from Vienna settlement to establishment of Third Republic. 121: Struggle of Third and Fourth Republics to meet challenge of 20th century. (6 cr; prereq 9 cr in history or 15 cr in social science, or major in French; offered when feasible) Bowditch
- 125f-126w-127s.‡ **Russia.** 125: Origins of the Slavs, the eastward movement, and the rise of Russia through the death of Peter the Great. 126: The Empire after Peter the Great through the reforms. 127: From Alexander II to the present. (9 cr) Anderson
- 125Af-126Aw-127As.‡ **Eastern Europe and the Middle East in the 19th and 20th Centuries.** Balkan countries, Poland, Hungary, Czechoslovakia, Turkey, Persia, Afghanistan, the Arabic people. 125A: Balkan countries, Poland, and Hungary up to World War I. 126A: Post-World War I states in this area including Czechoslovakia, Austria, and Albania up to World War II. 127A: Islamic Middle East, 1800 to present. (9 cr; prereq 1-2-3) Anderson
- 128f-129w-130s.‡ **Modern England: Tudor and Stuart Periods.** 128: 1485-1588, from Henry VII to defeat of Spanish Armada. 129: 1588-1642, from Spanish Armada to English civil wars. 130: 1642-1714, from civil wars to death of Queen Anne. (9 cr; offered 1960-61 and alt yrs) Willson
- 128Af-129Aw-130As.‡ **Modern England, 1714 to the Present.** 128A: 1714-1783, the 18th century. 129A: 1783-1867, coming of democracy. 130A: 1867-1945, democracy, socialism, empire, and war. (9 cr; offered 1959-60 and alt yrs) Willson
- 134f-135w-136s.‡ **World War II.** 134: Origins and background. 135: War period, 1939-1942. 136: Period 1943-1945. (9 cr) Deutsch
- 137f-138w-139s.‡ **The Early National Period in United States History.** 137: 1783-1815. 138: 1815-1835. 139: 1835-1850. (9 cr) Jordan
- 137Af-138Aw-139As.‡ **American History, 1850-1900.** 137A: From Compromise of 1850 to Appomattox. 138A: From 1865 to 1880. 139A: From 1880 to 1900. (9 cr) Loehr

- 140f-141w-142s.† **History of Germany.** 140: To 1648. 141: 1648-1871. 142: Since 1871. (9 cr; prereq 1-2-3 or major in German or §) Wright
- 145s. **American Agricultural History.** The development of American agriculture from the colonial to the present. (3 cr) Loehr
- 146f-147w-148s.† **American Economic and Social History.** 146: Colonial Life. 147: From Revolution to 1860. 148: Developments since 1860. (9 cr) Loehr
- 146Af-147Aw-148As.† **History of the South.** 146A: 1607-1840. 147A: 1840-1890. 148A: 1890-. Noble
- 149f-150w-151s.† **Social and Intellectual History of the United States.** (9 cr) Tyler
- 149Af-150Aw-151As.† **American Constitutional History.** 149A: English and colonial background through the Age of Jefferson. 150A: The slavery controversy, sectionalism, Civil War and Reconstruction. 151A: Constitutional developments in an industrial age. (9 cr; offered 1959-60 and alt yrs) Murphy
- 154Af-155Aw-156As.† **The History of the British Empire and Commonwealth.** 154A: First empire to 1783. 155A: Second empire, 1783-1914. 156A: Development of the Commonwealth. (9 cr; offered when feasible) Stein
- 154Bf-155Bw-156Bs.† **The History of South Asia, Especially India.** 154B: India to 1556. 155B: 1556-1857. 156B: 20th-century developments. (9 cr) Stein
- 157f-158w-159s.† **Survey of Latin-American History.** 157: Colonial period. 158: Latin-American republics. 159: Recent Latin-American history. (9 cr; offered 1960-61 and alt yrs) Beatty
- 167f-168w-169s.† **Readings in the Works of Great Historians.** (6 cr; prereq sr; required of all Ph.D. candidates)

Courses numbered 170 to 199 are open to seniors and to graduate students upon recommendation of advisers; prerequisites are appropriate lecture courses and written consent of instructor.

#### SELECTED READINGS IN EUROPEAN HISTORY

- 170f-171w-172s.† **Ancient History.** (9 cr) Jones
- 173f-174w-175s.† **Medieval and Renaissance History.** (9 cr) Hoyt
- 173Af-174Aw-175As.† **Medieval English History.** (9 cr) Thompson
- 176f-177w-178s.† **Seventeenth-Century France.** (9 cr; prereq reading knowledge of French) Wolf
- 176Af-177Aw-178As.† **Russian History.** (9 cr; prereq 125-126-127 and reading knowledge of Russian, German, or French, or §) Anderson
- 176Bf-177Bw-178Bs.† **History of India.** (9 cr) Stein
- 176Cf-177Cw-178Cs.† **Recent European History.** (9 cr; prereq lect course in 20th-century Europe or World War II, or §) Deutsch
- 176Df-177Dw-178Ds.† **Nineteenth-Century European History.** (9 cr; prereq reading knowledge of French or German and 106A-107A-108A or §) Bowditch
- 179f-180w-181s.† **European Economic History Since 1500.** (9 cr) Bamford
- 179Af-180Aw-181As. **History of European Commerce.** (9 cr; 1959-60 and alt yrs) Bamford
- 182f-183w-184s.† **English History: Tudor and Stuart Periods.** (9 cr) Willson

#### SELECTED READINGS IN AMERICAN HISTORY

- 185f-186w-187s.† **American Political and Constitutional History.** (9 cr; offered 1960-61 and alt yrs) Murphy
- 185Af-186Aw-187As.† **The West in American History.** (9 cr; offered 1959-60 and alt yrs) Murphy
- 185Bf-186Bw-187Bs.† **American Diplomatic History.** (9 cr; offered 1959-60 and alt yrs) Beatty
- 185Cf-186Cw-187Cs.† **Twentieth-Century American History.** (9 cr) Chambers
- 185Df-186Dw-187Ds.† **Nineteenth-Century American History.** (9 cr) Jordan
- 185Ef-186Ew-187Es.† **Problems of the 18th Century; Some Phases of Early American Social and Intellectual History.** (9 cr; offered 1959-60 and alt yrs) Tyler
- 188f-189w-190s.† **American Economic History.** (9 cr; offered 1960-61 and alt yrs) Loehr
- 188Af-189Aw-190As.† **American History, 1850-1900.** (9 cr; offered 1959-60 and alt yrs) Loehr
- 191f-192w-193s.† **Latin-American History.** (9 cr; prereq reading knowledge of Spanish; offered when feasible) Beatty

#### For Graduate Students Only

- 200-201-202. **Historical Bibliography and Criticism**
- 210-211-212. **Ancient History**
- 213-214-215. **Medieval History**
- 220-221-222. **Medieval English History**
- 223-224-225. **English History, Tudor-Stuart Period**
- 233-234-235. **Seventeenth-Century France**
- 240-241-242. **Nineteenth-Century Europe**

- 243-244-245. **Recent European History**  
 250-251-252. **European Economic History**  
 253-254-255. **Russian History**  
 260-261-262. **Latin-American History**  
 263-264-265. **History of India**  
 270-271-272. **Problems of the 18th Century; Some Phases of Early American Social and Intellectual History**  
 273-274-275. **Nineteenth-Century American History**  
 276-277-278. **American History, 1850-1900**  
 280-281-282. **Twentieth-Century American History**  
 283-284-285. **American Economic History**  
 286-287-288. **American Political and Constitutional History**  
 290-291-292. **The West in American History**  
 293-294-295. **American Diplomatic History**

## HOME ECONOMICS

(College of Agriculture, Forestry, and Home Economics)

**Director**—Louise A. Stedman

The courses in home economics listed in this bulletin are open to SLA students as well as to students from other colleges.

Students registered in colleges other than Agriculture, Forestry, and Home Economics who wish to take courses not listed on the following pages must have the approval of the director of the School of Home Economics.

Students from colleges other than Agriculture, Forestry, and Home Economics who wish to take courses in related art should choose their courses, to avoid duplication of content, according to the following sequences which have been planned to accommodate nonmajors:

1. HE 20, 120 (or)
2. HE 20, 120, 123 (or)
3. HE 20, 22, 120, 125 (or)
4. FL 15; HE 120, 123

### Lower Division Courses

- 1f,w,s. Choice and Care of Clothing.** Principles of planning, selecting, and caring for the wardrobe. Design and color as they relate to dress and personal appearance. Some textile knowledge of help to consumer. (3 cr, §GC 3C; not open to sr or to men) Baumgartner
- 20f,w,s. Introduction to Related Art.** Development of an appreciation of art involved in the everyday life of student; cultivation of taste in varied fields such as home furnishings and architecture. Arts and crafts of various countries studied briefly for their contribution to student's breadth of view, enjoyment, and understanding of other cultures. (4 cr) Myren
- 22f,w. Beginning Costume Design.** Opportunity to plan suitable and becoming costumes for different personality and figure types. Study of regional costumes. Craft problems related to costume. (3 cr; prereq 1, 20...21 recommended) Esteros (f), Forsyth (w)
- 30f,s. Introduction to Nutrition.** Discussion of the application of the principles of nutrition to the selection of food. (2 cr, §GC 14, §HE 31; intended for SLA students [open to home economics students only by special permission of director of School of Home Economics]; offered on Minneapolis Campus) Gormican (f), Higgins (s)
- 31f,w,s. Introduction to Nutrition.** Application of nutrition principles to food selection of college students. Includes information on relation of food to promotion and maintenance of health. (3 cr, §GC 3B, §HE 30; not open to home economics seniors) Higgins
- 40f,w,s. Food Preparation.** Development of technique and application of fundamental science principles to cookery processes and preservation. Establishment of good standards for food products. (5 cr; no prereq for SLA students)

### Upper Division Courses

- 70f,w. Advanced Food Preparation.** (Continuation of 40) Emphasizes scientific principles that underlie cookery processes and food preservation. (3 cr; prereq 40 and Δ) Trammell
- 76f,s. Nutrition.** Principles of nutrition and the problems of food selection most commonly met in everyday living. (4 cr, §HE 170, §171; prereq 30 or 31, and 40; physiology or human biology) Higgins

- 85f, w.s. **Home Management Principles.** Managerial aspects of homemaking; work simplification of household activities; financial records and budget making for individual and family. (3 cr; prereq 40...41 recommended) Jeary
- 120f, w.s. **Art History.** Art from the Egyptian period to present. Painting, sculpture, architecture, furniture, and costume of the past studied for their present influences and contributions and their significance to contemporary houses and furnishings and to dress. Field trips. (3 cr) Esteros
- 123w. **History of Home Furnishings.** Historic styles in home furnishings with their corresponding styles in exteriors; effect of historic styles on contemporary design in home furnishings. (2 cr) Ludwig
- 125s. **Advanced Costume Design.** Modern and historic costume. Studies and reports on selected topics. Problems in draping and sketching designs. Pencil, crayon, and watercolor techniques. (3 cr; prereq 3, 22 or #) Esteros

## HOW TO STUDY

See Interdepartmental Courses and General Education

## HUMANITIES

**Program Chairman**—Ralph G. Ross

**Major Advisers in SLA**—Professor Ross; Associate Professor Ames; Assistant Professors M. Blum, Bryan, Frank, Ramsland, R. Swanson.

**Major Sequence in SLA**—This is an interdepartmental major which rests upon interdepartmental humanities courses and on Upper Division electives in the several departments of the humanities division. There must be a minimum of 60 credits in Upper Division courses. Specifically, these requirements are as follows:

1. 3 quarters of Humanities in the Modern World and 3 quarters of European Heritage, taken either in Upper or Lower Division. Any grade points earned in Lower Division sections are not computed in determining the grade points of the major.
2. 9 Upper Division credits in social science (history included).
3. 9 Upper Division credits in history of art or history of music.
4. 9 Upper Division credits in philosophy.
5. 18 Upper Division credits in literature (English or foreign).
6. 9 Upper Division credits in Humanities Proseminar.

**For courses labeled "Humanities,"** see Interdepartmental Courses and General Education. For all other courses in the program, see the separate departments mentioned in the above list of requirements.

## INTERDEPARTMENTAL COURSES AND GENERAL EDUCATION

The College offers both departmental and interdepartmental courses for the purpose of general education. Such courses are designed in the main for students who will not specialize in the academic area with which these courses are concerned. Introductory courses in most departments help serve this purpose, and many departments offer courses beyond the introductory level also suitable to the interests of the nonspecialist. In the introduction to each department listing, the student will find a brief guide to courses in that department particularly suitable for the nonspecialist.

Interdepartmental courses or divisional courses devised especially for the purposes of general education are also offered by the College. These courses draw subject matter and materials from several disciplines. They are designed in the main for students who will specialize in other subjects and thus will not be able to elect several courses in the field.

The courses have been arranged in six programs. In registering for these courses, write the program heading (abbreviated prefix) in the column labeled "department" as indicated in the listings that follow:

## Communication

### Program Chairman—Harold B. Allen

**Comm 1f,w,s-2f,w,s-3f,w,s.** **Communication.** Helps students use the English language more effectively, with constant practice in speaking and writing, in listening and reading. 1: Use of language to convey meaning through its structural patterns and its words; social attitudes toward language practices. 2: Use of language to influence human behavior. 3: Special effects of mass communication upon the recipient; critical reception of mass communication. Six regular conferences with instructor; use of speech equipment; special conferences with speech consultant if indicated. Meets the Group A requirement in Freshman English. (12 cr; prereq assignment to Category 1, 1a, 2 or 3 [see "Important Note," page 65])

## Family Life

### Program Chairman—Gerhard Neubeck

**FL 1f,w,s.** **Preparation for Marriage.** Application of principles from the behavioral sciences to dating, courtship and mate selection, engagement, mixed marriages, roles of men and women, interaction of marital spouses, and marital stability. (3 cr) Hansen, Neubeck, and staff

**FL 1A f,w,s.** **Preparation for Marriage.** Designed for Upper Division and older or married students. See 1f,w,s. (3 cr, §1) Hansen, Neubeck, and staff

**FL 15f,w,s.** **The Home and Its Furnishing.** Present-day housing problems; choice of location; house plans as they affect family living; exterior and interior design; choice of appropriate furnishings and accessories; building furnishing costs. (3 cr, and cr must be added to SLA graduation requirement) Ludwig

**FL 20s.** **Consumer Education.** Aid to wise buying; effective consumer demand upon the market; consumer credit and banking procedures; insurance and annuities from buyer's viewpoint; distribution and stability of income; governmental efforts to protect consumers. (3 cr, and cr must be added to SLA graduation requirement)

**FL 25f,w,s.** **Child Development and Adjustment.** The child as a growing person in the home and in society; development of habits, skills, attitudes, and adjustment; development of self-direction; provision of good environment for child growth. (3 cr, §CD 40 or 80; for the general student; not for those interested in professional work with children; majors in the nursery-kindergarten-primary program as well as majors in psychology may not register for this course) Grams

## Humanities

### Program Chairman—

The subject of the humanities is man. The courses listed below attempt to reveal something about the values, the aspirations, and the limitations of the human spirit through a carefully integrated study of literature, philosophy, history, and the arts. While it is a distinctive field of study, humanities is related to the social sciences, which deal with relations between men, and the natural sciences to the extent that they have implications for human behavior. The documents studied in Humanities in the Modern World and in European Heritage are selected for their capacity to express man's perennial effort to identify the nature of the human condition. The other courses listed below are for students who wish to pursue the subject into more specialized areas.

### Lower Division Courses

**Hum 1f,w,s.** **Humanities in the Modern World I.** Old Regime, French Revolution and Napoleonic Era, Neoclassicism and Romanticism. Authors: Pope, Voltaire, Rousseau, Burke, Goethe, and Tolstoy's *War and Peace*. (5 cr) Ames, Bryan, Cooperman, Frank, Ramsland, Siegelman, Vogelbaum, J Wright, W Wright, Wood

**Hum 2f,w,s.** **Humanities in the Modern World II.** Industrial Revolution, liberalism and socialism, Individualism. Authors: Adam Smith, Malthus, Carlyle, Marx, Ibsen, Zola, Flaubert, Tolstoy, and Dostoevsky. (5 cr; prereq 1) Ames, Bryan, Cooperman, Frank, Ramsland, Siegelman, Vogelbaum, J Wright, W Wright, Wood



- Hum 3f,w,s. Humanities in the Modern World III.** Impact of science and evolution; religion and morals in a changing world. Authors: Darwin and the evolutionists, Nietzsche, Chekhov, Kierkegaard, and Thomas Mann. (5 cr; prereq 2) Ames, Bryan, Cooperman, Frank, Ramsland, Siegelman, Vogelbaum, J Wright, W Wright, Wood
- Hum 4f,w,s. Humanities in the Modern World IV.** Introduction to humanities since World War I. Authors: Freud, Lenin, Joyce, T. S. Eliot, Kafka, and others. Background topics: impact of psychoanalysis, existentialism, communism, and fascism. (5 cr; prereq 1 or 2 or 3) Amberg, Berryman, Vogelbaum
- Hum 11f-12w-13s.† The European Heritage.** Masterpieces of European civilization from Homer to Descartes. Literature, philosophy, theology, the arts of Greece, Rome, the Middle Ages, and the Renaissance. Attention will be paid to ideals and forces of continuing importance to the modern world.
- Hum 11f. The Greek Heritage.** Greece through the Peloponnesian War. Emphasizes golden age of Athens: tragic visions of the dramatists, classical art and architecture, Athenian democracy, concepts of reason and justice. Homer, Hesiod, the dramatists, Plato, Aristotle, Thucydides, and, in contrast, *The Book of Job*. Greek art and architecture. (5 cr) Swanson, Vogelbaum
- Hum 12w. Roman and Medieval Heritage.** Roman state. Hellenistic and Roman civilization. Epicureanism and Stoicism. Neo-Platonism. Hebrew background and setting for Christianity. Christian doctrine. Medieval society, faith, theocracy. Lucretius, Marcus Aurelius, Epictetus, New Testament, Augustine, church documents, Thomas Aquinas, Dante. Early Christian, Romanesque, and Gothic art. (5 cr) Swanson, Vogelbaum
- Hum 13s. The Renaissance and Reformation.** The 14th-17th centuries. Rise of Italian communes, commercial life, banking; age of Lorenzo the Magnificent in Florence; ideal of beauty in art, politics, and morals; universal man. High renaissance and the power of Rome. Pietism and Reformation in Germany. Counter-Reformation in Spain and France. Golden Age of Spain and beginnings of Age of Reason. Readings from Petrarch, Pico, Machiavelli, Castiglione, Luther, Calvin, Loyola, Montaigne, Pascal, Cervantes, Descartes. Renaissance and baroque art and architecture. (5 cr) Swanson, Vogelbaum
- Hum 21f.\*\* American Life I.** Individualism as a concept in American life and thought. (3 cr) Kwiat, Noble, Turpie, Weber
- Hum 22w.\*\* American Life II.** The role of religious and philosophic attitudes in formation of American beliefs. (3 cr) Kwiat, Noble, Turpie, Weber
- Hum 23s.\*\* American Life III.** The rise of American intellectual and cultural nationalism and its place in the modern world. (3 cr) Kwiat, Noble, Turpie, Weber

### Upper Division Courses

Upper Division courses in this program are not open to Lower Division students except by special permission of the Scholastic Committee.

- Hum 51f-52w-53s.† Humanities in the Modern World.** Similar to Hum 1-2-3 except that it is confined to juniors and seniors. (15 cr, †corresponding qtr of 1-2-3) Amberg, M Blum, Kwiat
- Hum 54f,w,s. Humanities in the Modern World.** Similar to Hum 4 except that it is confined to juniors and seniors. (5 cr, †4) Amberg, Berryman, Vogelbaum
- Hum 61f-62w-63s.† The European Heritage.** Similar to Hum 11-12-13 except that it is confined to juniors and seniors. (15 cr, †corresponding qtr of 11-12-13) Ames, Berryman, Ross, R Swanson, Vogelbaum
- Hum 71f-72w-73s.†\*\* Humanities in the United States.** Introduction to American cultural history. Each quarter is organized around topics which disclose a major conflict of ideals—for example, liberty and property in the early Republic, individualism and majority rule in the pre-Civil War era, materialism and idealism in the present industrial age. Such figures as Jefferson, Hamilton, Thoreau, Mark Twain, Frank Lloyd Wright, and William Faulkner are studied. (9 cr) Levenson
- Hum 131f-132w-133s. Humanities Proseminar.** Topic: The arts, the sciences, and civilization. (3 cr per qtr; prereq sr) Ross, Ames, Berryman, M Blum and others
- Pol 163s. Political Theory and Utopia.** (3 cr; prereq Pol A-B or 9 cr in social science or †; offered 1960-61 and alt yrs) Sibley, R Swanson

For information concerning a major in humanities, see page 79.

\*\* A student may take any combination of 21, 22, 23, 71, 72, 73 up to a maximum of 9 credits.

## Natural Science

**Program Chairman**—J. W. Buchta

Two general education courses in natural science are listed below, each serving a distinctive purpose. NSci 1-2-3 is intended for students desiring an introduction to the total field of science, 4-5-6 for those desiring an acquaintance with the physical universe. (Biol 1-2-3 and 1A-2A-3A is offered by the Departments of Botany and Zoology for those wishing to explore the world of life.)

Students taking NSci 1-2-3 may not receive credit for NSci 4-5-6 or for either of the biology courses, but they may take both NSci 4-5-6 and biology for credit. Students who have taken the elementary course of any science department may not register for the corresponding portion of these courses.

### Lower Division Courses

**NSci 1f-2w†-3s. Orientation in the Natural Sciences.** Integrated survey course in which student is introduced to basic principles and subject matter of science and the meaning of the scientific method in physical and biological sciences. 1: Astronomy and physics. 2: Chemistry and geology. 3: Cells and tissues, bodily functions, disease and antibodies, behavior, heredity, and evolution. (15 cr) Graubard

**NSci 4f-5w†-6s. The Physical World.** Essential elements of astronomy, physics, chemistry, and geology, selected to illustrate methods of science and to acquaint student with the physical universe around him. (10 cr; prereq 1 yr high school algebra) Buchta, Winter (f,w), Thiel (s)

Attention is called to Biol 1-2-3 and 1A-2A-3A (General Biology) listed under the Departments of Botany and Zoology.

### Upper Division Courses

Upper Division courses in this program are open to sophomores only by special permission of the Scholastic Committee.

**NSci 171f-172w-173s.‡ The Development of the Sciences.** Provides first-hand acquaintance with the manner in which man evolved science, as we know it today, through a study of his past approaches, errors, and achievements. Stress laid on original works (in English translation) rather than summaries; on roles of culture, values, techniques, goals, and social and emotional intrusions. 171: Deals with science of antiquity and Middle Ages. 172: Period from 1543 to 1800. 173: Selected high spots in modern science of 19th and 20th centuries. (9 cr; prereq 1 yr biological and 1 yr physical science in high school or college, or ‡) Graubard

## Personal Orientation

**Program Chairman**—Kenneth E. Clark.

The successful person cannot be content with a knowledge of only such fields as humanities and natural and social science. He must also know himself—his abilities, interests, habits, and their relation to educational and vocational requirements. The following courses seek to provide such understanding and to promote personal competence.

**PO 1f,w,s. How to Study.** Practical assistance to the student in developing efficient methods of study and concentration, organizing material, preparing for examinations, and improving reading ability. Attention to the orientation of students in their attitudes and motivation, and the relation of these to satisfactory performance. (2 cr, and cr must be added to SLA graduation requirement)

**PO 1f,w,s. Choosing a Vocation.** Application of the principles of occupational psychology to help students achieve self-understanding as a basis for vocational-educational planning. Consideration of occupational classification, description, and trends. Active student participation in individual projects and in small group discussions of vocational choices of members. (2 cr, and cr must be added to SLA graduation requirement) Hewer

## Social Science

### Program Chairman—

These courses provide a broad framework within which the student may develop an understanding of man, his institutions, ideas, and values. The courses are organized around central themes of human existence. Selections from the various social sciences as well as from the humanities are studied.

### Lower Division Courses

**SSci 1f,w,s-2f,w,s-3f,w,s. Introduction to Social Science.** Integrated study of factors—historical, political, economic, social, psychological, and cultural—that influence and are influenced by man's conduct. Organized around three basic themes: (a) development of personality, (b) work as a central aspect of modern life, and (c) quest for community. (12 cr; course may be used toward satisfying the social science requirement for admission to Upper Division of SLA, College of Education, and School of Business Administration) F Blum, Cooperman, Sibley, and staff

### Upper Division Courses

Upper Division courses in this program are open to Lower Division students only by special permission of the Scholastic Committee.

**SSci 51f-52w-53s.‡ Introduction to Social Science.** Similar to SSci 1-2-3 except that it is confined to juniors and seniors and is conducted on a more advanced level. (12 cr, §corresponding qtr of 1-2-3; designed for students with little background in social science and hence not for majors in a social science department or anyone who has taken several social science courses) F Blum, Cooperman

**SSci 81f-82w-83s.‡ Public Affairs Forum.** Introduction to contemporary American and world problems. Lectures, study, and forum discussion concerning selected issues. (9 cr; for social science majors; prereq approval of adviser required for counting this course as part of the 15 cr outside of major and minor; offered when feasible)

## INTERNATIONAL RELATIONS AND AREA STUDIES

**Committee Chairman—**Harold C. Deutsch; **Director—**Charles H. McLaughlin.

### Major Advisers in SLA—

(a) **GENERAL INTERNATIONAL RELATIONS MAJOR—**Professors Jan O. M. Broek, Edward Coen, Harold C. Deutsch, Werner Levi, Charles H. McLaughlin, Lennox A. Mills, Raymond B. Nixon; Assistant Professor Robert T. Holt.

(b) **AREA STUDIES—***Northwest Europe:* Scandinavia—Professor Alrik Gustafson, British Isles, France, Germany—Professor John Wolf. *Russia—*Associate Professor George W. Anderson. *East and South Asia—*Professor Jan O. M. Broek. *Latin America—*Professor Raymond L. Grismer.

In addition to these advisers, who are the chairmen of the several committees, students may consult any other member of a committee whose field of specialization corresponds with the student's field of interest within the program. For committee lists see the special bulletin, *Programs in International Relations and Area Studies*, or inquire in the Center for International Relations and Area Studies, 310 Ford Hall.

(c) **PREPARATION FOR FOREIGN SERVICE—**Professors Asher N. Christensen, Charles H. McLaughlin.

**Purpose of the Programs—**In response to increasing student interest in world affairs, several programs in international relations and area studies have been developed which permit students to cross departmental lines. These include:

1. A general international relations major without particular area emphasis, for students who wish to specialize in the governmental and legal as well as the more general aspects of international relations study.

2. A group of area study majors designed to develop a comprehensive understanding and appreciation of the civilization of the peoples of given areas. Areas are demarcated on the basis of the culture or civilization of their peoples rather than upon a political basis. Programs may now be arranged for the following areas: Northwest Europe (with concentration in a subarea, either Scandinavia, British Isles, France, or Germany), Russia, East and South Asia, Latin America. In each case the major program is an integrated study of the social, political, economic, and aesthetic ideas and institutions of the area, comprising courses drawn from the social sciences, language and literature, fine arts, humanities, and philosophy.

3. A program of training in preparation for careers in the Foreign Service or in agencies having related functions. This ordinarily combines some elements of the general international relations major, one of the area study majors, and courses in diplomatic history and administration, with the emphasis determined by the student's interests.

4. Most of the courses included in these programs can be elected for purposes of general education by nonmajor students. At the Lower Division level Pol 25, 26, and at the Upper Division level the courses prescribed hereafter as a core curriculum for the general international relations major will be found especially suitable for this program.

Graduate training is also available in both international relations (M.A., Ph.D.) and area studies (M.A.), and training in intelligence research is offered at the M.A. level for students with basic training in an area program. Upper Division students who expect to proceed to such advanced training are advised to acquaint themselves early with the prerequisites.

**Courses in the Lower Division**—Students must satisfy the distribution requirements for entrance into the Upper Division of SLA but should complete 4 quarters, or the equivalent, of a foreign language in college. In the case of area study majors such preparation should be in a foreign language appropriate to the area to be studied. Foreign Service candidates should choose either French, German, Spanish, or Russian. Since Upper Division training in foreign language is also required in international relations and in area study majors, students should lay a proper foundation for this in the Lower Division.

Since the Upper Division majors include courses selected from several social sciences care should be exercised to complete any Lower Division courses which are prerequisite to the advanced courses in these departments. Selection can ordinarily be made from the following list, but advisers should be consulted as to variations and special recommendations peculiar to the several majors. In the case of the general international relations major, Econ 1-2 is a specific prerequisite of a required course in the major, and Pol 25 and 27 are strongly recommended as an introduction to the field.

(Credits shown in parentheses)

Anth 1A—Introduction to Anthropology: Prehistoric Man and Culture (5)	Pol A-B-C—The State in the Modern World (9)
Anth 2A—Introduction to Anthropology: Cultural Anthropology (5)	Pol 25—World Politics (3)
Econ 1-2—Principles of Economics (6)	Pol 26—American Foreign Policy (3)
Geog 1—Geography of Natural Resources (5)	Pol 27—Analysis of International Relations (3)
Geog 4—Human Geography (5)	SSci 1-2-3—Introduction to Social Science (12)
Geog 41—Geography of Primary Production (5)	Soc 1—Man in Modern Society (3)
Hist 1-2-3—Civilization in the Modern World (9)	Soc 3—Social Problems (3)

The Lower Division curriculum may be completed with courses which satisfy special interests or needs of the student. He should devote some time whenever possible to basic cultural training in the fine arts, humanities, literature, and philosophy, for which the following courses may be considered:

(Credits shown in parentheses)

Art 1-2-3—Introduction to Art (11)	Hum 1-2-3-4—Humanities in the Modern World (20)
Engl 21-22-23—Introduction to Literature (15)	Phil 1—Problems of Philosophy (5)
Engl 37-38-39—Modern Literature (9)	

Students planning to elect an international relations or area study major should consult a major adviser as early as possible, preferably upon entrance into the University.

**Courses in the Upper Division**—In consultation with a major adviser, the student will select courses totaling 45 credits, equivalent to a major and a minor. A minimum of 60 credits in Upper Division courses must be earned in all.

For the general international relations major the 45 credits in major courses must include a prescribed core curriculum of 30 or 33 credits comprising the following courses:

**Econ 104. International Economics.** (3 cr; prereq Econ 2 or equiv)

**Geog 143. Political Geography.** (3 cr; prereq Geog 4 or §)

**Hist 109-110-111. Europe in the 20th Century.** (3 cr)

**Jour 124. International Communications and Foreign Affairs.** (3 cr; prereq 15 cr in social science, with inclusion of an Upper Division history or political science course in international relations recommended), or

**Jour 130-131. Public Opinion and Propaganda.** (6 cr; prereq 15 cr in social science for 130, 130 for 131)

**Pol 175. Diplomacy.** (3 cr)

**Pol 180-181. International Law: Pacific Relations.** (6 cr)

**Pol 184. International Relations and Organization I.** (3 cr)

Additional courses may be selected from approved courses to form an integrated plan of study relevant to the student's interests and vocational objectives. Foreign language study is to be continued through at least the basic composition and conversation courses at the Upper Division level; this is in addition to major courses. Additional courses contributing to the international relations program, or courses suited to other cultural interests of the student, may be elected.

The area study majors must include at least 18 credits in the social sciences and, wherever available, 6 credits in an honors or reading course or proseminar designed to integrate the program. Courses acceptable for this purpose are listed in the special bulletin, *Programs in International Relations and Area Studies*. The remainder of the 45 credits will be distributed among courses in foreign language and literature and in fine arts, humanities, and philosophy. The rest of the 60 or more Upper Division credits may be elected by the student to complete his program in accordance with his cultural or vocational interests.

Detailed requirements and listing of courses for each major appear in the special bulletin, *Programs in International Relations and Area Studies*.

## ITALIAN

See Romance Languages

## JAPANESE

See Slavic and Oriental Languages

## SCHOOL OF JOURNALISM

**Director**—Robert L. Jones

**Major Advisers in SLA**—Professors Carter, Charnley, Emery, Gerald, Jones, Nixon; Associate Professors Hage, Kildow, Wilson; Assistant Professors Bush, Mindak, Sim; Instructors Lindsay, Winter.

**Adviser in College of Education**—Associate Professor Kildow.

**Adviser for Students in Other Colleges**—Professor Charnley.

Young men and women planning on careers in the various fields of mass communications enter the School of Journalism to earn a B.A. in journalism degree. Those showing superior performance and desiring superior preparation in journalism and supporting social sciences will be recommended during the third quarter of their fourth year for Graduate School admission and may then

earn both the M.A. and B.A. degrees in 5 years. The fifth year will permit such students to meet the M.A. requirements, Plan A or Plan B, on pages 8-13 of the *Bulletin of the Graduate School, 1958-1960*.

The School offers instruction in all the principal fields of journalism. Some require substantially similar preparation. There are five course sequence listings which meet the requirements for a major in SLA. Those sequences and the areas of professional work to which they relate are:

**News-Editorial Major Sequence**—Daily and weekly newspaper reporting, editing, and editorial direction; radio and television news work, script and continuity writing; news photography; press association work; magazine writing, editing, and administration; science and technical writing; industrial editing; graphic arts processes; public relations and public opinion; mass communications research; journalism teaching.

**Advertising Major Sequence**—Advertising for print and broadcast media; advertising agencies; manufacturer's and retail advertising departments; related services; creative advertising; copywriting and layout; print and broadcast production; media, market and consumer analysis; public relations; sales and promotion; mass communications research; journalism teaching.

**Newspaper Management Major Sequence**—Daily and weekly newspaper business management; circulation and promotion; weekly editorial administration and publishing.

**Agricultural Journalism Major Sequence**—Daily and weekly newspaper work in rural areas; farm and technical journals; agricultural information work.

**Home Economics Journalism Major Sequence**—Work on daily and weekly newspapers and in public information and technical writing related to the home economics field.

Preparation for journalism rests on a searching liberal education, a knowledge of the social and professional responsibilities of the journalist, and a basic acquaintance with journalistic techniques. The journalism major student meets Arts College Lower Division requirements and plans an Upper Division program, in conference with his adviser, so as to gain both general and professional education. About three-fourths of the student's University work is in the social studies, the humanities and general education areas; about one-fourth in professional courses.

The journalism major begins his journalism course work in his sophomore year. Freshmen who are interested in journalism and communications and who plan to enter the School of Journalism at a later time are urged to discuss their course programs and vocational desires with members of the journalism staff. Students who plan the 5-year program should consult a journalism adviser in their sophomore year.

All prejournalism students must meet the College freshman English and public health requirements. All must include Jour 13, Comp 27 or 28, Econ 1-2 or B-C, and Pol 1-2 or 5 in their Lower Division programs. All must include either 6 credits in American history (Hist 20-21-22) in their Lower Division programs, or 6 credits in their Upper Division programs for which Hist 79-80-81 is recommended. All except those planning to enter the journalism major for students specializing in advertising must include also Jour 14-15. Preadvertising students must include Jour 18-41.

It is recommended that the prejournalism student meet Lower Division requirements so as to include substantial basic work in the following fields:

**Social Studies**—The required history, economics, and political science courses may be supplemented by sociology, geography, anthropology, and SSci 1-2-3.

**Natural Science**—NSci 1-2-3 or 4-5-6 or either psychology, chemistry, physics, biology, or a combination of courses in these fields.

**Humanities**—French, Spanish, or German; humanities; philosophy; speech; English or American literature.

Electives to make the required Lower Division total of 84 to 90 credits should include courses from the areas listed above, or other areas chosen in consultation with the journalism adviser. Recommended as providing, in most cases, a sound foundation for major work in journalism are: Pol A-B, 25; Soc 1, 2; Psy 1-2; Hist 1-2-3; 2 or more quarters of humanities; Geog 1, 4, 41; Engl 37-38-39.

No student whose average is lower than C will be permitted to enroll in any journalism course, either Lower Division or Upper Division.

The fourth hour Tuesday is free of journalism classes (except Jour 13) so that vocational and professional meetings may be scheduled. Journalism majors are urged to keep this hour open for such meetings.

**Major Sequence Co-ordinating Work for the Degree of Bachelor of Arts in SLA, and of Master of Arts in the Graduate School**—Students in the news-editorial major sequence will present Jour 51, 55, 56, 73, 101, 109, 113, 121, 122 or an approved substitute, 130, 140-141, 200 and 1 additional seminar in the 200 series. A co-ordinated program also may be worked out for students in the advertising major sequence. Credit for the M.A. must be earned while registered in the Graduate School. See the *Bulletin of the Graduate School*. Students using the co-ordinated plan are urged to make a 5-year program with a journalism adviser early in the junior year. For the M.A., specialization is possible in 1 of the social sciences or humanities related to journalism and in a journalism field centering about 1 of the following graduate seminars: Jour 205, 208, 212, 213, 218, 220, 230, or 277. Modifications of the 5-year program requirements may be approved in terms of a student's special professional interests.

**News-Editorial Major Sequence**—Jour 51, 55, 56, 73, 101, 109, 140-141, and 12 additional credits in journalism. Six of the additional credits must be numbered above 90, and 3 of them must be chosen from among Jour 113, 121, and 130. Students of superior scholarship may substitute outside courses for 6 of the additional credits with adviser approval. In some cases other modifications of the sequence may be approved by the adviser.

**Advertising Major Sequence**—Jour 54, 65, 69, 79, 161, 162, 163, 164, Psy 156, BA 57, and 6 additional credits in journalism or other adviser-approved areas. Three of the additional credits must be chosen from among Jour 109, 113, 121, and 130. Psy 1-2 is a required Lower Division course for such students.

Students in this sequence may, with adviser approval, substitute for the usual type of minor work the following special marketing minor: 15 credits chosen from among BA 97, 97C, 107, 107C, 117, 117C, 147, 187; Econ 69, 120, and either BA 51, Soc 45, or Psy 70.

Students wishing special training in commercial design are advised to elect from among Art 63, 64, 65.

**Management Major Sequence**—Jour 51, 54, 65, 73, 79, 93, 95, 101, 161 and 12 additional credits chosen from among Jour 78, 109, 113, 115, 121, 122, 130, 131, 140, 141, 149, 163, and 177.

A special minor sequence for students in this specialization may be elected from among BA 57, 60, 70, 107, 147; Psy 140, 156, and Art 65.

**Agricultural and Home Economics Journalism Major Sequences**—These programs, offered jointly by the Arts College and the College of Agriculture, Forestry, and Home Economics, combine courses so as to offer students either editorial or advertising sequences in journalism with extensive specialized work in fields of agriculture or home economics. Students register in SLA, but have advisers in both colleges. Full details of the various programs and of Upper and Lower Division requirements may be obtained from major advisers in journalism and in agriculture or home economics.

**Professional Emphasis in Specialized Fields**—Students with professional interest in special fields of journalism may design programs in conference with advisers to prepare for work in these areas. Such programs usually can be developed within either the news-editorial or the advertising major sequence. Combinations or modifications are possible in some cases. For all of these specializations a 5-year program is recommended. Students should arrange programs

in specialized fields in early conferences with Upper Division advisers. The principal fields of specialization, and elective courses recommended for them, are:

- Radio-Television Journalism**—Jour 84, 85, 86, 88, 120, 142, 162; 113, 130, 131; Spch 65, 66, 69, 117, 170
- Magazine Journalism**—Jour 74; 53, 58, 66, 103, 106, 113, 115, 121; Engl 72-73-74, 113, 142-143, 151, 174; Comp 101-102-103; Psy 118, 140
- Creative Graphic Arts**—Jour 58, 59, 65; 53; Art 50, 63, 64, 65, 69. This specialization is for students interested in advertising layout or in production, typography, and makeup of periodicals and promotional matter
- Photojournalism**—Jour 12 (followed by Art 11 or 12), 53, 66, 118; 58, 85, 121 and 130. A minor in Art including 50, 83, 84, 85 is recommended
- Public Relations**—Jour 78, 149; 18, 113, 115, 130, 163. Recommended Lower Division courses: Psy 1-2, Soc 1, Spch 5

Students expecting to specialize at the graduate level in advertising or communications research should elect courses in statistics (such as as Biostatistics, PubH 110-111, 120-121, 130-131) and Jour 113 and 115 during their senior year.

