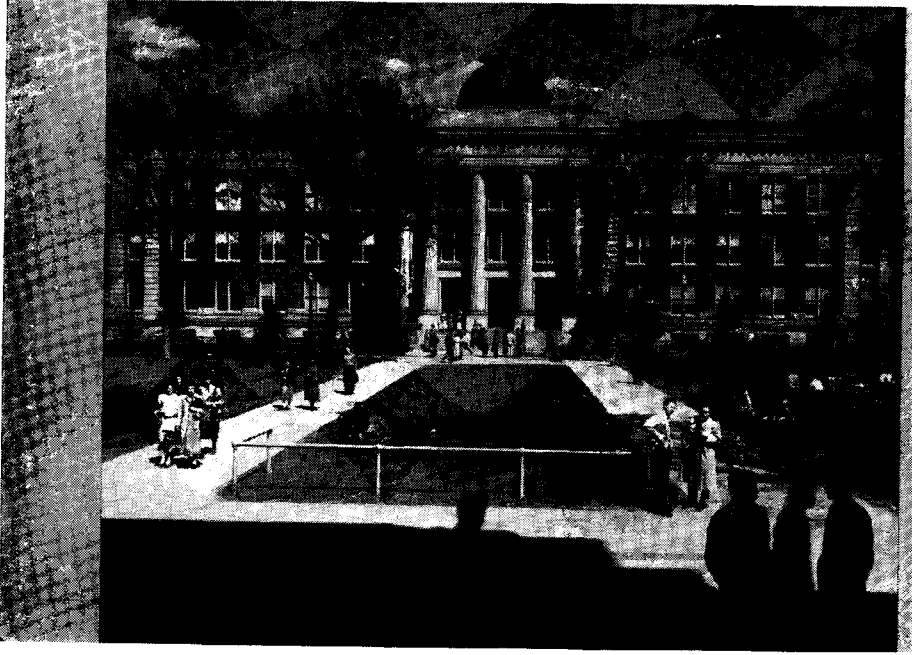


2,16/55

*Bulletin of the*

# UNIVERSITY OF MINNESOTA



*College of Science, Literature, and the Arts*  
*1955 - 1957*

## 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 describes 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 describes the courses offered in the College with the instructors for each, and it also lists the departmental major requirements.

Section III describes the Junior College programs that are prerequisite for students wishing to transfer to various professional schools after two or three years.

While this bulletin gives information necessary for program planning, it will be necessary to 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 that become effective 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 and prerequisites, 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.

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, Excelsior; The Honorable Lester A. Malkerson, Minneapolis; The Honorable Charles W. Mayo, Rochester; The Honorable Karl G. Neumeier, Stillwater; The Honorable A. J. Olson, Renville; and The Honorable Herman F. Skyberg, Fisher.

## Administrative Officers

James Lewis Morrill, President  
Malcolm M. Willey, Vice President, Academic Administration  
William T. Middlebrook, Vice President, Business Administration  
Robert Edward Summers, Dean of Admissions and Records  
Edmund G. Williamson, Dean of Students

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

### Administration

Errett W. McDiarmid, Dean (215 Johnston Hall)  
J. William Buchta, Associate Dean, Assistant Dean for Senior College (225 Johnston Hall)  
Russell M. Cooper, Assistant Dean for Junior College (208 Johnston Hall)  
Roger B. Page, Assistant Dean for Junior College Student Personnel, Chairman of the Committee on Student Scholastic Standing (215 Johnston Hall)  
Mable K. Powers, Senior College Counselor, Representative of Committee on Student Scholastic Standing (225 Johnston Hall)

### College Offices

Office of the Dean  
Dean of the College, 215 Johnston Hall  
Assistant Dean and Chairman of Scholastic Committee, 215 Johnston Hall

Senior College Offices  
Assistant Dean for the Senior College, 225 Johnston Hall  
Scholastic Committee Representatives, 225 Johnston Hall  
Senior College Counselors, 225 Johnston Hall  
Placement Consultant, 225 Johnston Hall

Junior College Offices  
Assistant Dean for the Junior College, 208 Johnston Hall  
Scholastic Committee Representatives, 214 Johnston Hall  
Co-ordinator of Faculty Advising, 214 Johnston Hall  
Junior College Freshman Advisers, 220 Johnston Hall

Tally Office, 210 Johnston Hall

## Department Chairmen, Heads, and Directors

- American Studies—Tremaine McDowell (101 TSF)  
Anthropology—E. Adamson Hoebel (309 Ford Hall)  
Art—H. Harvard Arnason (108 Jones Hall)  
Astronomy—Willem J. Luyten (359 Physics Building)  
Botany—A. Orville Dahl (8 Botany Building)  
Classics—Norman J. DeWitt (115 Folwell Hall)  
English—Theodore Hornberger (219 Folwell Hall)  
General Studies—Russell M. Cooper (208 Johnston Hall)  
Geography—Jan O. M. Broek (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—Herbert Heaton (242 Ford Hall)  
International Relations and Area Studies—Harold Deutsch (250 Ford Hall)  
Journalism—Ralph D. Casey (112 Murphy Hall)  
Library School—David K. Berninghausen (107 Library)  
Linguistics—Donald C. Swanson, Acting Chairman (210 Folwell Hall)  
Mathematics—Raymond W. Brink (119 Folwell Hall)  
Music—Paul M. Oberg (106 Scott Hall)  
Philosophy—Wilfrid S. Sellars (100 Wesbrook Hall)  
Physics—Alfred O. C. Nier (148 Physics Building)  
Political Science—Lloyd M. Short (395 Ford Hall)  
Psychology—Paul Meehl (112A Psychology Building)  
Public Administration Center—Lloyd M. Short (354 Ford Hall)  
Romance Languages—Walter T. Pattison (200B Folwell Hall)  
Scandinavian—Alrik Gustafson (13 Folwell Hall)  
Slavic and Oriental Languages—Thomas F. Magner (300 Folwell Hall)  
Social Work—John C. Kidneigh (400 Ford Hall)  
Sociology—Elio D. Monachesi (439 Ford Hall)  
Speech and Theater Arts—William S. Howell (309A Folwell Hall)  
Zoology—Dwight E. Minnich (108 Zoology Building)



# College of Science, Literature, and the Arts

## Section I

### General Information

#### Purpose of the College

The College offers a liberal education to students having the necessary ability and ambition. Through the liberal arts you can broaden your interests, develop your abilities, and prepare yourself for a life of useful service. The College of Science, Literature, and the Arts is the largest unit of the University primarily because it offers this broad, stimulating education so essential for personal development and for citizenship in a free society.

In fulfillment of this function, the College can help you in four basic ways:

**1. General Education**—The purpose of general education is to help you take your place in contemporary society, whatever your occupation or major interest may be. It should contribute to your total efficiency both when employed and when at leisure. More specifically, a sound general education should enable you:

1. To understand other persons' ideas through reading and listening, and, in turn, to express your own ideas effectively to others.
2. To attain a balanced social and emotional adjustment through an understanding of human behavior, the enjoyment of social relationships, and the experience of working co-operatively with others.
3. To improve and maintain your own health and to make intelligent decisions about community health problems.
4. To acquire the knowledge and attitudes basic to a satisfying family life.
5. To participate as an active, responsible, and informed citizen in the discussion and solution of the social, economic, and political problems of American and international affairs.
6. To understand the fundamental discoveries of science in their implications for human welfare and in their influence on the development of thought and institutions; to understand and appreciate the scientific method and to use it in the solution of concrete problems.
7. To understand and enjoy literature, art, music, and other cultural activities as an expression of personal and social experience; and, if possible, to participate in some form of creative activity.
8. To develop a set of principles for the direction of personal and societal behavior through the recognition and critical examination of values involved in personal and social conduct.
9. To choose a socially useful and personally satisfying vocation that will enable you to utilize fully your particular interests and abilities.
10. To develop the ability to think critically and constructively. A sound educational program will provide many opportunities for reflective thinking in a wide range of intellectual and practical activities. Recognition should therefore be given this objective in pursuing each course so that the development of this ability will become an integral and pervasive phase of learning in every field.\*\*

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\*\* These objectives of general education are adapted from the *Minutes of the University Senate*, May, 1944.

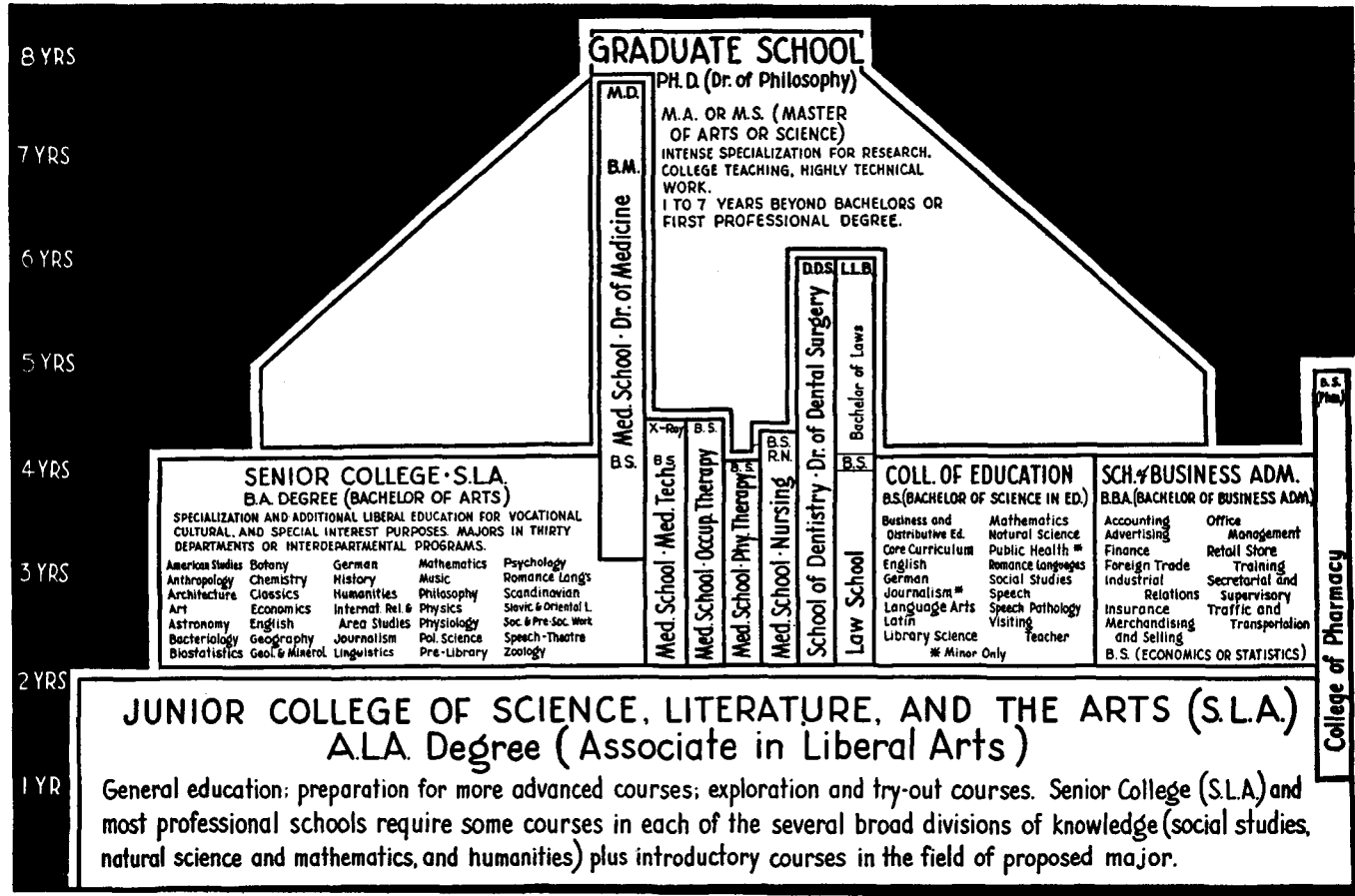


Chart showing how a student may progress from the Junior College to the Senior College or other units of the University.

Actually your general education has been developing since infancy and has already received considerable emphasis in high school. In college you can strengthen those qualities in which you still feel deficient and build a foundation for continued development throughout life. Both curricular subjects and extracurricular activities should contribute to your general educational growth, especially if you plan intelligently with a definite program in mind.

**2. Vocational Exploration**—This College will also give you experiences on which to base a wise choice of vocation. Since the College offers a wide variety of courses, you may test out several occupational possibilities before making a final decision. For example, if you are contemplating medicine you may try yourself in basic science courses to discover whether you have the proper abilities and interests. If you are thinking of business you might test yourself in Principles of Economics. By thus exploring various fields you will better understand your own abilities and be helped to a vocational decision, and at the same time you will be gaining a broad, liberal education. This experience can be supplemented by vocational counseling in the Student Counseling Bureau and by the course in "Choosing a Vocation."

**3. Occupational Preparation**—If you are planning to enter a profession you will normally begin your preparation in this College. For some professions such as journalism, social work, or library science you may receive all your training in this College. Indeed there are hundreds of vocations open to students having a four-year liberal arts education. SLA graduates are in demand for positions in business, public service, and other fields. For other professions such as law or medicine you will begin your work here and transfer to a professional school after two, three, or four years. Sections II and III of this bulletin will tell you about the various professional courses and requirements.

**4. Special Interests**—While in college you may wish to go on beyond the general education expected of all students and develop some special talent or interest. Such fields as music, art, foreign language, science, literature, and public affairs are only a few of such interests. While these courses may not prepare you directly for a specific vocation, they can add much zest and meaning to life and help you to become truly a liberally educated person.

## 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 Junior and a Senior College. Each has a dean and college office as noted on page 3. In the Junior College, which embraces the freshman and sophomore classes, you will be encouraged to spread out your work in many fields to broaden your general education while at the same time taking any necessary preprofessional courses. Unless you transfer to a professional school, you will spend the last two years in the Senior College 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 twenty-six departments covering the three broad areas of the natural sciences, the social sciences, and the humanities. You will find the courses, instructors, and requirements of these departments listed in Section II of this bulletin.

**SLA Intermediary Board**—Students also 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 are free to bring proposals for new courses, regulations, services, or any 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 also nominates the student members of most student-faculty committees.

The board's four standing committees deal with College improvement, student personnel, improvement of instruction, and curriculum. If you are interested in serving on a committee or wish further information about the board, apply at 215 Johnston Hall or the board office, 101 Johnston Hall.

### 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.

### Junior College Programs for Entering the Senior College

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

**Group Requirements**—In order to assure you a reasonably broad, general education adapted to your particular backgrounds and needs, the following 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 group requirements during the two years in Junior College, and the Senior College 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 one or two group requirements after entering the Senior College. (Group requirements for entering professional colleges are listed in Part III of this bulletin.)

Two plans for fulfilling group requirements are provided and you should elect the one which better serves your needs. While you may change from one plan to another without any special permission, you must eventually complete all the requirements of one of them. In choosing your plan note carefully any special requirements of the department in which you might major since some require foreign language. (All departments require one or two foreign languages of graduate students seeking the Ph.D. degree and some require one for the M.A.) Under either plan you will have considerable opportunity for free electives.

#### PLAN I

A. English or Communication. English A-B-C (Freshman English, 15 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 credits) or ex-

emption from the requirement. All students are required to have an English Classification Card before registering for one of these courses. (See page 69.)

**B. Foreign Language.** From 0 to 20 credits, according to the following schedule:\*\*

<i>Amount Presented from High School</i>	<i>Amount Required in College</i>
Four years of one language	None
Three years of one language	5 credits in same language
Two years of one language	10 credits in same language
One year of one language	15 credits in same language
Less than a year of one language	20 credits in one language

**C. Social Science.** Ten credits\*\* in one of the social sciences: anthropology, economics,§§ geography, history, political science, sociology; or 12 credits in Social Science 1-2-3 (Introduction to Social Science)

**D. Natural Science.** Ten credits\*\* in one of the natural sciences: astronomy, botany (laboratory required), chemistry, geology (laboratory required), physics (laboratory required), psychology (laboratory required), zoology, or the general studies course in General Biology (Natural Science 7-8-9) or The Physical World (Natural Science 4-5-6); or 15 credits in Natural Science 1-2-3 (Orientation in the Natural Sciences)

**E. Health.** Public Health 3A (Personal Health, 2 credits) or Public Health 3B (Personal and Public Health, 2 credits) or equivalent.††

PLAN II

**A. English or Communication.** English A-B-C (Freshman English, composition portion, 6 credits) or English 4-5-6 (Freshman Composition, 9 credits) or Communication 1-2-3 (12 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 69.)

**C. Social Science.** Eighteen credits selected from at least two of the following social science fields: anthropology, economics,§§ geography, history, political science, psychology, sociology, or Social Science 1-2-3 (Introduction to Social Science)

**D. Natural Science.** Eighteen credits selected from at least two of the following five fields:

1. Biological science: botany, zoology, Natural Science 7-8-9 (General Biology)
2. Mathematics: any course above Mathematics 1
3. Natural Science 1-2-3 (Orientation in the Natural Sciences)
4. Physical science: astronomy, chemistry, geology (laboratory required), physics (laboratory required), Natural Science 4-5-6 (The Physical World)
5. Psychology

**E. Health.** Public Health 3A (Personal Health, 2 credits) or Public Health 3B (Personal and Public Health, 2 credits) or equivalent.††

**F. Humanities.** Eighteen credits selected from at least two of the following eight fields:

1. Art, music
2. Foreign language and literature: any course in Classics, German, Japanese, Linguistics, Romance Languages, Russian, Scandinavian
3. History
4. Humanities 1-2-3; Humanities 11-12-13; Humanities 21-22-23
5. Literature: English A-B-C (Freshman English, literature portion, 9 credits); American literature; English literature
6. Mathematics: any course above Mathematics 1
7. Philosophy
8. Speech

Three departments—history, mathematics and psychology—are listed in two groups; but work in one of these departments can be used in satisfying one group requirement.