**Journalism Minor for Non-SLA Students**—For students in the College of Agriculture, Forestry, and Home Economics, the Institute of Technology, and the School of Business Administration—Jour 11, 41, 69 and 6 additional credits in Upper Division journalism courses, to be chosen in conference with the adviser. Jour 54, 78, 90 or 121, 109, 124, and 130 are recommended. Students in the School of Business Administration specializing in marketing or advertising may set up a minor including Jour 79, 161, 162, 163, 164. For students in the College of Education—Jour 11, 41, 69, 82, and 9 additional credits chosen from among Jour 54, 90 or 121, 103, 109, 120, 124, and 130. EdT 74 (see *Bulletin of the College of Education*), offered by the School of Journalism, is a required education course for students in this sequence.

**Nonprofessional Minor in Journalism**—A group of courses dealing primarily with the social aspects of mass communications is open to students majoring in other SLA departments and may be used for a nonprofessional minor by undergraduates or graduates: Jour 90 or 121, 103, 106, 109, 110, 113, 115, 120, 124, 125, 126, 130, 131, 177. SLA students interested in taking an undergraduate minor in journalism with view toward professional specialization in a fifth year of journalism work should consult a journalism adviser.

### Lower Division Courses

- 11f,w. Reporting for Nonmajors.** (For journalism minors in the College of Agriculture, Forestry, and Home Economics, College of Education, Institute of Technology, and the School of Business Administration) Newspaper fact-gathering and newswriting; specialized reporting; fundamentals of press law. (3 cr; prereq soph, average of C, Engl C, 3A, 3B, or Comm 3 or Rhet 3 or exemption from English requirement) Kildow, Lindsay
- 12f,w. Beginning News Photography.** Analysis of the use of pictures in communications; fundamentals of photography; use of the news camera; basic darkroom processes. Lectures and laboratory. (3 cr; prereq soph) Bush
- 13f,w,s. Introduction to Journalistic Writing.** (For majors) Lectures and laboratory in journalistic media and audiences; fundamentals of fact-gathering and fact-writing for newspapers, periodicals, broadcasting, and advertising. (4 cr; prereq soph, C avg, Engl C, 3A, 3B, or Comm 3 or English exemption, and proof of typewriting skill of 35 net words a minute or BA 33 or 32) Charnley, Hage, Kildow, Bush, Sim, Lindsay
- 14w,s-15f,s. Newspaper Reporting.** (For majors) Lectures and laboratory in advanced problems of reporting, feature writing, and interpretative reporting; laws of libel, access to information, property right in news, etc. (6 cr; prereq soph...for 14, C avg in 13 and in all work, or §, and ¶Comp 27 or 28, and proof of typewriting requirement skill of 35 net words a minute or ¶BA 33...for 15, C avg in 13-14 and in all work, or §, and ¶Comp 27 or 28, and satisfaction of typewriting requirement) Charnley, Hage, Bush, Sim, Gerald
- 18f,w,s. Principles of Advertising.** Theory, principles, and functions of advertising; its role in economic, social, and marketing structure. Newspapers, magazines, and radio and television as advertising media. (3 cr; prereq soph, 13, C avg, and ¶Comp 27 or 28) Mindak, Winter
- 41w,s. Publications Editing.** Lectures and laboratory in basic problems of copy editing for newspapers and magazines. For journalism majors planning to specialize in advertising, and for journalism minors. (3 cr; prereq soph, 11 or 13) Kildow, Sim



## Upper Division Courses

Upper Division courses in the School of Journalism are open to Lower Division students only by special permission of the Scholastic Committee as explained on page 24.

- 51f,s. News Editing.** Lectures and laboratory in basic copy editing problems and techniques. (3 cr; prereq 15, or B average in 13-14) Sim, Carter, Emery
- 53w. Picture Editing.** Synthesis of word and picture in communications; editing; layouts; editing film for television news. (3 cr; prereq 41, 51 or #) Bush
- 54f,s. Advertising Layout and Typography.** Principles of design and layout. Preparation of layouts and reproduction in type. Appropriate uses of type. (3 cr; prereq journalism-advertising major, or journalism minor in College of Education, Business and Agriculture and Home Economics, or #) Wilson
- 55w. Newspaper Make-up and Typography.** Technique of newspaper make-up. Principles of type display. Planning the headline schedule, including choice of display and text type-faces. (3 cr; prereq journalism major, 51 and 156 or #) Wilson
- 56w. Newspaper Editing.** Lectures and laboratory in news and picture selection and editing. Newspaper make-up. Press association teletype service. (3 cr; prereq 51, 55 or 155) Emery, Sim
- 58s. Newspaper and Periodical Design and Typography.** Analysis of major trends in format, make-up, and typography of newspapers and magazines. Experiments in make-up. Individual laboratory projects. (3 cr; prereq 55 and #) Wilson
- 59w. Advanced Advertising Typography and Layout.** Practice and experimentation with display typography: individual laboratory projects in retail advertising display, point of purchase display, posters, direct mail brochures, labels, etc. (3 cr; prereq 54) Wilson
- 65f,s. Graphic Arts: Processes.** Letterpress, offset lithography, and gravure printing processes; engravings and copy preparation; significant graphic arts developments. (3 cr; prereq jr) Wilson
- 66s. News and Feature Photography.** Photographic projects for communications media; picture stories; light and lighting; advertising photography; photojournalism markets and trends. Lectures and laboratory. (3 cr; prereq 12, 13 or #) Bush
- 69s. Business News and Feature Writing.** For journalism majors or minors planning to specialize in advertising. Gathering material and writing of news stories, feature articles, and other types of copy in the business-advertising field. Audiences in this field; media. (3 cr; prereq 41) Kildow, Bush
- 73f,w. Magazine Writing.** Planning and writing feature articles for general, class, and trade publications; marketing; problems of magazine editing; employee publication and industrial journal problems. (3 cr; prereq 15, or 41 and #) Charnley, Hage, Bush
- 74w. Magazine Editing.** Planning and editing consumer and specialized magazines; problems of magazine layout, design and make-up; book publishing procedures. Individual projects in magazine editing and advanced magazine writing. (3 cr; prereq 55, 73 and #) Charnley
- 78f. Public Relations Methods.** Publicity, external and internal communication, use of media; techniques and application of institutional promotion and communication, including use of company publications, institutional advertising, and trade journals. Projects and campaigns. (3 cr; prereq 51, 55, and 73, or 41, 54, and 69) Emery, Lindsay
- 79f,w,s. Advertising Copy Writing.** Advertising appeals; techniques of writing advertising copy for newspapers, magazines, direct mail, posters, brochures; planning advertising campaigns. (3 cr; prereq 41 or 51, and 54 and 65) Winter, Wilson
- 82s. Supervision of School Publications.** For those who plan to become advisers of high school or college newspapers, yearbooks, magazines. Emphasis is upon editorial content, staff organization, editing, typography, make-up, and business management of such publications. (3 cr; prereq 41 or 51) Kildow
- 84f. Radio News and Public Affairs.** Radio as a medium of journalistic communication. The radio newsroom; radio news gathering, writing, editing, preparation. Uses of research in radio journalism. Basic preparation for television news. (3 cr; prereq for journalism majors, 15 and #...for others, #) Lindsay
- 85w. Television News and Public Affairs.** Television as a medium of journalistic communication. The television newsroom; television news writing and visualization. Use of news film camera; editing, scripting news film. Uses of research in television journalism. (3 cr; prereq 84) Lindsay
- 86s. Radio and Television Script Writing.** (3 cr; prereq for journalism majors, 51 and #...for speech-radio majors, 13 and #; offered when feasible)
- 88w. Radio and Television Station Administration.** Role of the broadcasting station in American life. Basic issues in station operation: frequency and channel allocations, cross channel affiliations; freedom of expression as related to station operations. (3 cr; prereq 120 or Δ) Paulu
- 90s. Mass Communications and the News.** How the news gets to, and affects, the public in print, on the air, by film. Evaluation of news gathering and presentation methods. Con-

- temporary influences on communication media. Individual news media and news commentators. (3 cr; not open to journalism majors) Charnley
- 93f. **The Community Newspaper.** The local newspaper and its editor—their place in American life. Problems of news and editorial direction, organization, and responsibility. (3 cr; prereq 41 or 51 or 141 or 151) Sim
- 95s. **Newspaper Management.** Analysis of management problems, including advertising, circulation, and commercial printing as sources of income; records and cost systems; plant layout and inventories; operating expenses; business policies. (3 cr; prereq 41 or 51) Sim
- 101w,s. **The Reporting of Public Affairs.** Reporting court trials, city, county, state, federal, administrative, and legislative agencies; politics, business, and labor. Students attend and report trials, hearings, legislative sessions, and press conferences. (3 cr; prereq sr, 51) Hage
- 103s. **Literary Aspects of Journalism.** The literary, creative aspects of journalism as exemplified in the works of English and American fiction writers, poets, critics, essayists, and humorists. Lectures, discussions, and weekly papers. (3 cr; prereq #) Hage
- 106f. **Critical Writing.** Theory and practice of writing book, theater, and motion picture reviews. Analysis of work of leading critics and critical periodicals. Weekly reviews are written. (3 cr; prereq an Upper Division writing course and #) Hage
- 109f. **History of Journalism.** Development of American newspapers and periodicals, from early beginnings in Europe to the present day; the rise of radio and television; the relation of communications developments to political, economic, and social trends in America. (3 cr) Emery, Hage
- 110w. **Topics in the History of Journalism.** Intensive study of significant individuals, newspapers, and periodicals in the history of American journalism; comparative study of present-day leading newspapers; examination of major periods of change and of developing trends. Individual projects and readings. (3 cr; prereq 109; offered 1960-61 and thereafter) Emery
- 113f,s. **Mass Communication Theory.** Nature of the communication process; contributions of other disciplines to knowledge about this process; similarities and differences between interpersonal and mediated communication; use of research concepts and findings in determining policy; comparative roles of the printed and electronic media. (3 cr; prereq sr, journalism major or #) Nixon
- 115w,s. **Communications Analysis: Content, Audiences, Effects.** Research procedures and methods for analyzing content and audiences of newspapers, periodicals, radio, television, and motion pictures. Field and experimental approaches to studies of mass media effects. (3 cr; prereq BA 5 or Soc 45, or Psy 70 or equiv or #...Psy 167 recommended) Jones, Carter
- 118f,w,s. **Advanced Projects in Journalism.** (1-3 cr per qtr, but course may be repeated for more than 1 qtr until a total of 6 cr is reached; prereq sr, jour major, B avg, #) Staff
- 120f. **Development of Radio and Television Communications.** Historical and economic development of aural broadcasting, television, and facsimile; government regulation; broadcasting and the press; radio and television as social factors. Broadcasting in other countries. (3 cr; prereq 15 or 18 for journalism majors, 13 or # for others) Charnley
- 121w. **The Press in a Dynamic Society.** Economic, political, and social determinants of the character and content of mass communications. Patterns of operations, their effect on content, and their relative social utility. Government and mass communications. (3 cr; prereq 15 or 18 for journalism majors, # for others) Gerald
- 122s. **Current Communications Problems.** Individual project method is used for analyses of communications problems of current importance in the light of their social, economic, and technological environment. Conducted in small seminar-like groups. (3 cr; prereq sr, 51) Gerald
- 124f. **International Communications and Foreign Affairs.** Channels of international communication and news gathering agencies. Factors affecting flow of news throughout the world. Role of foreign correspondent. Relation of communications to foreign affairs and international understanding. (3 cr, §old 111; prereq 15 cr in social sciences, with inclusion of an Upper Division course in history or political science; course in international relations recommended) Nixon
- 125w. **Communication Systems of the Free World.** Communications in foreign democracies as compared with the United States and with totalitarian systems. Special emphasis upon Great Britain, the Netherlands, the Scandinavian countries, France, and Latin America; problems of constructing a free press in Germany, Italy, Japan, and less developed areas. (3 cr; prereq 15 cr in social sciences with an Upper Division course in international relations or comparative government recommended) Nixon
- 126s. **Communications in Authoritarian Society.** Traditional relationships between government and communication media in authoritarian nations. Rise of totalitarian regimes; their impact upon structure and operations of mass communication media. Case studies of communications in selected Communist, Fascist, and neo-Fascist states. (3 cr; prereq 15 cr in social sciences with an Upper Division course in international relations or comparative government recommended) Nixon
- 130f-131w. **Public Opinion and Propaganda.** Functions of the press and other communication agencies in the formation of public opinion. Studies of persuasion and attitude change.

- Problems in the interpretation of opinion and attitude research in the mass media field. Pressure-group activities and political and international propoganda. (6 cr; prereq 15 cr in social sciences for 130, 130 for 131) Carter
- 140f-141w. Interpretation of Contemporary Affairs.** Analysis of major political, economic, and social developments and their interpretation in the editorial, interpretative article, and commentary. (6 cr; prereq sr, 51 and 15 cr in social sciences for 140, 140 for 141) Gerald, Emery, Nixon
- 142s. News Interpretation for Radio and Television.** Preparation, writing, scripting of news analyses, commentaries, editorials, documentaries, interpretative material for electronic media. Emphasis on research and content, style and techniques, audience and effects, in the presentation of such programs. (3 cr; prereq for journalism majors, 85, 140...for others, #) Lindsay
- 149w. Public Relations Theory.** Theories and principles of the public relations function; their application in industry, government, education, social agencies and other institutions; pertinence of social science research and journalistic implications in the public relations process. Case studies and analyses. (3 cr; prereq sr, 78, 113 or 130, or 15 cr in social sciences and #; offered 1960-61 and thereafter) Emery
- 150s. Institutional Public Relations.** Principles and practices of public relations in public health, social work, education, and other community institutional service fields. Use of the mass media and journalistic implications of the public relations process. (3 cr; not open to journalism majors; prereq sr, #) Emery, Lindsay
- 161f,w. Advertising: Newspapers and Other Print Media.** Characteristics of the print media. Newspapers, their role in advertising; relations with retail advertisers, national representatives, agencies; organizations of the advertising departments. Rate structures, rate economics. Magazines, their role in advertising; types, functions, rates. Supplementary media. (3 cr; prereq 18, 54 and 79 or #...or 41, 54 and #) Winter
- 162f,w. Advertising: Radio and Television Media.** Contrasts and similarities of radio and television characteristics; interaction of sponsor, agency, station, network, and station representative; program and market selection; rate structure; audience analysis; creating and measuring impact of commercials; current and future developments. (3 cr; prereq 18, 79, or #) Mindak
- 163f,s. Advertising Media Analysis.** Relation of advertising media to advertising task; media characteristics; evaluation and use of media and market measurements and data; comparison of rates and relative economy of media; mechanics of media purchasing, scheduling, and appropriations; cases and problems. (3 cr; prereq sr, 18, 161, 162 and #...or 161, 162, BA 77 or #) Mindak
- 164w,s. Current Advertising Developments and Problems.** Creative, management, research, media, and technical developments in advertising; implications for advertising specialists. Discussion and analysis of specific problems and case studies to aid in the advertising-marketing process. Contributions of related fields of behavioral sciences, journalism, and communications. (3 cr; prereq 54, 79, 163 or #) Mindak
- 177s. Freedom of the Press and Communications Law.** Anglo-American concept of freedom of speech and press, its development under the Constitution of the United States, and present areas of tension. Statutes and administrative regulations affecting freedom of information, publishing, and broadcasting. (3 cr; prereq 15 cr in social sciences) Gerald
- 190s. Advanced Problems in Journalistic Writing.** Investigation and analysis of problems of advanced professional accomplishment in the fields of journalistic writing. The uses of literary and journalistic forms. Development of individual effectiveness in journalistic presentation. (3 cr; prereq grad, demonstration of acceptable writing achievement and #) Charnley

### *For Graduate Students Only*

200. Scope and Methods of Communications Research
205. Seminar in International Communications and Comparative Foreign Journalism
208. Communication Agencies as Social Institutions
212. Seminar in the History of Mass Communications
213. Seminar in Mass Communication Theory
218. Seminar in Communications Analysis
220. Seminar in Advertising Research
230. Seminar in Public Opinion and Propaganda
277. Government and Mass Communications
- 290-291-292. Special Problems in Mass Communications

## LATIN

See Classics

## LIBRARY SCHOOL

**Director**—David K. Berninghausen

**Major Advisers**—For college and university library work, Associate Professor Shove; for library work with children and young people, Assistant Professor Callahan; for special library work, Assistant Professor Simonton; for public library work, Associate Professor Wezeman.

The only terminal course of study designed to prepare students for career service in the field of librarianship is the Master's degree program offered by the Library School through the Graduate School. Admission prerequisites and requirements for the degree may be found in the *Bulletin of the Library School* and the *Bulletin of the Graduate School*.

A special 24-credit program leading to certification for school library work is also offered. Undergraduates in the College of Education may take this program as a minor.

SLA undergraduates who wish to prepare for school librarianship should register in the College of Education, since a teacher's certificate is required in addition to library science certification courses. Postgraduates who hold teachers certificates are also eligible for this certification program.

SLA offers undergraduate library science courses prerequisite to admission to the graduate program. Students planning to enter librarianship should take a 9- or 15-credit minor in library science. With the approval of a Library School faculty adviser, SLA students may register for these prerequisite courses as electives.

The Library School is a graduate, professional school. It offers five undergraduate courses in library science as electives or as a minor for an SLA undergraduate. Lib 50 and 62 have special general education values. Lib 153 also requires no prerequisite and is suggested.

## Lower Division Courses

**1f,w,s. Use of Books and Libraries.** Reference material for personal study and research. (3 cr; prereq fr, soph only, except by special permission) Simonton, Nelson

## Upper Division Courses

- 50f. History of Libraries and Librarianship.** Social trends affecting libraries and their functions in modern society; librarianship as a profession. (3 cr) Shove
- 53f. School Library Management.** Primarily for students without previous experience in a school library. (3 cr; for College of Education students only) Callahan
- 55w. Library Administration.** Introduction to principles of library administration, organization, and management. (3 cr) Berninghausen
- 62f,s. Reference I.** General reference tools and other sources of information. Theory and practice of reference work. (3 cr) Wezeman, Berninghausen, Simonton
- 70w. Selection of Library Materials.** Techniques, standards for selection of books, magazines, pamphlets, phonograph records, films, etc. (3 cr) Wezeman, Callahan, Simonton
- 74s. Library Materials in the Classroom.** (3 cr; for College of Education students only) Callahan
- 83f,s. Cataloging and Classification.** (3 cr) Simonton
- 131s. Public Library Extension and Development.** Larger units of service laws, finance, promotion; the state library agency. (3 cr; prereq 55) Wezeman
- 153s. History of Books and Printing.** The alphabet; manuscript books; the printed book from earliest times to present. (3 cr) Shove
- 154w. The Public Library.** Theories and principles of administration. (3 cr; prereq 55) Wezeman
- 155w. The College and University Library.** Educational functions of the college and university library and the administrative organization to perform these functions. (3 cr; prereq 55) Shove
- 156w. Special Libraries.** Procedures of newspaper, insurance, medical, technical, and other special libraries. (3 cr; prereq 55) Hopp, O'Leary
- 157w. School Library Problems.** Service in large units, relationships with public libraries, planning library quarters, budgets, training for school librarianship. (3 cr; prereq 55) Callahan
- 160w. Literature of the Social Sciences.** (3 cr; prereq 62) Shove
- 161f. Literature of the Humanities.** (3 cr; prereq 62) Shove, Kingsley

- 162s. *Literature of the Natural Sciences.* (3 cr; prereq 62) Shove  
 165f. *Advanced Bibliography.* National and trade bibliographies, domestic and foreign, with attention to use of sellers' catalogues in book buying. (3 cr) Shove  
 166f. *Reference Work.* Special reference tools and government publications. (3 cr; prereq 62) Wezeman  
 168f,w. *Research Methods in Librarianship.* (3 cr; prereq §) Simonton  
 171f. *Reading Guidance for Children.* (3 cr; prereq 70) Callahan  
 172w. *Reading Guidance for Adolescents.* (3 cr; prereq 70) Callahan  
 173w. *Reading Guidance for Adults.* (3 cr; prereq 70) Wezeman  
 175s. *Publishers and Publishing.* The book trade, including methods of distribution. (3 cr) Shove  
 176s. *Communication Media and the Library.* (3 cr) Berninghausen  
 177s. *History of Children's Literature.* (3 cr) Callahan  
 184w. *Cataloguing and Classification II.* Special problems of cataloguing and classification, including study of the Library of Congress Classification. (3 cr; prereq 83) Simonton  
 185f,w,s. *Special Problems.* Individual study on library problems for advanced students in library science. (1-3 cr; prereq approval of director of Library School) Staff

## LINGUISTICS AND COMPARATIVE PHILOLOGY

Committee Chairman—Donald C. Swanson

Major Adviser in SLA—Associate Professor Swanson.

Major Sequence in SLA—Clas 106-107, Anth 181, and at least 18 additional credits in the following courses chosen after consultation with adviser. All candidates are expected to have a fair knowledge of Latin.

### General Courses

- Clas 56f. *Elementary Linguistics.* (3 cr; prereq 1 yr foreign language study on college level or equiv or §) Swanson  
 Clas 106w-107s. *Introduction to the Study of Language.* (3 cr per qtr; prereq Clas 56 or §) Swanson  
 Ling 151f-152w-153s. *Honors Course.* (1-3 cr per qtr) Swanson and staff  
 Anth 180f. *Phonetics and Phonemics.* (3 cr)  
 Anth 181w. *Descriptive Linguistics.* (4 cr; prereq §; 3 lect and 2 lab hrs per wk) Spencer  
 Anth 182s. *Language and Culture.* (3 cr; prereq 181) Spencer

### Celtic

- Ling 134f-135w-136s. *Introduction to Celtic Philology: Old Irish Phonology, Morphology, and Text Interpretation.* (9 cr; prereq sr with §, at least 2 Upper Division courses in early Indo-European languages, preferably Skt 131-132 or Ger 113-114)

### Classics

- Grk 73s. *Hellenistic Greek.* (3 cr; prereq Δ) Swanson  
 Lat 133s. *Vulgar Latin.* (3 cr; open to advanced students of Latin or a Romance language with §) Swanson

### English

- Engl 100f. *Old English.* (4 cr; prereq 5 cr in literature in English Department, exclusive of classics and A-B-C) Allen  
 Engl 102w. *Readings in Old English Prose and Verse.* (3 cr; prereq 100) Brown  
 Engl 103s. *Beowulf.* (3 cr; prereq 100) Brown  
 Engl 165f,w. *Introduction to Modern English.* (3 cr; prereq 5 cr in literature in English Department, exclusive of classics and A-B-C) Allen  
 Engl 166s. *Historical Backgrounds of Modern English.* (3 cr; prereq 5 cr in literature in English Department, exclusive of classics and A-B-C; offered 1960-61 and thereafter when feasible) Allen  
 Engl 174s. *American English.* (3 cr; prereq 6 cr in English literature, including language above A-B-C, or §) Allen

*For Graduate Students Only*

Engl 204. **History of the English Language**  
 Engl 205. **Structure of Modern English**  
 Engl 206. **Studies in the English Language**

**French**

Fren 171f-172w-173s.† **History of the French Language.** (9 cr; prereq 1 yr Latin, and Fren 4 or ‡; offered 1960-61 and alt yrs) Brackney

*For Graduate Students Only*

Fren 204-205-206. **Readings in Old French Literature**  
 Fren 207-208-209. **Old Provençal**

**German**

Ger 110f-111w-112s. **Middle High German.** (9 cr; prereq 94 and 11 cr above 69; offered when feasible)  
 Ger 113-114.‡ **Gothic.** (6 cr; prereq 80 and 11 cr above 69 or equiv; offered when feasible)  
 Ger 118f-119w-120s.‡ **Old High German.** (9 cr; prereq 94 and 11 cr above 69 or equiv; offered when feasible)  
 Ger 125. **History of the German Language.** (3 cr; prereq 80 and 11 cr above 69 or equiv; offered when feasible)  
 Ger 126. **Historical German Grammar.** (3 cr; prereq 110-111-112 or 113-114; offered when feasible)  
 Ger 194s. **Old Saxon: The Helland.** (3 cr; prereq 14 cr above 69 or equiv; offered when feasible)

**Sanskrit**

Skt 123f-129w-130s. **Readings in Sanskrit.** (9 cr; prereq sr with ‡, at least two Upper Division courses in early European languages; offered 1960-61 and alt yrs) Swanson  
 Skt 131-132. **Introduction to Sanskrit.** (6 cr; prereq sr with ‡, at least two Upper Division courses in early Indo-European languages, preferably Greek, Gothic, or Latin; offered when feasible)

**Scandinavian**

Scan 195f-196w-197s.† **Old Norse: Language and Literature.** (9 cr; prereq knowledge of 1 Germanic language other than modern English; offered when feasible)

**Semitic**

Sem 51f-52w-53s. **Modern Spoken Arabic** (9 cr) Irving  
 Sem 61f-62w-63s. **Introduction to Arabic Grammar and Reading.** (9 cr; prereq 2 courses above 50 in any foreign language) Irving

**Slavic**

Slav 113f-114w-115s. **Old Church Slavic (Old Bulgarian).** Introduction to Slavic linguistics. (9 cr; prereq Clas 56 or equiv)  
 Russ 125f-126w-127s. **History of the Russian Language.** (9 cr; prereq Russ 51-52-53 or equiv)

**Spanish**

Span 171f-172w-173s.† **History of the Spanish Language.** (3 cr; prereq jr, sr only...20 and 1 yr Latin or ‡) Grismer

*For Graduate Students Only*

Span 241-242-243. **Old Spanish Philology**  
 Span 244-245-246. **Readings in Old Spanish Literature**

## MARRIAGE

See Interdepartmental Courses and General Education

## MATHEMATICS

**Department Chairman**—Robert H. Cameron; **Associate Chairman**, John M. H. Olmsted

**Major Advisers in SLA**—Professors Cameron, Gelbaum, Hart, Kalisch, Olmsted; Associate Professors Baxter, Carlson, Jonsson, Loud; Assistant Professors Hatfield, Storvick.

**Major Sequence in SLA**—Math 53, 54 (or 50A, 51A or 50, 51); 62 or 131A; and either 55 plus at least 17 additional credits in Upper Division courses, or 52 plus at least 15 additional credits in Upper Division courses.

All students majoring in mathematics are urged to study at least one of the languages: French, German, Russian. Students who plan to pursue graduate study in mathematics should refer to the section on "language requirements" in the *Bulletin of the Graduate School*.

**Major Advisers in the College of Education**—Professors Hart, Kalisch; Associate Professors Carlson, Loud; Assistant Professor Storvick.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation*: Entrance credit in solid geometry or its equivalent; Math 53, 54 (or 50A, 51A or 50, 51), 60 and 8 additional Upper Division credits. *Minor recommendation*: Entrance credit in solid geometry or its equivalent; Math 53, 54 (or 50A, 51A or 50, 51), 60.

Math 20 and Phil 2 are recommended as electives, to be taken preferably in the freshman or sophomore year, in connection with either a major or minor recommendation.

Prospective teachers who wish a combination program in mathematics and physical science should consult the *Bulletin of the College of Education*.

**Placement Tests**—In each of Math H, T, and 10 a placement test will be given at some time early in the quarter. Any student who fails the test in Math H may be required to drop the course and to review elementary algebra before taking Math H. Any student who offers high school higher algebra as a prerequisite for Math T or 10 and who fails the placement test in Math T or 10 should take Math H before continuing in mathematics. A student who has had a substantial course in higher algebra in high school and has reviewed its content recently should be able to pass the placement test in Math T or 10 and should normally register for one of those courses.

Trigonometry is needed for Math 40, 53, and above. A good high school course including graphs, identities, and equations should be sufficient for Math 40. A much higher degree of skill in identities is needed for Math 53. Further details are available in the department office.

Honors sections in Math 10 and 40 are given most quarters. Students are admitted on the basis of high academic record or a qualifying examination. Trigonometry is required for the honors sections of Math 10.

For the student whose major interests are nonmathematical but who wishes some mathematics for purposes of general education, this department particularly recommends Math 10 and 40. The student with more adequate background might be interested in such courses as Math 60, 109, and 127-128-129.

### Lower Division Courses

**Hf,w,s.\*\* Higher Algebra.** Essentially the equivalent of the second year of high school algebra. Includes: factoring, fractions, linear equations and systems in one or more unknowns,

\*\* Read the announcement about placement tests which precedes the heading, Lower Division Courses.

- determinants of order 2 and 3, graphing, exponents, radicals, ratio, proportion, variation, quadratic equations. (5 cr for students who have no high school credit in higher algebra or 3 cr for students who have high school credit in higher algebra; prereq 1 yr elementary algebra, \*\*)
- Tf,w,s.\*\* Trigonometry.** A course in analytic trigonometry emphasizing identities, equations, and properties of the functions; right and oblique triangles without logarithmic computation. (3 cr; open for credit if taken before 53, even to students with high school trigonometry; prereq plane geometry and either H or high school higher algebra, 110 or 140 allowed, \*\*)
- Cw.\*\* Trigonometric Computation.** Logarithmic solution of right and oblique triangles. (2 cr; prereq T or  $\dagger$ T or high school trigonometry)
- 5f,w,s. Foundations of Arithmetic.** Includes a logical and axiomatic basis of the rules for arithmetical operations with integers, rational numbers, and real irrational numbers as necessary background for teaching arithmetic in elementary school, with some attention to the history of the subject and its role in our culture and civilization. (3 cr; prereq 1 yr elementary algebra and 1 yr high school geometry, or equiv)
- 10f,w,s.\*\* College Algebra.** Systems of quadratic equations, conics in simplest positions, progressions, permutations, combinations, probability, binomial theorem, mathematical induction, inequalities, theory of equations, determinants, logarithms, slope of a line. (5 cr; prereq plane geometry or  $\Delta$  and either H or high school higher algebra\*\*)
- 20w,s. Mathematics of Investment.** Simple interest and simple discount, compound interest, annuities with simple data, extinction of debts by periodic installments, bonds, depreciation, perpetuities, capitalization, general annuity formulas. (5 cr; prereq 10)
- 21. Introduction to the Mathematics of Life Insurance.** Actuarial science principles; personal insurance. (3 cr, §BA 113; prereq 20 or 40 or BA 53 or BA 153 or  $\ddagger$ ; offered when feasible)
- 40f,w,s. Mathematical Analysis I.** Straight line; simple conics; derivatives of elementary functions; curve tracing; velocity, acceleration, and related rates; maxima and minima; differentials; introduction to integration with applications to area, volume, and work. (5 cr; prereq 10 and either T or  $\dagger$ T or high school trigonometry)
- 40Aw,s. Mathematical Analysis I.** (Primarily for preaccounting students) Terminal alternative to Math 40, without trigonometry. Students who plan to take further mathematics should take Math 40. (5 cr; prereq 10)

### Upper Division Courses

Math 53, 54, 55, 59, 60, 62, 107, 108 are open to Lower Division students who have an average grade of at least C in the prerequisite courses. Other Upper Division courses are open to sophomores under conditions explained on page 24.

- 53f,w,s. Mathematical Analysis II.** Parametric representation and differentiation, inverse trigonometric functions, L'Hospital's rule, integration by standard forms and special methods, with applications, improper integrals. (5 cr; prereq 40)
- 54f,w,s. Mathematical Analysis III.** Conics, translation, rotation, polar co-ordinates, length of arc, introduction to solid analytic geometry, multiple integrals including cylindrical co-ordinates, infinite series and expansion of functions. (5 cr; prereq 53)
- 55f,w,s. Intermediate Calculus.** Direction cosines, lines, planes; partial differentiation and applications to curves, surfaces, directional derivatives, extrema, Taylor series; moments; spherical co-ordinates; hyperbolic functions. (3 cr; prereq 54 or 51A or 51)
- 59f,w,s. Elementary Differential Equations.** A first course emphasizing linear equations and their applications; exponential growth, radioactive decay, mixing, cooling, damped and forced vibrations. (2 cr; prereq 53 or 50A or 51)
- 60f,s. Synthetic Metric Geometry.** Euclidean geometry including ruler and compass constructions and theorems on the triangle and circle not studied in a high school course in plane geometry. (3 cr; prereq 40)
- 62f,w. Introduction to the Theory of Equations.** Complex numbers, solution of algebraic equations, properties of polynomials; isolation of the real zeros of a real polynomial; determinants, matrices, and linear equations. (3 cr; prereq 53 or 153)
- 102-103. Advanced Analytical Geometry.** (6 cr; prereq 54; offered when feasible)
- 106f,s. Differential Equations.** Problem course, methods for solving ordinary differential equations of various types with the necessary theory for developing these methods. (3 cr; prereq 55 or 52)
- 107f,w-108w,s. Advanced Calculus.** Introduction to analytic theory of limits and continuity; uniform convergence; partial derivatives; differentials; Taylor's theorem for several variables; relative and absolute extrema, Lagrange multipliers; transformations for two-space and three-space; basic theory of Riemann single and multiple integrals; line and

\*\* Read the announcement about placement tests which precedes the heading, Lower Division Courses.



- surface integrals; introduction to vector analysis; theorems of Green and Stokes, divergence theorem; improper integrals; Beta and Gamma functions. (6 cr; prereq 55 or 52)
- 109s. **Theory of Numbers.** Elementary properties of integers; prime and composite numbers; Euclid's algorithm; congruences; the theorems of Fermat and Wilson; primitive roots; indices; Diophantine equations. (3 cr; prereq 54 or 51A or 51) Carlson
- 110f, w.s. **Tutorial Course in Advanced Mathematics.** Qualified students whose needs are not met by courses offered may make special arrangements for obtaining, through reading and conferences, the content of other graduate courses regularly offered by the department. (3-6 cr; prereq 54)
- 111Aw-111Bs. **The Development of the Number System.** Systematic construction of the real number system by extension from the natural numbers via rational numbers to irrational numbers; negative numbers; properties of the system; operations with numbers and laws governing the operations. (6 cr; prereq 54 or 51A or 51) Bzoch
- 112f. **Elementary Set Theory.** Basic properties of operations on sets, cardinal numbers, simply ordered sets, well-ordered sets, ordinal numbers, axiom of choice, axiomatics. (3 cr; prereq 54 or 51A or 51) Engeler
- 112Af-112Bw-112Cs. **Mathematical Logic.** Propositional and predicate calculi, models for systems of logic, recursive functions, decision and completeness problems. (9 cr; prereq 55 or 52 or Phil 155 or #) Orey
- 115-116. **Differential Geometry.** (6 cr; prereq 136; offered when feasible)
120. **Group Representations.** Elementary theory of finite groups and of infinite abelian groups with some application to permutation and crystallographic groups; representation by matrices, characters. (3 cr; prereq 131A; offered when feasible)
- 121f-122w-123s. **Mathematical Theory of Statistics.** Mathematical probability, distribution and sampling problems, theory of estimation including the method of maximum likelihood, tests of hypotheses including likelihood ratio tests, introduction to factorial design. (9 cr; prereq 55 or 52) Gelbaum
125. **Theory of Geometrical Constructions.** Constructions with and without classical restrictions to rulers and compasses; famous geometrical problems of antiquity, with ancient and modern solutions; constructions by graded rulers, parallel rulers, squares, compasses alone, etc. (3 cr; prereq 40; offered when feasible)
- 125Aw-125Bs. **Critical Reasoning in Mathematical Analysis.** Careful examination of the notions of limit, sequence, series, function, derivative and integral, designed to give students a more mature understanding of these concepts. Technique of developing accurate proofs, and roles of both intuition and logic in connection with these techniques. (6 cr; prereq 54 or 51A or 51)
- 127f-128w-129s. **Mathematics of the Social and Biological Sciences.** Mathematical tools and concepts other than statistics useful in the behavioral sciences. Examples and problems taken from the fields concerned. Topics include matrices, functions of several variables, probability, difference equations, learning models, two-person games. (9 cr; prereq 53 or 50A or 51 or #) Kalisch
- 131Aw-132Bs. **Advanced Algebraic Theory.** Linear dependence of vectors; dimension; matrices; systems of linear equations; special matrices and canonical forms; characteristic values and vectors; diagonalization of quadratic and hermitian forms. Introduction to more abstract concepts of algebra by means of examples drawn from matrix calculus and polynomials; vector spaces and linear transformations; examples and elementary properties of groups, rings, and fields. (6 cr; prereq 54 or 51A or 51) Gil de Lamadrid
- 136f. **Solid Analytic Geometry.** Algebraic treatment of planes and lines; direction cosines; systems of planes. Cylinders; surfaces of revolution. Quadric surfaces; tangent planes, ruled surfaces. Co-ordinate transformations, invariants. General equation of the second degree. Matrix methods used throughout. (3 cr; prereq 53 or #53)
137. **Advanced Theory of Equations.** (3 cr; prereq 54, 62; offered when feasible)
140. **Projective Geometry.** Geometric properties invariant under projective transformations; theorems of Desargues, Pascal, and Brianchon, and applications. Methods used in some quarters are mainly synthetic and in other quarters they are mainly analytic. (3 cr; prereq 54; offered when feasible)
- 144f-145w-146s. **Fourier Series and Orthogonal Functions.** General theory of orthonormal functions is developed and applied to Fourier, Legendre, Bessel, Hermite, and other series. Convergence and summability theorems are proved, and the Fourier integral is considered. (9 cr; prereq 54; offered when feasible)
- 157f-158w-159s. **Methods of Applied Mathematics.** Integrated study of analytic tools commonly used in applications of mathematics, with many problems and an emphasis on developing student's technique. Material will include topics from complex variables, matrices, ordinary and partial differential equations, calculus of variations, asymptotic expansions, etc. (9 cr; prereq 55 or 52 or #) Spitzer
- 170f-171w-172s. **Introduction to Modern Algebra.** Definitions and elementary theory of groups, rings, fields, and vector spaces; properties of linear transformations and matrices in vector spaces over arbitrary fields; factorization in integral domains; polynomial domains; finite and infinite field extensions; real fields. (9 cr; prereq 131A) Jonsson
176. **Intermediate Differential Equations.** Topics in differential equations not contained in a first course but not requiring a broad background of analysis. Emphasis on linear equa-

- tions of second order of interest in physics. Normal form, adjoint equations, series solutions, equations of Fuchsian type. Hypergeometric, Bessel and Legendre equations. (3 cr; prereq 106; offered when feasible)
- 178A-178Bw-178Cs. Introduction to Probability.** Largely based on W. Feller, *An Introduction to Probability Theory and Its Applications*, with emphasis on logical development and varied applications. Random walks, Markov chains, and discrete stochastic processes. (9 cr; prereq 108 or 123 or §) Baxter
- 181Aw-181Bs. Topology of the Cartesian Plane.** Limit points, coverings, compactness, connectedness, arcs, simple closed curves, mappings, Peano continua, Jordan curve theorem. (6 cr; prereq 55 or 52) Slye
- 187s. Non-Euclidean Geometry.** Foundations of Euclidean geometry, Euclid's fifth postulate and its implications. Hyperbolic plane geometry and trigonometry. Elliptic plane geometry and trigonometry. Consistency of non-Euclidean geometry. (3 cr; prereq 54 or 51A or 51) Carlson

### For Graduate Students Only

- 203-204-205. **Advanced Mathematical Statistics**  
 206-207-208. **Theory of Functions**  
 210A-210B-210C. **Foundations of Algebra**  
 211A-211B-211C. **Advanced Methods of Applied Mathematics**  
 212A-212B-212C. **Point Set Topology**  
 213A-213B-213C. **Topics in Point Set Topology**  
 214. **Topological Algebra**  
 239A-239B-239C. **The Fourier Transform**  
 245. **Introduction to Lebesgue Integrals**  
 246-247. **Integration in Function Space**  
 252A-252B-252C. **Linear Spaces and Operator Theory**  
 258-259-260. **Theory of Probability**  
 271-272-273. **Theory of Linear Differential and Integral Equations**  
 284A-284B-284C. **Stochastic Processes**  
 290-291-292. **Banach Spaces**  
 293A-293B-293C. **Seminar in Stochastic Processes**

NOTE—Some of the courses listed in the *Bulletin of the Graduate School* are open to properly qualified juniors and seniors. For further information consult the associate chairman of the Department of Mathematics.

## MILITARY SCIENCE AND TACTICS

**Department Chairman—Colonel Roy K. Kauffman, Artillery**

The program in military science and tactics leading to a commission in the U. S. Army Reserve is available for SLA students as well as for those in other colleges of the University. For information concerning the requirements and the opportunities in this program, consult the *Bulletin of Army, Navy, Air ROTC* of the University of Minnesota or call at the Military Science and Tactics office, 108 Armory.

SLA will accept credits from basic and advanced courses in military science and tactics to fulfill a minor toward the B.A. degree.

### Basic Course

- 1f-2w-3s. First Year Basic Course ROTC.** Organization of the Army and ROTC; American military history; individual weapons and marksmanship; school of the soldier and exercise of command. (1 cr per qtr)
- 4f-5w-6s. Second Year Basic Course ROTC.** Crew-served weapons and gunnery; map and aerial photograph reading; school of the soldier and exercise of command. (1 cr per qtr; prereq 1-2-3 or 6 months honorable military service\*\*)

\*\* Students who have completed 6 months of prior service in the armed forces (Army, Navy, Marine Corps, or Coast Guard) may receive credit for the First Year Basic Course. Students who have completed 1 year of prior service in the armed forces (Army, Navy, Marine Corps, or Coast Guard) may receive credit for both years' Basic Course. Such credit for basic training will be determined jointly by the professor of military science and tactics and the designated representative of the University, and will be given only where it is determined that the previous service is substantially equivalent to that part of the basic course for which credit is being sought.

### Advanced Course

151f-152w-153s. **First Year Advanced Course ROTC.** Small unit tactics and communications; organization, function, and mission of the branches of the Army; military teaching methods; leadership; school of the soldier and exercise of command. (3 cr per qtr; prereq 4-5-6 or 1 yr honorable military service\*\*)

154f-155w-156s. **Second Year Advanced Course ROTC.** Logistics; operations; military administration and personnel management; service orientation; military justice; school of the soldier and exercise of command. (3 cr per qtr; prereq 151-152-153)

## MUSIC

**Department Chairman**—Paul M. Oberg

**Major Advisers in SLA**—Professors Oberg, Schuessler; Associate Professors Malcolm, Riedel, Fetler; Assistant Professors Abelson, Duckworth, Weiser.

The Music Department is a liberal arts college member of the National Association of Schools of Music. The requirements for graduation with degrees carrying credit for courses in music, as set forth in this bulletin, are in accordance with the published regulations of the N.A.S.M.

The department offers courses in applied music, theory, composition, and music history and literature to students wishing to obtain a broad cultural background as well as to those majoring in music.

**Music Scholarships**—Scholarships in varying amounts are available to students majoring in music. Musical and scholastic aptitude are important factors in making these grants. Tryouts are held in Scott Hall Auditorium during the spring quarter each year.

**Requirements for Music Majors**—Students majoring in music must fulfill the requirements of both the Lower and Upper Divisions. A total of 144 credits in courses other than applied music (piano, voice, trumpet, etc., Mus 11 through 27) must be obtained in order to be eligible for the bachelor of arts degree.

Music majors are required to participate either in Chorus or Orchestra or Concert Band or Chamber Singers or Instrumental Ensemble or Men's Glee Club, or in a combination of any of these, for a minimum of 6 quarters.

Students electing Upper Division sequences A and B are required to play or sing an *Upper Division Qualifying Examination* before enrolling in Upper Division.

### Lower Division

#### Freshman year

Music Theory: Mus 1T-2T-3T, 3 credits per quarter

Applied Music: Mus 11 through 27, 2 or 4 credits per quarter

#### Sophomore year

Music Theory: Mus 4T-5T-6T, 4 credits per quarter

Applied Music: Mus 11 through 27, 2 or 4 credits per quarter

History of Music: Mus 34-35-36, 2 credits per quarter

### Upper Division

During junior and senior years a student must complete an academic minor (see page 12) and one of the following major sequences:

\*\* Students who have completed 6 months of prior service in the armed forces (Army, Navy, Marine Corps, or Coast Guard) may receive credit for the First Year Basic Course. Students who have completed 1 year of prior service in the armed forces (Army, Navy, Marine Corps, or Coast Guard) may receive credit for both years' Basic Course. Such credit for basic training will be determined jointly by the professor of military science and tactics and the designated representative of the University, and will be given only where it is determined that the previous service is substantially equivalent to that part of the basic course for which credit is being sought.



### Lower Division Courses

- 1f,w,s. **Fundamentals of Music.** Knowledge of the piano keyboard, major and minor scales, triads, elementary ear training, rhythmic dictation. (2 cr; prereq nonmusic major)
- 1Tf,w-2Tw,s-3Tf,s. **Music Theory.** Development of musicianship through both auditory and visual perception; participation in ear training, sight singing, keyboard drills. (9 cr; primarily for music majors and minors) Argento, Barry
- 4Tf,w-5Tw,s-6Tf,s. **Music Theory.** (Continuation of Mus 3T) Greater emphasis on harmonic analysis, part writing, and clef reading. (12 cr; prereq 3T) Malcolm
- 7Af-7Bw-7Cs. **Ear Training.** Résumé of aural work included in Mus 1T-6T. (6 cr; primarily for music majors, transfer students deficient in aural aspects of theory) Malcolm
- 10f,w,s. **Introduction to Music.** Basic elements of music, such as notation and characteristics of musical tone, fundamental musical concepts of rhythm, melody, harmony, polyphony, form; demonstrated by recordings and performance of music of all types in western civilization. (5 cr) Houle
- 28f-29w.‡ **Minneapolis Symphony Demonstration Rehearsals.** Practical guide to intelligent listening and better understanding of symphonic music through specially arranged rehearsals of the Minneapolis Symphony Orchestra. (2 cr)
- 31f-32w-33s.‡ **Music Literature.** (Primarily for those not majoring in music) Various styles, forms, types of music, including symphony, opera, chamber music, solo pieces. 31: Baroque and classical periods. 32: Romantic period. 33: Romantic and modern. (6 cr) Ivory
- 34f-35w-36s. **History of Music.** Musical styles and forms from the 9th to 20th centuries with emphasis on their identification through listening practice. (6 cr; prereq 3T) Houle
- 39f,w,s.‡\*\* **Women's Glee Club.** (1 cr per qtr; prereq ‡)
- 40f-41w-42s.‡ **Orchestra.** Performance of orchestral literature; three concerts annually; players from all colleges are invited to participate. (3 cr [music majors may earn total of 12 cr]; prereq ‡) Oberg
- 43f,w,s.‡\*\* **Chorus.** Performances of major symphonic-choral works with the Minneapolis Symphony Orchestra, University Symphony Orchestra, and University Concert Band. Entrance by audition only. (3 cr upon completion of 3 qtrs; prereq ‡) Collins
- 43Sf-44Sw-45Ss.‡\*\* **St. Paul Campus Chorus.** Prepares for at least one public appearance each quarter as well as for special events connected with St. Paul Campus. (3 cr; prereq ‡) Abelson
- 46f-47w-48s.‡\*\* **Concert Band.** Rehearsals and appearances cover standard band literature; several appearances each quarter. (3 cr; open to men and women of all colleges; prereq ‡)
- 49f,w,s.‡\*\* **Men's Glee Club.** Rehearsals and performances cover standard men's glee club material as well as special arrangements. Group appears for on- and off-campus functions. (1 cr; open to students on both campuses; prereq ‡) Abelson

### Courses in Applied Music

A student may not register for a course in applied music *for credit* (Mus 11 through 27) until he has passed the required entrance examination. (Students may not take special examinations in applied music for work done elsewhere while in residence at the University.)

Courses numbered from 11 through 27 carry either 2 credits (maximum of 10 private half-hour lessons) or 4 credits (maximum of 10 private hour lessons) per quarter. The first 12 credits in one of these courses count as Lower Division, additional credits in the same course count as Upper Division. A maximum of 36 credits in applied music may count toward a baccalaureate degree.

All students taking applied music *for credit* are required to attend Music Hour, held weekly in Scott Hall Auditorium.

#### Applied Music Entrance Requirements for Music and Music Education Majors and Minors—

**Piano:** A student should be able to play (1) major and minor scales in a moderate tempo; (2) three pieces in different styles, such as (a) Bach invention or dance from one of the suites, (b) one of the less difficult sonatas by Haydn, Mozart, or Beethoven, and (c) one of the shorter pieces by a 19th- or 20th-century composer.

\*\* Students may receive credit for 2 years or 6 quarters of work.

**Organ:** Same as for piano; sight reading of hymns.

**Voice:** Sing on pitch, with correct phrasing and musical intelligence, standard songs in good English (the simpler classics recommended). Demonstrate ability to read a simple song at sight and have a knowledge of the rudiments of music. A knowledge of piano is also recommended.

**Violin:** Major and minor scales, arpeggios; the simpler Kreutzer Etudes; a sonata by Handel, Haydn, Mozart, Schubert; a more modern work displaying special technique peculiar to the violin. A knowledge of piano is also recommended.

**Other orchestral instruments:** A student should be able to play, with good tone, phrasing, and style, two solo numbers of good musical quality. He will be examined in sight reading as well as in the playing of scales. A knowledge of piano is also recommended.

**Applied Music Entrance Requirements for Nonmusic Majors**—Students who wish to take applied music as an elective should be able to play or sing at least two pieces of medium difficulty.

**Af, w, s. Piano.** (No cr) Weiser, Hunter, Freed

**Df, w, s. Voice.** (No cr) Schuessler, Knowles

**11f, w, s. Piano.** (2 or 4 cr; prereq entr exam) Weiser, Hunter, Freed

**11Af-11Bw-11Cs. Piano: Class Lessons.**†† Development of skills at the keyboard in harmonization, improvisation, sight reading, accompanying, repertoire, technique. (6 cr; prereq for 11A: 1 [nonmusic majors], # [others]; prereq for 11B: 11A; prereq for 11C: 11B) Duckworth

**12f, w, s. Voice.** (2 or 4 cr; prereq entr exam) Schuessler, Knowles, Abelson

**12Cf, w, s. Voice: Class Lessons.**†† (6 cr) Knowles

**13f, w, s. Violin.** (2 or 4 cr; prereq entr exam) Druian

**14f, w, s. Viola.** (2 or 4 cr; prereq entr exam) Druian

**15f, w, s. Cello.** (2 or 4 cr; prereq entr exam) Jamieson

**16f, w, s. Double Bass.** (2 or 4 cr; prereq entr exam) Fitch

**17f, w, s. Flute.** (2 or 4 cr; prereq entr exam) Opava, Niosi

**18f, w, s. Oboe.** (2 or 4 cr; prereq entr exam) Angelucci

**19f, w, s. Clarinet or Saxophone.** (2 or 4 cr; prereq entr exam) Fitch, Handlon, Williams

**20f, w, s. Bassoon.** (2 or 4 cr; prereq entr exam) Santucci

**21f, w, s. Trumpet.** (2 or 4 cr; prereq entr exam) Adelstein

**22f, w, s. French Horn.** (2 or 4 cr; prereq entr exam) Speyer

**23f, w, s. Trombone.** (2 or 4 cr; prereq entr exam) Zellmer

**24f, w, s. Tuba.** (2 or 4 cr; prereq entr exam) Walton

**25f, w, s. Percussion.** (2 or 4 cr; prereq entr exam) Dahlgren

**26f, w, s. Harp.** (2 or 4 cr; prereq entr exam) Miller

**27f, w, s. Organ.** (2 or 4 cr; prereq entr exam)

**27Cf, w, s. Organ: Class Lessons.**†† Elementary organ technique, hymn playing, simple organ literature. (6 cr; prereq #)

For courses in Graduate Applied Music for both Arts College and College of Education majors, see the appropriate sections, M.A. and M.Ed., in the *Bulletin of the Graduate School*.

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

**50f, w, s. Introduction to Music.** Introduction to the music in the repertory of our culture, exploring selected forms and styles from the 16th through 20th centuries. Listening abilities are developed through aural analyses of musical textures, recognition of the articulation of phrases, periods, and sections leading to an understanding of the relationship of large units of musical form. These listening techniques, along with a

†† SLA major students must take individual rather than class lessons in their major instrument. Music education majors will take individual lessons in their major but may take class lessons in their minor instruments. No student may take class lessons for more than 6 credits in 12C and 27C.

- discussion of aesthetic principles, are used to define musical styles. (5 cr; open to jr and sr nonmusic students) Houle
- 51w. **History of Musical Styles, I.** Romanesque, Gothic, Renaissance, Mannerists, and Baroque. (2 cr; prereq 10 or 50, for nonmusic majors) Houle
- 52s. **History of Musical Styles, II.** Classic, romantic, and modern. (2 cr; prereq 10 or 50, for nonmusic majors) Houle
- 60f-61w-62s.‡ **Instrumental Ensemble.** Performance of chamber music of great composers; sonatas, trios, quartets, quintets, etc. (6 cr) Oberg
- 66f-67w-68s.‡ **Chamber Singers.** A small mixed vocal ensemble of select voices. Sacred and secular music from 16th-century to contemporary composers prepared for concert presentation. (6 cr [may receive credit for 2 yrs or 6 qtrs work]; prereq #) Collins
- 70f-71w-72s. **Normal Piano.** With Mus 80-81-82, provides 2-year course for piano majors focused on human values and musical growth as goals for teaching piano. The social setting and tonality approach are used as the basis for evaluating procedures and materials for teaching creative keyboard skills, techniques, repertory. (6 cr; prereq 2 yrs piano) Duckworth
- 76f,w,s. **Form and Analysis.** Key, harmonic, and form analyses of important contrapuntal and homophonic music. (3 cr; prereq 6T)
- 80f-81w-82s. **Advanced Normal Piano.** (See Mus 70-71-72) Second year of piano instruction and beyond. (6 cr; prereq sr, 72) Duckworth
- 83su. **Piano Teachers Summer Workshop.** Discusses the place of music in the liberal education of the individual, with implications drawn for the setting and approach for piano instruction in the private studio. If the teacher registers for 4 credits, he attends a 2-hour period of lectures and demonstrations for each day of the 5-week summer term. If the teacher registers for 6 credits, he is given the opportunity to teach, with the guidance of the instructor, a group of 4 children for a 1-hour lesson twice each week. The lectures and demonstrations may be taken without credit. Credit is not available for both Mus 83 and the 70-80 sequence. (4-6 cr; prereq 2 yrs piano, 2 yrs theory) Duckworth
- 90f-91w-92s.‡ **Advanced Instrumental Ensemble.** Performance of more difficult chamber music looking toward public presentation. (6 cr; prereq sr, 62) Oberg
- 97f-98w-99s. **Counterpoint.** Strict, 16th-century and Bach-style counterpoint in 2 and 3 parts; writing of canons, motets, inventions, fugues. (6 cr; prereq 6T) Fetler
- 100f,w,s. **Advanced Applied Music.** Advanced literature in piano, voice, organ, and orchestral instruments. (2 or 4 cr; prereq entr exam) Staff
- 104f-105w-106s. **American Music.** From early colonial times to the present through reading and record listening. American Indian music, European folk music on this continent, origin and development of jazz and contemporary American music. (6 cr; prereq 36, or 9 cr in American history or American studies, #) Riedel
- 107f. **Georg Friedrich Handel: Life and Works.** Musical culture in middle and northern Germany during the 17th and 18th centuries. The oratorio in Italy, France, Germany, and England. G. F. Handel's work with emphasis on his oratorios. Handel and England. (3 cr; prereq 36 or #, sr and grad in music or music education; offered 1960-61 and alt yrs) Riedel
- 108f. **Heinrich Schütz: Life and Works.** Influenced by political events; Protestant hymn and psalm literature, its musical elaborations in his works; his importance in fields of madrigal and monody, sacred concerto and cantata, and passion; Schütz compared to Bach. (3 cr; prereq 6 cr in music history or history of art or German literature or political history to 1700, or #; offered 1960-61 and alt yrs) Riedel
- 109w. **Lasso and Palestrina.** The Council of Trent, its influence on writing and performance of sacred music of 16th century. Madrigal, mass, and motet writing as exemplified in their works; Lasso's cosmopolitan and Palestrina's *a cappella* styles of writing; *Palestrina Style* of 17th and 18th centuries; *Caecilianism* of 19th and 20th centuries. (3 cr; for majors in music, arts, history; prereq 6 cr in music history or Renaissance and baroque art, or political history to 1700, or general history of western philosophy, or #; offered 1960-61 and alt yrs) Riedel
- 110f. **Music Bibliography.** General reference sources. Music bibliographical materials in English and other languages; bibliographical drills in music history, theory and composition, music education, applied music. (3 cr; prereq 1 of the following: Mus 36, 62, 72, 99, or #) Riedel
111. **Organization and Guidance of Piano Classes.** Organization, goals, materials, techniques for handling piano classes in secondary schools. (3 cr; prereq #; offered when feasible)
- 112f-113w-114s.‡ **History of Vocal Art.** Significant schools of singing from 1600 to the present. (6 cr; prereq 18 cr in Mus 12, or #) Schuessler
- 115f-116w-117s.‡ **Vocal Literature.** Preparation and performance of representative solo vocal works from major and minor composers. (6 cr; prereq 12 cr in Mus 12, or #) Schuessler
- 118f-119w-120s.‡ **Piano Literature.** Keyboard literature suitable for piano performance from end of 16th century to present; its background and development. Performance illustrations by instructor, recordings. (6 cr; prereq 12 cr in Mus 11, or #; offered 1960-61 and alt yrs) Welser

- 121f-122w-123s. **Advanced Harmony.** Chromatic harmony through analysis of representative 19th- and 20th-century works. (6 cr; prereq 6T) Argento
- 124f-125w-126s. **History of Opera.** Opera as music and drama: production, styles, cultural background, from late 16th century to present—modern repertoire, broadcast by the Metropolitan Opera Company. (9 cr; prereq 9 cr in history of music or history of art or history of theater or European history from 1600, or #; offered 1960-61 and alt yrs) Houle
- 127f-128w-129s. **Composition.** Original work in various forms. (6 cr; prereq 97-98-99 and 121-122-123) Fetler
- 130f. **Symphonies of the Classical Era.** Through Mozart and Haydn: evolution of form and style in relation to contemporary thought and art through the French revolution. (3 cr; prereq 6 cr in music history or art history or political history since 1750 or English or German literature since 1750, or #; offered 1959-60 and alt yrs)
- 131w. **Symphonies of Beethoven.** Evolution of Beethoven's symphonic form and style as a reflection of intellectual, political, and artistic currents of the Napoleonic era. (3 cr; prereq same as 130; offered 1959-60 and alt yrs)
- 132s. **Symphonies of the Romantic Era.** Schubert, Schumann, Mendelssohn, Berlioz, Liszt, Brahms, Franck, Dvorak, Tschaiikowsky, Bruckner, Richard Strauss; their relation to the dominant romantic trends of the 19th century. (3 cr, prereq same as 130; offered 1959-60 and alt yrs)
- 133s. **Baroque Performance Practices.** Ornamentation, phrasing, articulation, and improvisation in the music of the period 1550-1759. A study of music instruction books of this era leading to analysis and performance of baroque music in baroque style. (3 cr; prereq sr and grad, 6T, 36, or #, and ability to perform with some facility; offered when feasible) Houle
- 134f-135w-136s. **History of Church Music.** Trends. Relationship of music to various theologies and liturgies. (6 cr; prereq 34-35-36 or #) Riedel
- 137f-138w-139s. **Keyboard Harmony.** Practical ear training as applied to the piano; chorales are transposed into all keys in four parts and expanded chords by melodic and harmonic analysis; modulation. (3 cr; prereq 6T) Argento
- 140w. **Realization and Interpretation of Choral Masterpieces.** Musical and vocal techniques necessary for presentation of great choral compositions from the Renaissance to the 20th century. (3 cr; prereq sr and grad, 6T or #; offered when feasible) Collins
- 141f-142w-143s. **Orchestration.** Scoring instruments of the orchestra for ensemble combinations and full orchestra. (6 cr; prereq 6T) Argento
- 144f-145w-146s. **Bach Through Beethoven.** Forms, techniques, styles of the late Baroque and Classical periods: Bach, Handel, Gluck, Mozart, Haydn, Beethoven. (9 cr; prereq 36; offered 1960-61 and alt yrs) Houle
- 147f, 148w, 149s. **Opera Workshop.** The student is given the opportunity to prepare and perform operatic roles both standard and contemporary. A union of musical and dramatic interpretation is emphasized and the student, in addition to his ensemble work, is given scheduled private instruction. All projects and roles will be sung in the English language. (2 cr per qtr; prereq sr and grad, ability to satisfactorily sing an aria) Knowles, Abelson, Argento
- 151w-152s. **Introduction to Musicology.** Scope, aims, methods, and resources of research in musicology, including fields of acoustics, psychology, sociology, and theory. (6 cr; prereq Mus 110, or #; offered 1959-60 and alt yrs) Riedel
- 154f-155w-156s. **Music in the Middle Ages and Renaissance.** Monophonic music from the period of Gregorian chant to English madrigal school. (6 cr; prereq 36; offered 1959-60 and alt yrs) Riedel
- 157f-158w-159s. ‡ **German Lieder.** Selected songs as regards interpretation and style. 157: Schubert, Mozart, Beethoven. 158: Schumann, Brahms, Franz. 159: Wold, Strauss, Mahler. (6 cr; prereq 18 cr in Mus 12 or 11, Ger 2, or #)
- 164w-165s-166f. **Music in the Baroque Era.** In Italy, Netherlands, Germany, Austria, France, Spain. (6 cr; prereq 36; 164w-165s offered 1960-61 and alt yrs, 166f offered when feasible) Riedel
- 175w. **Training in Advanced Musicianship.** Sight singing and dictation of melodic, harmonic, rhythmic, 2- and 3-part contrapuntal materials; score reading, both vocal and instrumental; training in tonal memory; aspects of conducting. (3 cr; prereq 6T) Fetler
- 177s. **Analysis of Contemporary Music.** Twentieth-century styles and techniques including works of Bartok, Hindemith, Stravinsky, Schönberg. (3 cr; prereq 6T) Fetler
- 197f-198w-199s. **Advanced Counterpoint.** Bach's *Art of the Fugue*; practice in technique of writing 3- and 4-voice fugues; contrapuntal devices and problems; analysis of polyphonic examples of various periods. (6 cr; prereq 99) Fetler

### For Graduate Students Only

- 200-201-202. **Basis of Musical Expression**
203. **Notation of Polyphonic Music**
204. **Graduate Applied Music**



- 209-210-211. **Advanced Topics**
- 212. **Special Problems**
- 215. **Advanced Conducting**
- 227-228-229. **Seminar in Composition and Orchestration**

## MUSIC EDUCATION

(College of Education)

The following courses in music education are regularly open to SLA students:

- MuEd 63w. Conducting I.** Basic elements of baton technique; styles of beats, types of arcs, preparatory beats, patterns, other general ideas in starting the young conductor. (2 cr; prereq MuEd 6 or 4)
- MuEd 65f,w. Instrumentation.** Orchestra and band instruments in combination; revision of materials suitable for school use; discussion of capabilities of school performers on the various instruments. (3 cr; prereq Mus 6T) Ivory

## NATURAL SCIENCE

See Interdepartmental Courses and General Education

## NAVAL SCIENCE

**Department Chairman**—Colonel R. O. Bowen, U.S.M.C.

The course in naval science is designed to give those students enrolled in the Naval ROTC program the fundamental essentials in naval subjects so that, upon graduation, they may receive a commission in the Navy, Naval Reserve, Marine Corps, or Marine Corps Reserve. This course is, however, available to any male student in SLA as well as to those in other colleges of the University. For information concerning the requirements and the opportunities in the NROTC program consult the *Bulletin of Army-Navy-Air Force ROTC* or call at the Naval Science office, 203 Armory.

SLA will accept credits from junior and senior courses in naval science to fulfill a minor toward the B.A. degree.

### Lower Division Courses

- 11f. **Naval Orientation.** Organization, functions, and mission of the Navy and the Department of Defense; duties and responsibilities of a naval officer; types and characteristics of ships. (3 cr)
  - 12w. **Sea Power.** Naval history and sea power; fundamental concepts of sea power; principles of naval warfare; global geography, and evolution of sea power. (3 cr)
  - 13s. **Sea Power.** Naval history and sea power; history of U.S. Navy; evolution of sea power; seamanship. (3 cr)
  - 22w. **Naval Weapons.** (3 cr)
  - 23s. **Naval Weapons.** (3 cr)
- Psychology course during fall quarter for 2nd year NROTC students.

### Upper Division Courses

#### I. LINE SEQUENCE

- 51f. **Naval Engineering.** (3 cr)
- 52w. **Naval Engineering: Introduction to Navigation.** (3 cr)
- 53s. **Celestial Navigation.** (3 cr)
- 61f. **Naval Operations.** (3 cr)
- 62w. **Naval Operations: Leadership.** (3 cr)
- 63s. **Leadership.** (3 cr)

## II. SUPPLY CORPS SEQUENCE

- 57f. **Organization and Logistics: Naval Finance.** (3 cr) Donnelly  
 58w. **Naval Accounting: Basic Supply Afloat.** (3 cr) Donnelly  
 59s. **Advanced Supply Afloat.** (3 cr) Donnelly  
 67f. **Ships Store Afloat.** (3 cr) Donnelly  
 68w. **Clothing and Small Stores and Leadership.** (3 cr) Donnelly  
 63s. **Leadership.** (3 cr)

## III. MARINE CORPS SEQUENCE

- 54f. **Evolution of the Art of War I.** (3 cr) Hollier  
 55w. **Evolution of the Art of War II.** (3 cr) Hollier  
 56s. **Modern Basic Strategy and Tactics.** (3 cr) Hollier  
 64f. **Amphibious Warfare I.** (3 cr) Hollier  
 65w. **Amphibious Warfare II.** (3 cr) Hollier  
 66s. **Leadership.** (3 cr) Hollier

## NORWEGIAN

See Scandinavian

## ORIENTAL

See Slavic and Oriental Languages

## PERSONAL ORIENTATION

See Interdepartmental Courses and General Education

## PHILOSOPHY

Department Chairman—Alan Donagan

**Major Advisers in SLA**—Professors Feigl, Holmer; Associate Professors Brodbeck, Donagan, Raab, Terrell; Assistant Professors Mason, Potter.

**Major Sequence in SLA**—Two courses from Phil 50-51-52, 1 of which shall be 52, and others to make a total of at least 30 credits in Upper Division philosophy courses including at least 12 credits in courses numbered above 100.

Prerequisite for major sequence, Phil 1 and 2. Phil 1A and 2A will not be accepted for this requirement.

Although there is no language requirement for the undergraduate major in philosophy, attention is called to the language requirements for the M.A. (1 foreign language) and Ph.D. (2 foreign languages, of which 1 shall be German) degrees in philosophy at this University. Students who plan graduate work in philosophy are urged to complete at least a substantial part of these requirements before graduation.

Phil 1, 1A, 2, 2A and 3 are introductory. They may be taken singly or in any order, but no student may receive credit for both 1 and 1A, or 2 and 2A. The sections of 1, 2, and 3 are scheduled so that one may be taken at almost any hour and so that, if another of the courses is elected, it may usually be taken at the same hour in the following quarter.

**Notice for Nonmajors Concerning General Education Courses:** Since almost all courses in this department are suited to general education, each student is advised to choose according to his interest. We particularly emphasize, in the Lower Division, *Logic* (2), and in the Upper Division the whole or part of the sequence *History of Western Philosophy* (50-51-52). Among interdepartmental courses *Science and Religion* (10), *World Religions* (11), and *Science and Civilization* (81-82) are recommended.

Students intending to enter theological seminaries or other institutions of training in religious work should note the special pretheological curriculum which is indicated in this bulletin (page 144).

### Lower Division Courses

- 1f,w,s. Problems of Philosophy.** Introduction; main fields of investigation; permanent problems; principal methods and schools of philosophy; historical and contemporary views. (5 cr; prereq \*\*) Staff
- 1A.w. Selected Problems of Philosophy.** Problems selected from the field covered in Phil 1. Designed for students preparing for Law School but open to others. (3 cr; prereq \*\*)
- 2f,w,s. Logic.** Difference between logical and fallacious reasoning; functions and uses of language; rules of good definition and sound argument. (5 cr) Staff
- 2A.f. Selected Problems of Logic.** Topics selected from the field covered in Phil 2. Designed for students preparing for Law School but open to others. (3 cr; prereq \*\*)
- 3f,w,s. Ethics.** Examination of the problems which arise when human beings attempt to think systematically about conduct and values (are there absolute standards?), problem of free will, and survey of historical views about the right and the good. (5 cr; prereq \*\*) Staff
- 10f,w. Science and Religion.** Inquiry into nature of science and religion as currently interpreted, with an attempt to find grounds of conflict and/or reconciliation. (2 cr; prereq soph)
- 11.s. World Religions.** Selected passages from scriptures of five living world religions: Hinduism, Buddhism, Islam, Judaism, and Christianity. Attempts to describe convictions, ethics, practices, principal historical changes, and major cultural and social significance of each. Reading materials will be supplemented by slides and records. (5 cr) Mason
- 40. Logic of Scientific Reasoning.** Introduction to principles of scientific method; definition and classification; observation, measurement, experiment; elementary statistical concepts; hypotheses, theories, evidence, and confirmation; the nature and limits of the scientific enterprise. (3 cr; prereq 2; offered when feasible)

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

Attention is called to Ortl 75-76-77, Asian Civilizations, listed under Slavic and Oriental Languages.

- 50f-51w-52s.‡ General History of Western Philosophy.** Survey of major developments in Western philosophic thought from its beginnings among the Greeks to middle of 19th century. 50: Greek philosophy; Socrates, Plato, Aristotle. 51: Stoicism, Epicureanism, and Medieval Christian Synthesis. 52: Modern philosophy from Descartes to Hegel; impact of science; backgrounds of contemporary philosophical problems. (15 cr) Staff
- 81f-82w. Science and Civilization.** An examination of the development of natural science and the scientific point of view within the history of civilization, and of the human and social implications of science in the contemporary world. (6 cr; primarily a sr integrative course; prereq jr with ‡ or sr)
- 101f. Principles of Philosophy.** Topics include knowledge, meaning, truth, reality, mind, and nature, human values, and action. (4 cr; prereq sr or grad who have not had 1) Feigl, Brodbeck
- 103w. Eighteenth-Century Philosophy.** Philosophic background of 18th Century Enlightenment; rationalist and empiricist currents; deism; optimism; great chain of being. Readings from works of Locke, Hume, Voltaire, Diderot, Pope, and others. (3 cr; for history and literature students as well as philosophy majors; offered when feasible)
- 104s. Nineteenth-Century Thought.** Main currents in European philosophy; British and French philosophical psychology and social philosophy. German thought: Hegel, Marx, Schopenhauer, Nietzsche. (3 cr; prereq 52 or equiv, ‡) Mason
- 105f. Introduction to American Philosophy: Puritanism to Pragmatism.** Puritanism, the Revolutionary period, transcendentalism, and evolutionism. Among philosophers discussed: Edwards, Paine, Emerson, Peirce. (3 cr; especially for students of American history and literature) Brodbeck, Donagan
- 106w. American Philosophy from William James.** (Continuation of 105) Among philosophers discussed: James, Dewey, Santayana, Blanshard. (3 cr; prereq 105 or ‡; offered 1959-60 and thereafter when feasible) Raab
- 107w. Philosophy in Modern Literature.** Survey of basic philosophical ideas in modern civilization as they are expressed in major works of literature. (3 cr; prereq major or minor in philosophy or literature, or ‡; offered when feasible)
- 108w. Political and Social Ethics.** Ethical principles, theoretical and practical, at the basis of the social order. (3 cr; prereq 3, or ‡) Raab

\*\* Phil 1A, 2A are open in any quarter to a limited number of freshmen with permission of their advisers. Phil 2 is open to freshmen. Phil 1 and 3 are open to third-quarter freshmen.

- 109f. **History of Ethics.** Most significant contributions to development of ethical theory in western philosophy, with emphasis on British writers of modern period (17th-19th centuries). (3 cr; prereq Phil 3, 1 qtr in history of philosophy, or §) Terrell
- 112f-113w. **Plato.** Philosophy of Plato based on analysis of major dialogues. (6 cr; prereq 50 or §) Allen
- 114s. **Aristotle.** Philosophy of Aristotle based on analysis of selected passages from his major works. Particular attention given to his relationship to Plato. Survey made of Aristotelian tradition in Western philosophy. (3 cr; prereq 1 course from 50-51-52, or §) Donagan
115. **Greek Philosophy after Aristotle.** A survey of the development of Greek philosophy after Aristotle, including such topics as Stoicism and Epicureanism, developments in logic, neo-Platonism, and skepticism. (3 cr; prereq 50; offered when feasible)
- 118w. **Readings in Medieval Philosophy.** Analysis of selected works of principal medieval philosophers. (3 cr; prereq 50, 51 or §; offered when feasible) Donagan
- 120f. **Rationalism.** Philosophies of Descartes, Spinoza, and Leibniz. (3 cr; prereq 1 course from 50-51-52 or §; offered 1959-60 and alt yrs) Raab
121. **Descartes.** Analysis of philosophical works of Descartes. (2 cr; prereq 1 course from 50-51-52 or §; offered 1961-62 and every third yr)
- 122w. **Spinoza.** Philosophy of Spinoza based primarily on analysis of his *Ethics*. (2 cr; prereq 121 or §; offered 1959-60 and every third yr) Garver
123. **Leibniz.** Philosophy of Leibniz based on analysis of selected philosophical writings. (2 cr; prereq 121 or §; offered 1960-61 and every third yr)
- 130f. **Locke and Berkeley.** Analysis of principal epistemological works of Locke and Berkeley with emphasis upon their sources and influence. (3 cr; prereq 52 or §; offered 1959-60 and alt yrs) Terrell
131. **Hume.** Detailed study of Hume's *Treatise* and *Inquiry*. (3 cr; prereq 52 or §; offered 1960-61 and alt yrs) Terrell
- 134s. **Kant.** Philosophy of Kant based on analysis of selected passages from his major works. (3 cr; prereq 52 or §) Mason
- 137w. **Kierkegaard and Scandinavian Philosophy.** Philosophical tradition in the Scandinavian countries, with special reference to Kierkegaard and his significance. (3 cr; prereq 1 course from 50-51-52 or §) Holmer
- 138w. **Contemporary Existentialism.** Existentialist philosophy since Kierkegaard, especially in France and Germany (esp. Heidegger, Sartre, Jaspers, Marcel). (3 cr; prereq 52 or 137 or §) Mason
- 140w. **Contemporary Philosophy.** Current systematic and critical philosophies, especially idealism, naturalism, realism, pragmatism, positivism as represented by their principal exponents. (3 cr; prereq 52 or §) Raab
- 150s. **Ethical Theory.** Distinguishing characteristics of a moral judgment; application of moral judgments to motives, acts, and persons; moral freedom and responsibility; moral relativity, skepticism, and the justification of moral standards; examination of representative systems. (3 cr; prereq 3, or §) Raab
- 151w. **Principles of Aesthetics.** Nature of aesthetic experience; standards of aesthetic evaluation; beauty in art and beauty in nature; status of subject matter in the arts; relation of form and content; concepts of representation, expression, style, meaning, and truth in the arts; use of symbols in art; relation of the arts to knowledge, and to society; relation of aesthetics to ethics. (3 cr; prereq §) Donagan
- 154f. **Elements of Symbolic Logic.** Systematic introduction to modern logic. Topics include dimensions of language; calculus of propositions, classes, and relations; applications to foundations of mathematics. (4 cr; prereq 2 or §) Brodbeck
- 155w. **Intermediate Symbolic Logic.** Axiomatic development of logic; properties of deductive systems; modal and many-valued logics; applications to philosophical problems. (3 cr; prereq 154; offered 1959-60 and alt yrs) Brodbeck
- 157s. **Metaphysics.** Some recent attempts to discover general principles characteristic of the universe. (4 cr; prereq 1 course from 50-51-52, or §) Brodbeck
- 158w. **Theory of Knowledge.** Analysis of the logical structure and experiential roots of knowledge. Topics include meaning, validity, truth, reason and experience, induction, criteria of objectivity, and reality. (4 cr; prereq 2 or §) Feigl
- 160f. **Philosophy of Science.** Provides a clear understanding of meaning, methods, and implications of modern science through examination of basic concepts, presuppositions, and procedures. Topics include description, explanation, prediction, experimentation; space, time, number, matter, energy; causality, probability, statistics; organic life, evolution, mind. (4 cr; prereq 2 or §) Feigl
- 164f. **The Logic of the Social Sciences I.** Philosophical examination of foundations of behavior sciences in general; their concepts, laws and theories; concrete illustrations from these sciences; problems of value and objectivity; logical nature of social philosophies and ideologies; role of social scientist in a democratic society. (3 cr; prereq 15 cr in social sciences, psychology, education, history, or philosophy, or §) Brodbeck
- 165s. **The Logic of the Social Sciences II.** A closer and more specific study of items introduced in preceding course, with greater attention to logical methods and problems peculiar to each of the specialized social sciences. (3 cr; prereq 164) Brodbeck

- 167f. **Philosophy of History.** Idealistic, theological, and economic interpretations of history, with particular reference to concepts of progress, continuity, pluralism, etc., and to philosophical aspects of historical methods. (3 cr; prereq 6 cr in philosophy or 10 cr in history) Mason
- 171s. **Philosophies of India.** Introduction to problems of systematic philosophy in India, with special attention to Buddhist logic and epistemology, Vaisesika metaphysics, ethics of the *Bhagavadgita*, and Advaita Vedanta monism. (3 cr; prereq 5 cr, or §) Potter
- 180f. **History of Religions.** Survey of some phases of primitive religions and of the history, literature, and chief teachings of the more highly developed faiths. (3 cr; prereq 6 cr) Holmer, Mason
- 181w. **Psychology of Religion.** Current interpretations of religious experience and behavior, according to various psychologies. (3 cr; prereq 6 cr) Holmer, Mason
- 182s. **Philosophy of Religion.** Discussion of ground and sanctions of religion, according to various philosophies. (3 cr; prereq 6 cr) Holmer
- 190f-191w-192s. **Seminar in Philosophy.** Topics to be arranged according to students' interests. (9 cr; prereq sr, 9 cr, or §) Staff

*For Graduate Students Only*

- 206-207. **Seminar in Comparative Philosophy**
- 210-211-212-213. **Seminar in Moral Philosophy**
- 215. **Seminar in Aesthetics**
- 216. **Seminar in Philosophy of Criticism**
- 220-221-222. **Seminar in Philosophical Analysis**
- 223-224-225-226. **Seminar in Epistemology**
- 230-231-232. **History of Philosophy**
- 233-234-235. **Seminar in Philosophy of Religion**
- 236-237-238. **Seminar in the History of the Philosophy of Religion**
- 241-242-243. **Seminar: Philosophy of the Physical Sciences**
- 244-245-246. **Seminar: Philosophy of Psychology**
- 247-248-249. **Seminar: Logic of the Exact Sciences**
- 250-251-252. **Seminar: Philosophy of the Social Sciences**
- 260-261-262-263. **Seminar in Metaphysics**
- 268-269-270. **Seminar: Studies in Aesthetics**

**PHYSICAL EDUCATION FOR MEN**

**Department Chairman—Richard J. Donnelly**

A towel and locker fee of \$2.50 per quarter is charged all students using physical education facilities for activity. Uniforms for class work or recreational activity may be rented for \$2 per quarter.

The following courses in physical education for men are open, with a maximum of 6 credits, to SLA students. Students planning to enter the College of Education later are held to a requirement of 3 credits.

**1A1-Bw-Cs. Sports Education.** Orientation in a variety of recreational sports. Objective is to provide instruction and competition in those sports in which men may participate now and in future years as a means of obtaining recreation, regular exercise, and social intercourse. Student must furnish his own equipment for golf and skating. (1 cr per qtr)

- 1A1. Badminton, Bowling,\*\* Golf, Handball, Paddleball, Squash, Touchball, Weight Lifting
- Swimming, Beginning (for non-swimmers only)
- Tennis, Beginning
- Adapted Activities. (Prereq §)

1Bw. Badminton, Bowling,\*\* Golf (beginning), Handball, Paddleball,

- Skating, Weight Lifting
- Swimming, Beginning
- Tennis, Beginning
- Adapted Activities. (Prereq §)
- 1Cs. Bowling,\*\* Golf, Handball, Squash, Tennis (Beginning), Weight Lifting
- Swimming, Beginning
- Adapted Activities. (Prereq §)

\*\* The bowling alleys will charge students the regular cost per game.