\*\* Any year-course of 9 credits (6 semester credits) may be substituted for the corresponding 10-credit course here.

†† Pub.H. 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.

§§ Econ. 24-25-26, 27, 32, 33, 34, 36, 37-38-39, 40-41, and 43 may not be used to satisfy the social science requirement.

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

**Credits Required**—For entrance into the Senior College, you must earn at least 84 credits (most students have 90) with a scholarship average of approximately C. Some of these credits may be "quality credits" as explained on page 20.

**Sophomore Culture Tests**—Early in the quarter before entering the Senior College you are required to take a standardized test designed to measure your general background in history, literature, science, mathematics, social science, and the arts. While the scores are not used to determine admission, they will enable you and your adviser to plan your remaining program more intelligently, and the test must be taken before you may register in the Senior College of SLA.

The Sophomore Culture Tests are given within the first three weeks of each quarter at a time and place announced in the Official Daily Bulletin. Be sure to take them, for otherwise you cannot enter the Senior College.

**Application for Entrance into Senior College**—It is important that you enter the Senior College as soon as you are eligible in order that you may plan your further work with a major adviser and may properly fulfill the residence and other requirements of the Senior College. To encourage this transfer at the proper time, the assistant dean for the Senior College may, upon application, modify the entrance requirements with the understanding that they will be fulfilled later. You probably will not be permitted to continue in Junior College after earning 95 credits.

You should apply for entrance at the Senior College 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 and that you have already taken the Sophomore Culture Test.

**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 earn a C average while in this University. Honor points are not assigned to credits earned in other institutions or through tests for advanced standing. If you are transferring directly into the Senior College, the Sophomore Culture Test must be taken early in the first quarter of residence.

The grades earned in other colleges of this University, except General College, will carry the appropriate honor 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 honor point deficiency. General College grades are evaluated in the same manner as those received in other institutions.

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

If you are not sure whether you can complete the four-year degree you may wish to plan for the two-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. Honor points are not a factor in this degree.
2. You must earn the degree in not more than seven quarters of university residence. If you enter the college with advanced standing, you must spend the last three quarters before graduation in residence and must earn at least 45 of the required credits in residence.
3. You must meet the Group A requirement in English and at least two of the three group requirements: B, Foreign Language; C, Social Science; D, Natural Science, as outlined in Plan I, page 8. Petitions to satisfy some group requirements under Plan II will be considered by the Scholastic Committee.

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

### Senior College Programs Leading to Bachelor of Arts Degree

**Approval of Your Program**—When you apply for admission to the Senior College 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 complete your first registration in Senior College before the folder is completed, enabling you to take sufficient time later to work out your proposed program with a major adviser. You should complete this program and turn it in at the Senior College Office as soon after your first registration as possible if you have not done so before, since you will not be allowed to register for a second quarter until your program is submitted. When thus approved by your adviser and by the Senior College Office, the program becomes an agreement between you and the College and can be changed only by filing in the Senior College Office an official amendment approved by your adviser.

In working out your Senior College 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.

**Credits in Residence**—You should transfer to the Senior College when you have completed the equivalent of two years' (90 credits) work. Whether transferring from the Junior College or from some other college, you must earn a minimum of 45 credits in Senior College and spend the last two quarters before graduation in Senior College residence. An average of C must be obtained on all courses taken while in Senior College. If you have only one year of residence, it must be your senior year.

**Major Sequence**—While in the Senior College, 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 Senior College Courses. Of the three types of sequences listed below, you should choose the one 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

## GENERAL INFORMATION

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 two 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 also be in Senior College courses.
- c. Fifteen credit hours in Senior College courses must be taken outside the major and minor departments.

2. *An Interdepartmental or Liberal Arts 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 Senior College Office. Thereupon you will be assigned to an appropriate interdepartmental adviser. Generally a program must include a minimum of 75 Senior College 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 purposeless scattering of course will not be approved. You must maintain a C average in the Senior College 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. See page 13.

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 applied back toward 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 one year (45 credits) must be spent in residence in the Senior College and the usual C average must be maintained. The combinations are:

- a. Combined course in Arts and Law. Three years of work must be taken in the College of SLA and at least one additional year in the Law School.
- b. Combined course in Arts and Medicine. The first three years of work are taken in the College of SLA and the fourth year is taken in the Medical School.
- c. Combined course in Arts and Dentistry. The first three years of work are taken in the College of SLA and two additional years of work must be completed in the School of Dentistry.
- d. A course leading to the degrees of graduate dental hygienist and bachelor of arts. The first two years are spent in the School of Dentistry and at least two in the College of SLA.

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

1. *Required Credits*, 180. These may include both course credits and quality credits (see page 20).
2. *Residence in Senior College*. Ordinarily a student will complete about 90 credit hours while he is in the Senior College. In any case he must earn 45 credits and spend his last two quarters in residence in Senior College.
3. *Group Requirements*. All students must complete the group requirements under either Plan I or Plan II, preferably before entering the Senior College.



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 Senior College courses are required outside the major and minor departments.
5. *Quality of Work.* Students must earn a C average in all work presented, a C average while in Senior College, and a C average in the major (Senior College courses). In calculating the over-all honor point ratio, the Scholastic Committee may, in exceptional cases, approve the omission of certain work attempted in the Junior College.

**Graduation Honors**—The Bachelor's degree is awarded with special honors to those who have done outstanding work.

*Cum laude*—You must have an honor point ratio of at least 2.0 on all work and on Senior College courses calculated separately.

*Magna cum laude*—You must have an honor point ratio of 2.25 in all work and in Senior College courses calculated separately. You must have a score above 60 in three parts of the Sophomore Culture Test and pass a written examination.

*Summa cum laude*—The honor point ratio must be 2.4 and you must write a *summa* thesis and take an oral examination in addition to meeting the requirements for *magna cum laude*.

For any of these honors you must have earned 60 credits, exclusive of quality credits, in Senior College courses at the University of Minnesota. If you seek the higher honors—*magna cum laude* or *summa cum laude*—application should be made to the Senior College 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.

### 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 Senior College.

Admission to University College is based on the previous record of the student and the program proposed by the student. 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 sign for 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 two 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 offered a modified two-day program shortly before classes begin.

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. More particularly:

1. When canceling, if in Junior College you should fill out a "Change of Registration" form obtained in the Junior College Office, seek approval from your adviser, and tally in the Tally Office. If you are a junior or senior, get this form and seek approval in the Senior College Office before tallying. After the sixth week, cancellations also require approval of the Scholastic Committee.
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 six weeks of classes, the grade in the course is recorded as W. After six weeks, cancellation of a course in which you are failing is recorded as Z (cancellation with fail); only if you are passing is it recorded as "cancellation with no grade." During the last week before the beginning of final examinations, cancellation is not permitted except under 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.

The maximum number of credits for which you may register is ordinarily 17. After two quarters of residence you may register for 18 credits provided you have a scholarship average of 1.5 for the two 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.

**Junior and Senior College Courses**—Junior College courses (numbered 1 through 49) are intended primarily for freshmen and sophomores, and Senior College courses (numbered 50 and above) are intended primarily for juniors and seniors. However, it is possible for Junior College students to take elementary courses when the arrangement is clearly to the student's educational advantage, as explained on page 24.

**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.

In the senior year, an SLA student may elect not more than 6 credits per quarter in another college or school of this University, provided that the dean of the college or school in question and the Scholastic Committee of this College approve the courses as suitable for such election. Such courses are counted toward the bachelor of arts degree on the same terms as those taken in the College of SLA. If you are a senior wishing further information about these courses, you should consult a counselor in the Senior College Office.

**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 page 22.

**Credits in the Graduate School**—If you are lacking not more than 9 credits toward 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 Senior College, an undergraduate lacking not more than 6 credits toward graduation may be registered in the Graduate School while completing his requirements for the Bachelor's degree.

**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 honor points do not count in computing honor 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.

**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. In any case, the second grade may not replace the first when calculating honor point ratios.

**Repeating a High School Course**—Ordinarily a student should register in the college course in mathematics, language, or chemistry for which his high school units in these subjects make him eligible. If for any reason he feels that he is not equipped to take that level of college

course, he should consult with the appropriate department chairman about the possibility of being assigned to a course which repeats what he 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 for a student who has had high school trigonometry and wishes to take trigonometry (Math. 6) in college.

**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.

If you are likely to enter the armed services upon leaving college, you will find the discussion especially important. The college will prepare a summary of your academic and extracurricular background for your use in seeking proper placement in the services if you wish.

### 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 in the Junior College Office 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 Junior College 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: education, medical technology, music, nursing, occupational therapy, and physical therapy.

If you have had previous college work, you will 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 Senior College or a professional school, you should seek counsel from the Senior College Office or the professional school.
4. When you enter the Senior College 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 Junior College Office or 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 as indicated on page 3. 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, or request that it be mailed to you.

*Who makes up the committee?* The three assistant deans of the college. Roger B. Page is chairman. The others are Russell M. Cooper, assistant dean for the Junior College, and J. W. Buchta, assistant dean for the Senior College. Mabel Powers serves as secretary. The committee representatives from both Junior and Senior College Offices regularly attend committee meetings.

*Who are the advisory members?* The dean appoints three faculty members and two 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 Mitchell Charnley serving as chairman, an executive secretary, student members appointed by the dean of the College upon the recommendation of the SLA College 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 Disciplinary Committee.

**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 two days of testing, counseling, and group activities.

Even if you are a Junior College student entering Senior College, 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 Senior College Office and directed by the placement consultant, Thomas Laughlin.

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

**Personnel Staff**—Approximately 300 faculty members participate in the College advisory program. Of these, about 120 are Senior College advisers of major students and are listed under the appropriate departmental headings in Section II of this bulletin. The remaining advisers are for the Junior College and are assigned to students on a basis of congenial interests. To find the offices of these counselors, consult the *Staff Address Book* 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 114 TSM 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, 211 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—if disabled or a veteran of World War II, go to the Veterans' Activities Unit, 303 Johnston Hall. If a nondisabled Korean War veteran, go to 114 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 Students' Health Service building.

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. These

rules are believed wise for most students 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. The committee is empowered to make exceptions to a requirement provided the exceptions are consistent with the spirit of the rule.

Regular petition blanks are available in the Scholastic Committee offices of the Junior and Senior Colleges. An endorsement from the faculty adviser or instructor should be secured if appropriate. If desired, the student will be given an opportunity to discuss his situation with a committee representative. When the committee has taken action, the reply may be picked up in the College office or, upon request, will be mailed to the student's home.

**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 is a freshman. A student with 39 or more credits is a sophomore until admitted to the Senior College. A student in Senior College 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, three hours a week of a student's time; that is, one recitation with two hours of preparation, or three hours of laboratory work.

**Grades**—A grade is a symbol indicating the character of work done in a course. There are several types.

**Passing grades**—These range from A (highest) to B, C, and D (lowest). Any of these enables the course credit to be counted toward a degree, though in most curricula a C average must be maintained. The symbol X signifies that work in a continuation course is satisfactory and that a grade will be assigned when the entire course is completed.

**Failing grades**—The grade F is given for work which in the opinion of the instructor does not deserve college credit. The grade of Z is given when the student withdraws after the sixth week while doing falling work, and it counts as an F.

**Explanatory grades**—Some symbols are used simply to describe the student's registration status without implying either success or failure. W means that the student officially canceled (withdrew) either during the first six weeks or else subsequently while still doing passing work; Y indicates that the student never attended, quit attending during the first six weeks, or quit attending thereafter while doing satisfactory work but without officially canceling. Since students are expected to fulfill their course responsibilities unless properly canceled, Y's earned in subsequent quarters are changed to Z's.

**Temporary grade: Incomplete**—The grade I (incomplete) is a temporary grade indicating that a student has a satisfactory record in work done but for reasons satisfactory to the instructor in charge was unable to complete the course on time. In case of doubt about a student's eligibility to receive an I, the question may be referred to the Scholastic Committee. A student receiving this grade is required to complete the work of the course within the first thirty calendar days of his next quarter (except summer) in residence or it will be marked canceled without grade. An extension of time may be permitted for removal of an incomplete grade upon the recommendation of the instructor concerned and the approval of the Scholastic Committee. In such cases removal of the incomplete may be considered a special examination for which the special examination fee is charged.

**Honor Points**—Quality of work is indicated by *honor points*. Honor points are assigned to course grades as follows: to each credit with a grade of A, 3 honor points; to each credit with grade of B, 2 honor points; to each credit with grade of C, 1 honor point. The grades D and F carry no honor points. Thus for a 3-credit course completed with a grade of B a student would be assigned 6 honor points.

**Honor Point Ratio**—Honor point ratio is defined as the number of honor points earned divided by the total number of credits earned (grades A to D) and failed (grades F or Z). An honor point ratio of 1.0 (C aver-

age) is the minimum standard required for satisfactory progress toward the B.A. degree.

**Quality Credits**—While in the Junior College a student may earn "quality credits." These are not granted through course work but are awarded on the basis of the number of honor points earned above a C average (honor point ratio of 1.0). For every 5 honor 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.

Quality credits are used as electives. They may not be used to fulfill group requirements, major or minor or residence requirements, or specified courses. They are granted only on courses completed in this University, exclusive of General College. The acceptance of quality credits by the College of Education, the School of Business Administration, and the College of Medical Sciences is described in Section III of this bulletin.

Example: Suppose a Junior College 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 50 honor points on 35 credits as follows:

Credits	Grade	Honor Points
10	A	30
5	B	10
10	C	10
5	D	0
5	F	0
—		—
35		50

Honor point ratio is  $\frac{50}{35} = 1.42$

Quality credits are  $\frac{50-35}{5} = 3$

**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 one quarter to show improvement. Usually the probation period will not be extended beyond two 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 continuous cancellations and incompletes likewise indicates scholastic weakness.



In addition to the above general regulations, a Junior College 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. An honor point ratio under .50 at the end of two quarters.
3. An honor point ratio under .60 at the end of three quarters.
4. An honor point ratio under .70 at the end of four quarters.
5. An honor point ratio under .75 at the end of five quarters.
6. An honor point ratio under .80 at the end of six or seven quarters.

A student in the Senior College will always be placed on probation if:

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

When the student's work improves to a point where he 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 one 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 the student has a conflict in examinations or if he has three examinations in one day, he should report that fact to the Junior College Office in 208 Johnston Hall for possible adjustment. Any other examination schedule problems should be presented to the Scholastic Committee.

If a student misses a final examination without being excused, a Y symbol is assigned if he was doing passing work and a Z if he was failing. If he can show good reason for the absence, he may petition the Scholastic Committee for substitution of a grade of incomplete that can be made up. Remember that in this College Y grades are usually changed to Z if the student has a previous Y on his record.

**Examination for Credit**—Credit for material mastered outside of class 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.

**Examination for Advanced Standing Credit**—If you believe yourself sufficiently prepared in some subjects to pass examinations in them upon entrance you may, with the approval of the Scholastic Committee, take such examinations without charge. Apply to the chairman in 215 Johnston Hall within the first six weeks of residence.

**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 this college. After completing one 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.
4. You may audit courses according to the procedure described on page 15 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.

**Courses in 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.

1. Before beginning work in the Senior College with a view to graduation, the student must apply for Senior College standing.
2. He will be assigned to a Senior College 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.

For the adjustment of irregularities in his curriculum the student may get advice from the assistant dean for the Senior College or from his major adviser.

A student who does not conform to these regulations may apply for standing in the Senior College on the same terms as a student transferred from some other institution.

Students who have not taken class work in one of the cities named must meet both curricular and residence requirements.

Work taken in correspondence may be applied toward a degree though not more than 3 credits may count toward a major in the Senior College. 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, 211 Eddy Hall, there are a number of scholarships and awards given by the following departments: Art, Classics, English, German, History, Journalism, Library Science, Music, Physics, 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.

## Section II

# Course Offerings and Major Requirements

(College of Science, Literature, and the Arts)

### EXPLANATIONS

**Course Numbering**—A course is designated by a number, a letter, and occasionally a prefix denoting the department offering the course. It has the same number in whatever quarter it is offered. The quarter is indicated by letter (f, fall; w, winter; s, spring; su, summer).

Examples:

1f-2w, a two-quarter course given in the fall and winter.

1w-2s, the same course given in the winter and spring.

3f,w,s, a one-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.

**Course Symbols**—The following symbols have been adopted for all University bulletins and should be noted carefully when reading course descriptions.

† A dagger after a course number indicates that all quarters of the course preceding the dagger must be completed before credit will be granted for any quarter. (In 1f-2w†-3s, the first two quarters must be completed, while the third is optional.)

‡ A double dagger following a sequence course number indicates that students may enter any quarter.

§ A section mark means that credit will not be given for the course if the equivalent course listed after the section mark has been taken for credit.

¶ A paragraph mark preceding a course number means "concurrent registration," or that the course so indicated may be taken simultaneously.

‡ A sharp mark means "consent of the instructor."

△ A triangle mark means "consent of the department." (To be obtained at the appropriate office.)