**2Af-Bw-Cs. Sports Education.** Offers an opportunity to develop proficiency in an elected recreational sport in which student has had previous experience. Student must furnish his own equipment for golf and skating. (1 cr per qtr)

**2Af. Archery**

Ballroom Dancing (coeducational)  
 Body Building  
 Golf, Advanced  
 Gymnastics  
 Handball and Squash  
 Square and Folk Dancing (coeducational)  
 Swimming, Intermediate. (Prereq ability to swim 50 yds)  
 Swimming, Advanced. (Prereq ability to swim 100 yds)  
 Touch Football, Volleyball  
 Weight Lifting

**2Bw. Badminton**

Ballroom Dancing (coeducational)  
 Basketball  
 Body Building  
 Gymnastics  
 Life Saving. (Prereq ability to swim 100 yds)  
 Skating

Square and Folk Dancing (coeducational)  
 Squash and Handball  
 Swimming, Intermediate. (Prereq ability to swim 50 yds)  
 Tennis, Beginning  
 Volleyball  
 Weight Lifting

**2Cs. Archery**

Ballroom Dancing (coeducational)  
 Body Building  
 Golf  
 Gymnastics  
 Life Saving. (Prereq ability to swim 100 yds)  
 Paddleball, Horseshoes  
 Softball, Volleyball  
 Square and Folk Dancing (coeducational)  
 Swimming, Intermediate  
 Tennis, Beginning and Intermediate  
 Weight Lifting

## PHYSICAL EDUCATION FOR WOMEN

**Department Chairman—Gertrude M. Baker**

The following courses in physical education for women are open, with elective credit up to 6 credits, to SLA students. Students planning to enter the College of Education or School of Nursing later are held to a requirement of 5 credits in activity courses. After this credit requirement has been met, a choice may be made of "additional elective" courses listed on page 111.

A physical education fee of \$3.25 per quarter is charged for all activity courses (A, B, C). In addition, a \$3.25 fee is charged for the following numbered courses: 54, 87, 88, 89. Maximum fee per student, \$6.50 per quarter.

Students should register for classes in 210 Johnston Hall during the regular college registration period. Students should check the *Class Schedule* to be sure their Activity Rating is suitable for the class in which they registered. For special permission to take two courses in physical education, see Miss Tenney, 106 Norris Gymnasium.

All classes meet in Norris Gymnasium for the first meeting. A student forfeits her place in class if she is absent the first day the class meets unless she has notified the office at 101 Norris Gymnasium (Ext. 6175) that she is unable to attend. If a class is closed when a student registers, she should report to the first class meeting for possible cancellations.

**Fall Quarter (A)**

**Aquatics**

Swimming, Beginning  
 Swimming, Advanced Beginning  
 Swimming, Intermediate  
 Swimming, Advanced  
 American Red Cross Senior Life Saving

**Individual Sports**

Archery, Elementary  
 Badminton, Elementary  
 Bowling, Elementary  
 Fencing  
 Riflemarksmanship

Skating, Elementary and Figure  
 Social Games and Mixers

**Body Building**

Conditioning Exercises  
 Posture and Individual Exercise  
 Tumbling and Trampoline

**Rhythms**

Ballroom Dance, Elementary  
 Folk and Square Dance  
 Modern Dance, Elementary  
 Tap Dance

**Team Sports**

Volleyball

## Winter Quarter (B)

**Aquatics**

Swimming, Beginning  
 Swimming, Advanced Beginning  
 Swimming, Intermediate-Advanced  
 American Red Cross Senior Life Saving  
 American Red Cross Water Safety Instructors Course

**Individual Sports**

Archery, Elementary  
 Badminton, Elementary  
 Badminton, Intermediate  
 Bowling, Elementary  
 Fencing  
 Rifle marksmanship  
 Skating, Elementary and Figure  
 Social Games and Mixers  
 Tennis, Elementary

**Body Building**

Conditioning Exercises  
 Posture and Individual Exercise  
 Tumbling and Trampoline

**Rhythms**

Ballroom Dance, Elementary  
 Folk and Square Dance  
 Modern Dance, Elementary  
 Modern Dance, Advanced Beginning

**Team Sports**

Basketball  
 Volleyball

## Spring Quarter (C)

**Aquatics**

Swimming, Beginning  
 Swimming, Advanced Beginning  
 Swimming, Intermediate  
 Swimming, Advanced and Diving  
 Swimming, Synchronized  
 American Red Cross Senior Life Saving  
 American Red Cross Water Safety Instructors Course

**Individual Sports**

Archery, Elementary-Intermediate  
 Fencing  
 Golf, Elementary  
 Golf, Intermediate  
 Golf, Advanced  
 Riding, Elementary  
 Tennis, Elementary  
 Tennis, Intermediate-Advanced

**Body Building**

Conditioning Exercises  
 Posture and Individual Exercise

**Rhythms**

Ballroom Dance, Elementary  
 Folk and Square Dance  
 Modern Dance, Elementary  
 Modern Dance, Intermediate-Advanced

**Team Sports**

Softball

**Additional Elective Courses**—These courses may not be used to meet a college requirement in physical education:

25f, w, s. American Red Cross First Aid (Standard Course). (2 cr)

54f, s. Camp Leadership. (3 cr)

80s. History and Trends in Dance. (3 cr; prereq #)

87f. Dance Composition. (2 cr; prereq #)

88w. Advanced Dance Composition. (2 cr; prereq #)

89s. Dance Production. (3 cr; prereq #)

**PHYSICS**

(Institute of Technology)

**Department Chairman**—Alfred O. C. Nier

**Major Advisers in SLA**—Professors Hill, Hintz, Schmitt, and Wall.

**Major Sequence in SLA**—Phys 50, 50A, 100-102-104; 107-109-111, plus 9 additional credits of which at least 3 must be in courses having laboratory.

**Major Adviser in the College of Education**—Professor Buchta.

For the specialized curriculums in natural science and physical science, see the *Bulletin of the College of Education*.

Prerequisites for any course in physics may be waived if a petition for registration in the course is granted by the School of Physics. Students who have any credit in one of the sequences 1-2-3 (combined with 1A, 2A, 3A), 4-5-6, 7-8-9, or 11-12-13 will not receive credit for the corresponding course in another sequence. Students who have completed one sequence must receive the approval of the School of Physics to register in another sequence.

## Lower Division Courses

- 11-2w-3s. Introduction to Physical Science.** Demonstration lectures on principles of physics and the physical phenomena underlying these principles. Designed for those who wish a general cultural introduction to physics but do not plan to major in that subject. (9 cr; prereq for 1, high school algebra and plane geometry...prereq for 2, 1...prereq for 3, 1; this course taken without 1A-2A-3A does not satisfy any of the laboratory science requirements for entrance to the Upper Division) Wall
- 1Af-2Aw-3As. Introduction to Physical Science Laboratory.** Laboratory course given in conjunction with 1-2-3. (3 cr; prereq 1-2-3 or ¶1-2-3; combination of 1-2-3 with 1A-2A-3A may be used to fulfill the laboratory-science group requirement) Wall
- 4f-5w-6s. General Physics.** (Primarily for premedical students) 4: Mechanics. 5: Heat and electricity. 6: Sound and light. Laboratory work is an integral part of course. (15 cr; prereq Math 40 or ¶Math 40)
- 7f-8w-9s. General Physics.** (Primarily for students majoring in physics, mathematics, or chemistry) Mechanics, heat, electricity, sound, and light. Laboratory work an integral part of course. (15 cr; prereq for 7, ¶ITM 13A or Math 40...prereq for 8, ¶ITM 24A or Math 53...prereq for 9, ¶ITM 25A or Math 54; 4 lect, 1 quiz, and 2 lab hrs per wk; courses must be taken in order)
- 11f-12w-13s. General Physics.** (Primarily for students in the Institute of Technology) Mechanics, heat, electricity, sound, and light. (15 cr; prereq for 11, ¶ITM 11 or ¶Math T... prereq for 12, ¶ITM 12 or ¶Math 10...prereq for 13, ¶ITM 13A or ¶Math 40; 4 lect, 1 quiz, 2 rec, and 2 lab hrs per wk for 11...4 lect, 1 quiz, and 2 lab hrs per wk for 12 and 13; courses must be taken in order)
- 14f. Intermediate General Physics.** Mechanics and electricity, selected topics. (4 cr; prereq 11-12-13, and ¶ITM 24A or Math 53; 4 lect and 1 quiz per wk)
- 14Af. Physics Laboratory.** Parallel to Phys 14. (1 cr; prereq 14 or ¶14; 2 lab hrs per wk)

## Upper Division Courses

Upper Division credit is allowed for Phys 8 and 9 to students not majoring in chemistry, mathematics, or physics.

- 50w,s. Intermediate General Physics.** Selected topics in modern physics. (4 cr; prereq 6, 9 or 14, ¶ITM 25A or Math 54; 4 lect and 1 quiz hr per wk)
- 50Aw,s. Physics Laboratory.** Parallel to Phys 50. (1 cr; prereq 50 or ¶50; 2 lab hrs per wk)
- 51s. Intermediate General Physics.** Thermodynamics, kinetic theory. Sound and light. Selected topics. (4 cr; prereq 50 and ITM 25A or ¶25A, or Math 54 or ¶Math 54; 4 lect and 1 quiz hr per wk)
- 51As. Physics Laboratory.** Parallel to Phys 51. (1 cr; prereq 51 or ¶51; 2 lab hrs per wk)
- 100f-102w-104s. Mechanics and Electromagnetism.** Theoretical course in mechanics, electricity, and electromagnetism designed to prepare students for advanced work. (4 cr per qtr; prereq 3rd yr, 9 or 14, ITM 26 or 26A or Math 55) Nier
- 101f-103w-105s.† Theoretical Physics.** An analytical survey of fundamental principles of mechanics, thermodynamics, kinetic theory of gases, electricity, and magnetism, designed to supplement the general course and to prepare students for more specialized graduate courses. (5 cr per qtr; prereq 4th yr, 9 or 14, ¶differential equations or ¶; 5 lect hrs per wk)
- 107Af-109Aw-111As. Modern Physics.** Selected topics in modern physics such as measurement of  $e/m$ , mass spectroscopy, photo and compton effects, relativity, optical spectra, X rays, atomic and nuclear structure, radioactivity, fission, and fusion. (3 cr per qtr; prereq 3rd yr, 50 and ITM 26 or 26A, or Math 55, ¶ if taken out of sequence) Eisberg
- 107Bf-109Bw-111Bs. Modern Physics.** Selected topics in modern physics such as measurement of  $e/m$ , mass spectroscopy, photo and compton effects, relativity, optical spectra, X rays, atomic and nuclear structure, radioactivity, fission, and fusion. (3 cr per qtr; prereq 3rd yr, ITM 26 or 26A or Math 55, ¶ if taken out of sequence)
- 114f,w,s-116f,w,s-118f,w,s.‡ Elementary Physical Investigation.** Problems, either experimental or theoretical, in which the student may have some special interest. A written report on the work accomplished is required. (3 cr per qtr; prereq 3rd yr or above and  $\Delta$ ) Staff
- 120f. Atomic Physics.** A laboratory course to introduce techniques and methods used in physics research laboratories. Vacuum gauges and systems; properties of charged particles, X-ray diffraction, ionization of gases, mass spectroscopy, photoelectricity, secondary electron emission. (3 cr; prereq 50 or ¶107A or 107B; 8 hrs per wk)
- 121w. Experimental Nuclear Physics I.** A laboratory course in nuclear physics not requiring extensive knowledge of electronic circuits. Natural radioactivity, cloud chambers, ionization chambers, properties of nuclear radiations, alpha, beta, and gamma rays, neutrons; shielding artificial radioactivity, photographic techniques, health protection. (3 cr; prereq 50, or 107A, or 107B; 8 hrs per wk) Blair



- 122s. **Experimental Nuclear Physics II.** A laboratory course in techniques in nuclear physics requiring knowledge of electronic circuits. Geiger, proportional, scintillation, and coincidence counters. Cosmic rays. Nuclear resonance phenomena. Health monitoring instruments. (3 cr; prereq 50, 107A or 107B or §; 8 lab hrs per wk) Blair
- 123f-124w-125s. **Thermodynamics, Statistical Mechanics, and Theories of the Structure of Matter.** An analytical course in the principles of thermodynamics and introductory statistical mechanics, with applications drawn from atomic and molecular physics and the physics of the liquid and solid states. The laws of thermodynamics, thermodynamic potential functions, equations of state, phase transitions; transport phenomena, ensembles of identical systems, classical and quantum statistics; thermal, electrical, and magnetic properties of matter. (3 cr per qtr; prereq for 123, 4th yr, 50, and ¶differential equations...prereq for 124, 123 and ¶109A or B...prereq for 125, 124) Wentz
- 126f-127w-128s. **Solid State Physics.** Introduction to the physics of bulk matter. Structure and types of solids; ionic, molecular, and metallic solids; thermal, electrical, and magnetic behavior of matter; theory of conduction in metals and semiconductors; crystal imperfections and their effects. (3 cr per qtr; prereq 50 and ¶differential equations)
- 131f. **Geometrical Optics.** Fundamentals of ray optics; applications to optical instruments and their components. (3 cr; prereq 3rd yr, 15 cr in physics, ITM 25A or Math 54) Valasek
- 133s. **Physical Optics.** Wave theory of interference, diffraction, polarization, and double refraction, with a study of their applications. (3 cr; prereq 3rd yr, 15 cr in physics, ITM 25A or Math 54) Valasek
- 133As. **Physical Optics Laboratory.** Parallel to Phys 133. (1 cr; prereq ¶133; 3 lab hrs per wk) Valasek
- 134f,w. **Experimental Optics.** Laboratory work in spectrometry, optics of compound lenses, photometry, absorption, interferometry, and polarized light. (3 cr; prereq 3rd yr, 15 cr in physics, ITM 25A or Math 54; 1 lect and 5 lab hrs per wk) Valasek
135. **Spectroscopy.** Light sources, instruments, and methods used in spectroscopy of the X-ray, ultraviolet, visible, and infrared regions of the spectrum. (3 cr; prereq 3rd yr, 15 cr in physics, ITM 25A or Math 54; offered when feasible) Valasek
- 136w,s. **Spectrum Analysis.** Laboratory work dealing with the measurement of wave lengths, intensities, and absorption coefficients in the infrared, visible, and ultraviolet regions of the spectrum. (3 cr; prereq 3rd yr, 15 cr in physics, ITM 25A or Math 54; 1 lect and 5 lab hrs per wk) Valasek
- 144f. **Electrical Measurements.** An experimental course covering ballistic and current galvanometers, magnetic flux measurements, potentiometer methods, D.C. bridges, and audiofrequency A.C. bridges. (4 cr; prereq 9 or 14 and ITM 25A or Math 54; 3 lect and 3 lab hrs per wk) Blair
- 146w. **Physics of Vacuum Tubes and Associated Circuits.** Thermionics and vacuum tube circuits, with emphasis on applications to physics research. (4 cr; prereq 144 or §; 3 lect and 3 lab hrs per wk) Blair
- 148s. **Application of Electronic Circuits.** Lecture and laboratory work on amplifiers, computing circuits, servomechanisms, regulating circuits, and other devices employed in physics research. (4 cr; prereq 146 or §; 3 lect and 3 lab hrs per wk) Blair
- Zool 155f, 156w, 157s. ‡ **Biophysics.** (3 cr per qtr; prereq 28 cr distributed between physics and biology and §...physical chemistry and general physiology recommended) Schmitt
- 181f-183w-185s. **Atomistics and Elementary Quantum Mechanics.** An introduction to wave mechanics, atomic structure, and nuclear physics. (3 cr per qtr; prereq 101-103-105 or equiv or §)
- 191f-192w-193s. ‡ **Introduction to Mathematical Physics.** Intensive treatment of the equations of mathematical physics using material drawn from the fields of mechanics, small vibrations of continuous media, acoustics, electromagnetic theory, and heat conduction. (3 cr per qtr; prereq 101-103-105 or equiv; differential equations and advanced calculus) Hill

### *For Graduate Students Only*

- 201-202-203. **Dynamics of Fluid Motion**
- 204-205-206. **Statistical Thermodynamics**
- 207-208-209. **Electrodynamics, Theoretical Optics, and the Theory of Relativity**
- 210-211-212. **Quantum Mechanics**
- 218-214-215. **Seminar in Contemporary Experimental Physics**
- 216-217-218. **Seminar in Contemporary Theoretical Physics**
- 225-226-227. **Advanced Quantum Theory**
- 228-229-230. **Nuclear Physics**
- 231-232-233. **Theory of Atomic and Molecular Structure**
- 237-238-239. **Seminar in Radiofrequency Spectroscopy**
- 246-247-248. **Cosmic Rays**
- 249-250-251. **Theory of the Solid State of Matter**
- 252-253-254. **Seminar in Nuclear Physics**
- 255-256-257. **Seminar in Mass Spectroscopy**

- 258-259-260. Seminar in Cosmic Rays  
 264-265-266. Elementary Particle Physics  
 267-268-269. Atmospheric Physics  
 270-271-272. Special Topics in Nuclear Physics  
 301-302-303. Research Physics

The following courses will be offered when feasible

- 234-235-236. Advanced Theory of Optics and Optical Instruments  
 261-262-263. Mathematical Foundations of Quantum Mechanics

## Geophysics

(School of Mines and Metallurgy)

- GPhy 108f. Introduction to General Geophysics: Physics of the Earth.** (3 cr; prereq. Phys 7-8-9, Geol 1-2...Geol 125 recommended but not required) Mooney  
**GPhy 109w. Introduction to General Geophysics: Elementary Seismology.** (3 cr; prereq Phys 7-8-9, Geol 1-2) Mooney  
**GPhy 110s. Introduction to Exploration Geophysics.** (3 cr; prereq Phys 7-8-9, Geol 1-2... Geol 125 recommended but not required) Mooney  
**GPhy 125f. Principles of Gravity and Magnetic Exploration.** (2 cr; prereq Phys 7-8-9, Geol 125, ITM 25) Mooney  
**GPhy 126w. Principles of Seismic Exploration.** (2 cr; prereq Phys 7-8-9, Geol 125, ITM 25) Mooney  
**GPhy 127s. Principles of Electrical Exploration.** (2 cr; prereq sr, Phys 9, Geol 125, ITM 25) Mooney  
**GPhy 135f. Special Problems.** Individual research. (1-3 cr ar; prereq #) Mooney  
**GPhy 136w. Special Problems.** Individual research. (1-3 cr ar; prereq #) Mooney  
**GPhy 137s. Special Problems.** Individual research. (1-3 cr ar; prereq #) Mooney

These courses are part of a 5-year curriculum offered in the Institute of Technology. For further information consult the *Bulletin of the Institute of Technology*. The courses may be taken for credit by SLA students.

## PHYSIOLOGY

(College of Medical Sciences)

Department Chairman—Maurice B. Visscher

Major Adviser in SLA—Dr. King.

Major Sequence in SLA—Phsl 106-107; 15 credits in approved Upper Division courses in related fields.

Modification of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

### Lower Division Courses

- 4f.s. **Human Physiology.** (4 cr [will not count for cr for admission to Medical School except by permission of the dean of College of Medical Sciences]; prereq 1 qtr zoology, 1 qtr chemistry)

### Upper Division Courses

- 51w. **Human Physiology.** Lectures, laboratory, and conferences. (6 cr; primarily for nursing and physical therapy students; prereq 1 yr chemistry, zoology)  
 60w. **Human Physiology.** Lectures, conferences, and laboratory. (6 cr; primarily for medical technology and pharmacy students; prereq college course in organic chemistry, zoology, and physics)  
 101w. **Human Physiology.** (10 cr; primarily for dentistry students; prereq courses in physiological chemistry and human or mammalian anatomy) Visscher and staff  
 106s-107su. **Human Physiology.** (15 cr; primarily for medical and graduate students; prereq courses in zoology, organic chemistry, and neuroanatomy; 106-107 is a single course, and registration for either 106 or 107 singly is not permitted; students may register for lect without lab) Visscher and staff

## POLITICAL SCIENCE

**Department Chairman**—Lloyd M. Short

**Major Advisers in SLA**—Professors Christensen, Levi, Lippincott, McClosky, McLaughlin, Mills, Short, Sibley; Associate Professors Chase, Turner, Warp; Assistant Professors Flom, Holt.

**Preparation for a Major Sequence**—14 or 15 credits, including Pol 1-2 (6 credits) or 5 (5 credits), and A-B (6 credits), and 3 credits selected from 3 (3 credits), C (3 credits), and 25 (3 credits); plus history (Hist 1-2-3 or 4-5-6 or 20-21-22), or economics (Econ 1-2 and BA 5), or sociology (Soc 1, 2 and 45). In addition Phil 2 and Psy 1-2 are recommended.

**Major Sequence**—The foregoing preparatory work is designed to provide a general knowledge of (1) the systems of government of the United States and of major European states, and (2) the principal terms and concepts of political science. To this knowledge the major sequence should add (3) a knowledge of the works of a number of great contributors to political ideas; (4) fairly exact and thorough knowledge of some extensive part of three of the following fields of political science: (a) American government—including politics, administration, public law, and local government (Pol 51-52-53, 80, 81, and those numbered from 100 to 139); (b) comparative government (Pol 60-61 and those from 140 to 159); (c) political theory (Pol 160-166); (d) international relations (Pol 85 and 171-199); and (e) political behavior (Pol 167-168-169). In addition the student must show ability to study independently and write a satisfactory term paper in at least 1 of the 3 chosen fields (see Pol 95).

To these ends the major student will be required to obtain 30 credits in Upper Division courses in political science. He will elect to concentrate in 1 of his 3 selected fields and will take courses totaling at least 15 credits in that field. He will obtain at least 9 credits in his second and at least 6 credits in his third selected field. The major and minor work should constitute an integrated plan of study.

**Majors in International Relations (Foreign Service Training, Area Studies)**—Special programs in international relations and foreign areas will be arranged for students of good standing who desire a general introduction to these fields. Courses are drawn from political science, economics, history, geography, and related departments. Those intending to take the examinations for the United States Foreign Service are advised to follow such a program and to prepare themselves adequately in modern foreign languages. See page 83 in this bulletin and the special bulletin, *Programs in International Relations and Area Studies*; consult Mr. Christensen, Mr. Levi, Mr. McLaughlin, Mr. Mills, Mr. Turner, or Mr. Holt.

**Special Readings and Honors Courses**—Students of high ability who wish to specialize or to study for graduation honors are advised to take Pol 91-92-93. This course may be elected for independent work in any of the five fields noted above.

**Major Advisers in the College of Education**—Professor Christensen; Associate Professor Warp.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation*: At least 36 credits in political science including Pol 1-2-3, A-B, 25, and at least 18 credits in Upper Division courses. *Minor recommendation*: At least 23 credits in political science, including Pol 1-2-3, or A-B-C, 25, and not less than 11 credits in Upper Division courses.

For a comprehensive curriculum in social studies, see *Bulletin of the College of Education*.

**Note for Graduate Students**—Courses in political science numbered from 100-199 may be taken by graduate students for full credit, subject to the requirement of additional work over and above that assigned to undergraduates, or they may be taken by graduate students for reduced credit.

**General Education**—Except for Pol 27, all of the Lower Division courses offered by this department are suited to the needs of students who wish to include some political science in their study program. Pol 80 and 81 are specifically offered for nonmajors. Most of the Upper Division courses in this department also are appropriately considered as general education courses and are, in fact, elected by large numbers of students who are not majors or minors in political science.

### Lower Division Courses

- 1f,w-2w,s†-3s. **American Government and Politics.** Analysis of principles, organization, procedures, and functions of government in the United States—national, state, and local. Attention will be given throughout to current issues. (9 cr) Christensen (1f-2w-3s), Flom (1w-2s)
- 5f,w,s. **American Government and Politics.** Covers most of Pol 1-2; 5 may be substituted for 1-2 whenever 1-2 is required. (5 cr, §1-2)
- 7w-8s. **Tutorial: American Government and Politics.** Intensive work in selected topics drawn from the subject matter of Pol 1-2-3. (3 cr per qtr; prereq 1 or 2 or 5 with grade of B or better)
- Af,w-Bw,s†-Cs. **The State in the Modern World.** Examination of principles, structure, and operation of modern state. Emphasis on nation state; historical development; democratic government: United States, Great Britain; totalitarian government: Nazi Germany, Soviet Russia; conflict between states. (9 cr; C may be taken concurrently with B) Lippincott (Af-Bw-Cs), Holt (Aw-Bs)
- Dw-Es. **Tutorial: The State in the Modern World.** Intensive work in selected topics drawn from the subject matter of Pol A-B-C. (3 cr per qtr; prereq A or B, with grade of B or better)
- 25f,s. **World Politics.** Introduction to contemporary international relations; policies of the great powers; nationalism; internationalism. (3 cr) Mills
- 26w. **American Foreign Policy.** An introduction to the institutions and processes which determine American foreign policy. Traditional and postwar foreign policies. (3 cr) Holt
- 27s. **Analysis of International Relations.** Methods of systematic analysis of the problems of international relations and the factors affecting them. Theoretical positions. (3 cr; prereq 25 or 26 or §) Holt

### Upper Division Courses

Upper Division courses in this department are open to Lower Division students who have an average grade of C in the prerequisite courses. Courses which carry graduate credit may not be taken earlier than the third quarter of the student's sophomore year.

- 51f-52w†-53s. **Field Work in Government and Politics.** Field study of political organization, leadership, and activities in the local community; performance of typical operations in government such as preparing and presenting reports, drafting bills, formulating budgets, conducting meetings and elections. (9 cr; regis limited to Minnesota residents; prereq 1-2 or 5; 51-52 offered 1960-61 and alt yrs, 53 offered when feasible) Flom
- 60f-61w.‡ **Introduction to Legal Systems.** Elementary survey, primarily for social science students, of principal legal systems of the western world. Emphasis upon organization, procedures, methods of growth, relation to political and economic systems, basic juristic conceptions, rather than upon substantive rules of law. The latter are drawn in when needed for illustration. 60: Roman law and European derivatives. 61: Anglo-American law. (6 cr; prereq jr or §; offered 1960-61 and alt yrs) McLaughlin
- 80f. **National Government in the United States.** Special reference to current problems and developments. (3 cr; not open to soph or students who have had 1-2 or 5) Warp
- 81w. **State Government and Politics.** Analysis of state constitutions; legislative, executive, and judicial organization and procedures; political parties, political interest groups and elections; state-local government relations; personnel, finance, and major functions. (3 cr; not open to soph or students who have had 1-2 or 5; offered 1959-60 and alt yrs) Flom
- 85w. **Problems of World Politics.** (3 cr) Mills
- 91f-92w-93s. **Honors Work in Selected Fields.** (Cr ar; prereq 18 cr; consult major advisers)
- 95f,w,s. **Major Paper.** (No cr; required of all majors; consult major advisers)
- 101f. **Principles of American Constitution I.** Nature of constitutions, judicial review, national-state and interstate relations. (3 cr; prereq 1-2 or equiv) Chase
- 102w. **Principles of American Constitution II.** Organization and powers of the national government. (3 cr; prereq 101 or equiv) Chase
- 103s. **Principles of the American Constitution III.** Constitutional rights, due process and equal protection of the law. (3 cr; prereq 101 or 102 or equiv) Chase

- 108w. **Legislative Organization and Procedure.** Congress and the state legislatures at work. (3 cr; prereq 1-2 or 5 or §) Short
- 116f-117w. **Local Government.** Theory, legal basis, areas, organization, politics, and administration. (6 cr; prereq 1-2 or 5 or §) Flom
- 118s. **Local Government.** Major functions, state supervision, finances. (3 cr; prereq 116 or §; offered when feasible)
- 119As. **Rural Local Government.** Historical and legal foundations, units of government, organization and administration, functions, finance, politics and elections, problems and prospects of rural local government. (3 cr; offered on the St. Paul Campus and intended primarily for prospective rural teachers, extension workers, and students in College of AFHE; prereq 1-2 or 5 or §; offered 1959-60 and alt yrs) Flom
- 120f. **Municipal Functions.** (3 cr; prereq 1-2 or 5 or §) Ludwig
- 121w. **Municipal Administration.** (3 cr; prereq 1-2 or 5 or §) Ludwig
- 122s. **Municipal Problems.** Intensive study of selected municipal problems, individual conferences (no regular class). (3 cr; prereq 121 or §) Ludwig
- 123f. **Planning.** (Same as Arch 104, Econ 110, and Soc 106) Social, economic, political, geographic, and technical phases of modern city planning. (3 cr; prereq sr) Broek, Caplow, Ludwig, Vivrett, Warp
- 124f. **Recent Social Legislation.** Federal, state, and local problems in field of public assistance and social security, with particular emphasis on major programs of Social Security Act, health insurance, and housing. (3 cr; prereq 6 cr) Warp
- 126w. **Government and the Economic Order I.** Survey of relation of government to all of the major areas of the economy; policy-making and policy decisions are emphasized. (3 cr; prereq 1-2 or 5) Warp
- 127s. **Government and the Economic Order II.** Administrative development of regulatory programs; tools and techniques of administration; problems of organization, interest groups, and safeguards. (3 cr; prereq 1-2 or 5 or §) Warp
- 131f. **Public Administration.** Organization and areas, administrative responsibility. (3 cr; prereq 1-2 or 5 or §) Short
- 132w. **Public Administration.** Personnel administration. (3 cr; prereq 131 or §) Short
- 133s. **Public Administration.** Financial administration. (3 cr; prereq 131 or §) Short
135. **Problems of Public Planning.** (2 cr without term paper, 3 cr with term paper; prereq soph with § or jr, 9 cr; offered when feasible)
- 137f. **American Political Parties.** Role and functions of the party in American government; party composition and organization; process of nomination and policy formulation; regulation of party organization and activities. (3 cr; prereq 1-2 or 5 or §) Christensen
- 138s. **American Political Campaigns and Elections.** Examination of national, state, and local campaigns and elections, including field work in local political parties and election campaigns. (3 cr; prereq 1-2 or 5 or §) Flom
- 141f-142w.† **European Government and Politics.** Britain, France, Germany, and Italy. Political institutions in their social setting; problems of power and responsibility, governmental stability; political decision-making, government, and the economic order. (3 cr per qtr; prereq A-B or 12 cr in social science or §) Turner, Holt
- 143s. **Government of the U.S.S.R. and Adjacent States.** An analysis that seeks to explain rise of Bolshevism; sources and nature of its ideology; history of Communist regime; institutional character; organization of power; role of the party; foreign, economic, and cultural policies; significance for Western civilization. (3 cr; prereq A-B, or 12 cr in social science or §) Turner, Holt
- 145f. **Government and Politics of the Scandinavian Countries.** (3 cr; prereq 6 cr or 12 cr in social science) Thorson
- 146w. **Social Legislation and Social Institutions in the Scandinavian Countries.** (3 cr; prereq 1-2, or 5 or Soc 1) Thorson
- 149f. **Government and Politics of the British Empire—India and the Tropical Colonies.** (3 cr; offered 1960-61 and alt yrs) Mills
- 150w. **Government and Politics of the British Empire—Development of Dominion Status.** (3 cr; offered 1960-61 and alt yrs) Mills
- 151s. **British Problems of Closer Union.** Problems of unity within British Dominions; regional unions with adjacent states. (3 cr; prereq 149 and 150 with grade of C+ or better, or §; offered when feasible) Mills
- 153f. **Japanese Government and Politics.** Constitutional and political development in Japan; political ideas, government, political parties, and problems. (3 cr; offered 1959-60 and alt yrs) Turner
- 154w. **Chinese Government and Politics.** Constitutional and political development in China; political ideas, government, political parties, and problems. (3 cr; offered 1959-60 and alt yrs) Turner
- 155f-156w. **Government and International Relations in Latin America.** Analysis of factors that have conditioned the constitutional and political organization of principal Latin-American states; their relations with other American nations; development and nature of inter-American political system. (3 cr per qtr; prereq 6 cr or §) Christensen

- 157s. **Topics in Latin-American Government.** Contemporary constitutional and political developments in selected Latin-American republics, and their relationship to the entire area. (3 cr; prereq 155 or 156 or #) Christensen
- 158w-159s. **Comparative Governmental Systems: Principles and Problems.** Application of the comparative method to study of politics with references to Western and non-Western institutions; organization of political power in the 20th-century state; parties and pressure groups; voting behavior; representation and legislation; policy-making; bureaucracy; socio-economic bases of government. (3 cr per qtr; prereq 6 cr in any Upper Division comparative government course, e.g., Pol 141-142-143, 153-154, 155-156, 145, or #) Turner, Holt
- 160f. **American Political Thought.** From colonial times to present: Puritanism; Constitution; utopianism; Calhoun; history of anarchist, socialist, populist, and syndicalist thought; social Darwinism; conservatism; political thought in law and literature. (3 cr; prereq A-B or 9 cr in social science or #) Sibley
- 161w. **Problems of Democracy.** Analysis of postulates and implications; moral foundations; democratic theory and the economic order; liberty and authority; equality; representation; spiritual order; democracy and practical politics; critics of democracy. (3 cr; prereq A-B or 9 cr in social science or #) Sibley
- 162s. **Recent Political Thought.** Main currents from Marx to present; Marx, Marxism, and their critics; non-Marxist socialism; syndicalism; anarchism; Catholic and Protestant theories; conservatism; pacifism; political thought in law and literature. (3 cr; prereq A-B or 9 cr in social science or #) Sibley
- 163s. **Political Theory and Utopia.** Selected great utopias from the viewpoint of the political theorist; the idea of planning in ideal states; the achievement of utopia; stability and change in the great utopias; the problem of authority and law; anarchist, socialist, and conservative utopias; utopia and totalitarian ideology; utopia and democratic ideology. (3 cr; prereq A-B or 9 cr in social science or #; offered 1959-60 and thereafter when feasible) Sibley, R Swanson
- 164f. **Development of Political Thought: Ancient.** Hebrew ideas, Moses to second Isaiah; classical Greek thought; Plato and Aristotle; primitive natural law; Cynics and Stoics; theory in Roman Republic and Empire; first-century Christianity. (3 cr; prereq A-B or 9 cr in social science or #) Sibley
- 165w. **Development of Political Thought: The Middle Ages.** Early Christianity and the Church Fathers; moral theory and political theory; Empire and Church in ideology; Roman and canon law; theory of persecution; St. Thomas; 14th- and 15th-century conceptions; economics and politics. (3 cr; prereq A-B or 9 cr in social science or #) Sibley
- 166s. **Development of Political Thought: Early Modern.** Machiavelli; the idea of sovereignty; Protestant conceptions; English Civil War; Hobbes, Spinoza, Locke, the idea of progress; Godwin, Burke, Rousseau, rise of romanticism; German idealism. (3 cr; prereq A-B, or 9 cr in social science or #) Sibley
- 167f-168w-169s. **Political Behavior.** Role of personality and leadership: functions of myth, ideology, and interests; group behavior and public opinion; factors in voting and elections; consequences of organization; attitudes and psychology of political preference; quantitative techniques. (3 cr per qtr) McClosky
171. **Scandinavian Foreign Policy.** (3 cr; prereq 6 cr in history or political science or #; offered when feasible)
- 175f. **Diplomacy.** Nature and functions, historical development of diplomacy; its relation to forms of government and power systems. Traditional diplomacy, diplomacy by conference and in international organizations, personal diplomacy, open and secret diplomacy. Essentials of diplomatic usage. Diplomatic agents. (3 cr; offered 1959-60 and alt yrs) McLaughlin
- 176w-177s.† **Conduct of United States Foreign Relations.** Control of foreign relations; treaties and executive agreements; structure and functions of foreign affairs agencies—Department of State, National Security Council, International Information Agency, economic, financial, military, intelligence agencies; co-ordination of agencies; the Foreign Service and other overseas agencies. (6 cr; offered 1959-60 and alt yrs) McLaughlin
- 180f-181w†-182s. **International Law (Pacific Relations).** 180-181: Relation of international law to individuals, states, international community; jurisdictional problems; survey of principles developed in diplomatic practice, national courts, international adjudications. 182: War, military occupation, war crimes, neutrality, pacific settlement. (3 cr per qtr) McLaughlin
- 183s. **International Law (Conflict).** War and hostile measures short of war, military occupation, war crimes, neutrality, collective security sanctions. (3 cr; prereq 180-181 or #; offered 1960-61 and alt yrs) McLaughlin
- 184f. **International Relations and Organization I.** Fundamental principles. Development and conditions of success. United Nations and regional organizations. (3 cr) Levi
- 185w. **International Relations and Organization II.** Methods and institutions for international co-operation. Specialized agencies, especially in the social and economic field. (3 cr) Levi
- 186s. **International Relations and Organization III.** International offices and civil service; international administration; planning for an international order. (3 cr) Levi

187. **Problems of European Politics.** Contemporary development of intra-European relations and organization; changing role of key-European states; Europe's position in world politics. (3 cr; offered when feasible) Levi
- 191f. **Asia in International Relations I.** The period of separatism. (3 cr; offered 1960-61 and alt yrs) Levi
- 192w. **Asia in International Relations II.** The period of inequality. (3 cr; offered 1960-61 and alt yrs) Levi
- 193s. **Asia in International Relations III.** Contemporary development. (3 cr; offered 1960-61 and alt yrs) Levi
194. **International Politics of Asia.** Survey of Asian international relations; recent developments. (3 cr, §193; offered when feasible) Levi
- 195f. **Colonial Government and the Problems of Imperialism.** Motives of American, British, Dutch, French, and Spanish colonization; ancient and modern imperialism. (3 cr; offered 1959-60 and alt yrs) Mills
- 196s. **Proseminar in East and South Asia.** (Same as Anth 196 and Geog 196) Integrating course for students majoring in East and South Asia Area Studies program. (3 cr; prereq sr) Interdepartmental staff
- 197w. **The Mediterranean Area in World Affairs.** Economic, political, and strategic conditions; policies of the European and Asiatic states, postwar conflict of interests between the Western powers and Russia. (3 cr; offered 1959-60 and alt yrs) Mills

### For Graduate Students Only

- 200-201. **Readings in American Government**
- 202-203-204. **Seminar in Constitutional Law**
- 205-206. **Seminar in Administrative Law**
- 207-208-209. **Seminar in Jurisprudence**
- 210-211-212. † **Special Seminar in Public Administration**
213. **Topics in Contemporary Latin-American Government and Politics**
214. **Seminar in Political Parties**
215. **Seminar in Comparative Public Administration**
- 216-217-218. **Seminar in Comparative European Government**
- 219-220-221. **Seminar in Political Power in the Modern World**
- 222-223-224. **Seminar in Recent Political Thought, American and Foreign**
- 225-226-227. **Readings in the Classics of Politics**
228. **Seminar in Political Theory**
229. **Scope and Methods of Political Science**
- 230-231-232. **Seminar in Political Behavior**
- 234-235. **Political Science and Related Disciplines**
- 236-237. **Seminar in Federalism and Intergovernmental Relations**
- 238-239. † **Seminar in the History and System of International Law**
240. **International Constitutional Law**
- 242-243-244. **Topics in Colonization and Imperialism**
- 245-246-247. **East Asian Government and International Relations**
- 248-249. **Seminar in International Organization**

## PORTUGUESE

See Romance Languages

## PSYCHOLOGY

**Department Chairman**—Kenneth E. Clark

**Major Advisers in SLA**—Professors Clark, Heron, Kelley, Lindzey, Longstaff, MacCorquodale, Paterson; Associate Professors Jenkins, LaBerge, Lofquist, Rosen, Russell, Schachter, Wirt; Lecturer Senders.

A student considering the choice of a major in psychology must consult the Student Counseling Bureau prior to seeking his first conference with a major adviser, and allow enough time for the results to be reported to the Psychology Department. All students contemplating a major in psychology must pick up a set of mimeographed material in room 304 Psychology prior to consulting a major adviser.

**Major Sequences in SLA—**

**A. Honors Sequence.** For high-ability students preparing for graduate work in psychology. Requires a 3.0 over-all grade-point average at Minnesota. (Prerequisites: Psy 1-2 and 4-5.) Psy 70; 190; 123-129 or 132-133 or 117; one of the following: 101-102 or 125-126 or 140-141 or 151 or 166-167 plus Jour 115; additional Upper Division psychology courses to make a total of 27 Upper Division credits. See Professor Clark.