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

**Junior and Senior College Courses**—The College of SLA distinguishes between Junior College courses, intended primarily for freshmen and sophomores, and Senior College courses, intended primarily for juniors and seniors.

Senior College courses numbered between 50-99 appear in the announcement as open to "juniors and seniors" while those numbered between 100-199 are open to "juniors, seniors, and graduates."

Most Senior College 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 "Senior College Courses" in departmental statements in this bulletin. Senior College courses numbered between 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 Junior College Office, 214 Johnston Hall.

## AIR SCIENCE

(Air Force ROTC)

**Program Chairman**—Colonel Kermit D. Stevens

The program in Air Science, United States Air Force, leading to a commission in the Air Force Officers Reserve Corps, is available for students in the College of Science, Literature, and the Arts 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*.

The College of Science, Literature, and the Arts 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 cred.; no prereq.)  
 32w. Air Science I. (1 cred.; prereq. 31)  
 33s. Air Science I. (1 cred.; prereq. 32)  
 34f. Air Science II. (1 cred.; prereq. 33)  
 35w. Air Science II. (1 cred.; prereq. 34)  
 36s. Air Science II. (1 cred.; prereq. 35)

## Advanced Courses

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

## AMERICAN STUDIES

**Program Chairman**—Tremaine McDowell

**Major Advisers in the College of Science, Literature, and the Arts**—Professor McDowell (candidates for the Ph.D.); Associate Professor Bowron (candidates for the M.A.); Assistant 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 (or liberal arts) major as stated on page 12. The Senior College 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 four 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 Am.St. 90-91-92.

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

*Junior College Courses*

Hum. 21f. *American Life I*. (3 cred.; no prereq.) Kwiat, Noble, Turpie

Hum. 22w. *American Life II*. (3 cred.; no prereq.) Kwiat, Noble, Turpie

Hum. 23s. *American Life III*. (3 cred.; no prereq.) Kwiat, Noble, Turpie

*Senior College Courses*

Hum. 71f-72w-73s.‡ *Humanities in the United States*. (9 cred.; cred. may be received for both this course and Hum. 21-22-23 but not to exceed 9 cred. altogether; jr., sr.; no prereq.) Levenson

90f-91w-92s. *Proseminar in American Studies*. Conferences and readings correlating the students' work in American civilization. (9 cred.; sr.; prereq. Δ) Bowron

*For Graduate Students Only*

200-201-202. *Introduction to American Studies*

210-211-212. *Seminar in American Studies*

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 the College of SLA may elect courses in human anatomy other than Anat. 3 or 4 (see the *Bulletin of the Medical School*) only by arrangement with the head of the Department of Anatomy and the SLA Scholastic Committee.

3f. *Elementary Anatomy*. (4 cred.; primarily for 3-yr. nurses Extension Division and dental hygienists\*\*; no prereq.)

4s. *Elementary Anatomy*. (5 cred.; primarily for 5-yr. nurses and med. techs.; prereq. Zool. 1-2-3 or 14-15)

## ANTHROPOLOGY

Department Chairman—E. Adamson Hoebel

Major Advisers in the College of Science, Literature, and the Arts—Professors Hoebel, Wilford; Associate Professor Spencer.

Major Sequence in the College of Science, Literature, and the Arts—Anth. 80, 131, 169; a minimum of 3 additional credits in Ethnology (I); a minimum of 6 additional credits in Cultural Anthropology (III); 12 additional elective credits to make a total minimum of 30 credits of Senior College courses in anthropology. Majors will be given a senior comprehensive examination.

(Prerequisites: Anth. 1A and 2A.)

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

\*\* Admission of other students to this course is permissible only by arrangement with the head of the department. Anat. 4s is recommended in its place.

*Junior College Courses*

- 1A<sub>f,w</sub>. Introduction to Anthropology: Prehistoric Man and Culture.** The origins of man and the development of modern races. The 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 cred.; not open to students who have received credit in old course 2...such students should register for 2A; no prereq.) Hoebel (f), Spencer (w)
- 2A<sub>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 cred.; not open to students who have received credit in old course 1... such students should register for 1A; no prereq.) Hoebel (w), Spencer (s)

*Senior College Courses*

Group I—ETHNOLOGY

Anth. 80 is open to sophomores who have a grade of at least C in 1A and 2A. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

On prerequisites listed below old course 2 may be substituted for 1A, old course 1 for 2A.

- 80f. The American Indian.** The peopling of North and South America. Physical and cultural characteristics of the tribes of the major culture areas. (3 cred.; jr., sr.; no prereq...2A recommended) Spencer
- 115s. Indians of the Great Plains.** The prehistoric origins of the tribes of the Plains area. Cultures of the Missouri River tribes and the nomads of the Plains. (3 cred.; jr., sr., grad.; prereq. 2A or Δ) Hoebel
- 116. Indians of the Southwest.** The 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 cred.; jr., sr., grad.; prereq. 2A or Δ; offered when feasible) Hoebel
- 117f. Indians of South America.** (Formerly Anth. 172) An ethnographic survey of South American Indians. The prehistory of the various areas. Spanish and Portuguese contact and the adjustment of the various tribes to modern conditions. (3 cred.; jr., sr., grad.; prereq. 2A)
- 118w. Pre-Columbian Civilizations of Middle America.** The prehistoric origins and cultures of the Middle-American area. The Mayas, Aztecs, and their neighbors. (3 cred.; jr., sr., grad.; prereq. 1A or Δ) Leslie
- 119s. Contemporary Middle-American Communities.** Mexican and Guatemalan village communities, particularly those composed entirely or in part of Indian-speaking peoples. The application of anthropological concepts and methods to the study of folk cultures. (3 cred.; jr., sr., grad.; prereq. 2A, waived for majors in Latin-American Area Studies) Leslie
- 120. Peoples and Cultures of Africa.** (Formerly Anth. 162) Racial groupings and tribes of Africa, excluding the Mediterranean civilizations. (3 cred.; jr., sr., grad.; prereq. 1A and 2A; offered when feasible)
- 121. Peoples and Cultures of the South Seas.** (Formerly Anth. 169) A survey of the races and cultures of the Pacific Islands (Oceania, Polynesia, Micronesia, and Melanesia). (3 cred.; jr., sr., grad.; prereq. 1A and 2A; offered when feasible)
- 124w. The Culture Sphere of China.** The development of Chinese institutions and other cultural manifestations. Their influences in the development of the cultures of Vietnam, Korea, and Japan. (3 cred.; jr., sr., grad.; prereq. 1A and 2A or Δ) Spencer
- 125f. Peoples and Cultures of India.** (Formerly Anth. 128) A survey of the primitive tribes, Hindu caste society, and the modern communities of India. (3 cred.; jr., sr., grad.; prereq. 2A or Δ) Spencer
- 126w. Peoples and Cultures of Southeast Asia and Indonesia.** (Formerly Anth. 125) 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 cred.; jr., sr., grad.; prereq. 1A and 2A or  $\Delta$ ) Spencer

- 127s. **The Islamic Culture Sphere.** (Formerly Anth. 131) Mohammed and the founding of Islam. Islamic culture as an intermediary between (1) classical and the ancient oriental civilizations, and (2) medieval Europe. Legal, political, and theological developments in Islam. (3 cred.; jr., sr., grad.; prereq. 1A and 2A or  $\Delta$ ) Spencer

### Group II—ARCHAEOLOGY

- 130w. **Archaeological Methods and Techniques.** Lectures and laboratory exercises in the techniques of excavations, recordation, and methodological interpretations of archaeological data. (3 cred.; sr., grad.; prereq. 131 and  $\Delta$ ; 4 hrs. per week) Wilford
- 131f. **Archaeology of North America.** (Formerly Anth. 81) The archaeological record of prehistoric North American cultures. (3 cred.; jr., sr., grad.; prereq. 1A) Wilford
- 132w. **Archaeology of the Mississippi Drainage.** The archaeological record of prehistoric cultures of the Mississippi River area from Minnesota to the Gulf of Mexico. (3 cred.; jr., sr., grad.; prereq. 1A) Wilford
133. **Archaeology of the Southwest.** The archaeological record of prehistoric cultures of the southwest area of the United States. Paleo-Indian, Basket Maker, and Pueblo prehistory. (3 cred.; jr., sr., grad.; prereq. 1A; offered when feasible) Wilford
136. **Prehistoric Archaeology of the Old World.** (Formerly Anth. 106) Physical anthropology of pleistocene fossil men. The archaeological record of cultural evolution in Europe, Africa, and Asia. (3 cred.; jr., sr., grad.; prereq. 1A and 160 or  $\Delta$ ; offered when feasible)
- 140su. **Field Research in Archaeology.** Archaeological field excavation, survey, and research in prehistoric village and mound sites in the state of Minnesota. Intensive training in excavation techniques, recordation, analysis and interpretation of archaeological materials. (1 to 12 cred.; may be taken for credit only once; jr., sr., grad., male students only; prereq.  $\$$ ) Wilford

### Group III—CULTURAL ANTHROPOLOGY

150. **The Contact of Cultures.** (Formerly Anth. 119) A study of the processes of acculturation. The impact of civilizations on native cultures. (3 cred.; jr., sr., grad.; prereq. 1A and 2A; offered when feasible)
151. **Applied Anthropology.** The 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 cred.; sr., grad.; prereq. 150 or  $\Delta$ ; offered when feasible)
- 154s. **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 cred.; 4 hrs. lab. weekly; prereq.  $\$$ ) Hoebel
- 160w. **Law-Ways of Primitive Man.** Social control, law, and government in primitive societies. The theory and method of comparative legal dynamics. Relation of law to whole cultures. The functions and evolution of law revealed in study of type primitive societies ranging from the simplest to the most complex. (3 cred.; jr., sr., grad.; prereq. 2A, 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 cred.; jr., sr., grad.; prereq. 2A) Spencer
163. **Economic Activities in Primitive Cultures.** (Formerly Anth. 129) Varied systems of making a living in preliterate 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 cred.; jr., sr., grad.; no prereq.; offered when feasible)
- 164w. **Social Anthropology.** The forms of social structure, especially kinship systems and their relation to economic, religious, and politico-legal activities in primitive and folk culture. The theories and methods of structural analysis. (3 cred.; jr., sr., grad.; prereq. 2A) Leslie
- 165f. **Culture and Personality.** A study of the role of culture in the formation of personality. Problems of individual adjustments to the demands of culture. The psycho-



- logical approach to culture. (3 cred.; sr., grad. only; prereq. 2A or  $\Delta$ , waived for majors in public health nursing, psychology, sociology, and social work) Hoebel
- 169s. **Comprehensive Survey.** An integrated review of major anthropological concepts, methodologies, and theorists. (3 cred.; sr., grad.; prereq. consent of chairman of department) Hoebel, Leslie, Spencer
- 190f-191w-192s. **Directed Research.** (Formerly Anth. 122-123-124) (Cred. ar.; sr., grad.; prereq.  $\Delta$ ) Hoebel, Wilford, Spencer, Leslie

#### Group IV—PHYSICAL ANTHROPOLOGY

- 170f. **Elementary Physical Anthropology.** (Formerly Anth. 110) Man's place in the animal kingdom. Comparison of man's structure with that of the anthropoid apes. Racial analysis. Principles of anthropometric techniques. (3 cred.; jr., sr., grad.; prereq. 1A or  $\Delta$ ) Wilford
- 171w. **Advanced Physical Anthropology.** (Formerly Anth. 111) Sex differences, assymetry, variability, statistical procedures, blood typing. Genetic variability and effects in racial development. (3 cred.; jr., sr., grad.; prereq. 170 or  $\Delta$ ; 2 hrs. lect. and 2 hrs. lab. per week) Wilford

#### Group V—LINGUISTICS

- 181s. **Descriptive Linguistics.** (Formerly Anth. 109) 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 cred.; jr., sr., grad.; prereq.  $\Delta$ ; 3 hrs. lect. and 2 hrs. lab. per week) Spencer

#### For Graduate Students Only

200. **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, page 145.

## ARCHITECTURE

(Institute of Technology)

Department Head—Ralph Rapson

**Major Adviser in Architecture in the College of Science, Literature, and the Arts—Assistant Professor Koeper.**

**Major Sequence in the College of Science, Literature, and the Arts—**Arch. 51-52-53, Arch. 81-82-83, Arch. 91-92-93.

(Prerequisites: High school or college equivalent of Math. 1, 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 Senior College.

A special modification of this sequence is available for students taking the six-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. 6-7, 30; I.T.M. 91 and M.&M. 92-93; Art 60A-61A-62A; and In.Ch. 1-2 or 6-7 if they have had no chemistry in high school. Also C.E. 38-39-41 or Arch. 57-58-59 is desirable although neither carries credit toward the B.A. degree. For further information concerning the six-year combined course, see page 160 of this bulletin.

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

### Junior College Courses

**Arch. 1s. Introduction to Architecture.** The philosophy and principles of architecture as an art, a science, and a profession. (1 cred.; no prereq.; 1 lect. hr. per week) McClure

### Senior College Courses

**Arch. 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 cred. per qtr.; jr., sr.; no prereq.)

**Arch. 81-82-83f.**†\* **Architectural Design I.** (Formerly AD I) Basic exercises in composition of line, form, proportion, color, and texture. Elements of architectural design. Architectural drawing. Model making. (18 cred., normally 6 cred. per qtr.; jr., sr.; prereq. Δ; entrance fall quarter only)

**Arch. 91-92-93f.**w,s.†\* **Architectural Design II.** (Formerly AD II) Continuation of design principles with emphasis on development of structures as an integral part of design. Research techniques. (18 cred., normally 6 cred. per qtr.; prereq. 83)

**Arch. 101-102-103f.**w,s. **Tutorial Work in History of Architecture.** Reading and written reports on special historical problems. (2 cred. per qtr.; prereq. 53)

**Arch. 104f.** **City Planning.** (Same as Econ. 108, Pol. 123, Soc. 106) Social, economic, political, geographic, and technical phases of modern city planning. (3 cred.; sr.; no prereq.)

**Arch. 106s.** **City Planning.** Technical phases of modern city planning with special reference to the architect's function therein. (3 cred.; sr.; prereq. 104 or Econ. 108, Pol. 123, Soc. 106)

## ART

**Department Chairman—H. Harvard Arnason**

**Major Advisers for All Courses in Art in the College of Science, Literature, and the Arts—Professors Arnason, Tselos; Associate Professors Eitner, Morton, Myers, Quirt, Rood, Torbert, Young; Assistant Professors Arnest, Collins, Downs, Rollins, Thomas, Tovish; 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 will 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 theory or studio, the Department of Art offers professionally oriented courses at the Senior College 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.

\*\* Completion of this course is dependent on achievement rather than time. Students will continue their registration until the course is completed and a mark reported.

NOTE—Superior students in art may be required to leave permanently with the department one or two 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 the College of Science, Literature, and the Arts—**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 one foreign language. The following areas are recommended as minors for students majoring in the history or 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 40, 41, 42, Sculpture I. Requirements: Art 51 and 10 Senior College credits selected from any one of the following areas: design, painting, prints, sculpture, film and photography; 9 additional credits in studio courses numbered above 50; 9 credits in Senior College courses in art history.

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

**Suggested Minor Sequences in the College of Science, Literature, and the Arts—**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 (plus one other 2- or 3-credit Senior College studio course) 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 Senior College 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.