**B. General Sequence.** Intended for students who have a broad interest in psychology regardless of whether they plan to take additional work beyond the B.A. degree. (Prerequisites: Psy 1-2 and 4-5.) Psy 70; 144-145; 140; 52 or 55 or 148 or 151; 130 or 155 or 160; CD 80; 6 additional credits in Upper Division psychology courses. Messrs. Heron, Kelley, LaBerge, Lindzey, MacCorquodale, Russell, Schachter, Wirt.

**C. Differential Sequence.** Intended mainly for students preparing for graduate work in industrial, personnel, counseling, or advertising psychology; or for subprofessional work in these applied fields. (Prerequisites: Psy 1-2 and 4-5.) Psy 70; 125-126; 130 or 160; 190; 12 additional credits in Upper Division psychology courses, of which 6 credits may be in child development or in certain courses in educational psychology or business administration. Messrs. Clark, Jenkins, Lofquist, Longstaff, Paterson, Rosen, Senders.

All students majoring in psychology are strongly urged to elect courses in mathematics, especially Math 10 and 40. Math 10 and Zool 1-2-3 or Biol 1-2-3 are required for students planning to enter graduate work in clinical psychology.

Psy 70 should be taken as soon as possible in the junior year.

Majors in psychology may take not more than 33 Upper Division credits in psychology, educational psychology, and child development combined. This is in accordance with the general principle that a liberal arts degree should not involve overspecialization.

Psy 190 requires original work and should not be taken until as late in the student's program as possible.

Many of the courses numbered below 200 are designed for nonmajors as well as majors in psychology. This department particularly recommends Psy 52, 55, 140, and 144-145 as courses contributing to the general education of all students.

**Lower Division Courses**

**1f,w,s-2w,s,† General Psychology.** General introduction to study of human behavior. Prerequisite for all advanced courses in psychology. (6 cr; prereq soph or 3rd qtr fr with B avg) Clark, Heron, Jenkins, LaBerge, Lofquist, MacCorquodale, and Senders

**4f,w,s-5w,s†-6s. Introductory Laboratory Psychology.** Experiments illustrating subject matter of contemporary psychology. Included are human and animal learning, motivation, verbal behavior, problem solving, visual perception, psychological measurement, personality and social psychology. (6 cr; prereq soph, 1-2 or 11-2) Russell and staff

**Upper Division Courses**

In this department courses numbered between 50 and 70 are open to sophomores who have an average grade of at least C in all their courses and an average of B in the prerequisite courses.

**52s. Genetic Psychology.** Parallelism of habits, customs, ways of living, societies, etc., between animals and human beings. Elemental forms of human behavior and characteristics in animal life. Evaluations of different modes of adaptation. (3 cr; prereq 1-2) Heron

**55s. Sensation and Perception.** Roles of the stimulus, the receptor organ and the brain, and of learning and motivation, in man's perception of his world. Lectures and demonstrations. (3 cr; prereq 1-2) Senders

**70f,s. Principles of Psychological Measurement.** Uses and limitations of fundamental varieties of psychological measurement. (3 cr; prereq 1-2, 4-5) Clark

**101f-102w,† Experimental Psychology.** Critical treatment of content and methods of experimental psychology. Emphasis on current problems in perception, learning, motivation, and complex processes. Class will design, execute, and analyze 2 or 3 experimental projects per quarter. (3 cr per qtr; prereq 1-2, 4-5, 70, or equiv) LaBerge



- 117f. The Analysis of Behavior.** A systematic formulation of the topics of psychology based upon a Skinnerian analysis. Scientific method, learning, motivation, and emotion are discussed. (3 cr, §old 165; prereq 1-2 and 1 course numbered above 50) MacCorquodale
- 118w. Verbal Behavior.** An account of an individual's verbal behavior in terms of his past history and current circumstances. Psy 117 is not prerequisite but the same method of analysis is used. (3 cr; prereq 1-2 and 1 course numbered above 50) MacCorquodale
- 125f-126w. Psychology of Individual Differences.** Quantitative studies of such factors as age, sex, race and nationality, physical traits, family heredity, and environment in the causation of individual differences in abilities and temperament. (3 cr per qtr; prereq for 125, sr, 1-2, 4-5 or 5 cr in statistics...prereq for 126, 125) Paterson, Jenkins
- 128f-129w. Psychology of Learning.** Psychological theory: characteristics and function. Critical analysis of all learning theories and their application to problems of normal and abnormal behavior. (3 cr per qtr; prereq 9 cr in psychology) Heron
- 130w,s. Vocational and Occupational Psychology.** Psychology of individual differences in intelligence, aptitudes, interests, and training, as related to vocational guidance and problems of occupational adjustment. Lectures and laboratory work. (3 cr; prereq 1-2 and 4-5 or 5 cr in statistics) Paterson
- 132f-133w,† Psychology of Motivation.** Classical and contemporary theories of motivation. Elaboration of basic drives into motives, acquisition of new drives and goals; dynamics of the elaborated drive structure. Motivation in complex situations involving set, level of aspiration, the Zeigarnik effect, frustration, etc. (6 cr; prereq 9 cr in psychology) Russell
- 135f-136w-137s. Occupational Counseling.** Occupational information as used in counseling. Educational and occupational training opportunities and requirements. Psychological techniques in case analysis, interviewing, and remedial work. Types of vocational problems. Illustrative case histories. (2 cr per qtr; prereq sr...9 cr or † for 135-136, 130 for 137) Lofquist
- 140w. Social Psychology.** Experimental investigations of group behavior. Place of emotions, drives, and personality traits in the adjustment of individuals to demands of modern societies. (3 cr; prereq 1-2, 4-5, and 9 cr in social science) Kelley
- 141s. Social Psychology of Small Groups.** Communication and influence processes; factors related to group cohesion; problem-solving behavior of groups; relation of group structure to function; emergence of leadership and relation between leadership and group process; types of member participation. (3 cr; prereq 1-2, 4-5, 9 cr in a social science) Willerman
- 144f,w-145w,s,† Abnormal Psychology.** Normal and abnormal behavior contrasted. Dynamics, and particularly social determinants, of personality maladjustments. (6 cr; prereq 9 cr in psychology or 6 cr in psychology with either Zool 1-2-3 or 12 cr in social science) Rosen, Lindzey
- 148s. Physiological Psychology.** Elements of neural anatomy and physiology, tonus, neuromuscular set, integration, and the neural basis of learning. Their importance for psychology. (3 cr; prereq 1-2, 4-5 or Zool 1-2-3 or †) Heistad
- 151f. Animal Psychology.** Historical, philosophical, and biological foundations; consciousness; motivation; learning; reasoning; judgment; abnormal behavior; social influences. (3 cr; prereq 1-2, 4-5 or equiv in another science) Heron
- 155s. Industrial Psychology.** Psychological problems in industrial production, biomechanics (adaptation of the machine to the capacities and limitations of operator), work and effort, and role of communication in an industrial organization. (3 cr; prereq 1-2 and Math 10 or equiv or 10 cr in statistics) Dunnette
- 156f,w. Psychology of Advertising.** Psychological analysis of basic principles underlying advertising and selling. Consumer research is stressed. Research techniques for investigating advertising problems and analysis of consumer wants are considered in detail. (3 cr; prereq 1-2 and Principles of Economics) Longstaff
- 160f,w. Psychology in Personnel Work.** Selection and retention of a stabilized personnel. Standardized interview; principles and technique of employment tests; methods of judging character qualities; rating scale; personnel classification methods; morale and its measurement. (3 cr; prereq 1-2, 4-5, or 3 cr in statistics, and Principles of Economics or †) Longstaff
- 166f. Opinion and Communication: Social Factors.** Examination of processes of opinion formation and change in relation to personality and social structure will lay groundwork for analysis of flow of public communications through society and impact of selected types of mass communication on particular audiences. Recommended that this course be taken as a 3-quarter sequence with Psy 167 and Jour 115. (3 cr; prereq sr, Soc 1 or 120 or Psy 140 or †) Riecken
- 167w. The Measurement of Opinions and Attitudes.** Problems of sample survey techniques, including the preparation of questionnaires, methods of sampling, procedures in data analysis, social implications of polling, and applications of survey techniques in public affairs and in social science research. (3 cr; prereq sr, 70 or equiv) Clark
- 171f-172w†-173s. Clinical Psychology.** Basic concepts and research problems, especially in a psychiatric setting. Theory of diagnosis, history and mental status, structured tests, major diagnostic groups, psychological deficit, prediction, psychotherapy, and inter-professional relations. (3 cr per qtr; prereq sr, 145 and a course in mental measure-

ments or statistics; students intending to use this course professionally should postpone taking it until they are in Graduate School) Meehl  
 190f,w,s. **Project in Psychology.** Individual library study or experimental investigation. (Cr ar; prereq sr, §) Staff

### For Graduate Students Only

200-201-202. **Systematic Psychology**  
 203-204-205. **History of Psychology**  
 207-208-209. **Group Dynamics**  
 210, 211, 212. **Research Problems**  
 215, 216, 217. **Seminar in Special Areas of Psychology and Related Sciences**  
 219-220. **Psychology of Personality**  
 227-228-229. **Seminar in Vocational Rehabilitation Counseling**  
 230, 231, 232. **Field Work in Psychometrics and Applied Psychology**  
 235-236-237. **Clinical Practice in Counseling**  
 240, 241, 242. **Seminar in Student Personnel Work**  
 243-244. **Experimental Psychodynamics**  
 Phil 244-245-246. **Seminar: Philosophy of Psychology**  
 246. **Psychoanalytic Theory**  
 CD 247-248. **Clinical Child Psychology**  
 249. **Biological Aspects of Emotional Behavior**  
 250-251-252.† **Advanced Seminar in Vocational Rehabilitation Counseling**  
 257-258-259. **Methods of Research in Group Behavior**  
 265-266-267. **Seminar in Advanced Clinical Psychology**  
 270. **Advanced Psychological Measurement**  
 274. **Preclinical Practicum in Clinical Psychology**  
 275-276-277. **Seminar in Research in Student Personnel Work**  
 290-291. **Projective Techniques**  
 292-293. **Seminar in Theoretical Problems of Group Functioning**  
 295, 296, 297. **Seminar in Individual Differences and Applied Psychology**  
 299. **Tabulating Equipment Laboratory**

## PUBLIC HEALTH

(College of Medical Sciences)

**Department Chairman**—Gaylord W. Anderson

**Advisers in SLA**—Professors Anderson and Thomson; Professor Bearman for biostatistics.

**Major Advisers in the College of Education**—Professors Anderson and Grout.

**Major Sequence in Biostatistics in SLA**—PubH 110, 111, 120, 121, 130, 131, and 18 credits in Upper Division courses approved by the adviser.

Modifications of this sequence will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

For further information about undergraduate curriculums leading to graduate work in biostatistics consult with members of the staff in biostatistics.

**Minor Sequence in Public Health in the College of Education**—PubH 50 or 51 or 100A and 57, 59, 102A, Bact 53, and Phys 2, 4, or 51.

For additional details of courses of study in public health consult the *Bulletin of the School of Public Health*.

### Lower Division Courses

2f,w,s.\*\* **Personal and Public Health.** Individual and community activities for promotion of health and safety. (2 cr, §3 or GC 10C; will not be accepted as prereq for any other course in public health; prereq fr, soph only) Reiter

3f,w,s.\*\* **Personal Health.** Normal body function; causes and prevention of disease. (2 cr, §2 or GC 10C; prereq fr, soph only) Thomson

\*\* No credit is granted for this course in the major sequence in public health nursing.

- 4s.\*\* **Health Problems of the Community.** Prevention of disease in family and community. (2 cr; prereq 3, 3A or GC 10C, or successful passing of exemption exam; exemption from 2 or 3 on basis of military service does not serve as a prereq) Thomson

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 50f.w.\*\* **Personal and Community Health.** Fundamental principles of health conservation and disease prevention. (3 cr, §2, 3A, 3B, 3, 4, 51, 52, 53, 100A, or GC 10C) Thomson
- 51f.w.\*\* **Community Hygiene.** Community programs for disease control. (3 cr, §4, 50, 52, 53, or 100 or those excused from 3A on basis of military service; prereq 3, 3A or GC 10C) Cowan, Schuman
- 57s.\*\* **Health of Infant and Preschool Child.** Infant and maternal mortality; growth and development of child; care and feeding of normal infant; prevention and correction of defects. (2 cr; prereq 4, or 50, or 51, or 52, or 53, or 100)
- 59w.s.\*\* **Health of the School Child.** Disease control; health appraisal; emotional problems; school environment; accident prevention and emergency care. (2 cr; prereq 3 or 3A and 4, or 3 or 3A and 51, or GC 10C and 4, or GC 10C and 51, or 50, or 52, or 100; exemption from 3 on basis of military service will not be accepted as prereq)
- 75s. **Introduction to Environmental Sanitation.** Principles of urban and rural sanitation relating to water, food, wastes, housing, air, insects, rodents. (3 cr; prereq 4 or 50 or 51 or 52) Bond
- 100Af. **Elements of Public Health.** Occurrence and prevention of communicable, degenerative, and industrial disease. (3 cr; prereq 3 or 50, or equiv and a course in bacteriology) Anderson, Thomson, Schuman
- 102Aw. **Environmental Sanitation.** General principles of urban and rural sanitation with special reference to problems encountered by official health agencies. (2 cr; prereq 100A or §) Bosch, others
- 103f.w.s. **Public Health Bacteriology.** Bacteriologic and serologic diagnosis, public health laboratory administration and methods. (Cr ar; prereq grad, Bact 102, 116 and §) Bauer
- 106w. **Public Health Administration.** Structure, basic functions, and activities of public health agencies. (3 cr; prereq 100A) Anderson
- 125f. **Community Health Education Programs.** Planning educational aspects of community health programs; group procedures; community organization; public relations; selection, development, and use of media. (2 cr; prereq §100A) Grout
- 126s. **Occupational Health Program.** Professional, social, economic, and legal aspects; organization; technical aspects of specific health hazards. (3 cr; prereq 100, InCh 4-5 or equiv, or §) Foker

For other courses in public health see the *Bulletin of the Graduate School*, or the *Bulletin of the School of Public Health*.

### BIostatISTICS

- 110f-120w. **Biostatistics I and II.** Introduction to role of statistics in research; finite and infinite population sampling; simple tests of hypotheses, power; estimation; regression; correlation; other measures of association; standard distributions including normal,  $t$ ,  $\chi^2$ ,  $F$ , binomial, Poisson; special distributions arising from nonparametric procedures. (3 cr; prereq sr, Math 10 or §, §111-121) Brown
- 111f-121w. **Biostatistics Laboratory I and II.** Presentation of data; descriptive statistics; practice and practical application of principles and methods covered in 110 and 120. (2 cr; prereq §110-120) Iversen
- 130s. **Biostatistics III.** Principles and methods of analysis of effects and components of variance in experiments and surveys; 1-way, 2-way and higher nested, crossed, or mixed classifications; simple and multiple analysis of covariance. (3 cr; prereq 120 with C grade, §131) Brown
- 131s. **Biostatistics Laboratory III.** Practice and practical application of principles and methods covered in 130. (2 cr; prereq §130) Iversen

Other courses in biostatistics designed primarily for students in public health, medicine, or Graduate School may be open to students in SLA by special arrangement with Mr. Bearman.

\*\* No credit is granted for this course in the major sequence in public health nursing.

## PHYSIOLOGICAL HYGIENE

- 91f. Physiological Hygiene.** Basic physiological principles and facts. (4 cr [to receive cr for this course 92w must also be completed except by †]; prereq 8 cr in chemistry and 4 cr in human anatomy or equiv) Taylor
- 92w. Physiological Hygiene.** Effects of exercise, nutrition, environment, and age on performance and health. (4 cr; prereq 91 or equiv) Taylor
- 95f,w. Human Nutrition.** Particular reference to public health. Nutritional values of foods, food utilization and requirements, food management, nutrition education. (3 cr; prereq course in chemistry or biology, or ‡) J T Anderson
- 191f. Science of Human Nutrition.** Surveys; nutritional status; undernutrition; malnutrition; dietetics in social relief and medical practice. (3 cr; prereq ‡) Keys, J T Anderson
- 192w. Physiology of Exercise.** Muscular efficiency, training, deconditioning, effects of exercise on physiological systems. (Cr ar; prereq 92 or Phsl 103 or equiv and ‡) Taylor, Simonson

## RADIO AND TELEVISION

Courses relating to radio are offered by the School of Journalism and the Department of Speech and Theater Arts to juniors and seniors who have had the fundamental prerequisite courses.

## RELIGION

While the University has no department of religion, attention is called to the following courses from several departments which deal with religious matters:

**Anthropology**

- 124—Culture Sphere of China  
 125—Peoples and Cultures of India  
 126—Peoples and Cultures of South East Asia and Indonesia  
 127—The Islamic Culture Sphere  
 161—Primitive Religion

**Classics**

- Grk 73—Hellenistic Greek

**English**

- 66-67—The Literature of the Bible

**Music**

- 134-135-136—History of Church Music

**Philosophy**

- 10—Science and Religion  
 11—World Religions  
 137—Kierkegaard and Scandinavian Philosophy  
 171—Philosophies of India  
 180—History of Religions  
 181—Psychology of Religion  
 182—Philosophy of Religion

**Sociology**

- 142—Religion as a Social Institution

## RHETORIC

(College of Agriculture, Forestry, and Home Economics)

**Department Chairman—Ralph G. Nichols**

- 47f,w.s. Efficient Reading.** Increases reading rate, comprehension, and vocabulary. Not a remedial course. (1 cr for SLA students; prereq score above 30th percentile on a standard reading test) Brown

## ROMANCE LANGUAGES

**Department Chairman—Walter T. Pattison**

**Major Advisers in SLA—Professors Pattison, Falk, Grismer; Associate Professor Nissen**

**Major and Minor Sequences in SLA—**

## French

**Major:** Fren 20 and 33 Upper Division credits, including 54 or 56; 60-61-62; 70-71-72; 80-81-82; 90-91-92. In exceptional cases, students may be allowed by the

department to elect course work in literature on the 100 level instead of the corresponding Upper Division offerings.

*Minor:* A minimum of 15 credits in courses above 52. The department recommends one of the following sequences:

- A. Fren 65-66-67 (9 credits) and 8 additional credits in Upper Division French (or)
- B. Fren 60-61-62 (12 credits) and 5 additional credits in Upper Division French (or)
- C. Fren 70-71-72, 80-81-82, 90-91-92.

### Italian

*Major:* 24 credits in Italian courses numbered 50 or above, and 3 additional credits chosen from the following: Engl 75; Fren 65-66-67, 121; Ital 159-160, 161-162; Lat 133; Hist 103A-104A-105A.

*Minor:* A minimum of 15 credits above Ital 50.

### Spanish

*Major:* Students may choose either Sequence A or Sequence B:

- A. Span 53, 54-55; 65, 66, 67 or 68, 69; and 15 credits in courses numbered above 50 (including 9 credits in literary courses numbered above 100).
- B. Span 53, 54-55; 70-71-72; 74-75-76; and 6 credits in courses numbered above 50 (students taking this major sequence will not be admitted to full standing in the Graduate School until they have successfully completed 9 credits in literary courses numbered above 100; cf Sequence A).

*Minor:* A minimum of 15 credits in courses above Span 52. The department recommends one of the following sequences:

- A. Span 54-55, and 65-66-67 or 68-69 or 74-75-76.
- B. Span 54-55, and 70-71-72 or 90-91-92.

### Studies in Latin America and Northwest Europe

See International Relations and Area Studies, page 83.

**Major Advisers in the College of Education**—French: Professor Falk. Spanish: Associate Professor Floripe.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—

*French Major:* Fren 20 and 36 Upper Division credits in French including Fren 54, 56, 60-61-62, 65-66-67, 100, 103-104-105. In addition, Clas 56 (3 credits) is recommended.

*French Minor:* 23 credits including Fren 54, 56, 60-61-62.

*Spanish Major:* 36 Upper Division credits including Span 53-54-55; 56; 65-66-67 or 68-69 or 74-75-76; 70-71-72 or 90-91-92; 103-104-105; 171-172-173. In addition Clas 56 (3 credits) is recommended.

*Spanish Minor:* 23 credits numbered above Span 20 including one of the following sequences: Span 65-66-67, 68-69, or 74-75-76.

**Admission to Advanced Courses**—No student will be allowed to elect courses more advanced than intermediate French or Spanish unless he has received a grade of C or better in the intermediate course.

## French

## Lower Division Courses

NOTE—There are three beginning courses in French, 1A-2A-3A, 1B-2B-3B, and 1C-2C-3C. The student should study the description of each sequence and select the one most suited to his needs and interests. Juniors, seniors, and graduate students should also consider Fren 50-51-52.

- 1Af-2Aw-3As.\*\* Beginning French: Conversational Approach.** Ten class meetings a week: 5 hours of demonstration (introduction to texts dealing with common conversational material and real life situations; necessary grammatical analysis of sentence patterns) and 5 hours of intensive conversational drill in sections small enough to insure for each student individual attention. (15 cr)
- 1Bf-2Bw-3Bs.\*\* Beginning French: Language and Culture.** Provides a knowledge of basic grammar and a practical reading knowledge of French adequate for needs of most students in other fields. Imparts a broad view and appreciation of the contribution of French culture to Western civilization. (15 cr)
- 1Cf,w-2Cf,w,s-3Cf,s.\*\* Beginning French: Standard Course.** Beginning course stressing correct pronunciation of French, basic essentials of grammar, and reading of appropriate prose texts. Oral French and conversation at this level are given all possible attention. (15 cr; students submitting 1 yr high school French for entrance must take 2C and those offering 2 yrs must take 3C)
- 4f,w,s. Intermediate French.** Practical grammar review with composition and readings of a variety of French authors. (5 cr; prereq 3A, 3B, 3C or 3 yrs high school French)
- 20f,w,s. Introduction to French Literary Texts.** Introduction to basic literary texts representing a sampling of the genres, accompanied by discussions of literary problems and methods of literary analysis. Presentation of classical diction and French prosody. (3 cr; prereq 4)

Attention is called to CLit 45-46-47, The Nature of Literature. See Comparative Literature.

## Upper Division Courses

Upper Division courses with numbers less than 100 are open to Lower Division students who have an average grade of at least C in the prerequisite courses.

- 50f-51w-52s. Reading French: A Beginning Course for Juniors and Seniors.** Aims to develop reading proficiency by concentrating from the outset on vocabulary building and reading techniques and reducing the presentation of formal grammar to a minimum. Intensive study of a variety of texts in class, and individual projects in extensive readings. (9 cr; prereq jr; cannot be counted toward either a major or a minor in French)
- 53s. French Diction.** (1 or 2 cr; open only to candidates for the French play; prereq 3A, 3B, or 3C, or 4)
- 54f,w,s. French Conversation and Pronunciation.** In addition to regular conversation course, an hour each week is devoted to practical phonetics and pronunciation drill. (3 cr; prereq 4; 3 rec and 1 lab hr) Sullivan
- 55s. Advanced French Conversation.** (3 cr; prereq 54) Sullivan
- 56s. Introduction to History of the French Language.** Origins of the French language. Outline of factors that have influenced the subsequent growth and structure of the language, with examination of samples illustrating the different periods. (3 cr; prereq 20) Brackney
- 60f-61w-62s. French Civilization and Culture.** Systematic study of development of French culture, with oral and written French exercises based on material of the course. Course conducted in French. First term deals with period of Middle Ages, second term with period from end of Middle Ages to French Revolution, third term with period beginning with French Revolution to present. (12 cr; prereq 4) Blinoff and staff
- 65f-66w-67s.† Survey of French Literature.** (9 cr; prereq 4) Brackney
- 70f-71w-72s.† Seventeenth-Century French Literature.** (6 cr, \$65; for undergrad students only; prereq 20) Renaud
- 80f-81w-82s.† Eighteenth-Century French Literature.** (6 cr, \$66; for undergrad students only; prereq 20) Vartanian
- 90f-91w-92s.† Nineteenth-Century French Literature.** (6 cr, \$67; for undergrad students only; prereq 20) Falk
- 100f. French Phonetics.** (3 cr; prereq French major or ‡) Sullivan
- 103f-104w-105s. French Syntax and Composition.** (6 cr; prereq French major or ‡) Sullivan

\*\* The sequence of courses that must be followed is 1A-2A-3A, 1B-2B-3B, or 1C-2C-3C, and a student may not receive credit for more than one of these sequences.

- 110f. **French Romanticism.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Falk
- 111f. **Nineteenth-Century Literature: The Drama.** (2 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Falk
- 121f. **Pre-Renaissance and Pleiade Poetry.** (3 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Renaud
- 124w. **Montaigne and Pascal.** (3 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Renaud
- 125f. **The Classical Drama: Corneille and the Origins of the Classical Drama.** (3 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Renaud
- 126s. **The Classical Drama: Racine.** (3 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Renaud
- 127f. **The Classical Drama: Molière.** (3 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Renaud
- 128w. **La Fontaine and La Bruyère.** (3 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Renaud
- 129s. **The Novel and Letters of the 17th Century.** (3 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Renaud
- 130s. **French Poetry of the 19th Century: Lamartine, Hugo, Vigny, Musset.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Blinoff
- 131s. **French Poetry of the 19th Century: Parnassian Poetry and Baudelaire.** (2 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Falk
- 132f. **French Poetry of the 19th Century: Verlaine, Rimbaud, Mallarmé.** (2 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Blinoff
- 135f-136w-137s.‡ **Twentieth-Century French Literature.** (6 cr; offered 1959-60 and every 3rd yr) Blinoff
- 140w. **The Novel of the 18th Century.** (3 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Vartanian
- 141s. **Eighteenth-Century Dramatic Literature: Marivaux and Beaumarchais.** (3 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Vartanian
- 142f. **Voltaire.** (3 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Vartanian
- 143s. **Diderot.** (3 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Vartanian
- 144f. **Rousseau.** (3 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Vartanian
- 146w. **The Drama of the 20th Century: Claudel, Giraudoux.** (2 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Blinoff
- 147s. **Drama of the 20th Century: Romains, Cocteau, Anouilh, Montherlant, Camus, Sartre.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Falk
- 153f. **The Novel of the 19th Century: Balzac.** (3 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Vartanian
- 154s. **The Novel of the 19th Century: Stendhal.** (3 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Vartanian
- 155w. **The Novel of the 19th Century: Flaubert and Maupassant.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Falk
- 156w. **The Novel of the 19th Century: Zola and Goncourt.** (3 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Vartanian
- 157w. **The Novel of the 20th Century: Gide.** (2 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Falk
- 158s. **The Novel of the 20th Century: Proust.** (2 cr; prereq sr with #, grad; offered 1960-61 and every 3rd yr) Blinoff
- 159f. **The Novel of the 20th Century: Martin du Gard, Mauriac, Giono.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Blinoff
- 160w. **The Novel of the 20th Century: Malraux and Bernanos.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Blinoff
- 161s. **The Novel of the 20th Century: Sartre and Camus.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Falk
- 165f. **Poetry in the 20th Century: Apollinaire, Valéry, Eluard.** (2 cr; prereq sr with #, grad; offered 1961-62 and every 3rd yr) Blinoff
- 171f-172w-173s. **History of the French Language.** (9 cr; prereq 1 yr Latin or #; offered 1960-61 and alt yrs) Brackney
- 175f-176w-177s.‡ **Main Trends in French Literary Criticism.** (6 cr; prereq sr with #, grad; offered 1959-60 and every 3rd yr) Falk

### *For Graduate Students Only*

- 204-205-206. **Readings in Old French Literature**
- 207-208-209. **Old Provençal**
- 210-211. **French Seminar: History of "Sensibilité" in the 18th Century Through the Revolution**
222. **French Seminar: The Baroque in 16th- and 17th-Century Literature**
223. **French Seminar: Religious Thought in the 17th Century**
- 230-231-232. **Research Methods and Materials**

250-251-252. French Seminar  
259-260-261. Directed Readings in Romance Languages

## Italian

### Lower Division Courses

- 1f-2w-3s. **Beginning Italian.** (15 cr, §5) Nissen  
4. **Intermediate Italian.** (4 cr; prereq 3; offered when feasible) Nissen  
5w. **Reading Knowledge of Italian.** (5 cr, §1; prereq knowledge of French, Latin, or Spanish [no previous knowledge of Italian necessary]) Nissen

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 69s. **Survey of Italian Literature I. 1600-1950.** (3 cr; prereq ††; offered 1960-61 and alt yrs) Nissen  
70w. **Survey of Italian Literature II. 1200-1600.** (3 cr; prereq ††; offered 1960-61 and alt yrs) Nissen  
71w. **Modern Poetry (Leopardi, Carducci, etc.).** (3 cr; prereq ††; offered 1959-60 and alt yrs) Nissen  
72f. **Modern Drama (Giacosa, Pirandello, etc.).** (3 cr; prereq ††; offered 1959-60 and alt yrs) Nissen  
73s. **Boccaccio.** (3 cr; prereq ††; offered 1960-61 and alt yrs) Nissen  
74s. **Petrarch.** (3 cr; prereq ††; offered 1959-60 and alt yrs) Nissen  
76f. **Modern Short Story (Verga, Pirandello, etc.).** (3 cr; prereq ††; offered 1960-61 and alt yrs) Nissen  
159f-160w. **Dante.** (6 cr; prereq 1 course above 50; students may enter any qtr with §; offered 1960-61 and alt yrs) Nissen  
161f-162w. **The 16th Century.** (6 cr; prereq 1 course above 50; offered 1959-60 and alt yrs) Nissen  
164s. **Dante in English.** (3 cr; prereq §; no knowledge of Italian necessary; offered 1959-60 and alt yrs) Nissen  
169s. **Survey of Italian Literature I.** (3 cr; prereq grad, 1 course above 50; offered 1960-61 and alt yrs; meets with Ital 69 but addtl independent work required) Nissen  
170w. **Survey of Italian Literature II.** (3 cr; prereq grad, 1 course above 50; meets with Ital 70 but addtl independent work required; offered 1960-61 and alt yrs) Nissen  
171w. **Modern Poetry (Leopardi, Carducci, etc.).** (3 cr; prereq grad, 1 course above 50; meets with Ital 71 but addtl independent work required; offered 1959-60 and alt yrs) Nissen  
172f. **Modern Drama (Giacosa, Pirandello, etc.).** (3 cr; prereq grad, 1 course above 50; meets with Ital 72 but addtl independent work required; offered 1959-60 and alt yrs) Nissen  
173s. **Boccaccio.** (3 cr; prereq grad, 1 course above 50; meets with Ital 73 but addtl independent work required; offered 1960-61 and alt yrs) Nissen  
174s. **Petrarch.** (3 cr; prereq grad, 1 course above 50; meets with Ital 74 but addtl independent work required; offered 1959-60 and alt yrs) Nissen  
176f. **Modern Short Story (Verga, Pirandello, etc.).** (3 cr; prereq grad, 1 course above 50; meets with Ital 76 but addtl independent work required; offered 1960-61 and alt yrs) Nissen

## Portuguese

- 1f-2w. **Beginning Portuguese.** (10 cr; offered when feasible)  
3s. **Intermediate Portuguese.** (5 cr; prereq 1-2; offered when feasible)

## Spanish

### Lower Division Courses

NOTE—There are 3 beginning courses in Spanish, 1A-2A-3A, 1B-2B-3B and 1C-2C-3C. The student should study the description of each sequence and select the one most suited to his needs and interests.

†† The prerequisite is 3 or 4; but for students beginning Italian in the Upper Division it may be 1-2 or 5 with consent of instructor.



- 1Af-2Aw-3As.\*\* Beginning Spanish: Conversational Approach.** Stresses conversation. Gives the students a basic active speaking vocabulary, assurance in self-expression, and facility in the spoken language. Ten class meetings a week; 5 hours demonstration (introduction to texts dealing with real-life situations and necessary grammar) plus 5 hours intensive conversational drill in sections small enough to insure for each student individual attention. Less outside preparation required than for standard course. (15 cr)
- 1Bf-2Bw-3Bs.\*\* Beginning Spanish: Language and Culture.** Provides a knowledge of basic grammar and a practical reading knowledge of Spanish adequate for the needs of most students in other fields. Gives a broad view of the history and the cultural achievements of Latin America and Spain. (15 cr)
- 1Cf,w-2Cf,w,s-3Cf,w,s.\*\* Beginning Spanish: Standard Course.** For students who have had no previous training in the language. Oral and aural practice. Elementary principles of grammar, reading, and writing of easy Spanish prose. (15 cr; students submitting 1 yr high school Spanish for entrance must take 2C, those offering 2 yrs must take 3C)
- 20f,w,s. Intermediate Spanish Grammar and Composition.** Co-ordinates the three sequences in elementary Spanish: 1A-2A-3A, 1B-2B-3B, or 1C-2C-3C, and prepares students from all these courses to continue with courses in the Spanish language at a higher level. Emphasis placed on a thorough review of Spanish grammar, and translation of highly idiomatic material from Spanish to English and from English to Spanish. (5 cr; prereq 3A, 3B, or 3C or 3 yrs high school Spanish)
- 21f,w,s. Introduction to Spanish and Spanish-American Literature and Culture.** A broad cultural and literary course unifying the study of the Spains of the Old World and the New. Students are introduced to Spanish and Spanish-American history, civilization, customs, art, music, and literature. Emphasis is placed on rapid reading in texts of a cultural and literary nature, supplemented by class discussions, in Spanish, of the material read. (5 cr; prereq 3A, 3B, 3C or 3 yrs high school Spanish)

Attention is called to CLit 45-46-47, The Nature of Literature. See Comparative Literature.

### Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 52s. Spanish Pronunciation and Diction.** (1 or 2 cr; prereq candidates for Spanish play [others with §], 3A, 3B, or 3C) Cuneo
- 53f-54w-55s. Spanish Composition and Conversation.** (9 cr; prereq 20) Rundorff, Narvaez
- 56s. Spanish Phonetics and Diction.** (3 cr; prereq 3A, 3B, or 3C) Cuneo
- 57w. Commercial Spanish.** (3 cr; prereq 53; offered 1960-61 and alt yrs) Cuneo
- 60f-61w-62s. Advanced Spanish Composition and Conversation.** (9 cr; prereq 53-54-55; offered 1960-61 and alt yrs) Floripe
- 65f. Survey of Spanish Literature: The Middle Ages.** (3 cr, §68, 69; prereq soph, 21) Grismer
- 66w. Survey of Spanish Literature: The Renaissance.** (3 cr, §68, 69; prereq soph, 21) Grismer
- 67s. Survey of Spanish Literature: The Modern Period, 1833 to the Present.** (3 cr, §68, 69; prereq soph, 21) Grismer
- 68w. Survey of Spanish Literature: From the Middle Ages through the 18th Century.** (5 cr, §65, 66, 67; prereq soph, 21) Floripe
- 69s. Survey of Spanish Literature: From the 19th Century to the Present.** (5 cr, §65, 66, 67; prereq soph, 21) Floripe
- 70f-71w-72s.† Latin-American Civilization and Culture.** (9 cr; prereq 20 or 21 or §) Cuneo
- 74f-75w-76s. Survey of the Literature of Spanish America.** (9 cr; prereq 21) Irving
- 79s. A Century of Latin-American Thought: 1850-1957.** Introduction to the men who have moulded the thought of Latin America and to the ideas which have shaped the attitude of their countries toward freedom, democracy, and social progress. Since there is no surer way to the heart and soul of a culture than a knowledge of the men whom it calls great, this course is another step in the understanding of the Latin-American republics. Conducted entirely in Spanish. (2 cr; prereq jr or §; 6 qtrs Spanish) Cuneo
- 80f. Spanish-American Novel and Social Problems.** Deals with some of the outstanding social problems of Latin America as presented in the novels of its leading authors. These works capture the essence of social problems and suggest possible solutions for them. Conducted entirely in Spanish. (2 cr; prereq jr or §; 6 qtrs Spanish) Cuneo
- 81w. Spanish-American Novel and Social Problems.** The scope is similar to that of Span 80 but the works and problems under study are different. Conducted entirely in Spanish. (2 cr; prereq jr or §; 6 qtrs Spanish) Cuneo
- 90f-91w-92s. Spanish Civilization and Culture.** (9 cr; prereq 21) Pattison

\*\* The sequence of courses that must be followed is 1A-2A-3A, 1B-2B-3B, or 1C-2C-3C, and a student may not receive credit for more than one of these sequences.

- 103f-104w-105s. **Spanish Syntax and Composition.** (3 cr; prereq 60 or ¶60) Pattison
- 110f-111w-112s. **Spanish Literature: 19th Century.** (9 cr; prereq 65, 66, 67 or 68, 69; offered 1960-61 and alt yrs) Pattison
- 115f. **Spanish Literature of the 17th Century: The Drama.** (3 cr; prereq 65, 66, 67 or 68, 69; offered 1959-60 and alt yrs) Grismer
- 116w. **Spanish Literature of the 17th Century: The Novel.** (3 cr; prereq 65, 66, 67 or 68, 69; offered 1959-60 and alt yrs) Grismer
- 117s. **Spanish Literature of the 17th Century: Poetry.** (3 cr; prereq 65, 66, 67 or 68, 69; offered 1959-60 and alt yrs) Grismer
120. **The Ballad.** (3 cr; prereq 65, 66, 67 or 68, 69; offered when feasible)
130. **Cervantes: Don Quijote.** (3 cr; prereq 65, 66, 67 or 68, 69; offered when feasible)
131. **The Picaresque Novel.** (3 cr; prereq 65, 66, 67 or 68, 69; offered when feasible)
- 140f. **Latin-American Literature: Poetry.** Silva, Dario, Neruo, Chocano, Herrera y Reissig, Lugones, Agustini, Mistral, Ibarbourou, Storni, López Verlarde and Neruda. (3 cr; prereq 65, 66, 67 or 68, 69 or 74-75-76; offered 1961-62 and every 3rd yr) Floripe
- 141w. **Latin-American Literature: Essay, Short Story, Drama.** Rodó, González Prada, Ricardo Rojas, Blanco Fombona, Ugarte, Vasconcelos, Alfonso Reyes, Quiroga, Gallegos, Florencio Sánchez. (3 cr; prereq 65, 66, 67 or 68, 69 or 74-75-76; offered 1961-62 and every 3rd yr) Floripe
- 142s. **Latin-American Literature: Novel.** Gallegos, Azuela, Rivera, Güiraldes, Barrios, Gálvez, Lynch, Ciro Alegria. (3 cr; prereq 65, 66, 67 or 68, 69 or 74-75-76; offered 1961-62 and every 3rd yr) Floripe
- 143f-144w-145s. **Colonial and 19th-Century Latin-American Literature.** (9 cr; prereq 65, 66, 67 or 68, 69 or 74-75-76; offered 1959-60 and every 3rd yr) Floripe
- 146f-147w-148s.‡ **Spanish-American Novel and Short Story.** (9 cr; prereq 65, 66, 67 or 68, 69 or 74-75-76; offered 1960-61 and every 3rd yr) Floripe
- 155f. **Spanish Literature of the 16th Century: The Novel.** (3 cr; prereq 65, 66, 67 or 68, 69; offered 1960-61 and alt yrs) Grismer
- 156w. **Spanish Literature of the 16th Century: The Drama.** (3 cr; prereq 65, 66, 67 or 68, 69; offered 1960-61 and alt yrs) Grismer
- 157s. **Spanish Literature of the 16th Century: Poetry.** (3 cr; prereq 65, 66, 67 or 68, 69; offered 1960-61 and alt yrs) Grismer
- 161f-162w-163s. **Hispano-Arabic Culture.** (6 cr; prereq 21 and §) Irving
- 171f-172w-173s.† **History of the Spanish Language.** (3 cr; prereq 20 and 1 yr Latin or §) Grismer
- 174f. **Contemporary Spanish Literature: Drama.** Benavente, Martínez Sierra, Linares-Rivas, Alvarez Quintero, Valle Inclán, Marquine, García Lorca, and Casona. (3 cr; prereq 65, 66, 67 or 68, 69; offered 1959-60 and alt yrs) Floripe
- 175w. **Contemporary Spanish Literature: Prose.** Unamuno, Azorin, Baroja, Valle Inclán, Ortega y Gasset, Perez de Ayala, Gómez de la Serna. (3 cr; prereq 65, 66, 67 or 68, 69; offered 1959-60 and alt yrs) Floripe
- 176s. **Contemporary Spanish Literature: Poetry.** Juan Ramón Jiménez, Unamuno, Antonio and Manuel Machado, Valle Inclán, García Lorca, Alberti, Moreno Villa, Aleixandre, León Felipe, Gullién and Salinas. (3 cr; prereq 65, 66, 67 or 68, 69; offered 1959-60 and alt yrs) Floripe
- 179s. **A Century of Latin-American Thought: 1850-1957.** (2 cr; meets with Span 79 but addtl independent work and written reports required; prereq # or grad) Cuneo
- 190-191-192.‡ **Directed Readings for Undergraduates.** (1-3 cr; prereq consent of dept chairman) Staff

### For Graduate Students Only

- 230-231-232. **Research Methods and Materials**
- 241-242-243. **Old Spanish Philology**
- 244-245-246. **Readings in Old Spanish Literature**
- 250-251-252. **Spanish Seminar**
- 253-254-255. **Seminar in Latin-American Literature**
- 259-260-261. **Directed Readings in Romance Languages**

## RUSSIAN

See Slavic and Oriental Languages

## SANSKRIT

See Classics

## SCANDINAVIAN

**Department Chairman**—Alrik Gustafson

**Major Adviser in SLA**—Professor Gustafson.

**Major Sequence in Scandinavian Languages and Literature in SLA**—Scan 51-52, 61 or 71, 161 or 162, 171, 172, 191-192-193 and 5 additional credits in Scandinavian numbered 51 or above.