## Introductory and General

### Junior College Courses

#### Art 1f, w, s-2w-3s. Introduction to Art

**Art 1f, w, s. Principles of Art.** A 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 production of art as well as basic problems of design and of technique. The laboratory-discussion sessions will introduce the students to practical problems arising from the nature of the materials of the visual arts. (This course together with Mus. 10, Spch. 8, and Phil. 4 forms a sequence in the Arts\*\*)

\*\* See under General Studies, page 73 of the *Summary of the Catalog*

(4 cred., §59; fr. and soph. only; no prereq.; Senior College students see Art 50 for equivalent) Torbert

**Art 2w. Principles of Ancient Art.** A course intended as an introduction to art criticism, based on a number of selected monuments of ancient art. A broad critical analysis of Egyptian, Mesopotamian, Greek, Hellenistic, and Roman art as separate but related expressions of the culture of antiquity. (3 cred.; prereq. 1) Thomas

**Art 3s. Principles of Medieval Art.** The second course of a series intended as a further introduction to the principles of art criticism. A selected number of monuments will form the basis for a general study of Medieval art and culture. Early Christian, Byzantine, Romanesque, and Gothic art. (3 cred.; prereq. 2) Eitner

### Senior College Courses

**Art 50f,w,s. Introduction to the Visual Arts.** This course is similar to Art 1 in organization and basic content. An expanded program of reading and more extensive contact with works of art. (4 cred., §1; restricted to jrs., srs.; no prereq.) Torbert

**Art 51f,w,s. Principles of Pictorial Design.** A study of 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 media. (2 cred.; jr., sr.; prereq. 25) Booth

**Art 63f. Drawing, Painting, and Design.** A course introducing the student to the tools and materials and the basic problems of drawing, painting, and design. Studio work, discussion, and lecture. (5 cred.; jr., sr.; not open to art or art education majors...see suggested minor sequences; no prereq.) Collins

**Art 64w. Sculpture and Three-Dimensional Design.** A course introducing the student to the tools and materials and the basic problems of sculpture and three-dimensional design. Studio work, discussion, and lecture. (5 cred.; jr., sr.; not open to art or art education majors...see suggested minor sequences; no prereq.) Rood

**Art 65w,s. Commercial Design.** Problems in design and drawing emphasizing the application of design principles to commercial art situations. (3 cred.; jr., sr.; not open to art or art education majors...see suggested minor sequences; no prereq.) Collins

## Art History and Criticism

### Senior College Courses

**Art 56f. Renaissance and Baroque Art: 1300-1500.** Painting, sculpture, and architecture in Europe from Duccio to Raphael. Giotto and the fourteenth century in Italy. Architecture of the early Renaissance. The Van Eycks, Masaccio, Donatello, and the fifteenth century in Italy and Flanders. Leonardo, Raphael, Dürer, and the High Renaissance. (3 cred.; elective cred. only for majors in art history; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) Thomas

**Art 57w. Renaissance and Baroque Art: 1500-1650.** Painting, sculpture, and architecture in Europe from Michelangelo to Rubens. Titian, Tintoretto, and the sixteenth century in Venice. Palladio and the academic attitude in architecture. Caravaggio, El Greco, and the early Baroque style of Bernini and Velasquez. (3 cred.; elective cred. only for majors in art history; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) Thomas

**Art 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 eighteenth-century decoration. The English portraitists. The rise of Neoclassicism in Italy and France. (3 cred.; elective cred. only for majors in art history; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) Thomas

**Art 66f. Modern Art: Classicism and Romanticism.** The 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 cred.; elective cred. only for majors in art history; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) Eitner

**Art 67w. Modern Art: Realism and Impressionism.** Painting, sculpture, and architecture during the second half of the nineteenth century with particular emphasis on the schools of Paris, their influence and parallels in England, Germany, and the United

States. (3 cred.; elective cred. only for majors in art history; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) Eitner

- Art 68s. Modern Art: Contemporary Art in Europe and America.** Development of painting, sculpture, and architecture in Europe and the United States during the twentieth century. (3 cred.; elective cred. only for majors in art history; jr., sr.; prereq. 1 or 50 or 64 or  $\Delta$ ) Eitner
- Art 76f. Art of Latin America.** A study of 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 twentieth century. (3 cred.; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) recommended that this course be taken in conjunction with 57 or 126)
- Art 77w. Art of Latin America.** A study of Latin-American arts in the twentieth century with particular emphasis on painting and architecture in Mexico and South America. (3 cred.; jr., sr.; prereq. 1 or 50 or  $\Delta$ ) recommended that this course be taken in conjunction with 76 or 57 or 126)
- Art 78s. Art of China.** Development of painting, sculpture, and minor arts in China from earliest times to the present. (3 cred.; jr., sr.; prereq. 1 or 50 or 9 cred. in history or literature with  $\Delta$ ) may be taken in conjunction with Hist. 62-63) Mather
- Art 106f. Art in Egypt, Mesopotamia, and Greece.** The architecture, sculpture, and painting of the pre-Hellenic civilizations in Egypt, Mesopotamia, and the Aegean. The development of Greek art from its beginnings to the Periclean age. (3 cred.; prereq.\*\*\*) Eitner
- Art 107w. Hellenistic Art to Christian Art.** The art of the Hellenistic kingdoms. Hellenic and Etruscan art in Italy. Art of the Roman Empire. The transformation of classical styles under the influence of oriental traditions and of Christian religion. The development of Christian art. The art of the Byzantine Empire. Survivals of classical forms in early medieval art. (3 cred.; prereq.\*\*\*) Eitner
- Art 108s. Romanesque and Gothic Art.** The development of architecture, sculpture, and painting in western Europe and Italy from the tenth until the fifteenth century. The art of the cathedrals. Romanesque and Gothic monumental and manuscript painting. The development of Gothic art as manifestation of currents in medieval culture. (3 cred.; prereq.\*\*\*) Eitner
- Art 116f. Renaissance and Baroque Art in Italy: Origins and Early Phases, 1350-1490.** The development of Italian painting and sculpture out of the Byzantine, Gothic, and Greco-Roman traditions: the Pisani; Giotto; Duccio; and the Sienese. The late International Style in Italy and the continuing Gothic tradition. The birth of Renaissance arts in Florence; the monumental realists Masaccio, Brunelleschi, Donatello, Ghiberti. The refinements of the later fifteenth century. The spread of the new style into Umbria, Rome, Padua, Venice. (3 cred.; jr., sr., grad.; prereq.\*\*\*) Thomas
- Art 117w. Renaissance and Baroque Art in Italy: High Renaissance, Mannerism, Early Baroque, 1490-1625.** The Florentine-Roman synthesis around 1500: Leonardo, Raphael, Michelangelo. The development of oil painting in Venice and north Italy: Giorgione, Titian, Tintoretto, Veronese, Correggio. Trends in architecture throughout the century. The Mannerist reaction against Classicism. Proto-Baroque tendencies: Michelangelo's influence. The first phases of the Baroque: the Carracci and the Academy; Caravaggio and the new realism. (3 cred.; jr., sr., grad.; prereq.\*\*\*) Thomas
- Art 118s. Renaissance and Baroque Art in Italy: The Full Baroque and the Rococo, 1625-1800.** Bernini and the Baroque fusion of architecture, sculpture, and painting. New trends in architecture: town planning, civic structures, the villa and garden. Illusionistic and decorative painting in Rome. The spread of the Baroque outside of Rome: Bologna, Naples, Genoa, Milan. The development of new types of painting in Venice. Eighteenth-century prints. The growth of the Neoclassic style. (3 cred.; jr., sr., grad.; prereq.\*\*\*) Thomas
- Art 126f. Renaissance and Baroque Art in the North: The Renaissance in the Netherlands and Germany, 1350-1500.** Late Gothic art: the International Style; courtly art of France and Burgundy. The new Netherlandish realism around 1400: Sluter and the van Eycks. Later fifteenth-century Flemish painting. National and Italianate traits in sixteenth-century Flanders. The development of the print in fifteenth-century Germany. The German Renaissance: the contact with Italy—Dürer and Holbein; native traits—Grunewald. German sculpture. (3 cred.; jr., sr., grad.; prereq.\*\*\*) offered 1956-57 and alternate years) Thomas

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

- Art 127w. Renaissance and Baroque Art in the North: Baroque Art in Flanders, Holland, France, and Germany, 1600-1700.** Flemish painting; its connections with Italy, France, and Holland. Rubens and the Classic style in the north. The growth of Dutch painting; the emergence of new styles and types—the genre painters, the landscapists, the minor specialists. Rembrandt as painter, draughtsman, etcher. His position and his school. France and the Classic-Baroque tradition: Louis XIV and the arts. Baroque architecture and sculpture in Germany. (3 cred.; jr., sr., grad.; prereq.\*\*; offered 1956-57 and alternate years) Thomas
- Art 128a. Renaissance and Baroque Art in the North: Baroque England and Spain: Eighteenth-Century France and Germany.** England and Classic-Baroque architecture. Eighteenth-century English painting. Baroque painting in Spain: Velasquez; Goya and the modern world. Spanish architecture and sculpture. French Rococo architecture, sculpture, and the decorative arts. Rococo painting: Watteau, Boucher, Fragonard. New trends in the late eighteenth century; France and the emerging Neoclassic theories. The art of Rococo Germany. (3 cred.; jr., sr., grad.; prereq.\*\*; offered 1956-57 and alternate years) Thomas
- Art 130f-131w-132s. The Arts of the Book**
- 130f. The Illuminated Book in Antiquity and the Middle Ages.** The origins of the illuminated book; the development of illustrative cycles; Old Testament illustrations; the role of the book in Christian art and the development of New Testament illustrations; Merovingian, Carolingian, and Ottonian scriptoria; the Byzantine tradition; Romanesque and Gothic illuminations; the growth of profane book illustration in the 13th and 14th centuries. (3 cred.; jr., sr., grad.; prereq.\*\*; offered 1956-57 and alternate years) Eitner
- Art 131w. The Illustrated Book from the Renaissance to the Rococo.** The awakening of a new style of painting in the Books of Hours of the period about 1400; the development of new concepts of reality and space in book illumination; Italian illuminated books of the Renaissance; the invention of printing and its impact on the illustrated book; illustrative woodcuts, block books and the *Biblia Pauperum*; the great masters of woodcut illustration; Duerer, Holbein; Italian and French woodcut illustrators; the rise of engraving as chief medium of book illustration; the book illustrators of the Baroque; the French illustrated book of the 18th century. (3 cred.; jr., sr., grad.; prereq.\*\*; offered 1956-57 and alternate years) Thomas
- Art 132s. Book Illustration in the Modern World.** The revival of the illustrated book in the Romantic period; Daumier; the Johannots; Nanteuil; Grandville; Doré; Menzel; the development of illustrated newspaper, broadsheet, and political pamphlet; the beginnings of graphic publicity and of the art poster; the great painters of the Impressionist and Postimpressionist eras as book illustrators; Manet; Toulouse Lautrec; Gauguin; Redon; the Renaissance of the artistic book about 1900; contemporary painters and sculptors as illustrators. (3 cred.; jr., sr., grad.; prereq.\*\*; offered 1956-57 and alternate years) Eitner
- Art 136f. Art in the United States.** The 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. The early weeks of the quarter are devoted to analysis of the means of visual expression common to architecture, sculpture, and painting. (3 cred.; jr., sr., grad.; prereq.\*\*\*) Torbert
- Art 137w. Art in the United States.** Jefferson and his influence. The 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. The beginnings of modern architecture. (3 cred.; jr., sr., grad.; prereq.\*\*\*) Torbert
- Art 138s. Art in the United States.** The contemporary movements. The Armory Show and development of modern realism, expressionism, and abstraction. Frank Lloyd Wright and modern American architecture. (3 cred.; jr., sr., grad.; prereq.\*\*\*) Torbert
- Art 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 cred.; jr., sr., grad.; prereq.\*\*\*) Tselos

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

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

- Art 147w. European and American Architecture: 1850-1900.** Victorian Gothic eclecticism, and the rise of modern pragmatism in architecture within historical and anti-historical currents; the influence of Victorian Gothic and French academism on American architecture and the divergent reactions. (3 cred.; jr., sr., grad.; prereq.†† and 146) Tselos
- Art 148s. Modern Architecture: 1900-1950.** The rise of proto-modern architecture in European and American centers; the 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 cred.; jr., sr., grad.; prereq.†† and 147) Tselos
- Art 156f-157w-158s. European and American Painting: 1775-1900.** The origins of Neoclassicism and Neo-Baroque romanticism; the parallel development of modern realism in France, England, and the United States; the rise of landscape painting and its importance for the realist movement. The growth of realist painting in Courbet's time and its climax in Impressionism; the Postimpressionist reactions and their significance for modern art; the diffusion of Impressionist and Postimpressionist phases in America and the conservative lag in pre-Raphaelite England. (9 cred.; sr., grad.; prereq.††; offered 1956-57 and alternate years) Tselos
- Art 156Af-157Aw-158A.\* Twentieth-Century European and American Painting.** The growth of modern painting and of the Postimpressionist inheritance; French Fauves and German expressionists; the impact of primitive art and its assimilation in cubism; the puristic 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 cred.; sr., grad.; prereq.††) Eitner
- Art 166. European and American Sculpture from Houdon to Rodin: 1750-1900.** The transition from the Rococo to Neoclassicism; the academic romantic and realistic currents culminating in impressionistic realism in Rodin. The parallel developments in Germany, England, and the United States are considered in terms of their outstanding representative sculptors. (3 cred.; sr., grad.; prereq.††; offered 1956-57 and alternate years) Arnason
- Art 167. Modern Sculpture in Europe and the United States Since 1900.** The influence of Rodin and the reactions against his impressionistic romanticism; the direction toward the archaic, medieval, and primitive sculpture; the impact of abstract painting and the expansion of the limits of sculpture into symbolic primitivism, constructivism, and kinetic sculpture. (3 cred.; sr., grad.; prereq. ††; offered 1956-57 and alternate years) Arnason
- Art 176f,177w,178s. Scandinavian Art.** Painting, sculpture, architecture in Denmark, Norway, Sweden, Finland, and Iceland from the beginnings to the present day. After a general survey in the fall quarter, the winter and spring quarters will be devoted largely to modern Scandinavian art with considerable emphasis on recent developments in industrial and applied arts. (3 cred. per qtr.; jr., sr., grad.; prereq. 9 cred. in history of art or 9 cred. in history or literature with  $\Delta$ ); offered when feasible
- Art 196f-197w-198f.\* Readings in Art History and Criticism.** (9 cred.; sr., grad.; prereq.  $\Delta$ ) Arnason, Tselos, and staff

### For Graduate Students Only

- Art 206-207-208† Seminar: European and American Architecture**  
**Art 216-217-218† Seminar: European and American Painting**  
**Art 236-237-238† Seminar: Problems in Art History and Criticism**  
**Art 250-251-252† Thesis Seminar**

## Drawing and Painting

### Junior College Courses

- Art 20f, w.s. Elements of Drawing.** An elementary course introducing basic problems in drawing. No previous experience required. Work in various drawing media. Subject matter: still life, figure, landscape, and nature study. (2 cred.; no prereq.) Quirt

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

- Art 23f,w,s-24f,w,s-25w,s. Drawing and Design I.** A 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.
- Art 23f,w,s. Drawing and Design I.** Experience in handling the tools and materials of drawing. A study of source material in nature, and problems in descriptive and imaginative drawing. Investigation of design principles through drawing and elementary perspective. (3 cred.; prereq. 1 or 1) Arnest, Collins, Downs, Rollins, Young
- Art 24f,w,s. Drawing and Design I.** An 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 cred.; prereq. 23) Arnest, Collins, Downs, Young
- Art 25w,s. Drawing and Design I.** A 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 cred.; prereq. 24) Arnest, Collins, Young
- Art 23Af. Drawing and Painting I.** (For architects only) (2 cred.; no prereq.) Quirt
- Art 24Aw. Drawing and Painting I.** (For architects only) (2 cred.; prereq. 23A) Quirt
- Art 25As. Drawing and Painting I** (For architects only) (2 cred.; prereq. 24A) Quirt

### Senior College Courses

- Art 51. Principles of Pictorial Design.** For description see page 32.
- Art 52f-53w. Drawing II.** Drawing from model, still life, and nature. Principles of anatomy. (4 cred. per qtr.; jr., sr.; prereq. 25 or equiv., with  $\Delta$ ) Myers
- Art 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. (4 cred. per qtr.; jr., sr.; prereq. 53 or equiv., with  $\Delta$ ) Arnest
- Art 60w-61s. Composition.** Progressive exercises in interpretive drawing, stressing representation, space, movement, abstract relationships, and expression. An introduction to color. (4 cred. per qtr.; jr., sr.; prereq. 55 or equiv., with  $\Delta$ ) Booth
- Art 60A-61A-62Af,w,s. Drawing and Painting II.** (For architects) (2 cred. per qtr.; prereq. 25A) Arnest
- Art 60B-61B-62Bf,w,s. Water Color.** Introduction to transparent water color, gouache, casein, and tempera. A general course introducing the student to a variety of drawing and painting media. Figure, still life, landscape, and abstract design. (2 cred. per qtr.; elective cred. for students majoring in art; prereq. 20 or 23 or equiv., with  $\Delta$ ) Rollins
- Art 70-71-72f,w,s. Oil Painting.** An introduction to medium of oil; individual projects and instruction. (4 cred. per qtr.; jr., sr.; prereq. 54) Arnest, Booth, Myers, Quirt, Rollins
- Art 70B-71B-72Bf,w,s. Oil Painting.** (For general students) (2 cred. per qtr., 170-71-72; no cred. for art majors; jr., sr.; prereq. 20 or 23 or equiv., with  $\Delta$ ) Quirt
- Art 110-111-112f,w,s. Advanced Drawing.** (Primarily for painting majors) Drawing in all media from life and from imagination. Studies of the history of drawing (4 cred. per qtr.; jr., sr., grad.; prereq. 55 or equiv., 170-71-72) Arnest, Booth
- Art 150-151-152f,w,s. Problems in Painting.** (Cred. ar.; jr., sr., grad.; prereq. 72 and  $\Delta$ ) Arnest, Booth, Quirt
- Art 150B-151B-152Bf,w,s. Problems in Painting.** (For general students) (2 cred.; elective cred. for studio majors; prereq. 72B) Quirt

### For Graduate Students Only

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

### Printmaking

#### Junior College Courses

- Art 32f,w,s. Elements of Printmaking.** A foundation course designed to familiarize the student with the media 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 cred.; no prereq.) Myers



### Senior College Courses

- Art 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. (4 cred. per qtr.; jr., sr.; prereq. 32 or  $\Delta$ ) Myers
- Art 190-191-192f, w.s. Problems in Printmaking.** (For advanced students) Will include work in black and white and color in metal, lithographs, and wood blocks. (Cred. ar.; jr., sr., grad.; prereq. 92 or  $\Delta$ ) Myers

### Sculpture

#### Junior College Courses

- Art 40f, w. Sculpture I.** Beginning course. An 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 cred.; prereq. 1 or  $\textcircled{1}$ ) Rood, Morton, Tovish
- Art 41w, s. Sculpture I.** This course 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 cred.; prereq. 40) Rood, Morton, Tovish
- Art 42f, s. Sculpture I: Design Workshop.** A free exploration of wood, metal, and ceramics. Emphasis is placed on abstract application of structural principles. Fundamental hand and machine tools are introduced. (3 cred.; prereq. 1) Rood, Morton, Tovish

### Senior College Courses

- Art 80-81-28f, 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. (4 cred. per qtr.; jr., sr.; prereq. 42 or equiv.) Rood, Morton, Tovish
- Art 80Af-81Aw-82As. Metal Sculpture**
- Art 80Af. Direct Metal Sculpture and Constructions.** Work with direct metal sculpture, constructions, and mobiles, with attention given to sculptural form. (4 cred.; jr., sr.; prereq. 42 or  $\Delta$ ) Morton
- Art 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. (4 cred.; jr., sr.; prereq. 80A) Morton
- Art 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. (4 cred.; jr., sr.; prereq. 81A) Morton
- Art 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. (Cred. ar.; jr., sr., grad.; prereq. 82, 82A or  $\Delta$ ) Rood, Morton, Tovish

### Design

#### Junior College Courses

- Art 23-24-25f, w.s. Drawing and Design I.** For description see page 36.
- Art 42f, s. Sculpture: Design Workshop.** For description see above.
- Art 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 cred.; prereq. 42) Morton
- Art 44s. Design Workshop.** Special problems in three-dimensional design. Advanced projects, such as display, furniture, together with study of historical, functional, and market aspects of product design. (3 cred.; prereq. 43) Morton

### Senior College Courses

- Art 69w, s. Lettering.** An introduction to lettering: the formation of letters, spacing, composition of the lettered page, and procedures related to reproduction lettering. (3 cred.; prereq. 25) Young

23-24-25  
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- Art 73f-74w-75s. Presentation Techniques.** A study of the visual means of communicating ideas in the fields of exhibition techniques, illustration, and advertising. An investigation of the characteristics and the creative use of various media.
- Art 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 media limitations as a starting point. (4 cred.; prereq. 25; no prereq. for architects) Collins
- Art 74w. Presentation Techniques.** Experiments and instruction in the use of photo-mechanical and related print processes, mechanical patterns, air-brush, scratch board, and photostat. Elementary problems in relationship between organizational means and content. (4 cred.; prereq. 25; no prereq. for architects) Collins
- Art 75s. Presentation Techniques.** Practice in the use of associative relationships and symbols in complete communication problems in the fields of display illustration and advertising. (4 cred.; prereq. 73 or 74, both recommended) Collins
- Art 103f-104w-105s. Design in Industry.** Analysis of products designed for industrial production, and a historical survey of design in industry, combined with practical workshop problems. The aim is to acquaint the student with the ways in which industrial processes and production techniques affect concepts of design in contemporary society.
- Art 103f. Design in Industry.** The historical development of industrial design. An evaluation, by means of research problems, of the relationship between design, function, and manufacturing processes. (4 cred.; jr., sr., grad.; prereq. 44)
- Art 104w. Design in Industry.** Continued research and field trips investigating design in industry and the effects of mass production on the product. Practical laboratory problems in design for industry. (4 cred.; jr., sr., grad.; prereq. 103)
- Art 105s. Design in Industry.** (Continuation of Art 104) Leads to a final experimental problem. (4 cred.; jr., sr., grad.; prereq. 104)
- Art 193f-194w-195s. Advanced Problems in Design.** A course offering 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. (Cred. ar. up to 9; jr., sr., grad.; prereq. 9 Senior College credits in design and consent of major adviser)

## Film and Photography

### Junior College Courses

- Art 10f.w.s. Photography.** (Same as Jour. 10) Fundamental principles of photography. The use of cameras, developing, printing, and other elementary techniques. (3 cred.; no prereq.) Downs, Liebling
- Art 11w.s. Photography.** A course designed for students who have had previous instruction in photography or have worked in photography and know the principles of developing and printing. It attempts to develop a personal photographic perception in the student through lectures on photographic history and contemporary trends in photography. There is intensive field work. (3 cred.; enrollment limited; prereq. 10 or practical experience and  $\Delta$ ) Downs, Liebling
- Art 12s. Photography.** History and criticism of photography; introduction to motion picture techniques; field project in creative photography. (3 cred.; prereq. Art 11 or  $\Delta$ ) Downs, Liebling

### Senior College Courses

- Art 83f-84w-85s. Photography II.** Preliminary survey of photographic equipment and materials; camera procedure; film processing and printing. Field and studio problems in the use of design elements. Experiments in photographic controls to illustrate the limitations and capacities of photography. Problems in application of design relationships with emphasis on visual environment. (4 cred.; jr., sr.; prereq. 12 or  $\Delta$ ) offered 1956-57 and every year thereafter)
- Art 86f-87w. The Art of the Film.** The objective of this course is the critical study and analysis of the motion picture as an art form. Emphasis is 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 cred.; prereq. 9 cred. art or 9 cred. literature or 6 cred. speech including Spch. 31) Amberg

- Art 123f-124w-125s. Film Workshop.** A 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. (4 cred. per qtr.; jr., sr., grad.; prereq. art or humanities or music or theater major and (Δ) Downs
- Art 186s. The Art of the Film.** A study of the 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. The course will be illustrated with feature-length films and short subjects. (3 cred.; jr., sr., grad.; prereq. 87 or (Δ) Amberg

## Crafts

### Junior College Courses

- Art 33f,w,s. Textile Design: Weaving.** Fundamental weaving techniques, including operation of hand looms, fabric analysis, draft writing, and beginning handwoven fabric design (3 cred.; prereq. 24) Nagle
- Art 34f,w,s. Textile Design: Weaving.** Design and execution of handwoven fabrics with emphasis on color and texture as well as additional experience in operation and use of various types of looms. (3 cred.; prereq. 33) Nagle
- Art 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 cred.; no prereq.) MacKenzie
- Art 49s. General Crafts.** The course takes up various craft problems in wood, metal, leather, and plaster. Typical problems include wood carving, metal raising, and leather tooling. Emphasis will be placed on original design and on exploring the possibilities of each material. The course is oriented toward students in art education, recreation, and occupational therapy. (3 cred.; no prereq.)

### Senior College Courses

- Art 89w,s. Textile Design: Weaving.** Advanced weaving; development of further skill in weaving and exploration of its use in the home, for commercial purposes, etc. (3 cred.; jr., sr.; prereq. 34) Nagle
- Art 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. (4 cred.; jr., sr.; prereq. 45 or (Δ) MacKenzie

## ASTRONOMY

Department Chairman—Willem J. Luyten

Major Adviser in the College of Science, Literature, and the Arts—Professor Luyten.

Major Sequence in the College of Science, Literature, and the Arts—Ast. 51-52-53, 101, and Math. 50, 51, 105.

(Prerequisites: Math. 6-7, or Math. 6 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 Senior College.

### Junior College Courses

- 11f,s. Descriptive Astronomy.** A 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 cred., \$51; no prereq.) 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 cred.; no prereq.) Luyten

### Senior College Courses

Senior College courses in this department are open to Junior College 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 cred., §11; jr., sr.; prereq. Math. 6) Albers

52w. **Astrophysics.** (4 cred.; prereq. 51 or 11 and Math. 6) Luyten

53s. **Stellar Astronomy.** (3 cred.; prereq. 51 or 11 and Math. 6) Luyten

101f. **Celestial Mechanics.** (3 cred.; jr., sr., grad.; prereq. Math. 51) Luyten

## BACTERIOLOGY

(College of Medical Sciences)

**Department Chairman—Jerome T. Syverton**

**Major Advisers in the College of Science, Literature, and the Arts—**  
Drs. Syverton, Watson, Lichstein, Johansson, Schmidt, Murphy.

**Major Sequence in the College of Science, Literature, and the Arts—**  
Bact. 53, 116, 121, and 12 additional Senior College credits in bacteriology. Zool. 51 may count as bacteriology.

(Prerequisites: Math. 15-16; Phys. 4-5-6 [these subjects may be taken concurrently with bacteriology courses]; 10 credits in botany or zoology, 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 Senior College.

### Senior College Courses

Bact. 53 is open to Junior College students who have a grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

Dy.Hu.50w. **Dairy Bacteriology.** (3 or 5 cred.; 3 cred. for lect., 2 cred. for lab.; soph., jr., sr.; prereq. Bact. 53; lecture may be taken separately only by §) Olson

53f,w.s.\*\* †† **General Bacteriology.** Lectures, demonstrations, and laboratory exercises are employed for instruction in the morphology, physiology, taxonomy, and ecology of bacteria. The practical applications of these fundamental principles in other phases of science and industry are emphasized. (5 cred.; soph. with a C average in the prerequisite courses, jr., sr.; prereq. 10 cred. in chemistry and 4 cred. in biological sciences or §) Johansson, Schmidt

102s.†† **Medical Bacteriology.** The pathogenic bacteria, especially in their relationship to disease; principles of infection and immunity; microbiological techniques for laboratory diagnosis and antibiotic determination. (4 cred.; for students other than medical students; prereq. 116) Watson and staff

\*\* A course in Bact. 1, Elementary Bacteriology, is available in the Extension Division (winter quarter) for occupational therapy and dental hygiene students receiving special permission from the Department of Bacteriology.

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

- 103s. **Soil Microbiology.** Studies of the bacteria, fungi, and actinomycetes of the soil, with emphasis on the biochemical activities of the soil microflora. (4 cred.; jr., sr., grad.; prereq. 53, 8 cred. in organic chemistry and §) Schmidt
- 112f. **General Mycology.** (Formerly Bact. 113) A survey of the fungi with emphasis on life cycles, physiology, morphology, ecology, and economic significance. (3 cred.; jr., sr., grad.; prereq. 53 and 15 cred. in chemistry) Roth
- 113s. **Advanced Mycology.** A comprehensive study of the fungi of particular interest to microbiologists. Detailed consideration of the ecology, nutrition, metabolism, genetics, and economic importance of the imperfect fungi, actinomycetes, and yeasts. (3 cred.; prereq. 112 or §; offered 1955-56 and alternate years) Roth
- 114s. **Medical Mycology.** The pathogenic fungi and the mycotic infections in man and animals; emphasis is placed on diagnostic procedures. (3 cred.; jr., sr., grad.; prereq. 102; offered 1956-57 and alternate years) Roth
- 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 cred.; jr., sr., grad.; prereq. 53) Watson
- Pl.Pa.117f. **Virus Diseases of Plants.** The nature of plant viruses and types of diseases they cause; particular emphasis on methods for studying virus diseases. (3 cred.; jr., sr., grad.; prereq. Pl.Pa. 1 or 10; offered 1955-56 and alternate years) Eide
- 121f. **Physiology of Bacteria.** A detailed study covering: chemical and physical structure; staining; growth; influence of environment on growth; nutrition; enzymes; metabolism. (3 cred.; required of all grad. students in bacteriology and open to others by §; prereq. 53 [minimal grade of C] and 8 cred. in organic chemistry or biochemistry) Lichstein
- 122w. **Physiology of Bacteria Laboratory.** Techniques employed in the study of bacterial physiology and metabolism. (3 cred.; required of all grad. students in bacteriology and open to others by §; prereq. 121) Lichstein
- 123s. **Bacterial Metabolism.** Advanced treatment of several broad aspects of metabolism including: enzymes; biological energy; fermentation; respiration; nitrogen metabolism; photosynthesis. (3 cred.; required of all grad. students in bacteriology and open to others by §; prereq. 121, 122 or equiv. and introductory biochemistry; offered 1955-56 and alternate years) Lichstein
- 124f. **Viruses and Rickettsia.** Character, nature, and transmission of viruses and rickettsia; important viral and rickettsial diseases; methods for identification and laboratory diagnosis. (4 cred.; jr., sr., grad.; prereq. 102 or 105, 116) Syverton
- 125w,s. **Animal Cell Cultures in Virology.** Principles and techniques essential for the cultivation of animal cells; the use of cellular cultures in virology. (3 cred.; jr., sr., grad.; prereq. 124 and §) Scherer and staff
- Dy.Hu.151s. **Advanced Dairy Bacteriology.** (3 cred.; sr., grad.; prereq. Dy.Hu. 111, or 112, or 150) Jezeski
- 152f,w,s. **Special problems.** (Cred. ar.; prereq. §) Syverton and staff
- 153f,w,s.†† **General Bacteriology.** Lectures, demonstrations, and laboratory exercises are employed for instruction in the morphology, physiology, taxonomy, and ecology of bacteria. The practical applications of these fundamental principles in other phases of science and industry are emphasized. (3 cred.; prereq. 10 cred. in chemistry and 4 cred. in biological sciences or §) Johansson, Schmidt

## BIOLOGY

See Natural Science, page 74.

## BIOSTATISTICS

See Public Health, page 134.

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

## BOTANY

Department Chairman—A. Orville Dahl

Major Adviser in the College of Science, Literature, and the Arts—  
Professor Dahl.

Major Sequence in the College of Science, Literature, and the Arts—

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 121 or 119
- Group E—Bot. 54
- Group F—Agro. 31 or Zool. 83

2. Two quarters of organic chemistry (Or.Ch. 61-62) or agricultural biochemistry (Ag.Bi. 1, 3).

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

(Prerequisites: Bot. 1, 2, 3 [or 4, 5su] and Zool. 1, 2, 3 [or 14-15] or N.Sci. 7, 8, 9; two quarters of inorganic chemistry [e.g., In.Ch. 1, 2]; Math. 15, 16 [or preferably 50]; German through Ger. 3.)

Recommended electives for botany majors: Bot. 10, 12; Pl.Pa. 56; Bact. 112; Phys. 1, 2, 3 and 1a, 2a, 3a, or 4, 5, 6 or 7, 8, 9; French through Fren. 3; Pub.H. 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 Senior College.

Minor Sequence in the College of Science, Literature, and the Arts—

Bot. 1, 2, 3, or 4, 5 or N.Sci. 7, 8, 9 plus 15 credits in Senior College 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*.

For a course in General Biology, N.Sci. 7-8-9, see Department of General Studies, page 74.

### Junior College Courses

Bot. 1-2-3, and 4-5su are not open to students who have taken N.Sci. 7-8-9, General Biology.

1f-2w-3s. **General Botany.** A 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; the principal groups of plants; and organic evolution. (10 cred.; no prereq.) Hall

10s.\*\* **Minnesota Plant Life.** A nontechnical survey of all the groups of plants native to Minnesota with special reference to identification and distribution. A course suitable for nonmajors. (3 cred.; no prereq.) 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. A course suitable for nonmajors. (3 cred.; no prereq.) Lawrence

### Senior College 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 N.Sci. 7-8-9. Other Senior

\*\* This course does not satisfy any part of the laboratory science requirement of the College of Science, Literature, and the Arts.

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

- 50f.s. General Plant Ecology.** An introduction to the study of the 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 cred.; jr., sr.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9)
- 51s. General Plant Physiology.** Introductory study of 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. (4 cred.; jr., sr.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9 and two quarters of inorganic chemistry) Frenkel
- 52f.s. Elementary Taxonomy.** Introduction to the taxonomy of ferns and flowering plants, with representative material drawn largely from the Minnesota spring flora. The families of plants and their relationships; floral structure; taxonomic terms; nomenclature; literature; methods of collection and identification; three or four field trips. (3 cred.; jr., sr.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9) Morley
- 53w. Plant Anatomy.** The structure and development of plants with especial reference to vascular plants. (5 cred., §121; jr., sr.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9) Abbe
- 54s. Survey of the Plant Kingdom.** A brief consideration of evolutionary relationships throughout the plant kingdom, especially as illustrated by life histories. (5 cred.; jr., sr.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9) Abbe
- Pl.Pa.56f. Introduction to the Study of Fungi.** Structure, development, and identification of fungi, especially those of economic importance. (3 cred.; jr., sr.; prereq. 9 cred. in botany or §) Christensen
- 103f. Plant Embryology.** The early stages of somatic development with emphasis on vascular plants. (3 cred.; jr., sr., grad.; prereq. 54 or 104 or §; offered 1955-56 and alternate years) Abbe
- 104s. Survey of the Plant Kingdom.** A brief consideration of evolutionary relationships throughout the plant kingdom, especially as illustrated by life histories. (5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9) Abbe
- 106w. A Survey of Angiosperm Families.** A detailed study of the characteristics of the orders and families of flowering plants on a world-wide basis. (5 cred.; jr., sr., grad.; prereq. 52 or §; offered 1955-56 and alternate years) Morley
- 108f. Pteridophytes.** The 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 cred.; jr., sr., grad.; prereq. 52 or §; offered 1955-56 and alternate years) Ownbey
- 110f. Gymnosperms.** A survey of the taxonomy and phylogeny of the gymnosperms with special emphasis on living representatives. (3 cred.; jr., sr., grad.; prereq. 52 or 54 or §; offered 1956-57 and alternate years) Ownbey
- Bact.112f. General Mycology.** (3 cred.; jr., sr., grad.; prereq. Bact. 53 and 15 cred. in chemistry) Roth
- 112w.su. Aquatic Flowering Plants.** A study of the higher plants of aquatic and marsh habitats. Identification; adaptive morphology and food value to wild life. (3 cred. [4 when taken at Itasca]; jr., sr., grad.; prereq. 10 cred. in botany, zoology, or biology, or §; in summer offered only at Itasca Forestry and Biological Station)
- 113f. Fall Flora of Minnesota.** A survey of the flowering plants of the state with particular reference to the fall flora of the local area. Collection and identification of species and their distribution in Minnesota; three field trips. (3 cred.; jr., sr., grad.; prereq. 52 or §) Morley
- 114w. Principles of Angiosperm Phylogeny.** A study of evolutionary relationships and the various means of judging them within the angiosperms. Laboratory investigation of representative and critical groups. (3 cred.; jr., sr., grad.; prereq. 52 or §; offered 1956-57 and alternate years) Morley
- 115s. Spring Flora of Minnesota.** A survey of the flowering plants of Minnesota. The use of keys and taxonomic descriptions; collection, preparation, and identification of the spring flora of the local area. Three field trips. (3 cred.; jr., sr., grad.; prereq. 52 or §) Ownbey
- 116su. Summer Flora of Minnesota.** (Offered only at Itasca Forestry and Biological Station) (4 cred.; jr., sr., grad.; prereq. 10 cred. in botany or zoology or §)
- 117. Floristic Plant Geography.** (5 cred.; jr., sr., grad.; prereq. 52 or §; offered when feasible)