**Major Sequence in Scandinavian Area Studies**—See special bulletin, *Programs in International Relations and Area Studies*.

For nonmajors in Scandinavian who may wish to include Scandinavian courses among electives chosen for their "general education" values the following courses are especially recommended: Scan 22, 23, 161, 162, 171, 172, and Art 140, 141, 142. No knowledge of Scandinavian languages required, except for Scandinavian majors.

## Lower Division Courses

- 1f-2w. Beginning Norwegian.** (10 cr) Nelson  
**3s. Intermediate Norwegian.** (5 cr; prereq 1-2 or equiv) Nelson  
**4f-5w-6s. Advanced Norwegian.** (9 cr; prereq 1-2-3 or equiv) Nelson  
**7f-8w. Beginning Swedish.** (10 cr) Lorenzen  
**9s. Intermediate Swedish.** (5 cr; prereq 7-8 or equiv) Lorenzen  
**10f-11w-12s. Advanced Swedish.** (9 cr; prereq 9 or equiv) Lorenzen  
**22w-23s. Scandinavian Life Today.** Descriptive survey of present-day Scandinavian life and culture, with some attention paid to historical origins but with primary emphasis being placed upon 20th-century developments in political and economic democracy and social reform, in architecture and painting, in music, literature, and home crafts. (6 cr; knowledge of Scandinavian languages required for majors only) Gustafson and staff

Attention is called to CLit 45-46-47, *The Nature of Literature*. See *Comparative Literature*.

## Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 51f. Scandinavian Literature in the 19th Century.** Survey of Danish, Norwegian, and Swedish literature from Romantic Movement and mid-19th-century idealistic realism to realistic and naturalistic break-through in the drama and prose fiction of the 1870's and 1880's. (2 cr; prereq 4-5-6 or 10-11-12 or 8 cr in literature; knowledge of Scandinavian languages required for majors only; offered 1959-60 and alt yrs) Gustafson  
**52w. Contemporary Scandinavian Literature.** Rapid sketch of characteristic trends in Scandinavian literature of last half century, especially as reflected in lyric poetry, short story, and representative autobiographical works. (2 cr; prereq 6 or 12, or 8 cr in literature; knowledge of Scandinavian languages required for majors only; offered 1960-61 and alt yrs) Gustafson  
**61s. Norwegian Conversation.** Practice in conversation employing common Norwegian vocabulary and idiom of today and based on material drawn from present-day Norwegian life. (3 cr; prereq 3 or equiv) Nelson  
**71s. Swedish Conversation.** Practice in conversational Swedish of today, with subject matter drawn from immediate everyday Swedish conditions. (3 cr; prereq 9 or equiv) Lorenzen  
**Ger 113f-114w. Gothic.** (6 cr; prereq 80 and 11 cr above 69 or equiv; offered when feasible)  
**Soc 117s. Scandinavian Folk Movements: Their Social and Political Significance.** (3 cr; prereq 1 or #) Thorson  
**Phil 137w. Kierkegaard and Scandinavian Philosophy.** (3 cr; 1 course from Phil 50-51-52 or #) Holmer  
**Art 140f. Scandinavian Architecture.** (3 cr; prereq 9 cr in history of art or in literature or history with  $\Delta$ ) Nelson  
**Art 141w. Scandinavian Painting.** (3 cr; prereq 9 cr in history of art or in literature or history with  $\Delta$ ) Nelson  
**Art 142s. Scandinavian Sculpture and the Minor Arts.** (3 cr; prereq 9 cr in history of art or in literature or history with  $\Delta$ ) Nelson  
**Pol 145f. Government and Politics of the Scandinavian Countries.** (3 cr; prereq 6 cr, or 12 cr in social science) Thorson

- Pol 146w. Social Legislation and Social Institutions in the Scandinavian Countries.** (3 cr; prereq Pol 1-2, or 5 or Soc 1) Thorson
- 161w. The Late 19th-Century Scandinavian Novel.** Examination of "the great tradition" in the modern Scandinavian novel, together with the circumstances, intellectual and political, social and economic, out of which it grew. (3 cr; prereq 6 or 12, or 8 cr in literature; knowledge of Scandinavian languages required for majors only) Gustafson
- 162s. Contemporary Trends in the Scandinavian Novel.** Characteristic trends in Scandinavian life and thought in 20th century as expressed in the prose fiction of Sigrid Undset, Johannes V. Jensen, Olav Dunn, Hjalmar Bergman, Pär Lagerkvist, Halldór Laxness, F. E. Sillanpää, and others. (3 cr; prereq 6 or 12, or 8 cr in literature; knowledge of Scandinavian languages required for majors only) Gustafson
- 171f. Ibsen and the Beginnings of the Modern Drama.** Intensive examination of plays of Ibsen, especially with reference to the role he has played as "founder" of modern European drama. (3 cr; prereq 6 or 12, or 8 cr in literature; knowledge of Scandinavian required for majors only) Gustafson
- 172w. Strindberg and the Drama in Revolt and Transition.** Strindberg as master of the naturalistic drama and as "father of modernity" in European and American theater since his day. (3 cr; prereq 6 or 12, or 8 cr in literature; knowledge of Scandinavian languages required for majors only) Gustafson
- 173s. The Contemporary Scandinavian Theater.** Examination of Scandinavian drama and theater of today, particularly with reference to their "experimental" trends both in dramatic composition and staging. (3 cr; prereq 6 or 12, or 8 cr in literature; knowledge of Scandinavian languages required for majors only) Gustafson
- 191f-192w-193s. Readings in the Scandinavian Literature.** Intensive reading of representative Scandinavian texts. Designed especially for majors and minors in Scandinavian, each student fulfilling his reading requirements in Danish or Norwegian or Swedish, depending upon his language of primary interest. (3 cr per qtr; prereq 6 or 12) Gustafson
- 195f-196w-197s.† Old Norse: Language and Literature.** (9 cr; prereq knowledge of 1 Germanic language other than modern English recommended; offered 1959-60 and when feasible)

### *For Graduate Students Only*

- 215-216-217. **Studies in Scandinavian Romanticism**  
 218-219-220. **Studies in Late 19th-Century Scandinavian Literature**  
 221-222-223. **Dramatic Interpretative Problems in Strindberg**

## SECRETARIAL TRAINING

See Business Administration

## SEMITIC

See Slavic and Oriental Languages below

## SLAVIC AND ORIENTAL LANGUAGES

### Department Chairman—

**Major Advisers in SLA**—Associate Professor Mather, Chinese; Instructor Copeland, Japanese; Assistant Professor Niemi, Russian.

### Major Sequences in SLA—

#### Chinese

Chin 51-52-53, 56-57-58, 101-102-103, 110-111-112, and 6 credits in 161-162-163.

#### Japanese

Jap 51-52-53, 56-57-58, 101-102-103, 110-111-112, and 6 credits in 161-162-163.

#### Russian

Russ 51-52-53, 61-62, 71-72-73, 75-76, and 6 additional credits selected from 56-57-58, 101-102-103, 125-126-127, 131-132-133.

Courses especially recommended for general education purposes are Chin 110-111-112, Jap 110-111-112, Ortl 75, 76, 77, 78, Russ 75-76-77, 101-102-103.

## Chinese

### *Lower Division Courses*

**1f-2w-3s. Beginning Chinese.** (15 cr) Mather

### *Upper Division Courses*

Upper Division courses with numbers less than 100 are open to Lower Division students who have an average grade of at least C in the prerequisite courses.

**51f-52w-53s. Intermediate Chinese.** (9 cr; prereq 3) Mather

**56f-57w-58s. Composition.** (6 cr; prereq 3) Mather

**101f-102w-103s. Advanced Chinese.** Readings in modern and traditional literature. (9 cr; prereq 51-52-53 or equiv) Mather

**110f-111w-112s. Chinese Literature in Translation.** Survey in best available English translations of Chinese *belles-lettres* from the first millenium B.C. to present. (9 cr; prereq 6 cr in literature; knowledge of Chinese not required) Mather

**161f-162w-163s. Directed Readings.** (1-3 cr per qtr) Mather

## Japanese

### *Lower Division Courses*

**1f-2w-3s. Beginning Japanese.** (15 cr) Copeland

### *Upper Division Courses*

Upper Division courses with numbers less than 100 are open to Lower Division students who have an average grade of at least C in the prerequisite courses.

**51f-52w-53s. Intermediate Japanese.** (9 cr; prereq 3) Copeland

**56f-57w-58s. Japanese Composition.** (6 cr; prereq 3) Copeland

**101f-102w-103s. Advanced Japanese.** Readings in modern prose and poetry; introduction to the classical language. (9 cr; prereq 51-52-53) Copeland

**110f-111w-112s. Japanese Literature in Translation.** Survey of Japanese literature from the 8th century A.D. to present. (9 cr; prereq 6 cr in literature; knowledge of Japanese not required) Copeland

**161f-162w-163s. Directed Readings.** (1-3 cr per qtr) Copeland

## Old Church Slavic

**113f-114w-115s. Old Church Slavic (Old Bulgarian).** Introduction to Slavic linguistics. Descriptive grammar of earliest Slavic texts and comparison of Old Church Slavic with other Indo-European languages. (9 cr; prereq Clas 56 or equiv)

## Oriental

**75f. Asian Civilization: India.** (5 cr; prereq soph with #, jr) Potter

**76w. Asian Civilization: China.** (5 cr; prereq soph with #, jr) Mather

**77s. Asian Civilization: Japan.** (3 cr; prereq soph with #, jr) Copeland

**78s. Asian Civilization: Islamic World.** (3 cr; prereq soph with #, jr) Irving

## Russian

### *Lower Division Courses*

**1f-2w-3s. Beginning Russian.** (15 cr) Niemi

## Upper Division Courses

Upper Division courses with numbers less than 100 are open to Lower Division students who have an average grade of at least C in the prerequisite courses.

- 51f-52w-53s. **Intermediate Russian.** (9 cr; prereq 3)  
 56f-57w-58s. **Russian Conversation.** (9 cr; prereq 3) Alexeev  
 61f-62w-63s. **Russian Composition.** (6 cr; prereq 53) Alexeev  
 71f-72w-73s. **Readings in Russian Literature.** Selected readings of modern Russian prose, with aim of attaining facility in reading. (9 cr; prereq 53 or §) Niemi  
 75f-76w-77s. **Russian Civilization and Culture.** Consideration of various aspects of Russian culture (land, peoples, languages, institutions, intellectual and artistic trends and achievements). (9 cr; prereq 10 cr in history or literature; knowledge of Russian language not required) Blinoff  
 101f-102w-103s. **Russian Literature in Translation.** 101: Pushkin, Lermontov, Gogol. 102: Turgenev and Dostoevsky. 103: Tolstoy and the period from 1880. (9 cr; prereq 9 cr in literature; knowledge of Russian language not required) Niemi  
 125f-126w-127s. **History of the Russian Language.** Linguistic analysis of development of Russian language from time of earliest records to present. (9 cr; prereq 51-52-53 or equiv)  
 131f-132w-133s. **Russian Poetry: 19th Century.** (9 cr; prereq 71-72-73 or §)  
 141f-142w. **Dostoevsky.** Analytic approach to study of the novel of Dostoevsky. (6 cr; prereq 9 cr in literature; offered when feasible) Niemi  
 161f-162w-163s. **Directed Readings.** (1-3 cr per qtr) Staff

## Semitic

- 51f-52w-53s. **Modern Spoken Arabic.** (9 cr) Irving  
 61f-62w-63s. **Introduction to Arabic Grammar and Reading.** (9 cr; prereq 2 courses above 50 in any foreign language) Irving

## Serbo-Croatian

- 1f-2w-3s. **Beginning Serbo-Croatian.** (9 cr)

## SOCIAL SCIENCE

See Interdepartmental Courses and General Education

## SOCIAL WORK

**Director**—John C. Kidneigh

Professional education for social work is at the graduate level—see *Bulletin of the Graduate School* and special *Bulletin of the School of Social Work*. For undergraduate preprofessional education for social work see Sequence B in Sociology below.

## SOCIOLOGY

**Department Chairman**—E. D. Monachesi

**Major Advisers in SLA**—Professors Caplow, Martindale, Monachesi, Rose, Sirjamaki, Vold; Associate Professors Francis, Taves.

**Major Sequences in SLA**—

*Sequence A.* General sociology is built upon a core requirement of 21 credits as follows: Soc 53, 111, 120, 162, 180, and 140 or 141, and 170 or 171, and 9 additional credits in Upper Division sociology courses selected with the approval of the major adviser.

Prerequisites: For Sequence A—Soc 1 and 45, and a total of 15 credits from courses in sociology, anthropology, education, history, philosophy, political science, psychology, and zoology.

*Sequence B.* An interdepartmental sequence recommended as preparation for graduate study in the School of Social Work as well as preferred preparation for some beginning positions in social welfare agencies. It may be taken as a

substitute for the major and minor sequences required for the B.A. degree. The specific requirements for this sequence are: Soc 50, 53, 91, 111 or 112, 126, 140, 141, 162; Anth 165; CD 80; Econ B, C; Hum 54; Psy 144-145; Pol 124, 162 or Soc 170 or Soc 172; PubH 50. A student majoring in this sequence must earn a minimum of 60 credits in Upper Division courses.

Prerequisite for Sequence B—Soc 1, 3, 45; Pol 1-2 or 5; Psy 1-2.

Education for social work is offered on three levels: (a) undergraduate study, which includes a broad range of the social sciences and some courses of primarily informational nature which deal directly with social work; (b) 2 years of graduate social work study involving theory, field practice under tutorial supervision and research culminating in the M.S.W. degree; and (c) 2 additional years of study and research leading to the Ph.D. degree. For information about graduate professional preparation for social work see the *Bulletin of the Graduate School* and the special *Bulletin of the School of Social Work*.

**Sequence C.** An interdepartmental sequence in training for delinquency control. The sequence is intended to meet the needs of those students who wish to prepare for graduate professional training as well as of those who wish to prepare for subprofessional careers in the control of delinquency. The sequence may be taken as a substitute for the major and minor sequences required for the B.A. degree. The specific requirements for this sequence are: Soc 50, 53, 91, 118, 119, 120, 141, 172, 180; Anth 165, CD 80; Criminal Law; HEd 180; Psy 125-126, 144-145; Pol 124; SW 275. It is recommended that students have completed satisfactorily a work experience period during the junior or senior year in an agency for the care of delinquent children.

Prerequisites for Sequence C—Soc 1, 3, 45; Econ 1-2; Pol 1-2 or 5; Psy 1-2.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Upper Division.

**Major Adviser in the College of Education—Professor Johnson.**

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation:* 36 credits including Soc 1, 14, and 3. *Minor recommendation:* 19 or 20 credits including Soc 1, 14, and 3.

**NOTE—**Students majoring in sociology in the College of Education must complete two teaching minors in addition to the required professional courses. Teachers who already hold a teacher's certificate may be relieved of this requirement upon petition.

For specialized curriculum in social studies and a curriculum for "Visiting Teachers," see the *Bulletin of the College of Education*.

**Honors Course—**Students interested in the work of an honors course should consult the chairman of the department.

For purposes of general education the Department of Sociology recommends the following courses: Soc 1, 2, 3, 14, 53, 124, and 151.

### Lower Division Courses

**1-2-3. Introduction to Sociology.** These three courses are introductory to the field of sociology and constitute an integrated sequence. Students may, however, elect to take one or more of these courses.

**1f,w,s. Man in Modern Society.** Characteristics of human group life. Analysis of factors associated with development of human group life and man's social environment; structure of social environment and its influence upon individual's behavior. (3 cr) Sirjamaki

**1Af,w,s. Man in Modern Society.** (3 cr; for students of College of AFHE only) Taylor

**2f,w,s. The American Community.** Sociological analysis of modern American society. Topics emphasized include distribution of population, urban-rural differences, social factors in business systems, occupational groups, determination of social status, and minority group adjustment. Attempts to familiarize student with current research methods. (3 cr; prereq 1 or 1A or 3) Martindale

**3f,w,s. Social Problems.** Survey course in contemporary social problems with especial emphasis on personal demoralization and social disorganization. (3 cr) Johnson

**14w,s. Rural Sociology.** Presentation of factual data necessary to an understanding of problems of rural social life. (3 cr) Taylor

- 14Af.w. **Rural Sociology.** (3 cr; for students of College of AFHE) Taylor  
 45f.w.s. **Social Statistics.** Introduction to statistical methods employed in analyses of social data including methods of measuring central tendency, dispersion, significance of differences, and correlation. (5 cr, §BA 5) Francis

### Upper Division Courses

Soc 53 is open to third quarter sophomores who have an average grade of at least C in the prerequisite courses. Other Upper Division courses are open to sophomores under conditions explained on page 24.

- 50f.w. **An Introduction to the Theory and Practice of Social Work.** Survey of social service with consideration of areas of social needs, social agencies, their purpose and function, and methodology and philosophy of social work practice. (5 cr; prereq 3)  
 53f.w.s. **Elements of Criminology.** General survey of field of criminology. (3 cr; prereq 1 or 1A or §) Void  
 91f.s. **Case Method Applied to the Study of Human Problems.** General application of interviewing method for students who plan to work professionally in fields involving human relationships, such as social work, public health nursing, speech pathology, etc. (3 cr; prereq 50 or consent of major adviser)  
 95. **Introduction to Public Welfare.** Public welfare function of American government with especial emphasis on social security programs. (3 cr; prereq 50 or consent of major adviser; offered when feasible)  
 97f-98w-99s. **Tutorial and Honors Work in Selected Fields.** (9 cr; prereq consent of major adviser in sociology)

### I. SOCIAL PROBLEMS AND SOCIAL POLICY

- 100s. **Contemporary Penology.** Analysis of some of the more important developments in recent attempts at treatment of criminals and the prevention of crime. (3 cr; prereq 1, 53, or §) Void  
 101f. **Criminological Theories: Historical and Contemporary.** Consideration and evaluation of major historical and contemporary theories of criminal behavior. (3 cr; prereq 1, 53, or §) Void  
 102f. **Adult Parole and Probation.** Critical examination of problems and practices in supervision of adult criminals. (3 cr; prereq 1, 53, or §; offered 1960-61 and alt yrs) Void  
 104f. **Police Problems and Practices in the United States.** Personnel, organization, and public relations of police forces, with special attention to successful techniques of integrating police work with other community agencies. (3 cr; prereq 1, 53, or §; offered 1959-60 and alt yrs) Void  
 106f. **Planning.** (Same as Arch 104, Econ 110, and Pol 123) Social, economic, political, geographic, and technical phases of modern city planning. (3 cr; prereq sr) Broek, Caplow, Vivrett, Warp  
 111f. **Population Trends.** Emphasizes cultural and social phases of population change, with particular reference to birth rates, death rates, and migration. Implications of population change are also discussed. (3 cr; prereq 1 or §) Francis  
 112w. **World Population Problems.** Population policy, both historical and present-day, in Europe, Asia, and other selected areas but with special emphasis on United States. Some discussion is given to field of population and power politics. (3 cr; prereq 1, or §) Francis  
 115w. **Social Aspects of Housing and Standards of Living.** Analysis of housing of the masses in relation to problems arising in urban overcrowding, population distribution, and standard of living as affected by distribution of national income, and factors related to personal and social disorganization. (3 cr; prereq sr, 1, or §) Sirjamaki  
 117s. **Scandinavian Folk Movements: Their Social and Political Significance.** (3 cr; prereq 1, or §) Thorson  
 118f. **Delinquent Behavior.** Critical analysis of nature of delinquent behavior and its "causes," with consideration of the help that understanding of causes can give to its modification and its prevention. (3 cr; prereq 53) Monachesi  
 119w. **Modern Agencies for the Control of Juvenile Delinquency.** Functions of the school, of welfare, casework, and groupwork agencies, of the juvenile bureau in police departments, the juvenile court, detention home, probation services, clinics, and integrated state agencies like the Minnesota Youth Conservation Commission in the prevention and modification of delinquent behavior. (3 cr; prereq 53 and 118) Ellingston

### II. SOCIAL PSYCHOLOGY AND SOCIAL PROCESSES

- 120f.w. **Social Psychology.** Research and theory regarding relation of the individual to social groups. Emphasis on socialization processes; effects of social interaction and isolation;



- individual behavior under conditions of social organization and disorganization; cultural influence and its limits. (3 cr; prereq 1, or #) Rose
- 121s. **Advanced Social Psychology.** Examination of methods of acquiring knowledge in social psychology, with analysis of outstanding pieces of research. Studies examined are concerned with social psychology of small groups, neurotic behavior, mass behavior, and the making of political and economic choices. A major aim is to familiarize student with current thinking and research in this field in light of concepts and theories presented in introductory course in social psychology. (3 cr; prereq 120 or #) Rose
- 122w. **Sociology of Conflict.** Manifest forms of antagonism among groups of persons; causes of conflict; methods of resolving through accommodation; role of conflict and social change. (3 cr; prereq 1, or #) Vold
- 123s. **Minority Group Relations.** Interaction of social and cultural groups in America. Processes leading to group contact; characteristics and contributions of ethnic groups in United States; mechanisms and problems of group adjustment. Democratic theory and practice; sources of prejudice; contemporary status of principal minority groups; international implications; trends and proposed solutions. (3 cr; prereq 1, or #) Rose
- 124s. **Social Movement in a Changing Society.** Examination of factors underlying social change in the modern mass society. Consideration of recent researches on social movements, reform and revolution, culture contact, impact of rapid technological change. The individual and the social structure under conditions of rapid social change. (3 cr; prereq 1, or #) Rose
- 125f. **Opinion and Communication: Social Factors.** Examination of processes of opinion formation and change in relation to personality and social structure will lay groundwork for analysis of flow of public communications through society and impact of selected types of mass communication on particular audiences. (3 cr; prereq sr, 1 or 120 or Psy 140 or #...recommended that this course be taken as a 3-qtr sequence with Psy 167 and Jour 115) Riecken
- 126s. **Family Development.** Analysis of the natural history of families, how they form, function, and achieve distinctive identities. Focus on the developmental growth of children and parents in interaction in seven stages of the family life cycle, from engagement planning to family dissolution. (4 cr; prereq 1 and CD 80 or #) Hill

### III. SOCIAL ORGANIZATION AND SOCIAL INSTITUTIONS

- 140f.s. **Social Organization.** Organization and structure of social groups; basic culture patterns of economic, political, and social institutions. Integration and disintegration of social groups and institutions. Essentials of social dynamics. (3 cr; prereq 1, or #) Caplow (f), Sirjamaki (s)
- 141f.w.s. **The Family.** Evolution of the family; development of family unity or disunity, roles of the several members of the family, methods of investigation of the family. (3 cr; prereq 1, or #) Johnson
- 142f. **Religion as a Social Institution.** (3 cr; prereq 1, or #) Johnson, Taves
143. **The Newspaper as a Social Institution.** (3 cr; prereq 1, or #; offered when feasible)
- 144s. **Social Stratification and Mobility.** Relationship of social mobility to social stratification and social organization. Analysis of the hierarchical structure of society in relation to class and status. (3 cr; prereq 1 or #) Caplow
- 145f. **Urban Sociology.** Introduction to study of cities; urban ecology; urban institutions and urban way of life. (3 cr; prereq 1, or #) Sirjamaki
- 146f. **Industrial and Occupational Sociology.** Analyzes the occupational group, the factory, and the business enterprise as social institutions, with particular attention to contrasting functions of formal and informal organization, and to significance of co-operation, authority, communication, status, and group norms in the working situation. (3 cr; prereq 1 and 15 cr in sociology, psychology, political science, or economics) Caplow
- 147w. **Social Institutions of Modern France.** General review of French demography, class structure, ecological and regional patterns, industrial organization, educational and religious institutions, bureaucratic forms, and other aspects of French society in 20th century. Attempt is made to supplement description from American point of view with perspective of French social theory. (3 cr; prereq 20 cr in sociology, economics, or political science, or #...reading knowledge of French desirable but not essential; offered when feasible) Caplow, Rose
- 148f. **Comparative Rural Societies: Latin America.** Survey course which will include in part the following: demographic characteristics, systems of agriculture, settlement patterns, class and caste, family life, and level of living; other social institutions and social change. (3 cr; prereq 20 cr in sociology, economics, or political science, or #)
- 149w. **Comparative Rural Societies: Western Europe.** Organized essentially along lines like that for Latin America (Soc 148). (3 cr; prereq 20 cr in sociology, economics, or political science, or #)
- 150s. **Modern German Social Structure.** Examination of social order and institutions of 20th-century Germany against background of demography and ecological developments. (3 cr; prereq 20 cr in social sciences; offered when feasible) Martindale

- 151s. Comparative Social Organization.** Consideration of the demographic and ecological characteristics, stratification system, institutional organization, and forms of association in several modern nations other than the United States. (3 cr; prereq 20 cr in sociology, economics, or political science, or §) Forster

#### IV. RURAL LIFE AND WELFARE

- 160f. Rural Community Organization.** History, structure, and place of the rural community in American society; an analysis of community demography, ecology, stratification, urbanization, and processes of co-operation and conflict. (3 cr; prereq 1 or §) Taves, Taylor
- 161s. Rural Community Analysis.** Offered on the St. Paul Campus, especially for all persons interested in rural community organization, rural teaching, extension work, and related fields. Emphasis is placed on tools, techniques, and methods of making community field studies. (3 cr; prereq sr, 1, or §) Taves
- 162w,s. Rural Social Institutions.** Factors in rural environment which condition functioning of rural social institutions, including the family, school, church, local government, health, and welfare. (3 cr; prereq 1 or §) Taves

#### V. THEORIES OF SOCIAL CHANGE AND SOCIAL ORDER

- 170f. Analytical Social Theory.** Examination of major problems of sociological theory; survey of main types of sociological theory (positivistic, rationalistic, idealistic); major theoretical concepts. (3 cr; prereq 1, or §) Martindale
- 171w. Social Life and Cultural Change.** Theories of social change, with particular attention to their methodological problems. Materials drawn from the comparative social thought and structure of antiquity utilized as basic data for analysis. (3 cr; prereq 1, or §) Martindale
- 172s. Backgrounds of Modern Social Thought.** Survey of major trends of social thought from Renaissance to 19th century, with special attention to those factors contributing to origin of sociology. (3 cr; prereq 1, or §) Martindale

#### VI. RESEARCH METHODS AND TECHNIQUES

- 180w,s. Methods of Social Research.** Survey of major methods employed in social research, including a consideration of their advantages and limitations when applied to specific types of problems. (3 cr; prereq 45 or equiv; students in School of Social Work only [w], others [s]) Monachesi
- 182w. Statistical Methods.** Selected problems of social relationship described, analyzed, and interpreted by means of common statistical methods. (3 cr; prereq 45 or equiv) Francis
- 183s. Problems in Social Measurement.** Theoretical analysis of problems involved in measuring social variables, including consideration of problems of reliability, validity, and standardization in construction of new measuring instruments. (3 cr; prereq 45 or 182 or equiv) Francis
- 184f-185w-186s. Field Work and Laboratory Training in Social Research.** Open to students whose records in statistical and research courses indicate ability to carry on individual research projects to advantage under supervision. (6-9 cr; prereq 45 or 182 or 145 or 1182)

#### For Graduate Students Only

#### VII. RESEARCH SEMINAR

- 201-202. Seminar: Research Problems in Crime and Social Conflict**
- 203-204-205. Seminar: Research Problems in Juvenile Delinquency**
- 210-211-212. Seminar: Problems in Population Research**
- 220-221-222. Seminar: Social Psychology**
- 223-224-225. Seminar: Research in Problems of Modern Mass Society**
- 226. Seminar on Family Development**
- 227-228. Seminar: Contemporary Research on Marriage and the Family**
- 230-231-232. Seminar: Research in Group Structure and Function**
- 233-234-235. Seminar: Methods for the Evaluation of Social Action Programs**
- 238-239.† Seminar in Principles of Sociology**
- 241-242-243. Seminar: Research Problems in the Family**
- 245-246. Seminar: Research in Urban Sociology**
- 247. Seminar: Research in Large Scale Organization**
- 260-261-262. Seminar: Rural Sociology**
- 263. Seminar: Research Methods in Rural Sociology**
- 270-271-272. Seminar in Social Theory**

280-281-282. Seminar: Recent Developments in Sociological Research Techniques  
 284-285-286. Seminar: Statistical Theory in Relation to Social Theory and Practice  
 297-298-299. General Seminar

## SPANISH

See Romance Languages

## SPEECH AND THEATER ARTS

Department Chairman—Donald K. Smith

**Major Advisers in SLA**—Professors Bryngelson, Graham, Henrikson, Howell, Smith, Thompson, Whiting, Ziebarth; Associate Professors Ballet, Fletcher, Lassman; Assistant Professors Josal, Moulton, Scott.

### Major Sequences in SLA—

**A. General:** Spch 51, 61, 65, 67, 75 or 78, 81, 82 or 83, 106, 101 or 126, 161 and 169. Prerequisites: Spch 5, 31, 32; Psy 1-2.

**B. Theater and Television—Drama:** Spch 81, 78 or 83, 91, 90 or 92, 111, 112, and 12 other speech credits selected with the major adviser plus a comprehensive examination. Prerequisites: Spch 5, 31, 32, 33, 34; Psy 1-2.

**C. Public Speaking and Discussion:** Spch 51, 55, 56, 61, 101, 102, 103, 106, 126 or 109, 140, 169. Prerequisites: Spch 5; Psy 1-2.

**D. Radio and Television:** Spch 65, 66, 67, 69, 81, 106, 117, 170, plus 6 credits from 78, 82, 83, and 6 other speech credits selected with major adviser. Prerequisites: Spch 5; Psy 1-2.

Students following the radio and television major should consider courses in journalism to meet either minor or elective requirements. Such students usually elect from among Jour 84, 85, 86, 88, 113, 120, 130-131, 162.

Modifications of these sequences will be permitted with approval of the major adviser.

**Major Advisers in the College of Education**—Professors Bryngelson, Graham, Smith, Whiting; Associate Professor Ballet.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—*Major recommendation:* 44 credits in speech distributed as follows: a core of 18 credits, Spch 5, 31, 32, 67, 81; 27 credits taken in either of 2 curriculums, as follows:

**Curriculum I**—Spch 61, 106, 161; 9 credits selected from Spch 51, 55 or 56, 65, 97, 101, 102, 103; 9 credits selected from Spch 66, 74, 75, 76, and 82 or 83.

**Curriculum II**—Spch 34, 65 or 66, 76, 78 or 83, 90 or 91, 92, 111, 112, 131 or 132, plus a comprehensive examination.

*Minor recommendation:* Students minoring in speech and theater arts are required to take EdT 75C, Spch 5 and 31 plus 18 additional credits in speech and theater arts. These courses are to be selected with the aid of one of the above advisers according to the needs of the student. Differential sequences are recommended according to whether the student is primarily interested in general speech, theater, interpretation, public speaking and discussion, or radio and television.

For further information concerning teaching majors and minors, and concerning the specialized curriculum in speech pathology, students should consult the *Bulletin of the College of Education*.

Speech and theater arts majors in the College of Education may substitute the language arts sequence with emphasis in speech and theater arts. See the *Bulletin of the College of Education*.

**Speech Activities**—All students in the University are entitled to participate in Intercollegiate Debating, the Freshman-Sophomore Debate, the Freshman-

Sophomore Oratorical Contest, the Pillsbury Oratorical Contest, the Verse Reading Contest, and the activities of the University Theater.

**NOTE**—The University maintains a clinical service for students with speech-hearing defects. Students who desire treatment should consult the director of the Speech and Hearing Clinic, 205 Shevlin Hall.

**General Education:** The department recommends courses in public address, theater history, and oral interpretation of literature for meeting the goals of general education. Consult descriptions for: Spch 5, 31, 51, 55, 81, 101, 106, 171.

### Lower Division Courses

- 5f,w,s. Fundamentals of Speech.** Development of basic skills in meeting a variety of speech situations: extemporaneous speaking, oral reading, discussion. Development of basic understanding of speech processes and forms. (5 cr; prereq fr with Δ, soph) Fletcher, Smith, and staff
- 6f,w,s. Fundamentals of Speech.** (Continuation of 5) (3 cr; prereq fr with Δ, soph, 5) Fletcher, Smith, and staff
- 6As. Voice and Articulation.** Fundamentals of voice production and articulation. Considerations of physiological, physical, and psychological factors. Examination and application of basic approaches used in voice and articulation improvement to individual cases. (3 cr; prereq 5 and #) Fletcher
- 9f,w. Freshman Discussion and Debate.** Open to freshmen who win places on Freshman Debate Squad. (1 cr; prereq fr with C avg) Scott, Shapiro
- 31f,w,s. Introduction to the Theater Arts.** History and theory of plays and playwrights as well as various arts and crafts of the theater. Special projects in theater crafts. (4 cr) Ballet
- 32f,w,s. Beginning Acting: Creative Approach.** Creation and presentation of original scenes and skits. Ability to respond to the imaginative situation with individuality and effectiveness is stressed. (3 cr; prereq soph, 31) Moulton, Manfull
- 33f,w,s. Beginning Acting: Technique.** Fundamentals of body movement, rhythm, and acting technique. Individual and group performances. (3 cr; prereq 32) Moulton, Rumley
- 34f,s. Stagecraft: Construction and Painting.** Theory and practice in construction, painting, and shifting of stage scenery. (3 cr; prereq soph, 31) Josal
- 39f,w,s. Parliamentary Procedures.** Rules of order and practice in applying these to various types of meetings. (2 cr; prereq Δ) Shapiro

### Upper Division Courses

Spch 51, 67, 97 are open to Lower Division students who have an average grade of at least C in the prerequisite courses. Other Upper Division courses are open to sophomores under conditions explained on page 24.