- 118w. Extranuclear Cytology.** A detailed study of the structure of protoplasm, cytoplasmic constituents, and the cell wall in the light of their chemical and physical properties. (3 cred.; jr., sr., grad.; prereq. 10 cred. in botany, zoology, or biology or §) Dahl
- 119f. Nuclear Cytology.** The interphase nucleus, mitosis, meiosis, and bearing of chromosome behavior on genetics, taxonomy, sex, and the life cycles of plants. (3 cred.; jr., sr., grad.; prereq. 10 cred. in botany, zoology, or biology and an elementary course in genetics or §) 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 to 5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9, 118 or 119, and §; offered 1956-57 and alternate years) Dahl, Hansen
- 121w. Plant Anatomy.** The microscopic structure of vascular plants with particular attention to development in the root, stem, and leaf. (5 cred., §53; jr., sr., grad.; prereq. 10 cred. in botany or biology) Abbe
- 123s. Research Methods in Histology.** Principles and practice of preparing materials for histological investigation; methods of investigating such preparations and presenting the results. (3 to 5 cred.; jr., sr., grad.; prereq. 1-2-3 or 4-5 or N.Sci. 7-8-9, 121 or 125 and §; offered 1955-56 and alternate years) Abbe, Hansen
- 125f. Morphogenesis.** A consideration of the development of form and structure in ontogeny and phylogeny, with especial attention to the phenomena and genetical factors involved. (5 cred.; jr., sr., grad.; prereq. 10 cred. in botany or biology; offered 1956-57 and alternate years) Abbe
- 126w. Phyletic Morphology of Lower Vascular Plants.** A detailed consideration of the phylogeny of club-mosses, horsetails and ferns, both recent and fossil. (3 cred.; jr., sr., grad.; prereq. 54 or 104 or §; offered 1955-56 and alternate years) Abbe, Hall
- 127w. Phyletic Morphology of Higher Vascular Plants.** A detailed consideration of the phylogeny of cycads, conifers, flowering plants, and related spermatophytes, both living and fossil. (3 cred.; jr., sr., grad.; prereq. 54 or 104 or §; offered 1956-57 and alternate years) Abbe, Hall
- 128s. Introduction to Paleobotany.** The identification and structure of fossil plants. Emphasis on stratigraphic correlation of plant remains and on the relationship of fossil plants to modern groups. (3 cred.; jr., sr., grad.; prereq. 54 or §) Hall
- 130f,s. General Plant Ecology.** An introduction to the study of the 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 cred.; sr., grad.; prereq. 10 cred. in botany or biology)
- 131f. Field Ecology.** A survey of the local plant communities and their development, and a study of the general principles of plant association and succession; 12 field trips. (5 cred.; jr., sr., grad.; prereq. 50 or 130 or For. 3, 4) Lawrence
- 132. Morphological Ecology.** The vegetative body of the plant in relation to environment. A survey of evolutionary adaptation in the plant kingdom. (5 cred.; jr., sr., grad.; prereq. 50 or 130 or For. 3, 4; offered when feasible)
- 133s. Ecological Plant Geography.** Preliminary discussion of ecological principles in plant distribution followed by a detailed study of the vegetation regions of North America. (5 cred.; jr., sr., grad.; prereq. 50 or 130 or For. 3, 4) Lawrence
- 134f. Research Methods in Ecology.** Theory and practice of instrumental study of the habitat and of precise investigation of community and succession; 8 field trips. (5 cred.; jr., sr., grad.; prereq. 18 cred. in plant science including 50 or 130 and §) Lawrence
- 136su. Organism, Microclimate, and Weather.** (Offered only at Itasca Forestry and Biological Station) (4 cred.; jr., sr., grad.; prereq. 10 cred. in biology, botany, or zoology...physics course recommended)
- 137s. Experimental Ecology.** Ecological life histories, field manipulation of plants and communities, measurement and presentation of results. (5 cred.; jr., sr., grad.; prereq. 18 cred. in plant science including 50 or 130, 51 and §) Lawrence
- 140f. 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 cred. [students registering for 5 cred. will take laboratory work in the use of modern methods and apparatus for physiological research]; jr., sr., grad.; students who have had Bot. 51 should not enroll in 140; prereq. an elementary course in botany, zoology, or biology, or §, and a course in organic chemistry or biochemistry) Brown



- 154. Spectroscopy and Photochemistry Applied to Biology.** (3 to 5 cred.; jr., sr., grad.; offered when feasible)
- 155su. Fresh-water Algae.** (Offered only at Itasca Forestry and Biological Station) (4 cred.; jr., sr., grad.; prereq. 10 cred. in biology or #)
- 157su. Bryophytes and Pteridophytes.** (Offered only at Itasca Forestry and Biological Station) (4 cred.; jr., sr., grad.; prereq. 10 cred. in biology or #)
- 165s. Introduction to Pollen Analysis.** The 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 cred.; jr., sr., grad.; prereq. #; offered 1955-56 and alternate years) Dahl
- 170f. Water Relations of Plants.** Study of colloidal phenomena, diffusion, osmosis, and characteristics of living membranes. Cell water relations. Phenomena of absorption, transport, and transpiration of water and translocation of solutes in higher plants. (3 cred.; sr., grad.; prereq. 51 or 140, 20 cred. in chemistry or agricultural biochemistry, and P.Ch. 101, 102, 103 or 107-108, or #; for laboratory see 173; offered 1956-57 and alternate years) Brown, Frenkel
- 171w. Mineral Nutrition of Plants.** A study of the chemical elements necessary for plant nutrition and of their role in normal metabolism. Relationship of nutritional factors to other physiological processes. Deficiency and toxicity of mineral elements. (3 cred.; sr., grad.; prereq. 51 or 140, 20 cred. in chemistry or agricultural biochemistry, and #; for laboratory see 174; offered 1956-57 and alternate years) Brown, Frenkel
- 172s. Plant Growth.** Study of hormonal physiology. Consideration of external factors influencing growth. Study of dormancy, germination, growth periodicities, movement of plants, and physiology of reproduction. (3 cred.; sr., grad.; prereq. 51 or 140, 20 cred. in chemistry or agricultural biochemistry or #; for laboratory see course 175; offered 1956-57 and alternate years) Brown, Frenkel
- 173f-174w-175s. Advanced Physiology Laboratory.** (2 cred. per qtr.; sr., grad.; prereq. 170-171-172 or #170-171-172; offered 1956-57 and alternate years) Brown, Frenkel
- 176f. Plant Respiration.** A study of the biochemical mechanism of carbohydrate degradation in plants with emphasis on fundamental aspects of biological oxidation. (3 cred.; sr., grad.; prereq. 51 or 140, 20 cred. in chemistry or agricultural biochemistry, P.Ch. 101, 102, 103 or 107-108, or #; for laboratory see 179; offered 1955-56 and alternate years) Brown, Frenkel
- 177w. Photosynthesis.** A detailed survey of the present state of knowledge of the photosynthesis of organic matter by plants. (3 cred.; sr., grad.; prereq. 51 or 140, 20 cred. in chemistry or agricultural biochemistry, P.Ch. 101, 102, 103 or 107-108, or #; for laboratory see 180; offered 1955-56 and alternate years) Brown, Frenkel
- 178s. Nitrogen Metabolism of Plants.** Conversion of inorganic nitrogen compounds into organic compounds. Nitrogen fixation. Interrelation with other metabolic processes of plants. (3 cred.; sr., grad.; prereq. 51 or 140, 20 cred. in chemistry or agricultural biochemistry or #; for laboratory see 181; offered 1955-56 and alternate years) Brown, Frenkel
- 179f-180w-181s. Advanced Physiology Laboratory.** (2 cred. per qtr.; sr., grad.; prereq. 176, 177, 178 or #176, 177, 178; offered 1955-56 and alternate years) 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 cred.; jr., sr., grad.; prereq. 51 or 140 or #; offered 1956-57 and alternate years) Frenkel
- 197f-198w-199s. Problems.** Advanced work in a specialized field. (1-5 cred. per qtr.; jr., sr., grad.; prereq. 20 cred. 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**
- 240-241-242. Seminar in Morphology**
- 243-244-245. Seminar in Taxonomy**
- 246-247-248. Seminar in Paleobotany**
- Agro.247. Cytogenetics**
- 249-250-251. Seminar in Ecology**

252-253-254. Seminar in Plant Physiology

255-256-257. Seminar in Cytology

### 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 the College of Science, Literature, and the Arts without petition:

Agro. 31, Principles of Genetics

Pl.Pa. 1, Plant Pathology

Pl.Pa. 56, Introduction to the 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*.

## CHEMISTRY

(Institute of Technology)

Department Chairman—Richard T. Arnold

**Major Advisers in the College of Science, Literature, and the Arts**—Professor Heisig; Associate Professor Herr.

**Major Sequence in the College of Science, Literature, and the Arts**—An.Ch. 1-2; Or.Ch. 61, 62, 63 and 64; P.Ch. 101-102-103 with appropriate amount of laboratory in P.Ch. 104-105-106.

Prerequisites: In.Ch. 13 with its prerequisites In.Ch. 9, 10, and 12 or their equivalent; Phys. 7-8-9; mathematics through differential and integral calculus.)

Modification of this sequence may be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

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.

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

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

NOTE—An.Ch. 1-2, 7 and all courses numbered above 50 count as Senior College courses.

### Inorganic Chemistry

1f,w-2w,s,† General Inorganic Chemistry. Study of the general laws of chemistry and of the nonmetals and metals and their compounds. (4 cred. per qtr.; no prereq.)

1f-2w. Sec. 1 (Primarily for premedical, pre dental, and medical technology students) Pervier; Sec. 2 (For SLA, agriculture, and education students) Pray

1w-2s. (Primarily for agriculture and SLA students) Pray

- 4f-5w.† **General Inorganic Chemistry.** Study of the general laws of chemistry and of the nonmetals and metals and their compounds. More intensive than course 1-2. (4 cred. per qtr.; prereq. entrance cred. in chemistry) Sec. 1 (For premedical, medical technology, SLA, and education students) Brasted; Sec. 2 (For premedical, nursing education, public health nursing, and education students) Brasted; Sec. 3 (For agriculture and mines students) Johnson
- 6f-w-7w.s.† **General Inorganic Chemistry.** Study of the general laws of chemistry and of the nonmetals, metals, and their compounds. (5 cred. per qtr.; no prereq.)  
 6f-7w. (Primarily for chemistry, pharmacy, and SLA students) O'Brien  
 6w-7s. (Primarily for chemistry, pharmacy, and SLA students) O'Connor
- 9f-10w.† **General Inorganic Chemistry.** Study of general laws of chemistry and of nonmetals, metals, and their compounds. (5 cred. per qtr.; prereq. entrance cred. in chemistry) (Primarily for chemistry and SLA chemistry majors) O'Connor
- 11f. **Semimicro Qualitative Analysis.** Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization, chemical and physical equilibria, oxidation and reduction, etc. (4 cred.; prereq. 2, 5, 7, or 10) Hugus
- 11s. **Semimicro Qualitative Analysis** (See 11f) Sec. 1 (For premedical, premedical, medical technology, and education students) Pervier; Sec. 2 (For SLA, mines, and education students) Heisig; Sec. 3 (For premedical, medical technology, SLA, and education students) Johnson; Sec. 4 (For premedical, nursing education, and public health nursing students) Brasted
- 12f. **Semimicro Qualitative Analysis.** (See 11f) (5 cred.; for chemistry and SLA chemistry majors; prereq. 2, 5, 7, or 10) Hugus
- 12s. **Semimicro Qualitative Analysis** (See 12f) (For chemistry, pharmacy, and SLA chemistry majors) O'Brien
- 13f. **Semimicro Qualitative Analysis.** Laboratory work in systematic qualitative analysis of the anions with lectures on solutions, ionization, chemical and physical equilibria, oxidation and reduction, etc. (5 cred.; for chemistry and SLA chemistry majors; prereq. 12) Heisig
- 52f-53w-54s. **Seminar: Modern Problems in Inorganic Chemistry.** (1 cred. per qtr.; sr.; prereq. P.Ch. 103)
- 96f-97w-98s. **Senior Thesis.** (5 cred. per qtr.)
- 103f. **Atomic Structure and the Properties of Elements Based Thereon.** (3 cred.; jr., sr., grad.; prereq. An.Ch. 1-2 and Or.Ch. 62) Hugus, Johnson
- 104w. **Chemistry of the More Representative Elements.** (3 cred. for undergrad. students, 4 cred. for grad. students; prereq. An.Ch. 1-2, Or.Ch. 62) Brasted, Heisig
- 105s. **Co-ordination Compounds.** (3 cred.; prereq. An.Ch. 1, 2, Or.Ch. 62; offered 1955-56 and alternate years) O'Brien
- 106w. **Chemistry of the Less Familiar Elements.** (3 cred.; jr., sr., grad.; prereq. An.Ch. 1, 2, Or.Ch. 62; offered 1956-57 and alternate years) Brasted
- 107s. **Oxidation Reduction Systematics.** (3 cred.; jr., sr., grad.; prereq. P.Ch. 103; offered 1956-57 and alternate years) Hugus
- 108s. **Nonaqueous Systems.** Reactions in the principal nonaqueous systems—both protonic and aprotic. (3 cred.; jr., sr., grad.; prereq. P.Ch. 103; offered 1956-57 and alternate years) Pray
- 111f. **Silicon and Related Elements.** Review of current studies on boron, silicon, germanium, tin, and lead, with emphasis on recent silicon chemistry. (3 cred.; jr., sr., grad.; prereq. An.Ch. 1, 2, Or.Ch. 62; offered 1955-56 and alternate years) Johnson
- 112f. **Nuclear Chemistry and Radioactivity.** The properties of nuclei, disintegration, properties of radiations; natural and artificial radioactivity; modern views of nuclear structure. (3 cred.; jr., sr., grad.; prereq. 103; offered 1956-57 and alternate years) O'Connor
- 113w. **Advanced Inorganic Chemistry.** (3 cred.; jr., sr., grad.; prereq. #; offered when feasible)
- 120f-121w-122s. **Advanced Inorganic Chemistry Laboratory Methods.** Such topics as advanced qualitative analysis, synthetic inorganic chemistry, radio chemical techniques. (Cred. ar.; prereq. #)

### For Graduate Students Only

- 134-135-136. **Seminar**  
 201-202-203. **Selected Topics in Inorganic Chemistry**  
 260. **Survey of Inorganic Chemistry**  
 301-302-303. **Research in Inorganic Chemistry**

## Analytical Chemistry

- 1w-2s. Quantitative Analysis.** Introductory courses covering the general principles and methods of quantitative analysis. Typical problems are assigned and attention is given to proper laboratory practice. 1: Gravimetric analysis. 2: Volumetric analysis. (5 cred. per qtr.; soph., jr., sr.; prereq. In.Ch. 13; 2s may precede 1w, if necessary) Meehan
- 7f. Quantitative Analysis.** Introductory course covering the general principles and methods of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice. (4 cred.; primarily for premedical students; prereq. In.Ch. 11 or 12) Meehan and staff
- 7s. Quantitative Analysis.** (See 7f) (Primarily for premedical students)
- 9w. Quantitative Analysis.** A short introductory course covering general principles of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice. (3 cred.; primarily for dentists, engineers, and miners; prereq. In.Ch. 11 or 12)
- 96f-97w-98s. Senior Thesis.** (5 cred. per qtr.) Kolthoff, Sandell, Meehan
- 101w-102s. Quantitative Analysis.** General principles, methods, and procedure of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice. (5 cred. per qtr.; jr., sr., grad.; prereq. In.Ch. 13) Meehan
- 103s. Quantitative Inorganic Microanalysis.** Representative methods of micro- and semi-microanalysis, gravimetric, volumetric, and colorimetric. (3 cred.; jr., sr., grad.; prereq. 1-2) 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 cred.; jr., sr., grad.; prereq. 1-2) Sandell
- 105w. Polarizing Microscope.** Its use and application to chemistry. Identification of substances. (3 cred.; jr., sr., grad.; prereq. P.Ch. 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 cred.; jr., sr., grad.; prereq. 1-2) Sandell
- 109f,w,s. Rock Analysis.** Laboratory course covering the technique of rock analysis. (3 cred.; jr., sr., grad.; registration limited; prereq. 1-2, §) Goldich
- 122s. Advanced Analytical Chemistry.** A condensed review of modern fundamentals of gravimetric and volumetric analysis. (2 cred.; jr., sr., grad.; prereq. 1-2) Meehan
- 123f. Advanced Analytical Chemistry.** Analysis of complex materials by modern methods. (3 cred.; jr., sr., grad.; prereq. 1-2 or §) Meehan
- 127f-128w. Theoretical and Practical Fundamentals of Instrumental Methods.** (3 cred. per qtr.; jr., sr., grad.; prereq. P.Ch. 103) Meehan and staff
- 131f. Application of Indicators in Neutralization Reactions and pH Determinations.** (3 cred. with lab., 2 cred. without lab.; jr., sr., grad.; prereq. 1-2 and P.Ch. 103) Kolthoff
- 132w. Electrometric Measurements and Titrations.** Application of potentiometric and conductometric methods in analytical work. (3 cred. with lab., 2 cred. without lab.; jr., sr., grad.; prereq. 1-2 and P.Ch. 103) Kolthoff
- 133s. Voltammetry and Amperometric Titrations.** Lecture course. Use of the dropping mercury electrode (polarograph) and the platinum microelectrode in pure and applied chemistry. (2 cred.; jr., sr., grad.; prereq. 1-2 and P.Ch. 103) Kolthoff
- 134f,w,s. Voltammetry and Amperometric Titrations.** Laboratory course. (2 cred.; jr., sr., grad.; prereq. 133 or 1133) Kolthoff
- 135f-136w-137s. Seminar: Modern Problems in Analytical Chemistry.** (1 cred. per qtr.; sr., grad.; prereq. 1-2, and P.Ch. 103) Kolthoff
- 138s. Advanced Volumetric Analysis.** (3 cred.; jr., sr., grad.; prereq. 131) Kolthoff
- 140w. Water Analysis.** Analysis of potable water with interpretation of results. (2 cred.; jr., sr., grad.; prereq. 1-2) Sandell

*For Graduate Students Only*

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

## Organic Chemistry

- 61f-62w.† **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 cred. per qtr.; for chemistry, chemical engineering, premedical, preidental, and pharmacy students; prereq. 12-15 cred. in chemistry) Fenton, Noland
- 61w-62s.† **Elementary Organic Chemistry** (See 61f-62w) Koelsch
- 63f,s. **Elementary Organic Chemistry.** (Continuation of 61-62) Lecture course. (3 cred.; open to all except premedical, preidental, and pharmacy students; 63 is prerequisite to all other advanced courses in organic chemistry; prereq. 62) Parham
- 64f,s. **Elementary Organic Chemistry Laboratory.** (3 cred.; 64 is prerequisite to all other advanced courses in organic chemistry; prereq. 63 or 163) Parham
- 96f-97w-98s. **Senior Thesis.** (May be taken with any member of the Organic Chemistry Division staff) (5 cred. per qtr.; sr.; prereq. 63 and 64 or equiv.)
- 101w. **Intermediate Organic Chemistry.** A 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 cred.; jr., sr., grad.; prereq. 63 and 64 or equiv.) Lauer
- 102f. **Characterization of Organic Compounds.** (Elementary course) An introduction to the methods of organic qualitative analysis. (4 cred.; jr., sr., grad.; prereq. 63 and 64 or equiv.) Fenton
- 105f-106w-107s. **Advanced Organic Chemistry.** Advanced descriptive course covering the field of organic chemistry, together with an introduction to the literature of organic chemistry. Lectures and outside reading. Ability to read German is assumed. (3 cred. per qtr.; jr., sr., grad.; prereq. 63 and 64 or equiv.) Smith
- 108su. **Physical Techniques in Organic Chemistry.** Discussion of physical methods as applied to the identification and structural analysis of organic compounds. (3 cred.; jr., sr., grad.; prereq. 63 and 64 or equiv.) Fenton
- 110f. **Advanced Organic Qualitative Analysis.** Identification of pure organic compounds, separation and identification of constituents of mixtures. (4 cred.; grad.; registration limited; prereq. 102 or equiv., ‡) Koelsch
- 116w. **Heterocyclic Compounds.** Discussion of typical classes of heterocyclic compounds, their chemical and physical properties and uses, and the ring closures leading to heterocycles. (3 cred.; prereq. 63 and 64; offered 1955-56 and alternate years) Parham
- 130s. **Organic Quantitative Analysis.** Methods of proximate and ultimate analysis of organic compounds, with special attention to semimicro methods. (3 cred.; registration limited; prereq. 63 and 64 and An.Ch. 1 and 2, ‡) Lauer
- 139f,w,s. **Advanced Organic Chemistry Laboratory Work.** Selected laboratory problems of an advanced nature, including some original work. (2 to 5 cred.; prereq. 63 and 64, ability to read German; students are advised to take this course during the winter quarter, ‡ to take it at any other time) Noland
- 140f,w. **Aromatic Compounds.** Discussion of the chemistry of typical aromatic compounds including derivatives of benzene, naphthalene, anthracene, phenanthrene, and other polynuclear hydrocarbons, together with the consideration of certain heterocyclic compounds which show aromatic character. The properties of these compounds will be illustrated by examples chosen from the sterols and the alkaloids. (3 cred.; prereq. 63 and 64; 140f offered 1955-56 and alternate years; 140w offered 1956-57 and alternate years) Koelsch, Parham
- 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 cred.; prereq. 63 and 64; offered 1956-57 and alternate years) Koelsch
- 142s. **The Chemistry of Natural Products.** Discussion of the organic chemistry of important classes of natural products. (3 cred.; prereq. 63 and 64; offered 1955-56 and alternate years) Fenton
- 151f-152w-153s. **Organic Chemistry Seminar.** (1 cred. per qtr.; sr. only)
- 163f,s. **Elementary Organic Chemistry.** Discussion of important classes of organic compounds, both aliphatic and aromatic, together with some heterocyclic compounds. (2 cred.; grad.; prereq. 62) Parham

*For Graduate Students Only*

- 201-202-203. **Organic Chemistry Seminar**
- 205-206. **Theoretical Organic Chemistry**

212. **Physico-Organic Chemistry**  
 261. **General Survey of Organic Chemistry**  
 301-302-303. **Research in Organic Chemistry**

### Physical Chemistry

- 96f-97w-98s. **Senior Thesis.** (5 cred. per qtr.)
- 101f-102w-103s. **Physical Chemistry.** A general survey of the subject. (3 cred. per qtr.; jr., sr., grad.; prereq. An.Ch. 1 and 2, Phys. 7-8-9 or ¶Phys. 7-8-9 by §, and mathematics through differential and integral calculus; 101 is prereq. to 102 and 102 is prereq. to 103) Crawford, Livingston
- 104f-105w-106s. **Physical Chemistry Laboratory.** (1 or 2 cred. per qtr.; prereq. 101-102-103 or ¶101-102-103 by §) Lumry, Prager
- 107f-108w. **Elementary Physical Chemistry.** (3 cred. per qtr.; for premedical students only; prereq. two years college chemistry, one year college physics and Math. 15-16 or 6-7) Lipscomb, Wertz
- 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 cred.; jr., sr., grad.; prereq 103 and §; offered 1955-56 and alternate years) Wertz
- 111w. **Experimental Research Techniques II.** Materials of research, high vacuum technique, characteristics of thermionic tubes, rectifiers, amplifiers, oscillators, photocells. (2 or 3 cred.; jr., sr., grad.; prereq. 110; offered 1955-56 and alternate years) 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 cred.; jr., sr., grad.; prereq. 111; offered 1955-56 and alternate years) Wertz
- 116f. **Thermodynamics and Chemistry.** A detailed study of the principles of thermodynamics and their application to physical and chemical phenomena. (4 cred.; prereq. 103 and calculus) Crawford, Wertz
- 117s. **Fundamentals of Reaction Kinetics.** Empirical analysis of rate measurements, collision theory, transition state theory, chain reactions. (3 cred.; jr., sr., grad.; prereq. 103) Livingston, Lumry
- 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 cred.; jr., sr., grad.; prereq. 103) Lipscomb, Lumry
- 119s. **Kinetics of Reactions: Selected Topics.** Effect of solvents and electrolytes on reaction velocity, diffusion processes; induced reactions; homogeneous and heterogeneous catalysis. (3 cred.; prereq. 117; offered 1955-56 and alternate years) Livingston
- 128f. **Colloid Chemistry.** The fundamental principles of colloid chemistry, surface chemistry, electrokinetic phenomena, lyophobic and lyophilic colloids. (3 cred.; jr., sr., grad.; prereq. P.Ch. 103) Reyerson
- 129w. **Adsorption and Catalysis.** The fundamental principles of adsorption at the different interfaces and the application of these principles to heterogeneous catalysis. (3 cred.; jr., sr., grad.; prereq. 128) Reyerson
- 130s. **Colloids in Industry.** The important applications of colloid chemistry to many of the fields of chemical industry. (3 cred.; jr., sr., grad.; prereq. 128; offered 1956-57 and alternate years) Reyerson
- 131s. **Colloidal Processes.** A survey of the important colloidal processes; coagulation, sol-gel transformation, thixotropy, and dilatancy. (3 cred.; jr., sr., grad.; prereq. 128; offered 1955-56 and alternate years) Reyerson
- 132f-133w-134s. **Colloid Chemistry Laboratory.** (1 or 2 cred.; jr., sr., grad.; prereq. 128 or ¶128) Reyerson
- 150f-151w-152s. **Physical Chemistry Seminar—For Seniors.** (1 cred. per qtr.; sr.; prereq. §) Livingston
- 175s. **Photochemistry.** General survey, including a discussion of spectroscopy, with particular reference to the visible and ultraviolet absorption spectra of molecular gases. (3 cred.; jr., sr., grad.; prereq. 103 and Phys. 9; offered 1956-57 and alternate years) Livingston
- 180s. **Experimental Techniques in Physical Chemistry.** This course is primarily designed for physical chemistry minors and others interested in the properties of molecules related to optical and infrared spectra, refractive index, polarimetry, diffraction analysis, and other related experimental techniques. (2 cred.; prereq. §) Wertz

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

## Agricultural Biochemistry

Students in the College of 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 WELFARE

(Institute of Child Welfare)

**Department Director**—Dale B. Harris

**Advisers in the College of Science, Literature, and the Arts**—Professors Anderson, Harris, Roff; Associate Professor Templin; Assistant Professors Gollin, Overlade, Wirt.

**Major Sequence in the College of Science, Literature, and the Arts**—Prerequisites: Psy. 1-2, Soc. 1, C.W. 40 or F.L. 25. Required courses: C.W. 80, 83, 90, 140, 185, Psy. 70 or Soc. 45, and 9 to 15 additional credits from Senior College child welfare courses or from the following courses in related fields: Ed.C.I. 63, 122; H.E. 171; Lib. 171; Psy. 52, 86, 114; Pub.H. 57, 59; Soc. 50, 115, 141, 145, 162; Spch. 131; Zool. 83.

The major in child welfare 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. 15-16 and a statistics course, as well as 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. Courses listed above from related fields not presented for a major may be included as minor or as elective courses with the adviser's approval.

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

**Major advisers in the College of Education**—Professors Anderson and Fuller.

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

### Junior College Courses

- 10s. **Introduction to Child Study.** Orientation in child development through a survey of the preschool, parent education, and mental health approaches. (2 cred.; 3rd qtr. fr., soph; no prereq.) Cummings
- 40f.\*\* **Child Training.** Development and training of young children. Observations in the demonstration schools. (3 cred.; soph., jr., sr.; prereq. Psy. 1-2) Fuller

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

40w.\*\* Child Training. (See 40f) Fuller, Helgerson

40s.\*\* Child Training. (See 40f) Fuller

NOTE—See also F.L. 25f,w,s (Child Development and Adjustment) under General Studies, page 72.

### Senior College Courses

C.W. 80 is open to sophomores who have an average grade of at least C in Psy. 1-2. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 80f,w,s. **Child Psychology.** The science of child development and its applications. (3 cred.; jr., sr.; prereq. Psy. 1-2) Harris (f,w), Gollin (s)
- 83f. **Development and Guidance of Children's Activities.** The development of interests and activities. (3 cred.; jr., sr.; prereq. 80) Templin
- 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 cred.; jr., sr.; prereq. 80) Templin
- 125w. **Experimental Child Psychology.** Introduction to methods, techniques, and problems in the experimental study of children. (3 cred.; sr., grad.; prereq. 80 or equiv., Psy. 4-5, and 12 credits in psychology, educational psychology, or sociology) Gollin
- 130f. **Motor, Linguistic, and Intellectual Development of the Child.** Interpretation of the scientific literature. (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.) Anderson
- 131w. **Personality, Emotional, and Social Development of the Child.** Interpretation of the scientific literature. (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.) Templin
- 132s. **Later Childhood and Adolescence.** Growth; mental, social, emotional, and personality development. (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.) Harris
- 140f,w,s. **Behavior Problems.** Types, origin, development, and treatment of behavior problems in children and adolescents. (3 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology) Gollin
- 142s. **Psychology of Atypical Children.** Physical and mental deviations and handicaps; personal, social, and vocational adjustment. (3 cred.; sr., grad.; prereq. 12 cred. in psychology) Templin
- 143f. **Problems of Mental Deficiency.** Diagnosis, care, training; social and vocational problems; legal aspects. (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.) Gollin
- 150f-151w-152s. **Childhood Education.** 150: History and philosophy. 151: Organization and administration. 152: Methods and materials. (2 cred. per qtr.; sr., grad.; prereq. 12 cred. in psychology or equiv.) Fuller
- 160w. **Physical Growth and Development.** From early fetal life to maturity. (3 cred.; sr., grad.; prereq. 12 cred. in psychology or equiv.) Roff
- 166f. **Maturity and Aging.** Developmental changes in the aging and aged; adjustment and care. (2 cred.; sr., grad.; prereq. 12 cred. in psychology, education, or sociology) Anderson
- 170w. **Parent Education.** Programs, materials, methods, organization, and administration. Demonstrations of group procedures. (3 cred.; sr., grad.; prereq. 12 cred. in child welfare or home economics or education or psychology or sociology or public health) Cummings
- 172f. **Principles of Parent Interviewing.** Introduction to interviewing and counseling parents. (2 cred.; sr., grad.; prereq. 12 cred. in psychology, education, educational psychology, or sociology)
- 185w. **Children in a Changing World.** Effects of social change, depressions, wars, and catastrophes upon children. (3 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology) Templin
- 190s. **Use and Interpretation of Tests for Children.** Survey of mental tests for social worker, teacher, etc. (2 cred.; sr., grad.; prereq. 12 cred. in psychology, educational psychology, or sociology) Deno

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



191s. **Laboratory in Use and Interpretation of Mental Tests with Children.** Practice in giving certain of the more common mental tests to young children. (3 cred.; sr., grad.; prereq. 1190)

*For Graduate Students Only*

- 200. **Observation and Study of Children**
- 210. **Advanced Developmental Psychology**
- 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**
- 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**
- 261. **Seminar: History of Child Development**
- 262. **Seminar: Language Development and Thought**
- 265. **Seminar: Motor Development**
- 266. **Seminar: Social Development and Group Behavior**
- 267. **Seminar: Socialization in the Family**
- 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. **Seminar in Projective Methods with Children and Adolescents**

NOTE—See also courses Ed.T. 55-59, 76, 77-78-79, offered by the Institute of Child Welfare and listed under Methods and Directed Teaching in the program of the College of Education.

### CHINESE

See Slavic and Oriental Languages, page 143.

### CLASSICS

**Department Chairman—Norman J. DeWitt**

**Major Advisers in the College of Science, Literature, and the Arts—**  
Professor DeWitt; Associate Professor McDonald.

**Major Sequences in the College of Science, Literature, and the Arts—**

#### 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) 9 credits chosen from Clas. 106-107-108, 122-123, 181-182, 191-192-193, and 9 in Greek and Roman history.

A suggested minor sequence in Greek is as follows: 18 credits in Greek courses numbered above 50; or 12 credits in such courses with 6 credits in Greek and Roman history.

#### 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) 9 credits chosen from Clas. 106-107-108, 122-123, 181-182, 191-192-193, and 9 in Greek and Roman history.

A suggested minor sequence in Latin is as follows: 18 credits in Latin courses numbered above 50; or 12 credits in such courses with 6 credits in Greek and Roman history.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

**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 10 credits in Greek and Roman history.

Minor recommendation: Lat. 51-52, 73, and 2 quarters in Greek and Roman history.

## Greek

### Junior College Courses

- Grk.1f-2w.† Beginning Greek.** This course is planned to bring students face to face 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 cred.; no prereq. for 1f...prereq. for 2w, 1f or equiv.) McDonald
- Grk.3s. Selections from Attic Prose.** (5 cred.; prereq. 1-2 or equiv.) McDonald

### Senior College Courses

- Grk.51f. Plato: Apology and Selections.** (3 cred., §151; jr., sr.; prereq. 1-2-3 or equiv.) DeWitt
- Grk.52w. Introduction to Greek Drama.** (3 cred., §152; jr., sr.; prereq. 1-2-3 or equiv.) DeWitt
- Grk.53s. Homer.** (3 cred., §152; jr., sr.; prereq. 1-2-3 or equiv.) McDonald
- Grk.73s. New Testament.** (3 cred.; jr., sr.; prereq. Δ)
- Grk.121f-122w-123s.† Advanced Prose Composition.** (9 cred.; jr., sr., grad.; prereq. 24 cred. in Greek)
- Grk.151f. Plato: Apology and Selections.** (3 cred., §51; grad.; prereq. 1-2-3 or equiv.; meets with Grk. 51, but with additional independent work) DeWitt
- Grk.152w. Introduction to Greek Drama.** (3 cred., §52; grad.; prereq. 1-2-3 or equiv.; meets with Grk. 52, but with additional independent work) DeWitt
- Grk.153s. Homer.** (3 cred., §53; grad.; prereq. 1-2-3 or equiv.; meets with Grk. 53, but with additional independent work) McDonald
- Grk.171f,172w,173s. Independent 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 cred. per qtr.; prereq. 53 or Δ)

### For Graduate Students Only

- Grk.211-212-213. Seminar: Greek Epic.** (Offered 1955-56 and alternate years)

### Courses for Which No Knowledge of Greek Is Required

(See page 55.)