- 51f,w,s. Advanced Public Speaking.** Preparation and delivery of speeches on current public issues. (3 cr; prereq 5) Scott
- 55f,s, 56w. Speech Writing and Platform Speaking.** Essentials of speech writing, organization, style. Presentation of speeches from manuscripts. (6 cr; prereq 5 or #) Smith
- 61f,s. Personal Development Through Speech.** Behavior as indicated through speech; speech symptoms evaluated from cause and effect relations; psychologic factors in speech; analysis of individual problems of self-consciousness, stage fright; speech as a means of self-control as applied to teacher and pupil. (3 cr; prereq 5, Psy 1-2) Bryngelson
- 65f,w,s. Radio and Television Speech.** Speech arts and psychology of radio and television. Practice exercises, projects and reports on problems of appeal and audience response. (3 cr; prereq 5) Bormann
- 66f,w,s. Radio and Television Drama.** Historical development of radio and television drama, including production, direction, and acting techniques. (3 cr; prereq 5, 32, 65) Snook
- 67f,w,s. Phonetics.** Sounds of American English as they occur separately and in connected speech. Strong and weak forms, stress, assimilation. Practice in ear training. (3 cr; prereq 5; students intending to take speech pathology should take phonetics preceding yr) Fletcher
- 69w. Radio and Television Production.** An introduction to the problems of radio and television production. Equipment and staff organization; interrelationships with program design. Exercises in production. (3 cr; prereq 65) Bormann
- 74f. Play Production in the Secondary School.** Technical fundamentals: stagecraft, design, lighting, and costuming. (3 cr; prereq 31) Josal
- 75w. Play Production in the Secondary School.** Fundamentals including the analysis and production of selected scenes. (3 cr; prereq 5, 32, 74) Lenhoff

- 76s. **Play Production in the Secondary School.** Administration of dramatics program in high school. Direction of full-length play. (3 cr; prereq 75 or 112 or §) Lenhoff
- 78f,w, 79w,s. **Advanced Acting.** 78: Characterization, styles of acting, and stage technique. Presentation of scenes from great plays. 79: Continuation with emphasis upon stage dialects. (6 cr; 78f, 79w open only to students in major sequence B; 78w, 79s open to others; prereq 32) Graham, Lenhoff
- 81f,w, 83w,s, 83s. **Interpretative Reading.** Aesthetic theory of literature and of oral reading. Practice in reading for interpretation and mastery of technique. 81: Fiction. 82: Poetry. 83: Drama. (9 cr; prereq 5...81 is prereq to 82 or 83) Thompson
- 90f. **Costuming.** Theory, design, and construction of costumes for stage and television. (3 cr; prereq 5, 31, 34) Moulton
- 91w. **Scene Design.** Theory and practice of designing scenery as a functional environment for the stage and television. (3 cr; prereq 5, 31, 34) Josal
- 92s. **Lighting.** Theory and practice in applying methods and principles of lighting in theater and television. (3 cr; prereq 5, 31, 34) Josal
- 97f,w. **Intercollegiate Oratory and Debate.** Open to students who represent the University in annual contest of Northern Oratorical League and to students who win places on intercollegiate debate squad. (1-3 cr; prereq soph with C avg, jr) Scott, Shapiro
- 101f, 102w, 103s. **Argumentation and Persuasion.** Theories of modern motivational rhetoric. Analysis of persuasive speaking; practice in preparation and delivery of oral argument. (9 cr; prereq 5, Psy 1-2, 10 cr in social science) Howell, Scott
- 105f. **Theory of Reading and Acting.** Literature as an art; its various forms; psychology of creative imagination; speech elements in literature; origins and nature of speech symbols and technique of their use. Collateral readings, problems, reports, term papers. (3 cr; prereq 5, 81, 82, 83, and Psy 1-2; offered 1960-61 and alt yrs) Thompson
- 106f,w,s. **Discussion.** Co-operative thinking; recognition and definition of problems, critical analysis, examination of possible solutions. Planning, preparing for, participating in, and leading classroom, public, and radio and television discussions. (3 cr; prereq 5) Bormann, Howell, Smith
- 107f. **Platform Reading.** Advanced course in oral interpretation of selected poems and plays. Speech melody, rhythm, platform technique. Problems in aesthetic analysis. Lecture recitals. (3 cr; prereq 81, 82, 83 with a grade of B in 83; offered 1959-60 and alt yrs) Thompson
- 109s. **Classical Rhetoric.** (3 cr; prereq 5, and Δ; offered 1959-60 and alt yrs) Scott
- 110f. **British Rhetoric and Oratory.** Critical study of British orators, their works, the historical setting. British rhetorical theory. (3 cr; prereq 5, and Δ; offered when feasible) Smith
- 111f, 112w, 113s. **Stage Direction.** 111: Theory of direction. Exercises in blocking and production of short scenes. 112: Rehearsal problems and direction of 2 one-act plays. 113: Problems of theater management and staging; direction of a full-length play. (9 cr; prereq sr, 5, 31, 32, 33, 34, 90 or 92, 91, and Δ) Whiting
- 115f, 116w. **Playwriting and Production.** Creative practice in dramatic construction. 115: One-act play. 116: Full-length play. (3 cr per qtr; prereq 5, 31, 32, 33, or Δ; 116 offered when feasible) Thompson
- 117s. **Writing Radio and Television Drama.** Techniques of radio and television drama. Writing of an original, 30-minute radio or television play through stages of sketch, scenario, rough draft, and final draft. (3 cr; prereq 5, 31, 32, or Δ) Thompson
- 122f. **Introduction to Research.** Graduate research in speech: selections of topics and methods of investigation. Required of all graduate majors in speech. (3 cr; prereq sr, 5, Psy 1-2) Bormann
124. **Experiments in General Speech.** Examination of studies of the correlates of speech skills, audience reactions, and speech improvement. (3 cr; prereq 5, Psy 1-2; offered when feasible) Bormann
- 126s. **History and Criticism of Public Address.** Examination of historical and critical studies of oratory. Study of orators: education and training, style, speech composition, topics and issues, historical settings. (3 cr; prereq 5, Psy 1-2; offered 1960-61 and alt yrs) Scott
127. **Language Training for the Deaf.** Language problems resulting from marked and/or early deafness. Methods of developing and teaching language to the deaf. Underlying theory and supervised practice with deaf individuals. (3 cr; prereq 152 or §; offered when feasible) Lassman
- 131w. **Creative Dramatics.** Principles and methods of developing original dramatizations with children. Observation of children's classes in creative dramatics. Readings, projects, term papers. (3 cr; prereq 5, 31 or elementary education major, or §...Spch 32 recommended) Graham
- 132s. **Children's Theater.** Theory and practice of selection, direction, and production of plays for children's audiences, co-ordinated with current productions of the Young People's University Theater. (3 cr; prereq 5, 31 or §) Graham
- 135f, 136w, 137s. **Production of Television Drama.** Televised drama production analyzed with reference to adaptation of techniques and theory from stage production. (3 cr per qtr; prereq 65, 66, 78, 111, 112 and §) Ballet

- 140f. Introduction to Voice Science.** Consideration of fundamental aspects of phonetic, anatomic, physiologic, and physical bases of speech. (3 cr; prereq 5, Psy 1-2) Fletcher
- 141w. Anatomy and Physiology of the Voice Mechanism.** Respiration, articulation, and phonation; practical applications to speech improvement. (3 cr; prereq 5, 67, or #, Psy 4-5) Fletcher
- 142s. Physical Bases and Instrumentation of Speech.** Relationship of basic principles of sound to speech mechanism. Analysis of speech sound production. Application of mechanical and electronic equipment to speech; basic theory and uses. (3 cr; prereq 5, 67, 140, or #, Psy 4-5) Fletcher
- 149. Speech Habilitation for Persons with Neuromuscular Disorders.** Physiological, neurological, and psychological characteristics of persons with cerebral palsy and other types of neuromuscular disorders and a study of methods used in their speech habilitation. (2 cr; prereq 161, 162, 163 or #; offered when feasible) Starr
- 150. Organic Speech Disorders: Aphasia.** A study of aphasia in adults and children. Consideration of etiology, language, and associated nonlanguage problems, and therapeutic considerations and procedures. (2 cr; prereq 161, 162, 163, or #; offered when feasible) Henrikson
- 152f. Hearing Disorders.** Basic orientation to audiology. Physiology and anatomy of auditory mechanism. Symptomatology and pathology of hearing disorders, their medical and surgical treatment. Clinical and classroom management, including discovery programs, hearing aids, language development, lip reading, speech correction, auditory training, psychology of hard-of-hearing and deaf, vocational guidance, educational channels. (3 cr; prereq 5, 61, 67, Psy 1-2 or #) Lassman
- 153w. Audiometry and Hearing Aids.** Theory and practice of clinical and group audiometry; screening and diagnostic techniques, pure tone and speech audiometry; hearing conservation programs. Characteristics of modern hearing aids; selection and usage problems. (3 cr; prereq 5, 61, 67, 152, Psy 1-2 or #) Lassman
- 155s. Lip Reading and Lip Reading Methods.** Detailed examination of schools and methods of teaching lip reading. Supervised practice in teaching lip reading to hard-of-hearing persons. (3 cr; prereq 5, 67, 152, Psy 1-2, or #) Lassman
- 156. Auditory Training.** Problems of auditory discrimination and of hearing aid usage in persons with hearing deficiencies. Methods of developing skills in listening with and without acoustic amplification. Supervised practice with acoustically handicapped children and adults. (3 cr; prereq 152 or #; offered when feasible) Lassman
- 157s. Clinical Practice in Audiology.** Supervised practice with communication problems of deaf and hard-of-hearing persons, including lip reading, auditory training, language development, speech conservation, etc. (3 cr; prereq 152, 153, 155 or #) Lassman
- 161f. Introduction to Speech Correction.** Basic orientation in speech correction. Analysis of common disorders of speech, their characteristics, prevention, and correction. Designed as a basis for more advanced study in speech pathology or for a basic understanding of the field. (3 cr; prereq 5, or  $\Delta$ ) Henrikson
- 162w, 163s.† Speech Pathology.** 162: Neurology of speech. Stuttering and its associated symptoms. Relation of sidedness and speech disorders, heredity, current theories of stuttering, types of treatment. 163: Pathologies of speech: causes, characteristics, and therapy. (6 cr; prereq 5, 61, 67, 161) Bryngelson (w), Henrikson (s)
- 164f-165w-166s. Clinical Methods and Practice in Speech Pathology.** (9 cr; prereq sr, 5, 61, 67, 161, 162, 163) Bryngelson, Henrikson, Starr
- 169w. Speech and Language in Human Behavior.** Basic orientation in the place of speech and language in human behavior. Individual projects and collateral reading. (3 cr) Henrikson
- 170w. Radio and Television Programming.** Intensive study of theory and practice of radio and television programming. Examination of the principles of program effectiveness and the program policies of the industry. Building and production of experimental programs with special emphasis on talk and discussion. (3 cr; prereq 65 or 66, or #) Ziebarth
- 171f, 172w, 173s. History of the Theater.** Plays, arts, and crafts of the theater from their beginnings to present. Special reports and projects. (9 cr; prereq sr, 5, 31) Graham
- 177f. Theater on Tour.** Selection, preparation, production, and touring of a school assembly program. (3-6 cr; prereq sr, 12 or more Upper Division speech credits and approval of faculty committee) Whiting and staff
- 178w. Theater on Tour.** Preparation, production, and touring of one or more full-length plays. (3-6 cr; prereq sr, 12 or more Upper Division speech credits and approval of faculty committee) Whiting and staff
- 181f, 182w, 183s. Readings in Speech.** Directed reading and preparation of reports on selected subjects. (Cr ar; prereq 5 and 6 addtl cr and #) Bryngelson, Henrikson, Howell, Whiting, Ziebarth, Graham, Lassman, Smith, Thompson, Ballet, Fletcher, Josal, Moulton, Scott
- 190f, 191w, 192s. Technical Stage Problems.** Theory of stage costume, scenic design, theater architecture, stagecraft, and lighting. Special projects and reports. (9 cr; prereq 111, 112, 113) Moulton (f), Josal (w,s)

*For Graduate Students Only*

- 201. General Seminar
- 203-204. Debate Coaching
- 207-208-209. Seminar in Persuasion
- 211-212-213. Seminar in Dramatic Theory
- 214-215-216. Seminar in Stage Direction
- 221-222-223. Seminar in Oral Interpretation of Literature
- 231-232-233. Seminar in Advanced Speech Problems
- 241-242-243. Seminar in Radio and Television Research
- 251. Seminar in Listening Comprehension
- 261-262-263. Seminar in Speech Pathology
- 267-268-269. Seminar in Experimental Phonetics
- 270. Advanced Clinical Audiology
- 271-272-273. Seminar in Hearing
- 275-276-277. Seminar in Rhetoric
- 281-282-283. Seminar in Organic Disorders of Speech
- 291-292-293. Research in Special Problems

**STATISTICS**

**Department Chairman**—Palmer O. Johnson

**Major Advisers in the Graduate School**—Professors Bearman, Donsker, Hurwic, Johnson; Associate Professors Reich, Savage; Assistant Professor Gates.

The organization of the Department of Statistics is adapted to the needs of graduate students in statistics and qualified workers in other fields who wish to receive training in statistical methods.

However, there is much an undergraduate student can do to prepare himself for subsequent graduate work in statistics. Such a student would do well in the first place to consult with major advisers in statistics to obtain a thorough knowledge of the opportunities in statistics and the kind of undergraduate preparation that would provide a good background for graduate work.

Two phases of background training and experience will be briefly indicated. One is training and experience in some practical field, e.g., in the physical sciences, the biological sciences, or the social sciences. This is done to obtain a knowledge of the content and problems in the field and a functional knowledge of scientific method as operative in a particular field. This could well be in the field one would choose as a field of application in the graduate program in statistics.

The other phase of preparation is in the field of mathematics. At the first level of usefulness, we include such supporting mathematics courses as elementary and advanced calculus, algebra of determinants and matrices and of linear and quadratic forms, finite differences including interpolation, numerical integration and other numerical methods, and complex variables.

At the next level of usefulness, one could include a number of mathematical topics: vector analysis and N-dimensional geometry, point-set and measure theory, combinatory analysis, finite groups, and the calculus of variations.

The prospective student in statistics should begin a self-evaluation of his preferences and his skills to note if they lie in theory or in application.

Listed below are a few of the beginning graduate courses from which the student, prepared as suggested above, could profitably select:

**Agricultural Science Fields**

- AgEc 191—Advanced Agricultural Statistics
- Agro 248—Applied Statistics

**Biostatistics**

- PubH 110—Biometric Principles
- PubH 120—Biostatistics II

**Economics**

- Econ 101C—Elements of Econometrics
- Econ 121A—Introduction to the Theory of Statistics

**Educational Psychology**

- EPsy 116—Introduction to Statistical Methods
- EPsy 216—Statistical Methods in Education

**Engineering, Mathematics, and Physical Science**

- Math 121—Mathematical Theory of Statistics
- ITM 133B—Probability with Engineering Applications
- Math 178A—Introduction to Probability

**Sociology**

- Soc 182—Statistical Methods

For a complete list of graduate courses see the *Bulletin of the Graduate School*.

## SWEDISH

See Scandinavian

### THEOLOGICAL TRAINING, PREPARATION FOR

Committee Chairman—William A. McDonald

**Major Advisers in SLA**—Professors Holmer, Hoyt, McDonald; Associate Professor Mather; Assistant Professor M. Blum.

The title "Preparation for Theological Training" is accurate in fact but misleading in emphasis. That the studies taken in a liberal arts college actually precede seminary training is obvious enough. That their main function should be to prepare the student for seminary work is dubious. An even more important task is getting the student ready for his total responsibility as a minister and as a citizen—most particularly in those areas where the liberal arts college can do the job more efficiently than a specialized seminary program conceivably can.

The student should, of course, learn as early as possible what seminary he plans to attend and what prerequisites it demands. But he should study its catalogue just as much to learn those areas in which it does *not* offer training as to ascertain those in which it does. For he should plan his program with a clear sense of his mission as a minister and of the part that the liberal arts can play in fulfilling that mission.

The Lower Division curriculum outlined below satisfies the SLA distribution requirements. At the same time it specifies a number of modifications. Therefore the freshman who intends (or is seriously considering) entering a theological seminary should study the program carefully, talk it over with specially designated Lower Division advisers, and also discuss it as soon as possible with one of the above-mentioned major advisers—Mr. Blum, 215 TNM; Mr. Holmer, 106 WeH; Mr. Hoyt, 219 ForH; Mr. McDonald, 310 FolH; Mr. Mather, 322 FolH. Such consultation will be useful whether or not the student decides to elect the interdepartmental program rather than a regular departmental major.

In planning their Lower Division program students should consult the *General Distribution Requirements* listed on page 8, as well as the special requirements and recommendations listed below.

#### Lower Division

- A. **Freshman English:** Engl A-B-C (if eligible); otherwise Engl 1A-2A-3A or 1B-2B-3B.
- B. **Foreign Language:** Greek strongly recommended.
- C. **Social Science:** Hist 14-15-16 (required) and 6 credits in other departments (excluding history and psychology).
- D. **Natural Science:** Psy 1-2 (required) and 9 credits in mathematics or physical science. Laboratory requirement may be met by taking Psy 4-5.
- E. **Humanities:** Phil 2 (required) and 10 credits in other departments (excluding history and mathematics). Engl 21-22-23, 37-38-39, Comp 27-28, Spch 5 recommended.
- F. **Health:** PubH 2 (Personal and Public Health, 2 credits) or PubH 3 (Personal Health, 2 credits) or equivalent.

#### Upper Division

The following are specific requirements, not all of which need be met by Upper Division courses. However, at least 60 credits must be earned in Upper Division courses for graduation.

- A. **Fine Arts:** 9 credits minimum in art and/or music.
- B. **History:** 18 credits minimum in medieval and modern history (at least 9 modern).
- C. **Language and Literature:** 9 credits minimum in English; 9 credits minimum in Greek, Hebrew, Latin, modern foreign language, foreign literature in translation, or humanities.
- D. **Philosophy:** 21 credits minimum, including history of philosophy (Phil 50-51-52).
- E. **Social Science:** 12 credits minimum in anthropology, economics, political science, sociology, speech, psychology.



## ZOOLOGY

**Department Chairman**—Nelson T. Spratt, Jr.; **Associate Chairman**, Magnus Olson

**Major Advisers in SLA**—Professor Olson; **Associate Professors** Gall, Stephens, Wallace; **Instructor** Kerr.

**Major Sequence in SLA**—27 credits in Upper Division courses.

**Preparation for Major**—Biol 1-2-3, or Zool 1-2-3 or equivalent and 22, or equivalent. If possible, beginning chemistry and at least 1 year of French or German should be completed during Lower Division work.

**Major Adviser in the College of Education**—Professor Palmer O. Johnson.

For the specialized curriculum in natural science see *Bulletin of the College of Education*.

It is recommended that the nonscience or nonzoology major student select from among the following courses: Biol 1-2-3 or 1A-2A-3A, Zool 52, 53, 59, 81, 82, 83. Biol 1-2-3 is prerequisite to all listed courses except Biol 1A-2A-3A which is a terminal course.

## Lower Division Courses

- Biol 1f-2w-3s.† General Biology.** Introduction to living things both plant and animal, and to the major biological concepts. Structure, function, classification, and evolution of organisms. (10 cr, §Bot 1-2-3, 4-5, Zool 1-2-3 or old 14-15, old NSci 7-8-9)
- Biol 1Af-2Aw-3As.† General Biology.** Introduction to living things and the major biological concepts. A terminal course primarily for nonmajors and students not pursuing a preprofessional program related to the biological sciences. (7 cr, §Bot 1-2-3, 4-5, Zool 1-2-3 or old 14-15, old NSci 7-8-9)
- 1f-2w-3s.† General Zoology.** Structure, physiology, embryology, classification, and evolution of animals. (10 cr) Olson, Stephens, Kerr
- 22w. Comparative Anatomy.** Comparative study of vertebrate systems, tracing the development of various structures from lowest forms to man. (5 cr; prereq soph, Biol 3 or Zool 3 or equiv) Eddy

## Upper Division Courses

Upper Division courses are open to sophomores under conditions explained on page 24.

- 50s. Introduction to General Physiology.** Comparative physiology of cells and cell systems. Physics and chemistry of protoplasm. (5 cr; prereq soph, Biol 3, or Zool 3 or equiv, or 15 cr in botany, and 10 cr in chemistry or §) Brokaw
- 51f. Introductory Animal Parasitology.** Elementary course dealing with parasitic protozoa, worms, and arthropods, and their relation to diseases of man and animals. (5 cr; prereq Biol 3 or Zool 3 or equiv) Wallace
- 52w. Introductory Entomology.** General morphology, life histories, habits, and classification of insects. (5 cr; prereq Biol 3 or Zool 3 or equiv) Price
- 53s. Fauna of the Central United States.** Identification, classification, and life histories of common land and fresh-water animals exclusive of insects and birds. (5 cr; prereq Biol 3 or Zool 3 or equiv) Eddy
- 54f. Histology.** Microscopic structure of the tissues and organs. (5 cr; not open to regular 3-yr premed and predent students; prereq Biol 3 or Zool 3 or equiv) Olson
- 57w-58s.† Introductory Ornithology.** Laboratory and field course in structure, classification, distribution, migration, habits, habitats, and identification of birds. (6 cr; prereq Biol 3 or Zool 3 or equiv) Warner
- 59w. General and Comparative Embryology.** Embryological development of invertebrate and vertebrate forms. (5 cr; prereq Biol 3 or Zool 3 or equiv) Spratt
- Ent 63w. Mammalogy.** Distinguishing characteristics of life histories of the various mammal groups, particularly those represented in the state. Consideration is given to the possibilities of fur farming in the case of certain species. (4 cr; prereq 22) Beer
- 81w. Invertebrate Zoology.** Review of invertebrate phyla with emphasis on structure and general classification. (3 cr; prereq Biol 3 or Zool 3 or equiv; offered 1960-61 and thereafter) Stephens
- 82f. Organic Evolution.** Survey of history, evidence, and causes of evolution. (3 cr; prereq Biol 3 or Zool 3 or equiv or Bot 3) Merrell
- 83f.s. Introduction to Genetics and Eugenics.** Genetic principles derived from experimentation with both plants and animals are considered, together with their application to practical

- problems, including those of human society. (3 cr; prereq Biol 3 or Zool 3 or equiv or Bot 3) Reed (f), Merrell (s)
- 84f.s. **Genetics Laboratory.** Experiments with living material to demonstrate the principles of heredity and their chromosomal basis. (1 cr; prereq 83 or 183 or #) Reed, Merrell
- 107s. **Protozoology.** Introduction to the taxonomy, morphology, physiology, development, and genetics of the free-living Protozoa. (4 cr; prereq 15 cr incl Biol 3, or Zool 3 or Bot 3 or #) Kerr
- Geol 107f. **Invertebrate Paleontology.** (3 cr; prereq B or  $\Delta$ ) Sloan
- 109w. **Sense Organs.** Survey of structure and function of sense organs of invertebrate and vertebrate animals. (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv and #; offered when feasible)
- 110s. **Animal Behavior.** Survey of effector mechanisms, their nervous and endocrine control, and behavior patterns of animals. (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv and #; offered 1960-61 and thereafter) Stephens
- 112f. **Advanced General Physiology.** Interactions between cell and environment; enzyme action and general protoplasmic structure and metabolism. (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv with #) Brokaw
- 113w. **Special Topics in Advanced General Physiology.** (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv with #)
- 117f. **Animal Ecology.** General ecology stressing ecological principles and land communities. (3 cr; prereq 15 cr in zoology incl Biol 3 or Zool 3 or equiv) Underhill
- 118w. **Animal Ecology.** Experimental approach to study of environmental factors affecting animal populations. (3 cr; prereq 15 cr in zoology incl Biol 3 or Zool 3 or equiv and #) Hodson
- 119su.\*\* **Limnology.** Conditions for life in the water and distribution of aquatic animals. (4 cr; prereq 15 cr in zoology incl Biol 3 or Zool 3 or equiv; offered at Lake Itasca Forestry and Biological Station only) Underhill
- 120s.\*\* **General Ecology of Insects.** Ecology with special reference to insects, their dispersal, distribution, abundance, natural control, and related problems. (3 cr; prereq 15 cr in zoology or entomology) Hodson
- 121f. **Ichthyology.** Taxonomy and habits of North American fishes with special reference to those of upper Mississippi drainage. (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv) Eddy
- Bot 136su. **Organism, Microclimate, and Weather.** (Offered only at Lake Itasca Forestry and Biological Station) (4 cr; prereq 10 cr in biology, botany, or zoology...physics recommended)
- 140s. **Biological Microscopy.** Necessary elements of optics, use and limitations of various types of microscopes, interperetation of microscopical data. Laboratory and demonstrations plus project in field of student's interest. (4 cr; prereq sr, 15 cr in zoology, entomology, or botany, and #; offered 1959-60 and alt yrs) Richards
- 144f. **Medical Entomology.** Principal arthropods noxious to man and animals. Special emphasis is placed on those arthropods which serve as vectors of pathogenic organisms of man and animals. (3 cr; prereq 15 cr incl 52 or equiv or #) Price
- 145w. **Parasitic Protozoa.** Structure, life histories, and economic relations of protozoal parasites of man and animals. Laboratory diagnosis. (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv and #) Wallace
- 146s. **Helminthology.** Worm parasites of man and animals, their structure, life histories, and biological relationships. (3 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv and #) Wallace
- Geol 155f. **Vertebrate Paleontology.** (3 cr; prereq Geol 107 or Zool 22 or #; offered 1959-60 and alt yrs) Sloan
- 160w-161s. **Cytology.** Survey of cell structure and behavior with special reference to genetic cytology and cellular physiology. (6 cr; prereq 15 cr incl Biol 3 or Zool 3 or equiv with #) Gall
- 170f. **Advanced Genetics.** General laws involved in heredity and variation with their applications to microorganisms, higher plants, and animals exclusive of man. (3 cr; prereq 15 cr incl 83, and #) Reed, Merrell
- 171w. **Genetics of Speciation.** Application of genetic principles to problems of speciation and evolution. (3 cr; prereq 15 cr incl 83 or #) Merrell
- 175s. **Human Genetics.** Inherited characters in man, particularly in relation to medicine, with some reference to the relation of genetics to marriage and to social conditions. (3 cr; prereq 83 and #) Reed
- 183s. **Experimental Embryology.** Growth, differentiation, and metabolism of developing organisms. (5 cr; prereq sr, 50 and 59 or equiv and #) Spratt
- 183f-184f-185f. **Physiology of Development.** Trains advanced students in organization, presentation, and evaluation of results of research in experimental embryology. 183: Chemical embryology, metabolic aspects of growth, differentiation, and morphogenesis. 184: Embryonic differentiation, including neuroembryology. 185: Endocrines in development,

\*\* Either 119su or 120s or both may be taken to complete 117f, 118w.

including sex-differentiation. (4 cr per qtr; prereq sr, 182 or equiv and #; 183 will be offered fall 1959-60, 184 fall 1960-61, and 185 fall 1961-62) Spratt  
 197f-198w-199s. Problems. Advanced work in some special line. (Cr ar; prereq Biol 3 or Zool 3 or #)

### For Graduate Students Only

- 100-101-102. Zoological Techniques
- 201-202-203. Research in Entomology
- 211-212-213. Research in Ecology
- 217-218-219. Research in Physiology
- 221-222-223. Research in Biophysics
- 229-230-231. Research in Histology
- 233-234-235. Research in Embryology
- 236. General Ecology of Insects
- 237-238-239. Research in Cytology
- 242-243. Insect Physiology
- 244-245-246. Research in Protozoology
- 251-252-253. Research in Genetics
- 254-255-256. Advanced General Entomology
- 259. Experimental Ecology Laboratory
- 261-262-263. Research in Parasitology
- 291-292-293. General Seminar
- 296-297-298. Special Seminar in Special Research Fields

### Biophysics

Zool 155f, 156w, 157s.# Biophysics. Survey of theoretical and experimental aspects of biology which can be studied by quantitative physical means. 155: Surveys tissue ultrastructure (biostatics) as revealed by hypermicroscopy, birefringence, X ray, electron, and radioactive means, and by colloidal and micellar phenomena. 156: Studies dynamics of biophysical systems; excitatory state, contraction, secretion, synthesis. 157: Examines integrative biophysical systems; stability of systems, transmission of intelligence, sensory mechanisms. (3 cr per qtr; prereq 28 cr distributed between physics and biology and #...physical chemistry and general physiology recommended) Schmitt

### Entomology and Economic Zoology

Students in SLA may elect courses in entomology and economic zoology by arrangement with the department, but before registering for any course they should get the approval of the Scholastic Committee. See the *Bulletin of the College of Agriculture, Forestry, and Home Economics*.

### III. Preprofessional Curriculums in Science, Literature, and the Arts

As explained on page 5 of this bulletin, many students enter the College of Science, Literature, and the Arts in order to secure the essential foundation for entrance into a professional school. The preprofessional work consists of courses particularly related to the field of ultimate interest, together with courses of a broadening general education nature.

It is essential that the student study the preprofessional requirements for the field of his choice very carefully if he is to continue his college career without loss of time. Detailed outlines of the curriculums in SLA which are prerequisite for entrance into the various professional schools are presented below.

#### A. University College

See Section I, page 14.

#### B. School of Architecture—Six-Year Course

This curriculum is intended for students who wish to combine with their professional training more general education than is offered by the 5-year professional curriculum in architecture. It leads normally to the bachelor of arts degree with a major in architecture at the end of 4 years and the bachelor of architecture degree at the end of 6 years.

The work of the first 4 years constitutes a modified version of the curriculum prescribed for the SLA major in architecture. The following procedures and program of studies should be adhered to in order to complete the work required for the two degrees in the proper sequence and in the normal time:

**First and Second Years**—The first 2 years' work may be taken at the University of Minnesota in the Lower Division of SLA, or at other accredited institutions. During this period the student should complete the requirements for entrance to the Upper Division of SLA as stated on page 8. These requirements should include the following:

High school or college equivalents of Higher Algebra or Solid Geometry  
Math 10, T, C—College Algebra and Trigonometry (10 credits)  
Math 40—Mathematical Analysis I (5 credits)  
Phys 1-2-3—Introduction to Physical Science (9 credits); Phys 1A-2A-3A, Physical Science Laboratory (3 credits)  
Art 23A-24A-25A—Drawing and Painting I (6 credits)  
Approved electives to make a minimum total of 90 credits

**Third and Fourth Years**—During these years the student is registered in the Upper Division of SLA as a candidate for the bachelor of arts degree with a major in architecture. To register as such, the student must secure the approval of the School of Architecture. Application forms may be obtained from the School of Architecture or from the Office of Admissions and Records. *Applications should be submitted not later than July 15 preceding the beginning of the academic year for which admission is being sought.*

The following courses should be included:

- Arch 51-52-53—History of Architecture (12 credits)
  - Arch 81-82-83—Architectural Design I (18 credits)
  - Arch 91-92-93—Architectural Design II (18 credits)
  - Art 60A-61A-62A—Drawing and Painting II (6 credits)
  - Math 53—Mathematical Analysis II (5 credits)
  - MM 92-93—Statics for Architects: Solid Mechanics for Architects (8 credits)
- Approved electives to make a minimum total of 180 credits acceptable for the B.A. degree
- CE 38-39-41—Structural Design, or Arch 71-72-73, Building Technology, may be taken but will not carry credit toward the B.A. degree

**Fifth and Sixth Years**—During these years the student is registered in the Institute of Technology as a candidate for the bachelor of architecture degree. To register as such, the student must secure the approval of the School of Architecture and transfer to the Institute of Technology. Application must be made as prescribed above for admission to the third and fourth years' work. The following courses should be included:

- CE 38-39-41—Structural Design (9 credits)
  - Arch 71-72-73—Building Technology (12 credits)
  - Arch 74-75-76—Building Technology (12 credits)
  - Arch 104—Planning (3 credits)
  - Arch 111-112-113—Architectural Design III (24 credits)
  - Arch 121-122—Architectural Design IV (18 credits)
  - Arch 123—Thesis (12 credits)
  - Arch 126—Professional Relations (3 credits)
- Additional approved electives to make a minimum total of 282 credits for the 2 degrees

For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.) see Section II of this bulletin.

## C. School of Business Administration

The purpose of the prebusiness curriculum is to combine courses in liberal education with preliminary basic courses in business administration and economics. In recognition of the widening social responsibility of business management, the student is urged to elect courses in several fields outside of business administration and economics in addition to fulfilling the following requirements.

To be eligible for admission to the School of Business Administration, the student must present 90 credits, in addition to credits for physical education, earned in a recognized college or university with a scholarship average of C.

The School of Business Administration offers courses leading to the degrees of bachelor of science in business and bachelor of science in economics. Students preparing to enter the School in pursuit of either of these degrees must satisfy the following prebusiness requirements.

### Lower Division Requirements for Admission to the Programs Leading to the Degree of Bachelor of Science in Business

Required of all students entering as freshmen September 1958 and thereafter. Entering students classified as sophomores (39 or more credits) are urged to satisfy these requirements, but may apply under the old requirements. All applicants to the School of Business Administration in the fall 1960 or thereafter must meet these requirements.

The requirements for admission are as follows:

**A. Business and Economics Courses (22 credits)**

- BA 1—Business and the American Economy (prereq fr or soph with no previous BA) (3 credits)
- BA 5—Elements of Statistics (prereq Math 10 or equiv) (4 credits)
- BA 24-25-26—Principles of Accounting (prereq 3rd qtr fr) (9 credits)
- Econ 1-2—Principles of Economics (prereq 3rd qtr fr) (6 credits)

**B. Freshman English (9-15 credits)**

- Engl A-B-C—Freshman Literature and Composition (15 credits); or Engl 1A-2A-3A or 1B-2B-3B—Freshman English (12 credits); or Comm 1-2-3—Communication (12 credits); or GC 31A, 31B, and 31C or 31D—Writing Laboratory (9 credits) if ranked in the upper one-third; or exemption from requirement.

**C. Math 10—College Algebra, or equivalent (5 credits)**

**D. Social Science (15 credits\*\*)**

- In 2 or more of the following departments, with at least 5 credits taken in a department (or 4½ credits transferred from another institution) to meet this requirement: anthropology, geography, history, political science, psychology, and sociology (except Soc 45, Social Statistics, which is not acceptable in fulfillment of this requirement). SSci 1-2-3 and 5 credits in 1 of the above departments will satisfy this requirement.

**E. Natural Science (8 credits)**

- Eight credits in courses *with laboratory* from one of the following groups: botany, chemistry, geology, NSci 4-5-6 (Physical World), Biol 1-2-3 (General Biology), physics, zoology.

**F. Humanities (10 credits\*\*)**

- From 2 or more of the following categories, with at least 5 credits to be taken in a department (or 4½ credits transferred from another institution) to meet this requirement: art, English literature, foreign literature, history, humanities, music, philosophy, speech and theater arts (except Spch 6, 9, and 39), a foreign language.

**G. Electives (sufficient to complete the minimum of 90 credits required for admission)**

Students planning to enter the accounting program are required to complete the following courses in addition to the above: Comp 27, Advanced Writing; and Math 40A, Mathematical Analysis I.

## Lower Division Requirements for Admission to Sequences Leading to the Degree of Bachelor of Science in Economics

**Economics Sequence**

- Engl A-B-C or 1A-2A-3A or 1B-2B-3B or Comm 1-2-3 (12 or 15 credits)
- Math 10 or equivalent—College Algebra (5 credits). Old Math 7 or 15 will be considered equivalent to Math 10 in meeting this requirement
- Econ 1-2—Principles of Economics (6 credits)
- BA 5—Elements of Statistics (4 credits)
- Political science or history (9 credits)
- Phil 1—Problems of Philosophy, or Phil 2—Logic (5 credits)
- Additional mathematics or laboratory science (10 credits). If mathematics is elected it is strongly recommended that Math 40 (for which trigonometry is a prerequisite) or equivalent be included.
- Electives: Modern language (especially for those intending to pursue graduate work), psychology, history, political science recommended (36 to 39 credits)
- Total—90 credits

**Statistics Sequence**

- Engl A-B-C or 1A-2A-3A or 1B-2B-3B, or Comm 1-2-3 (12 or 15 credits)
- Math T or equiv—Trigonometry (5 credits)

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\*\* If courses in history are used to satisfy the requirements in one area, courses from the same department may not be used to satisfy the requirements in a second area. Courses in Interdepartmental Courses and General Education (humanities, natural science, social science) may be used to satisfy requirements in only one area.

Math 10 or equiv—College Algebra (5 credits)

Econ 1-2—Principles of Economics (6 credits)

BA 5—Elements of Statistics (4 credits)

Political science or history (9 credits)

Phil 1—Problems of Philosophy or Phil 2, Logic (5 credits)

Additional mathematics (5 credits)

BA 24-25-26—Principles of Accounting (9 credits)

Electives: Modern language, history, political science, Math 40, Math 53 recommended (27 to 30 credits). Math 53 which is an Upper Division requirement, may be taken by sophomores who have a C average in the prerequisite courses in mathematics.

It is desirable that Math 40 and 53 be taken as a sophomore when the student's program permits.

Total—90 credits

For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

## D. School of Dentistry

### Six-Year Dentistry Program

The 6-year dentistry program consists of 2 years of prescribed liberal arts course work during which time students are registered in SLA and are subject to its regulations, plus 4 years in the School of Dentistry which then grants the degree of doctor of dental surgery (D.D.S.). At the end of the second year in dentistry, a bachelor of science (B.S.) degree is awarded to all students in good standing who formally request it. Predental course work can be begun at any time, but students are accepted into the School of Dentistry only during fall quarter.

#### Requirements for Admission

**General**—A minimum of 90 quarter credits (60 semester credits) with a scholarship average of at least C from an accredited liberal arts college is required. Quality credits may not be used to decrease this requirement. Courses must include 1 year of English, 1 year of zoology, 1 year of physics, 1 year of general inorganic chemistry and semimicro qualitative analysis, and ½ year of organic chemistry to include both the aliphatic and aromatic series. Although the minimum requirement in organic chemistry is listed only as ½ year, it is to the advantage of the applicant to have completed a full year of organic chemistry. Science courses must include both lecture and laboratory instruction. ROTC credits are acceptable, but credits in physical education, human anatomy, physiology, histology, and bacteriology are not acceptable as part of the 90 quarter credits required for admission.

At the University of Minnesota the requirements for admission to the School of Dentistry are met by the following 2-year course of study, provided algebra and plane geometry were taken previously in high school:

1. Engl 1A-2A-3A or 1B-2B-3B (12 credits); or Comm 1-2-3 (12 credits); or Engl A-B-C (15 credits)
2. Zool 1-2-3 (10 credits)
3. InCh 4-5, 11 (12 credits)
4. OrCh 61-62 (8 credits)
5. Phys 1-2-3 and 1A-2A-3A (12 credits)
6. Especially recommended as electives, and listed in order of significance, are OrCh 63-64; Math 10-40; AnCh 57; Zool 22, 59, 83; PCh 107-108; Art 20; and Clas 24.
7. It is recommended strongly that at least 15 credits be taken in such liberal arts courses as anthropology, classics, economics, history, humanities, languages, philosophy, political science, psychology, and sociology.

The Committee on Admissions will give preference to those applicants who have high scholastic records in college; who make satisfactory scores on the dental aptitude test; who will have completed all course requirements by the end of the usual academic year previous to the desired date of admission; who, after having been granted a provisional acceptance, maintain an academic record of quality at least as good as the record at the time of the provisional acceptance; and who, in all other respects, give promise of becoming successful students and dentists of high standing. Unabsolved conditions and unabsolved failures will be looked upon with distinct disfavor.

**Dental Aptitude Test**—All applicants are required to take the Dental Aptitude Test. It is given three times each academic year, the last time being in April. A good time to take the test is during the first quarter of the sophomore year, or as soon as the courses in zoology and inorganic chemistry have been completed. Many of the questions are specific and detailed, thus a careful course review prior to taking the test is advised. An application form and a brochure describing the test and listing the testing dates are available from the Office of Admissions and Records, 105 Administration Building, University of Minnesota, Minneapolis 14.

**Residence Requirements**—First choice is given to Minnesota residents, second choice to residents of neighboring states that do not have dental schools, and third choice to other nonresidents who have acceptable reasons for attending the University of Minnesota School of Dentistry. Nonresidents are accepted only if their scholarship has been outstanding and if their other qualifications indicate unusual promise for the study of dentistry and a career in science.

#### *Application Procedures*

**General**—Application blanks can be secured from the Office of Admissions and Records, 105 Administration Building, University of Minnesota, Minneapolis 14. All applications for the School of Dentistry should be filed as soon as possible, and at least 9 months prior to the fall quarter in which the applicant desires to enroll in the School of Dentistry. The closing date for application is April 15. Applicants may be required to appear for a personal interview at the discretion of the Committee on Admissions.

#### **Seven-Year Program in Arts and Dentistry Leading to the Degrees of Bachelor of Arts (from SLA)\*\* and Doctor of Dental Surgery (from School of Dentistry)**

Students in this combined course must complete all the distribution requirements of SLA and must earn 135 credits in SLA including the usual predoctoral requirements. Of the 135 credits, 45 must be earned in residence in Upper Division and a minimum of 30 must be in Upper Division courses. An average of C must be maintained in all University of Minnesota courses, in all transfer credits applicable to the B.A. degree, and in courses taken in residence in Upper Division.

During his third year the student elects work in Upper Division subject to the approval of the assistant dean for the Upper Division. The course work of the freshman and sophomore years in the School of Dentistry, exclusive

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\*\* Restricted to students who have completed all of their required course work in SLA prior to entering the School of Dentistry.



of technical and practical work, when completed according to the standards required in that school, counts as the equivalent of the fourth year (45 credits of the Arts program). The student is then eligible for the B.A. degree, and he becomes eligible for the D.D.S. degree in 2 more years.

### Program Leading to the Degrees of Graduate Dental Hygienist and Bachelor of Arts

Students may enter the 2-year dental hygiene program in the School of Dentistry either as freshmen or upon transfer from some other college. When they have completed this program as specified in the *Bulletin of the School of Dentistry*, with a C average, they may enter the Arts College.

To receive the bachelor of arts degree, in addition to the dental hygiene degree (G.D.H.), students must fulfill the distribution requirements listed on pages 8 and 9 of this bulletin and the graduation requirements listed on pages 11 to 13. Liberal arts courses taken while in the School of Dentistry or elsewhere may be used to satisfy these graduation requirements. Usually 2 or 3 additional years of work are required.

For detailed information about the individual subjects of study in this curriculum (course numbers and titles, credits, prerequisites, etc.) see Section II of this bulletin.

## E. College of Education

All students who desire to receive a state teacher's certificate upon graduation from the University of Minnesota must be graduates of the College of Education. In many cases students register in that college at the beginning of their junior year. In certain 4-year and 5-year curriculums, however, they should register in the College of Education at the beginning of their freshman year or as soon thereafter as they have made their curriculum choice. All of these curriculums (art, business and distributive, elementary, industrial, music, nursery school-kindergarten-primary, physical education, recreation leadership and the teaching of exceptional children) are described in the *Bulletin of the College of Education*.

Students preparing to teach academic subjects in high school take the first 2 years in SLA. They should secure a copy of the *Bulletin of the College of Education* and have an adviser in that college at the beginning of the sophomore year. To qualify for the state high school standard certificate they must have 1 major and 1 or more minors in subjects commonly taught in high schools. The selection of suitable majors, minors, and the most desirable combinations of subjects is very important in securing a high school teaching position. Counselors in the Student Personnel Office of the College of Education will help the student in making such selection and will also furnish information in regard to the current demand for teachers in the various fields and the possibility of future placement.

The College of Education offers majors in the following areas: language arts, English, speech, speech pathology, core curriculum, German, Latin, French, Spanish, social studies, geography, history, political science, sociology, natural sciences, physical science, and mathematics. Minors may be completed in journalism, library science, public health, and Russian, as well as in most of the areas listed for majors. The specific requirements for the different majors and minors are given in Section II of this bulletin and also in the *Bulletin of the College of Education*. Special combinations of majors and

minors are provided in the language arts, natural sciences, and social studies curriculums.

### General Requirements for Transfer to the College of Education

The following general requirements must be satisfied by all students who are preparing to teach academic subjects in high school and who regularly enter the College of Education at the beginning of the junior year:

1. A minimum of 90 quarter credits, carried with an average of 2 grade points per credit (C average), is necessary for admission to the College. Quality credits are awarded in accordance with SLA policy.
2. A minimum of 15 credits in a major field carried with an average of 2½ grade points per credit (C+ average), and at least 10 credits in a minor field are necessary for admission. In the case of those individuals taking broad field majors, the minors may be in subdivisions of the broad field major.
3. The student must have completed 6 credits in general psychology (Psy 1-2); PubH 3 and 4 or equivalent; and physical education (3 credits for men, 5 credits for women) selected from the nonprofessional physical education courses.
4. At the time of entrance to the College of Education a student must present a certificate from the University Health Service indicating that he is free from physical defects or health conditions that would prevent the successful pursuit of educational work, and a certificate from the Speech and Hearing Clinic that he meets the speech requirements for teaching.
5. At the time of applying for transfer to the College of Education, the student also must complete the necessary clearances including certain psychological tests and interviews.

### Distribution Requirements for Students Transferring to the College of Education

In addition to the general requirements listed above, junior entrants must have met distribution requirements under 1 of 2 optional plans described in Section I of the *Bulletin of the College of Education*.

1. Plan I calls for 12 to 15 credits of English or communication; 0 to 20 credits of foreign language (depending on high school background); 10 to 12 credits of social science; and 10 to 15 credits of natural science (other than psychology).
2. Plan II includes 12 to 15 credits of English or communication; 18 credits of social science from at least 2 fields; 18 credits of natural science from at least 2 fields, 9 of which must be with laboratory (excluding psychology laboratory); and 18 credits in humanities from at least 2 fields.

Students should consult the *Bulletin of the College of Education* for full details on both of the above plans. Those with 2 years of college work who have not fulfilled all entrance requirements may consult with the Committee on Student Scholastic Standing of the College of Education, 206 Burton Hall, for individual consideration.

The above requirements do not apply to students in the speech pathology curriculum. Students desiring this program should consult the *Bulletin of the College of Education* for requirements and should confer with the adviser early in his course.

### Application Procedures

1. Apply for admission to the College of Education at the College Transfer window (window 5) in the Administration Building early in the third quarter of the sophomore year. This allows sufficient time to schedule psychological tests, speech and health examinations prior to registration for the next quarter.
2. Complete the clearances as outlined on the clearance form that is issued when application for transfer is made.

3. At any time students may talk with a staff member in the Student Personnel Office, 206 Burton Hall, about entrance requirements, arrangements for transfer, educational and vocational information, or choice of a career in teaching.

### Combined Program in Arts and Education Leading to the Degrees of Bachelor of Arts (from SLA) and Bachelor of Science (from the College of Education)

For students who qualify, the College of Science, Literature, and the Arts and the College of Education provide an opportunity for joint registration in a program leading to the B.A. and B.S. degrees. To earn both degrees, the student must complete the requirements of both colleges and must spend 1 year of Upper Division residence in each college. The total time required is but little more than 4 years if the student enters it at the beginning of the junior year. For information on eligibility and the procedures for application, consult the Upper Division Office (223 Johnston Hall) or the College of Education (206 Burton Hall).

## F. Law School

### Requirements for Admission and for the Combined Degree in Arts and Law

The Law School offers the professional degree of bachelor of laws (LL.B.) which qualifies one for bar examinations and admission to practice. The course of study in the Law School consists of 3 years plus 15 quarter credits of law usually taken in one summer after the first or second year.

Admission to the Law School requires:

1. A bachelor of arts degree or its equivalent; or
2. Completion of a special 3-year course in the College of Science, Literature, and the Arts. The 3 years of college work must include the following:
  - a. Completion of 135 of the credits (not including quality credits) required for a B.A. degree. Forty-five of these credits must be in residence in the SLA College of this university.
  - b. Completion of the college cultural distribution or breadth requirements. At Minnesota this includes the Lower Division distribution plan and 15 Upper Division credits outside the student's major department.
  - c. Completion of the college requirements for a "major" in the department of the student's choice. (There is no requirement of a minor.)
  - d. Completion of a course in advanced English composition.
  - e. Completion of two substantial papers involving independent research at the Upper Division level, either as a part of the requirements of a course or as an independent research assignment.

After successful completion of the first year of Law School, the student will receive the B.A. degree from the SLA College with law as the minor. A student who attends his first 2 years of college elsewhere may qualify under this 3-year prelaw program by transferring to the SLA College of this University for his third year, provided he has planned his program carefully in his first 2 years.

Details with respect to admission requirements and the Law School program may be found in the *Bulletin of the Law School*. Attention is directed to the fact that a student's prelaw scholastic record and the results

of the Law School Admission Test given by the Educational Testing Service at Princeton, New Jersey, will be considered in determining his admissibility. This test is given in February, April, August, and November of each year at the University of Minnesota as well as at numerous other test centers throughout the world. Students should plan to take the test in November or February of the year before they make application to the Law School. Information pamphlets and application blanks for the test are obtainable from the office of the dean at the Law School, from the Student Counseling Bureau, 101 Eddy Hall, University of Minnesota, Minneapolis 14, or from the Educational Testing Service, 20 Nassau Street, Princeton, N. J.

## G. College of Medical Sciences

The principal curriculums offered in the College of Medical Sciences are the following: medicine, nursing, medical technology, physical therapy, and occupational therapy. Each affords training for a different profession and the requirements of each course should be read carefully.

### 1. CURRICULUM IN MEDICINE\*\*

There are two 7-year courses of study which lead to the degree of doctor of medicine. Both require 3 full years of college work (135 credits exclusive of quality credits) which must include the courses prescribed for admission to the Medical School. In the first course the student may freely choose elective subjects to make up the total of 135 credits. He will receive the degree of bachelor of science after he completes 2 years of work in the Medical School. In the second of the 2 courses, the student must meet the requirements for admission to the Upper Division of SLA which he should enter, normally, after 2 years of residence in the Lower Division. His program for the third year must be submitted for approval to the assistant dean for the Upper Division. He will receive the degree of bachelor of arts after he completes satisfactorily 1 year of work in the Medical School.

**Residence**—First choice is given to residents of Minnesota, second choice to residents of neighboring states that do not have medical schools, third choice to other nonresidents who have acceptable reasons for attending here. Nonresidents are accepted only if their scholarship has been outstanding and other qualifications indicate that they have unusual promise for the study of medicine or a career in science. Applicants who make their homes in Minnesota only subsequent to graduation from high school are considered by the Admissions Committee of the Medical School as nonresidents.

**Program Plans**—Because of the large number of applicants to the Medical School and the consequent high percentage of students failing to be admitted although they may meet the minimum entrance requirements, all premedical students are urgently advised to plan their 3 years of premedical work in such a way that, in case they are not admitted to the Medical School, they may still proceed toward a degree in some other college without undue loss of time. They should consider this possibility from the first quarter of their registration in the University.

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\*\* Students who desire to receive a college degree before entering the Medical School must include all of the required premedical subjects in the "Course Leading to the Degree of Bachelor of Arts" for which the requirements are stated on pages 11 to 13. They may find it to their advantage to take the course with an interdepartmental major rather than a major in one department. (See page 12.)

## Seven-Year Course in Science and Medicine Leading to the Degrees of Bachelor of Science (from Medical School) and Doctor of Medicine (from Medical School)

The minimum requirements in order to be considered for admission to the Medical School are 3 full years of college work, amounting to 135 credits, with a scholarship average of C. At the present time, because of the large number of applicants, an average well above C is usually necessary in order to achieve admission.

The premedical work, for which the student is registered in SLA, must include the following required courses or their equivalent as approved by the Admissions Committee of the Medical School.

### Required Courses

- English:** Engl A-B-C—Freshman Literature and Composition (15 credits), or Engl 1A-2A-3A—Freshman English (12 credits), or Engl 1B-2B-3B—Freshman English (12 credits), or Comm 1-2-3—Communication (12 credits), or exemption from the requirement
- Zoology:** Zool 1-2-3—General Zoology (10 credits) and Zool 83—Introduction to Genetics and Eugenics (3 credits)
- Chemistry:** InCh 4-5, 11 or equivalent—Inorganic Chemistry (14 credits); AnCh 57—Quantitative Analysis (4 credits); OrCh 61-62—Elementary Organic Chemistry (8 credits); and PhCh 107-108—Elementary Physical Chemistry (6 credits)
- Mathematics** (as a prerequisite for physics): Math H—Higher Algebra and Math T—Trigonometry, taken in high school or college (for credits see page 96); Math 10—College Algebra (5 credits) and Math 40—Mathematical Analysis I (5 credits) or equivalent including trigonometry and college algebra
- Physics:** Phys 4-5-6—General Physics (15 credits; prereq Math 40 or 140 or comparable mathematics, ††)
- Psychology:** Psy 1-2, General Psychology (6 credits)
- Social Science** (12 credits): This is a requirement in general education which may be met in a variety of ways, including course work in anthropology, economics, geography, history,\*\* political science, social science, and sociology
- Humanities** (9 credits): This is a requirement in general education which may be fulfilled with credits earned at the Lower or Upper Division level. Course sequences in classics (including languages), comparative philology and linguistics, history,\*\* humanities, and philosophy are accepted

It is suggested that the 3 years of work should be distributed as follows:

**First year**—InCh 4f-5w, 11s (14 credits); Zool 1f-2w-3s (10 credits); Engl Af-Bw-Cs (15 credits) or Engl 1Af-2Aw-3As (12 credits) or Engl 1Bf-2Bw-3Bs (12 credits) or Comm 1f-2w-3s (12 credits); Math H, T, 10 and 40 taken according to placement tests in freshman year if possible.

**Second year**—OrCh 61f-62w and AnCh 57s (12 credits); Phys 4f-5w-6s (15 credits); Psy 1f-2w or 1w-2s (6 credits); social science (12 credits); Math 40f if not taken during the freshman year.

**Third year**—PCh 107f-108w (6 credits); humanities (9 credits); Zool 83f or 83s (3 credits); and electives chosen in conference with an adviser.

### Elective Courses

The Admissions Committee will show preference for the applicant who has displayed a well-developed interest in, and aptitude for, a special field of knowledge.

\*\* History may be counted for credit in social science, or for credit in the humanities area but not toward fulfillment of both requirements.

†† Students matriculated in schools other than the University of Minnesota must complete a physics sequence comparable to the above: i.e., a physics course for which trigonometry and college algebra are prerequisites.

Prospective applicants normally are encouraged to concentrate their electives in the subjects listed below and they should devote at least 18 quarter credits to a sequence in one of the following. This represents work beyond required premedical courses. Normally the department chosen for elective emphasis should be different from that chosen to fulfill the required courses above.

Anthropology	English	Humanities	Romance Languages
Biostatistics	Fine Arts	Philosophy	Social Science
Child Development	German	Political Science	Sociology
Classics	History	Psychology	Speech
Economics			

Since the courses required for admission provide a concentration in physical and biological sciences, it is usually undesirable for the student who takes only 3 years of premedical work to devote many elective credits to botany, chemistry, geology, mathematics, physics, or zoology. However, an applicant who has a special interest in and aptitude for one of these particular sciences may be an exception to this general rule.

Although a reading knowledge of a modern foreign language is not a requirement for admission, competence in at least one foreign language is exceedingly important for those individuals who may become interested in *medical research* or in *graduate training in medicine*. It is recommended that such students devote at least 20 of their elective credits to German, French, or another appropriate modern foreign language.

Most students benefit from a fourth year of general or specialized education before they enter upon the medical course. This longer period of preparation is encouraged by the Admissions Committee of the Medical School.

For admission to the Medical School, a candidate's record must show a number of grade points at least twice the total number of credits in the group of required subjects; also a number of grade points at least twice the total number of credits in all subjects. A higher average is exacted of nonresident applicants.

Applicants are required to take a battery of tests for premedical students given by the Student Counseling Bureau. The scores on these tests are considered by the Admissions Committee in advising students and determining admission. A student applying for admission should file credentials at least 13 months before the admission date of the class for which he applies. An application blank may be obtained from the Office of Admissions and Records and *at the time of filing this should be accompanied by two transcripts of the applicant's college credits up to the date of application*. All admissions are subject to the limited registration regulations of the Medical School.

The work which is credited as the fourth year in candidacy for the degree of bachelor of science is taken in the Medical School. To earn this degree, a student must have completed satisfactorily the first 2 years of the medical course.

Students who have completed elsewhere 3 or more years of collegiate or university work which includes the required subjects specified above and which is in other respects the full equivalent of the 3 years of academic work required in this 8-year course will be awarded the degree of bachelor of science on recommendation of the faculty of the Medical School, provided they meet the scholarship requirements stated above.

The foregoing regulations governing the quality and amount of premedical training required for admission to the Medical School will apply for those who present the minimum amount of work. In cases of mature and

superior students, especially those who have taken degrees and have a record of outstanding accomplishment in some special area of education (even though it may not have been closely related to medicine), concessions may be made. Such cases will be considered individually by the Admissions Committee upon petition to the dean of the College of Medical Sciences.

A broad, general education is considered fundamental to medical study, but no student can pursue the medical course to advantage without adequate knowledge of biology, chemistry, and physics. Therefore, no substantial amount of the credits required in these premedical subjects is likely to be waived by the Admissions Committee.

### Seven-Year Course in Arts and Medicine, Leading to the Degrees of Bachelor of Arts (from SLA) and Doctor of Medicine (from Medical School)

This course requires 3 years of college work and 4 years in Medical School. The first 2 years of college work may be taken in any accredited college, but the third year (45 credits) must be taken in the Upper Division of SLA of this University.

Students in this combined course must complete all the distribution requirements of the SLA College and must earn 135 credits in SLA including the usual premedical requirements (see page 157).\*\* Of the 135 credits, 45 must be earned in residence in Upper Division, a minimum of 30 must be in Upper Division courses and the program must be approved by a premedical adviser. The SLA credits must include a minor and 15 Upper Division credits outside the major and minor areas. Since the major area is medicine, courses in those departments closely related to medical sciences may not be used to fulfill the requirement of 15 outside credits. An average of C must be maintained in all University of Minnesota courses, in all credits applicable to the B.A. degree (including transfer credits), and in courses taken in residence in Upper Division. The first year of the course in the Medical School, when completed with the standards required by that school, counts as the equivalent of the fourth year (45 credits) of the Arts course.

### Combined Medical-Graduate Programs

A combined medical-graduate study program is available to certain highly qualified students with interest in graduate study in one of the basic medical sciences (anatomy, bacteriology, pharmacology, physiological chemistry, or physiology). Under this program, a student may pursue, over an extended period, both the curriculum leading to the M.D. degree and a graduate study program in one of the stated areas. In some cases, stipend support may be provided for the graduate portion of the program. Students interested in this program or in graduate study in one of the basic medical sciences are encouraged to schedule, whenever so advised by departmental advisers, more advanced courses in biology, chemistry, mathematics, and physics than those indicated as minimum requirements for admission to the Medical School. Furthermore, reading competence in one or more foreign languages is exceedingly important for students in graduate study in medical sciences.

\*\* For recommended electives and the restrictions governing them, see page 157.

To qualify for the combined medical-graduate program, a student must be accepted for admission to the Medical School and to the Graduate School, and his program of study must be approved by the Committee on Combined Medical-Graduate Programs of the College of Medical Sciences. Students wishing to explore a combination of graduate study in a basic medical science with the medical curriculum are encouraged to consult the Office of the Dean, College of Medical Sciences, 1360 Mayo Memorial, and the faculty adviser in one of the basic medical science departments.

## 2. CURRICULUM IN NURSING<sup>††</sup>

The curriculum in basic professional nursing leading to the degree of bachelor of science is a 16-quarter program—6 quarters in SLA or any other accredited university, college, or junior college, and 10 quarters in the School of Nursing. This program, open to both men and women, prepares for staff level positions in all fields of nursing, including public health nursing. The professional portion of the program is open to (a) students who have completed 95 quarter credits<sup>††</sup> of college work including required courses as listed below (with a C average), and (b) graduates of a Bachelor's degree program from an accredited college or university; candidates in this latter group who do not meet the requirements listed below are considered for admission on an individual basis. The following courses, or their equivalent, are required for admission to the School of Nursing:

Engl A-B-C or Engl 1A-2A-3A or Engl 1B-2B-3B or Comm 1-2-3 (12-15 credits)  
 Zool 1-2-3 (10 credits)  
 InCh 4-5 (10 credits)  
 Sociology or social science (9-12 credits)  
 History, political science, or economics (5 credits)  
 Psy 1-2 (6 credits)  
 Child care, child psychology, or child development (3 credits)  
 Public health (2 credits)  
 Physical education, activity courses (5 credits)  
 PE 25—First Aid (2 credits)—or current Red Cross first aid certificate  
 Electives (25-40 credits)

### Elective Courses

Choice of electives to make up the required total should be made on the basis of the individual's special interests. Recommended electives are courses in anthropology, child development, philosophy, physics, sociology, speech, zoology, and interdepartmental courses and general education.

An adviser from the School of Nursing faculty is assigned to prenursing students in the Arts College. Before registering each quarter, students should have their programs reviewed by their adviser in the School of Nursing, 124 Millard Hall.

Students from other universities or colleges may transfer to the University of Minnesota at any point in the prenursing program. Those who wish to complete all prenursing requirements before transferring to the University of Minnesota may do so provided they complete required courses as listed above. These students are urged to consult with the School of Nursing at the end of their freshman year.<sup>§§</sup>

<sup>††</sup> The number of credits may be diminished, in the case of superior students, under the quality credit rule of the Arts College.

<sup>‡‡</sup> For advanced professional and practical nursing curriculums see the *Bulletin of the School of Nursing*.

<sup>§§</sup> By action of the State Legislature, substantial scholarships have been established for nursing students who are residents of Minnesota. Anyone interested should inquire at the office of the School of Nursing.



### Information Concerning the Professional Program in the School of Nursing (Ten Quarters)

After transferring to the School of Nursing the student devotes 10 quarters to professional study. During the first 2 quarters the student completes courses in anatomy, physiological chemistry, bacteriology, physiology, and pharmacology and starts courses in clinical nursing. During the next 8 quarters emphasis is placed on clinical instruction and practice in medical, surgical, operating room, maternal, child, psychiatric, rural, out-patient, communicable disease, and public health nursing. For further information regarding the program leading to the degree of bachelor of science in professional nursing see the *Bulletin of the School of Nursing*.

### 3. CURRICULUM IN MEDICAL TECHNOLOGY

The program in medical technology is a 4-year course given in the Arts College and in the College of Medical Sciences. The degree of bachelor of science is awarded upon completion of the prescribed curriculum.

The first 2 years are spent in the Arts College. After completing 90 credits, including the required courses, with a C average, the student is eligible for admission to medical technology (that is, for registration in the College of Medical Sciences). The total number of required credits may be reduced in accordance with the quality credit rule of the Arts College. The entire fourth year (12 months) is spent in a rotating practical service in the laboratories of the University Hospitals.

The following courses or their equivalents are prerequisites for admission to the junior year:

Engl A-B-C—Freshman English and Composition (15 credits) or Engl 1A-2A-3A or 1B-2B-3B—Freshman English (12 credits) or Comm 1-2-3 (12 credits) or exemption from the requirement

InCh 4-5, 11—General Inorganic Chemistry and Semimicro Qualitative Analysis (14 credits)

AnCh 57—Quantitative Analysis (4 credits)

OrCh 61-62—Elementary Organic Chemistry (8 credits)

Zool 1-2-3—General Zoology (10 credits) and 54, Histology (5 credits)

Anat 4—Elementary Human Anatomy (5 credits)

Math H—Higher Algebra (for credits see page 95)

Phys 2-3—Introduction to Physical Science (6 credits)

Bact 53—General Bacteriology (5 credits)

MedT 10-11-12—Orientation in Medical Technology (3 credits)

MedT 30-31-32—Case Presentations (3 credits)

Electives—there is no essential limitation to the subjects which may be chosen as electives

The *Bulletin of the Course in Medical Technology*, which may be obtained at the Office of Admissions and Records, contains a suggested program for the first 2 years. For further information the student should consult special advisers in the Medical Technology office, C205 Mayo Building (telephone: Federal 9-7311, extension 2601).

**Advisers**—All students in this course should consult advisers in the Medical Technology office, C205 Mayo Building. Registration each quarter must be reviewed by one of these advisers.

### 4. COURSE IN PHYSICAL THERAPY

The course in physical therapy is a 4-year course leading to a bachelor of science degree in physical therapy. The first 2 years are spent in the Arts College during which time the studies are mainly in the basic sciences. The last 2 years are spent in the College of Medical Sciences, Department

of Physical Medicine and Rehabilitation. To be eligible for entrance into the junior year the student must complete 90 credits, including the required courses or their equivalents, with a C+ average in the basic sciences.

Physical medicine is that part of medical science concerned with the diagnosis and treatment of disease or injury by physical means. The treatment techniques are carried out by trained personnel called physical therapists who work under the direct medical supervision of a physician. Physical therapy includes the use of heat, cold, light, water, electricity, massage, exercise, and the teaching and training of patients in a rehabilitation program. The student must complete a minimum of 600 hours of clinical practice in the physical therapy departments of various affiliated hospitals.

The following courses or their equivalents are prerequisites for admission to the junior year:

- Engl A-B-C—Freshman Literature and Composition (15 credits) or Engl 1A-2A-3A—Freshman English (12 credits) or 1B-2B-3B—Freshman English (12 credits) or Comm 1-2-3 (12 credits) or exemption from the requirement
  - InCh 4-5—General Inorganic Chemistry (10 credits)
  - Zool 1-2-3—General Zoology (10 credits)
  - Phys 1-2—Introduction to Physical Science (6 credits) or GC 7A—Physical Science: Elements of Physics (5 credits)
  - Anat 4—Elementary Anatomy (5 credits)
  - Phsl 51—Human Physiology (6 credits)
  - Psy 1-2—General Psychology (6 credits) plus 3 additional credits in psychology (CD 80—Child Psychology [3 credits] is acceptable)
  - Social sciences (10 credits)—humanities, history, sociology and other social sciences are acceptable.
  - PubH 3 and 4—Personal Health and Health Problems of the Community (4 credits) or PubH 50—Personal and Community Health (3 credits)
  - PMed 2—Orientation to Physical Therapy (1 credit)
- Sufficient electives to make a total of 90 quarter credits.

**Advisers**—All students in this course should consult advisers in the Physical Therapy office, 860 Mayo Building (telephone: Federal 9-7311, extension 2721). Registration must be approved by a physical therapy adviser each quarter. For more detailed information see the *Bulletin of Physical Medicine and Rehabilitation*.

## 5. COURSE IN OCCUPATIONAL THERAPY

The course in occupational therapy is a program of 4 academic years plus 1 quarter which is given in the Arts College and in the Medical School. The degree of bachelor of science in occupational therapy is awarded upon completion of the prescribed curriculum.

The first 2 years are spent in the Arts College. After completing 90 credits and the required courses of the first 2 years with a high C average, the student is eligible for admission to the course in occupational therapy in the Medical School, Department of Physical Medicine and Rehabilitation. Nine months are spent in clinical training in various types of hospitals and institutions for the sick and handicapped during the last year.

The following courses or their equivalents are prerequisites for admission to the junior year:

- Engl A-B-C—Literature and Composition (15 credits) or Engl 1A-2A-3A—Freshman English (12 credits) or Engl 1B-2B-3B—Freshman English (12 credits) or Comm 1-2-3 (12 credits) or exemption from the requirement
- Zool 1-2-3—General Zoology (10 credits)
- Hum 21-22—American Life I and II (6 credits)
- Anat 4—Elementary Anatomy (5 credits)
- Psy 1-2—General Psychology (6 credits)
- Soc 1—Man in Modern Society (3 credits)
- Phsl 4—Human Physiology (4 credits)

Art 1—Principles of Art (5 credits)  
 ArEd 53-54—Weaving (6 credits)  
 CD 40—Child Training, or CD 80—Child Psychology (3 credits)  
 Physical education (1 credit)  
 PMed 1—Introduction to Occupational Therapy (1 credit)  
 PMed 4—Orientation to Occupational Therapy (2 credits)  
 PMed 5—Therapeutic Recreation (2 credits)  
 PubH 3—Personal Health (2 credits)  
 GC 7C—Physical Science: Elements of Chemistry (5 credits)  
 Ind 1—Handicrafts (3 credits)  
 Ind 2—Wood Processing I (3 credits)  
 Ind 15—Graphic Arts I (3 credits)

For more detailed information the student should consult a special adviser in the Occupational Therapy office, 860 Mayo Building (telephone: Federal 9-7311, extension 2721). See *Bulletin of the Department of Physical Medicine and Rehabilitation*.

**Advisers**—All students in this course should consult a special adviser in the Occupational Therapy office and have their programs reviewed each quarter. This applies to students who are still in the Arts College.

For detailed information about the individual subjects of the study in these curriculums (course numbers and titles, credits, prerequisites, etc.) see Section II of this bulletin.

## H. College of Pharmacy

The College of Pharmacy offers one undergraduate course consisting of 1 year of prepharmacy (taken in the Arts College) and 4 years of professional study (taken in the College of Pharmacy) leading to the degree of bachelor of science in pharmacy (B.S. in Pharm.).

The College of Pharmacy and the School of Business Administration offer an optional combined course consisting of 1 year of prepharmacy study and approximately 5 years of study in pharmacy and business administration leading to the degrees of bachelor of science in pharmacy (B.S. in Pharm.) and bachelor of science in business (B.S.B.).

The prepharmacy year for each of the two courses is taken in the Arts College and must include specified courses and elective credits as follows:

InCh 4-5-11 (14 credits)  
 Math T-10 (8 credits)  
 Comm 1-2-3 (12 credits)

PhmT 1A-1B (3 credits)  
 Electives (6-8 credits)

Students who have completed more than 1 year of collegiate training should inquire at the College of Pharmacy regarding their probable status on admission.

Admission to the College of Pharmacy is based upon the earned grade point average in required prepharmacy studies. A grade point average of 2.5 (C+) or above assures admission. Applicants with grade point averages below 2.5 will be considered individually and will be notified of their admission status about September 1 of each year. Nonresident applicants will be considered individually. Applications should be directed to the Office of Admissions and Records on forms available at 101 Wulling Hall or at the Office of Admissions and Records.

An over-all C average in courses taken at the University of Minnesota is required for graduation. In addition, all candidates for the degree of bachelor of science in pharmacy are required to pass a comprehensive examination covering the 4 years of work in the College of Pharmacy.

## I. Social Work

Professional study in the School of Social Work, which is a part of the Arts College, is at the graduate level. The recommended preprofessional program is Sequence B of the Department of Sociology which is described on page 134 of this bulletin. However, admission is not limited to those who complete the recommended Sequence B. For entrance requirements see the *Bulletin of the Graduate School* and the special *Bulletin of the School of Social Work*.

### FORMER PLANS I AND II

Below are listed the former SLA distribution requirements that have now been replaced by the new Single Plan, pages 8-9. Students who entered college before June, 1957, may elect to follow one of these as an alternative to the Single Plan. (See page 8 of this bulletin for definition of eligibility.)

#### Plan I

**A. English or Communication:** Engl A-B-C (Freshman Literature and Composition, 15 credits) or Engl 1A-2A-3A (Freshman English, 12 credits) or Engl 1B-2B-3B (Freshman English, 12 credits) or Comm 1-2-3 (12 credits) or old Comp 4-5-6 (9 credits) or exemption from the requirement. All students are required to have an English Classification Card before registering for one of these courses. (See page 65.)

**B. Foreign Language:** From 0 to 20 credits, according to the following schedule:\*\*

Amount Presented from High School	Amount Required in College
4 years of 1 language	None
3 years of 1 language	5 credits in same language
2 years of 1 language	10 credits in same language
1 year of 1 language	15 credits in same language
Less than a year of 1 language	20 credits in 1 language

**C. Social Science:** 10 credits\*\* in 1 of the social sciences: anthropology, economics and business administration,†† geography, history, political science, sociology; or 12 credits in SSci 1-2-3 (Introduction to Social Science)

**D. Natural Science:** 10 credits\*\* in 1 of the natural sciences: astronomy, botany (laboratory required), chemistry, general biology, geology (laboratory required), physics (laboratory required), psychology (laboratory required), zoology, or the interdepartmental courses in The Physical World (NSci 4-5-6) or the old course in General Biology (NSci 7-8-9); or 15 credits in NSci 1-2-3 (Orientation in the Natural Sciences)

**E. Health:** PubH 3 (Personal Health, 2 credits) or PubH (Personal and Public Health, 2 credits) or equivalent.††

#### Plan II

**A. English or Communication:** Engl A-B-C (Freshman Literature and Composition, 15 credits) or Engl 1A-2A-3A (Freshman English, 12 credits) or Engl 1B-2B-3B (Freshman English,

\*\* Any year-course of 9 credits (6 semester credits) may be substituted for the corresponding 10-credit course here.

†† PubH 50, intended for juniors and seniors, also meets the requirement. Students may be excused from the requirement if they pass a special examination, covering health information, given each quarter at a time and place announced in the University's Official Daily Bulletin of the Minnesota Daily.

‡‡ BA 24-25-26, 32, 33, 34, 36, 37-38-39, 43 and 79A-79B or old Econ 40-41 may not be used to satisfy the social science requirement.

12 credits) or Comm 1-2-3 (12 credits) or old Comp 4-5-6 (9 credits) or exemption from the requirement. All students are required to have an English Classification Card before registration for one of these courses. (See page 65.)

- C. Social Science:** 18 credits selected from at least 2 of the following social science fields: anthropology, economics and business administration,\*\* geography, history, political science, psychology, sociology, or SSci 1-2-3 (Introduction to Social Science)
- D. Natural Science:** 18 credits selected from at least 2 of the following 5 fields:
1. Biological science: botany, general biology, zoology, or old NSci 7-8-9 (General Biology)
  2. Mathematics: any course above Math H
  3. NSci 1-2-3 (Orientation in the Natural Sciences)
  4. Physical science: astronomy, chemistry, geology (laboratory required), physics (laboratory required), NSci 4-5-6 (The Physical World)
  5. Psychology
- E. Health:** PubH 3 (Personal Health, 2 credits) or PubH 2 (Personal and Public Health, 2 credits) or equivalent††
- F. Humanities.** 18 credits selected from at least 2 of the following 8 fields:
1. Art, music
  2. Foreign language and literature: any course in Classics, German, Japanese, Linguistics, Romance Languages, Russian, Scandinavian
  3. History
  4. Hum 1-2-3; Hum 11-12-13; Hum 21-22-23
  5. Literature: Engl A-B-C (Freshman English, literature portion, 9 credits); American literature; English literature
  6. Mathematics: any course above Math H
  7. Philosophy
  8. Speech

Three departments—history, mathematics, and psychology—are listed in 2 groups; but work in 1 of these departments can be used in satisfying only 1 group requirement.

\*\* BA 24-25-26, 32, 33, 34, 36, 37-38-39, 43 and 79A-79B or old Econ 40-41 may not be used to satisfy the social science requirement.

†† PubH 50, intended for juniors and seniors, also meets the requirement. Students may be excused from the requirement if they pass a special examination, covering health information, given each quarter at a time and place announced in the University's Official Daily Bulletin of the *Minnesota Daily*.

# FACULTY

## College of Science, Literature, and the Arts

Listed below are faculty members with rank of instructor and above. The roster was compiled in the spring of 1959 and is approximately accurate for 1959-61.

**Administration**—Dean Errett W. McDiarmid, Associate Dean J. W. Buchta, Assistant Dean Roger B. Page; Maxwell Alvord, Allen D. Flint, Mabel Powers, Philip Ray, Henry M. Robertson, Ruth Westlund

**Anthropology**—Chairman E. Adamson Hoebel; O. Elden Johnson, Robert Merrill, Rupert Murrill, Robert F. Spencer

**Art**—Chairman H. Harvard Arnason; Cameron Booth, Allen Downs, Lorenz Eitner, Jerome Leibling, Warren MacKenzie, Philip G. Morton, Malcolm Myers, Walter Quirt, Josephine Rollins, John Rood, Sidney Simon, Hylton A. Thomas, Donald A. Torbert, Dimitri Tselos, Melvin Waldfoegel, Elmer E. Young

**Astronomy**—Chairman Willem J. Luyten; John M. H. Danby

**Botany**—Chairman Allan H. Brown; Ernst C. Abbe, A. Orville Dahl, Albert W. Frenkel, John W. Hall, Agnes Hansen, Donald B. Lawrence, William E. Martin, Thomas Morley, Richard E. Norris, Gerald B. Ownbey

**Classics**—Chairman Norman J. DeWitt; Reginald E. Allen, Margaret M. Forbes, William A. McDonald, Donald C. Swanson, Roy A. Swanson

**English**—Chairman John W. Clark; Harold B. Allen, Elizabeth Atkins, Bernard Bowron, Huntington Brown, Thomas Browne, Frank Buckley, Richard Cody, Edward Coleman, William Coles, Louise Duus, James Erickson, Herbert Eschliman, Sumner Ferris, Charles H. Foster, Richard J. Foster, Robert Foulke, Joseph Frank, John Fraser, Arnold Goldman, Ledru Guthrie, Clifford Haga, Allan Hanna, Nathaniel Hart, Theodore Hornberger, Wayne Huebner, John D. Hurrell, Elizabeth Jackson, Alan Johnson, David Jones, Gerhard Joseph, Paul Kirchner, Irwin Klein, J. C. Levenson, Fort Manno, Raymond McClure, Patrick McGinnis, Mary Virginia Mitchell, Samuel Monk, Robert E. Moore, Franz Montgomery, Neil Myers, William Van O'Connor, Glen Omans, Harold Schneider, Douglas Schwegel, Grace Shapiro, George Simson, G. Robert Stange, Martin Steinmann, Allen Tate, Jack Tohtz, Mary Turpie, Leonard Unger, James Wright, Sara Youngblood

**Geography**—Chairman John R. Borchert; Jan O. M. Broek, Fred E. Lukermann, Eugene Mather, Philip W. Porter, John W. Webb

**Geology and Mineralogy**—Chairman George A. Thiel; J. Campbell Craddock, Paul W. Gast, Samuel S. Goldich, William C. Phinney, George M. Schwartz, Robert E. Sloan, Frederick Swain, Herbert E. Wright, Jr., Tibor Zoltai

**German**—Chairman Herman Ramras; Frank D. Hirschbach, Fred A. Krugel, Edwin F. Menze, Alvin Prottengeier, Helga Slessarev, Gerhard Weiss, Frank A. Wood

**History**—Chairman John Bowditch; Joseph Altholz, George W. Anderson, Paul W. Bamford, W. Donald Beatty, Clarke Chambers, Harold C. Deutsch, Robert S. Hoyt, Tom Jones, Philip D. Jordan, Rodney C. Loehr, Paul Murphy, David W. Noble, Darrett Rutman, Burton Stein, Faith Thompson, Alice Felt Tyler, David H. Willson, John B. Wolf, William E. Wright

**Interdepartmental Courses and General Education**—George Amberg, Robert J. Ames, John Berryman, Fred H. Blum, Morgan Blum, Daniel V. Bryan, Herbert L. Carson, David Cooperman, Nancy Czatt, Marguerite M. Ekren, Saul Engelbourg, Armin Grams, Mark Graubard, Maurine Hansen, Don Hausdorff, Vivian Hewer, J. Vernon Jensen, Clara Kanun, Joseph Kwiat, Helen Ludwig, Jack Ludwig, Marcia Morrison, Gerhard Neubeck, Robert O'Hara, Clement Ramsland, Mordecai M. Roshwald, Ralph G. Ross, Philip Siegelman, Marjorie Stenerson, David Torbett, Jay Vogelbaum, John Willcox, Stephen Winter

**Journalism**—Director Robert L. Jones: George S. Bush, Roy E. Carter, Mitchell V. Charnley, W. Edwin Emery, Jr., J. Edward Gerald, George S. Hage, Fred L. Kildow, Robert G. Lindsay, William A. Mindak, Raymond B. Nixon, John C. Sim, Harold W. Wilson, Willis L. Winter

**Library School**—Director David K. Berninghausen: Ann P. Callahan, Raymond H. Shove, Wesley C. Simonton, Frederick Wezeman

**Mathematics**—Chairman Robert H. Cameron, Associate Chairman John M. H. Olmsted; Glen E. Baxter, Ronald C. Bzoch, Elizabeth Carlson, Glen F. Clanton, Monroe D. Donsker, Erwin Engeler, Adriano M. Garsia, Bernard R. Gelbaum, Jesus Gil de Lamadrid, C. David Gorman, Laurence R. Harper, William L. Hart, Charles Hatfield, James Joichi, Bjarni Jonsson, Gerhard K. Kalisch, Frank B. Knight, Warren S. Loud, Steven Orey, John M. Slye, Frank L. Spitzer, David Storvick

**Music**—Chairman Paul M. Oberg; Norman Abelson, Bernard Adelstein, Rhadames Angelucci, Dominick Argento, Evelyn Barry, Walter S. Collins, Marvin Dahlgren, Rafael Druian, Guy Duckworth, Paul Fetler, Raymond Fitch, William Fitzsimmons, Paul Freed, Earl Handlon, George L. Houle, Thelma Hunter, Paul S. Ivory, Robert Jamieson, Paul Knowles, Mary Malcolm, Frances G. Miller, Emil Niosi, Emil Opava, Gerald R. Prescott, Johannes Riedel, Roy A. Schuessler, William Santucci, Gale Sperry, William Stamm, Andre Speyer, Paul Walton, Bernhard Weiser, Cloyde Williams, Lawrence Weinman

**Philosophy**—Chairman Alan Donagan: May Brodbeck, Herbert Feigl, Paul L. Holmer, Homer Mason, Karl H. Potter, Francis Raab, D. Burnham Terrell

**Political Science**—Chairman Lloyd M. Short; Harold W. Chase, Asher Christensen, Floyd O. Flom, Robert T. Holt, Werner Levi, Benjamin Lippincott, Clarence Ludwig, Herbert McClosky, Charles H. McLaughlin, Lennox A. Mills, Arthur E. Naftalin, Mulford Q. Sibley, John E. Turner, George A. Warp

**Psychology**—Chairman Kenneth E. Clark; Ralph E. Berdie, John G. Darley, Marvin D. Dunnette, Starke Hathaway, William T. Heron, David L. Horton, James J. Jenkins, Harold H. Kelley, David L. LaBerge, Gardner Lindzey, Lloyd Lofquist, Howard Longstaff, Kenneth MacCorquodale, James G. Martin, Paul Meehl, Donald G. Paterson, Robert S. Quiggle, Ephraim Rosen, Wallace A. Russell, Stanley Schachter, William Schofield, Virginia L. Senders, Benjamin Willerm n, Robert D. Wirt

**Romance Languages**—Chairman Walter T. Pattison; Marthe Blinoff, Emmert M. Brackney, James F. Burks, James A. Cuneo, Eugene H. Falk, Rodolfo O. Floripe, Raymond L. Grismer, Thomas B. Irving, Richard Narvaez, Elizabeth Nissen, Armand Renaud, Dorothy Rundorff, John M. Sullivan, Aram Vartanian

**Scandinavian**—Chairman Alrik Gustafson; Lilly Lorenzen, Marion Nelson

**School of Social Work**—Director John C. Kidneigh: Werner W. Boehm, Miriam Cohn, Beulah Compton, John Crane, Edward Francel, Frances Guzie, Paul Klinger, Gisela Konopka, Joyce Lewis, Henry Maier, Lawrence Merl, Verval Mueller, Mayo K. Newhouse, Anne W. Oren, Ruby Pernell, Ida Rapoport, H. Etta Saloshin, Lyndell Scott, Margaret Steen, Dorothy A. Whitmore, Helen Yesner

- Slavic and Oriental Languages**—Chairman .....; Edward M. Copeland, Jr., Richard B. Mather, David Nice, Pearl Niemi
- Sociology**—Chairman Elio D. Monachesi; Theodore Caplow, John Forster, Roy G. Francis, Reuben L. Hill, Arthur L. Johnson, Don Martindale, Henry W. Riecken, Arnold Rose, John Sirjamaki, Marvin J. Taves, M. Lee Taylor, George B. Vold
- Speech and Theater Arts**—Chairman Donald K. Smith; Lee Adey, John Ahart, Arthur Ballet, Ernest Bormann, Bryng Bryngelson, James Connolly, Kenneth J. Erickson, William W. Fletcher, M. Virginia Fredricks, Beverly A. Giltner, Kenneth L. Graham, Roger D. Gross, Ernest Henrikson, William S. Howell, Richard Humphrey, Wendell Josal, John C. LaBlanc, Frank M. Lassman, Bentley Lenhoff, Lowell Manfull, Robert D. Moulton, Ralph G. Nichols, Jerry Rumley, Robert L. Scott, George Shapiro, Robert Snook, Robert Struthers, David W. Thompson, Frank M. Whiting, E. W. Ziebarth
- Statistics**—Chairman Palmer O. Johnson
- Zoology**—Chairman Nelson T. Spratt, Associate Chairman Magnus Olson; Charles J. Brokaw, Samuel Eddy, Joseph G. Gall, Alexander C. Hodson, Norman S. Kerr, David J. Merrell, Clarence E. Mickel, Roger Price, Sheldon C. Reed, A. Glenn Richards, Otto Schmitt, Grover C. Stephens, James Underhill, Franklin G. Wallace, Dwain W. Warner



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