## Latin

### Junior College Courses

- Lat.1f-2w.† Beginning Latin.** This course is based on the "descriptive" or "linguistic" approach to a new language, i.e., the 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 cred.; no prereq. for 1f...prereq. for 2w, 1f or equiv.; classes held in Folwell Phonetics Center) Forbes

**Lat.3s. Intermediate Latin.** (Continuation of 1-2) Emphasis on the further development of reading proficiency. (5 cred.; prereq. 2 or equiv. or one year of high school Latin) Forbes

**Lat.21f. Introduction to Latin Reading.** This course is designed as a "refresher" for students at any level in the University. Beginning with simple narrative and expository prose, the course reviews the fundamentals of Latin reading skill, and advances by the end of the quarter to poetry and prose on the "classical" level, thus preparing the student for the 51-52-53 sequence. Grammar, vocabulary, and sentence patterns are reviewed in context as they occur. (5 cred.; prereq. 1 or 2 years of high school Latin, or  $\Delta$ ) Forbes

### Senior College Courses

**Lat.51f-52w-53s. Survey of Latin Literature.** (9 cred., §151-152-153; jr., sr.; prereq. 3 or 21 or  $\Delta$ ) Forbes

**Lat.73s. Prose Composition.** (3 cred.; prereq. 3 or 4 years of high school Latin or  $\Delta$ )

**Lat.111f-112w-113s.† Advanced Prose Composition.** (2 cred. per qtr.; jr., sr., grad.; prereq. 73)

**Lat.133s. Vulgar Latin.** Development of Latin into Romance. (3 cred.; jr., sr., grad.; open to advanced students of Latin or a Romance language with §) Swanson

**Lat.151f-152w-153s. Survey of Latin Literature.** (9 cred., §51-52-53; grad.; prereq. 3 or 21 or  $\Delta$ ; meets with Lat. 51-52-53, but additional independent work required) Forbes

**Lat.171f,172w,173s. Independent Reading in** ..... (e.g., Plantus, 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 cred. per qtr.; prereq. 53 or  $\Delta$ )

### For Graduate Students Only

**Lat.201-202-203. Graduate Seminar: Caesar's Commentaries.**

### Classics

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

**Hist.14Af-15Aw-16As.‡ Ancient Civilization with Basic Readings.** (15 cred.; no prereq.) Jones

**Clas.24f,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 cred.; soph., jr., sr.; no prereq.) Swanson

**Clas.42f,s. Greek Mythology.** A study of the classical myths, designed to acquaint 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 cred.; soph., jr., sr.; no prereq.) 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 cred.; soph., jr., sr.; no prereq.) Forbes

**Clas.56f. Elementary Linguistics.** An introduction to modern language science, involving a brief history of the field and its methods, a summary of the chief language families, the basic phonetics of the European languages, how words are made and how they are analyzed, the principles of language change, the reconstruction of earlier stages in a language from extant dialects, and applications of linguistic science to language teaching and learning. (3 cred.; jr., sr.; prereq. one year of foreign language study on the college level or equiv., or §) 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 twelve of the tragedies. Major emphasis on understanding the problems posed in terms of the total cultural pattern of the time. (3 cred., §Clas.181; jr., sr.;

- prereq. 9 cred. in English literature, English beyond A-B-C, or foreign literature, or  $\Delta$ ) 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 twelve comedies and three Senecan tragedies. More attention to the influence of the Roman plays on later drama. (3 cred., §Clas. 182; jr., sr.; prereq. same as 81) McDonald
- Clas.106w-107s. Introduction to the Study of Language.** (3 cred. per qtr.; jr., sr., grad.; prereq. Clas. 56 or  $\Delta$ ) Swanson
- Clas.108s. Cultural Aspects of Language.** (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language) Swanson
- Clas.122w. Introduction to Greek Archaeology.** The methods and techniques of modern field archaeology; the history of major excavations at sites dating from the neolithic period down to the Roman conquest of the eastern Mediterranean; the chronological development and the regional peculiarities of architecture, sculpture, painting, and other special fields. Illustrated lectures, readings, and student reports. (3 cred.; jr., sr., grad.; no prereq.) 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 cred.; jr., sr., grad.; no prereq.) McDonald
- Clas.124f,s. Technical Terminology.** An intensive study of the semantics and derivation of modern technical vocabularies, with presentation in English or Greek and Latin prefixes, suffixes, and root words. (3 cred., §Clas. 24; jr., sr., grad.; no prereq.) Swanson
- Clas.181f. Greek Tragedy in Translation.** (3 cred., §Clas. 81; grad.; meets with Clas. 81, but students will do additional independent work in consultation with instructor) McDonald
- Clas.182w. Aristophanes and Roman Drama in Translation.** (3 cred., §Clas. 82; grad.; meets with Clas. 82, but students will do additional independent work in consultation with instructor) 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 poetry; (winter) drama and dramatic prose (dialog); (spring) expository and narrative prose including the novel, literary criticism. (3 cred. per qtr.; jr., sr., grad.; 9 cred. in English literature, English beyond A-B-C or foreign literature) DeWitt

## COMMUNICATION

See General Studies, page 71.

## COMPOSITION

See English, page 69.

## DRAWING AND DESCRIPTIVE GEOMETRY

Department Head—Henry C. T. Eggers

### *Junior College Courses*

- 44f,w,s. Lettering.** A practical course in plain lettering. (1 cred.; no prereq.)
- 45f,w,s. Alphabets.** Construction and analysis of classic and modern roman, italic, script, and gothic styles, including Old English. Exercises in composition. Reference work. (2 cred.; soph., jr., sr.; prereq. 44)

Many of the art courses which were previously listed under Drawing and Descriptive Geometry are now included in the Department of Art. (See page 30.) Other courses offered by the Department of Drawing and Descriptive Geometry and listed in the *Bulletin of the Institute of Technology* are open to students of the College of SLA only by special permission of the Scholastic Committee.

## ECONOMICS

(School of Business Administration)

Courses in economics are available to Science, Literature, and the Arts students and may be applied toward an economics major or minor for a degree from this College. Students contemplating graduate work in the field and those desiring a four-year liberal arts program may prefer this arrangement.

Those wishing to specialize in business administration or to earn the degree of B.S. in Economics should transfer after two years to the School of Business Administration. For the prerequisites for entrance into the latter school, see page 161 of this bulletin and for the B.A. course offerings, see the *Bulletin of the School of Business Administration*.

**Department Chairman**—Richard L. Kozelka

**Major Advisers in the College of Science, Literature, and the Arts**—Professors Brownlee, Heller; Assistant Professor Coen.

**Major Sequence in the College of Science, Literature, and the Arts**—A student majoring in economics is required to earn at least 30 credits in Senior College courses as follows: (a) required courses: Econ. 73 (or 161), 80 (or 143), 81 (or 144), 85 (or 175); (b) at least 9 credits from Econ. 64 (or 142), 75 (or 155), 105, 106, 149, 176, 191-192; and (c) 9 additional credits from any Senior College economics courses listed in this bulletin. Students who expect to take postgraduate work in business or economics in this or another university are advised to include in their program the following courses: Econ. 5 and 121-122-123 in statistics; and Econ. 24, 25, 26 in accounting.

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

(Prerequisites: Econ. 3 and 6-7. In addition, the student is urged to earn at least 9 credits in history, political science, or sociology.)

**Honors Course**—Students whose records show that they are capable of doing better than average work and who wish to study for graduation honors or to pursue a special interest should consult a major adviser for modification of the sequential requirements.

*Junior College Courses*

**Af. Business and the American Economy.** A descriptive survey of the American economy with emphasis on the business segment. A discussion of the general structure and chief functions of the various sections of the economy and a similar consideration of selected business firms and their principal subdivisions. (3 cred., §S.Sci. 2; fr.; no prereq.) Gaumnitz

**1-2. Business History.** (Offered when feasible)

**3f.s. Elements of Money and Banking.** Basic principles of money and a description of the various types of financial institutions, their functions and relations to the whole economic organization. (5 cred., §B.A. 57; 2nd and 3rd qtr. fr., soph.; no prereq.) Stehman and staff

**5f.w.s. Elements of Statistics.** Elementary concepts in statistical method. Statistical description; sources of data, techniques of presentation (tabular, graphic); frequencies; averages, index numbers, dispersion. Collection of data; sampling; sampling error and reliability. Inference. (Student may take either 5A [no math. prerequisite] or 5B [see prerequisite below]) Kozelka and staff

**5A:** (4 cred., §5B, Soc. 45; soph.; no prereq.; 5 hours, incl. 2 lab.)

**5B:** (3 cred., §5A, Soc. 45; soph.; prereq. Math. 7 or 8 or 16 or equiv.; 3 hours)

**6f-7w. Principles of Economics.** The fundamental principles of economics intended to serve as a foundation for advanced courses in business administration and economics. (10 cred., §8-9, 62-63; soph., jr., sr.; no prereq for 6; prereq. for 7 is 6...3 advised) McKenna, Smith, and staff

- 6w-7s. Principles of Economics.** (See 6f-7w)
- 6s. Principles of Economics.** (1st qtr. of 6-7. See 6f-7w)
- 7f. Principles of Economics.** (2nd qtr. of 6-7. See 6f-7w)
- 24f\*\*-25w-26s. Principles of Accounting.** The balance sheet, profit and loss statement, the recording process, special journals, ledgers, adjustments, work sheets, closing entries, the voucher system, partnership, corporation accounting (stock, surplus, dividends, reserves, funds, and bonds), departmental accounting, branch accounting, manufacturing, statement analysis and interpretation. (9 cred., §B.A. 54-55; 3rd qtr. fr.; no prereq.) Nelson and staff
- 24w\*\*-25s. Principles of Accounting.** (1st and 2nd qtrs. of 24-25-26. See 24f-25w-26s) Nelson and staff
- 24s.\*\* Principles of Accounting.** (1st qtr. of 24-25-26. See 24f-25w-26s)
- 25f.\*\* Principles of Accounting.** (2nd qtr. of 24-25-26. See 24f-25w-26s)
- 26f,w. Principles of Accounting.** (3rd qtr. of 24-25-26. See 24f-25w-26s)
- 27s. Accounting Survey.** Designed for prelaw and law students. Special emphasis on accounting for corporations and for income. (5 cred., §24-25, B.A. 54; soph., no fr.; open to law and prelaw students only; no prereq)
- 32f,w,s. Beginning Typewriting.** Correct typewriting techniques; arrangement of type-written material in basic letter forms, manuscripts, and simple tabulations; care of the typewriter. (1 cred.; fr., soph., jr., sr.; no prereq.) Donaldson and staff
- 33f,w,s. Intermediate Typewriting.** Knowledge and skills in letter arrangement; envelopes; carbons; tabulations; manuscripts; speed building. (1 cred.; fr., soph., jr., sr.; prereq. speed of 30 words a minute) Donaldson and staff
- 34f,w,s. Typewriting Procedures.** Machine transcription; operation of electric typewriters and duplicating machines; footnotes, bibliographies, proof-reading, manuscripts; legal documents and office forms; tabulations. (2 cred.; soph., jr., sr.; prereq. 33 or equiv. and speed of 45 words a minute) Peterson and staff
- 36f. Office Procedures.** Editing and revising correspondence; communications; basic indexing and filing problems; intraoffice relationships. (3 cred.; soph., jr., sr.; prereq. 34 or §) Donaldson
- 37f-38w-39s.††† Shorthand.** An elementary course in Gregg Shorthand Simplified. A large vocabulary of high-frequency words is developed. Emphasis is placed on transcription of mailable letters. (9 cred.; soph., jr.; prereq. 34 and 39) Donaldson and staff
- 40f-41w.† Secretarial Procedures.** Office situations and problems related to editing, traveling, banking, communicating, and reference books; office-style dictation, transcription, and speed development. (6 cred.; soph., jr., sr.; prereq. 34 and 39) Peterson
- 43f. Shorthand Theory.** A study of Gregg shorthand principles, both Simplified and Anniversary editions. Experience in the techniques of dictating and blackboard writing. This course is designed for majors in business education. (2 cred.; soph., jr., sr.; prereq. 34 and 39 and §) Donaldson

### Senior College Courses

Senior College courses with numbers less than 100 are open to third quarter sophomores who have an average grade of at least C in the prerequisite courses.

**50f,w,s. Insurance Principles.** Theory of risk and insurance; types of insurable risks; types of insurers; fundamentals of life and disability, property, and liability insurance contracts; sales, underwriting, actuarial, finance, and claims functions of insurers; internal and external regulation; social insurance. (3 cred.; jr., sr.; prereq. 7 or equiv.) Williams

**62.§§ Competition and Monopoly in Modern Industry.** Econ. 62 and 63 are nontechnical analytical courses for Senior College students, with special emphasis on questions of economic policy. The first quarter is devoted to national income, the pattern of

\*\* Students who have had a high school course or experience in bookkeeping may be admitted to Econ. 25 by passing a placement test which is normally given the first day of each quarter.

†† Students who have had one year of high school shorthand are admitted to Econ. 38; those who have had two years of high school shorthand are admitted to Econ. 39.

§§ Econ. 62, 63: (1) may not be included as a part of the Senior College work required for a minor in economics in the College of Science, Literature, and the Arts, and (2) will not be accepted as a substitute for Econ. 6-7 in meeting prerequisite requirements for Senior College courses.

- consumption, the effects of competition and monopoly on prices and the allocation of resources, and labor unions. (3 cred., §6, 8; jr., sr.; no prereq.; offered when feasible)
- 63.\*\* Money, Cycles, and Taxation.** The money and banking systems, fluctuations in business and proposed remedies; government expenditures and revenues. (3 cred., §7, 9; jr., sr.; prereq. 62; offered when feasible)
- 64f.w.s. Economics of Money and Banking.** Banking policy viewed from the social standpoint with primary reference to the problems of the Federal Reserve System. Selected problems in monetary policy; monetary reconstruction and monetary reform. (3 cred., §142; jr., sr.; prereq. 3 and 80 or equiv.) Smith and staff
- 73f.w.s. Manpower Economics and Labor Problems.** Covers: (1) the marketing of manpower resources; (2) the institutional structure of labor markets; (3) economic and social problems arising out of labor marketing processes; and (4) methods, procedures, and proposals for solving these problems. (3 cred., §161; jr., sr.; prereq. 7 or equiv.) Yoder and staff
- 75f.w.s. Corporation Finance.** The corporation in comparison with other types of business units. Attention is given to organization and capital structure, raising fixed and circulating capital, treatment of corporate earnings, incentives to and forms of combination, and trusteeship and reorganization. (3 cred., §155; jr., sr.; prereq. 3 and 7 or equiv.) Stehman and staff
- 79s. Survey of Economic Ideas.** The development of economic thinking from Adam Smith to J. M. Keynes, with emphasis on the impact of the industrial revolution and the business cycle on the formation of theory. (3 cred.; jr., sr.; prereq. 7 or equiv.) Buttrick
- 80f.w.s. Intermediate Economic Analysis: Income and Employment.** The determinants of national income, employment, and price level, with particular attention to aggregate consumption and investment. (3 cred., §143; jr., sr.; prereq. 20 cred. in social science including 7 or equiv.) Boddy and staff
- 81f.w.s. Intermediate Economic Analysis: Firms and Households.** The analysis of individual decision-making, by firms and households, under conditions of monopoly, competition, and monopolistic competition. (3 cred., §144; jr., sr.; prereq. 20 cred. in social science including 7 or equiv.) Brownlee and staff
- 84w. Comparative Economic Systems.** The modified system of individualism; state socialism; communism; fascism; freedom and the economic order. Emphasis is placed not upon historical development but upon the vital economic functions to be achieved under any economic system and a critical analysis of the ability of the various systems to perform these functions. (3 cred.; jr., sr.; prereq. 7 or equiv.) Papandreou
- 85f.w.s. Government Regulation of Business.** The economic aspects of legislation affecting the market processes. Topics studied include the economic origins of business limitations on free competition, the regulation of public utilities, the purposes and effect of antitrust laws and laws relating to "unfair business practices," and government assistance to economic groups. (3 cred., §175; jr., sr.; prereq. 81 for majors, suitable background in law or political science for others, or §) Boddy and staff
- 97f-98w-99s. Honors Course in Economics.** Offered to specially qualified students who are majors in economics and who wish to pursue a course of specialized reading and research. (Cred. ar.; jr., sr.; prereq. consent of major adviser)
- 100f. 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 cred.; jr., sr., grad.; prereq. Math. 7 and 30 or §) Hurwicz
- 101w. Econometrics I.** 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 cred.; jr., sr., grad.; prereq. 5, 100 or §... Math. 50-51 advised) Hurwicz
- 102s. Econometrics II.** 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. Specifi-

\*\* Econ. 62, 63: (1) may not be included as a part of the Senior College work required for a minor in economics in the College of Science, Literature, and the Arts, and (2) will not be accepted as a substitute for Econ. 6-7 in meeting prerequisite requirements for Senior College courses.

- cation error. Identification. Time series problems. Aggregation. Examples: production functions, demand functions, factor analysis. This course covers some of the same ground as Econ. 101, but on a more advanced level. (3 cred.; jr., sr., grad.; prereq. Math. 50, and Econ. 101 or ¶Math. 123 or ¶Econ. 123, or §) Hurwicz
- 103w. **Advanced Price Theory.** Theories of choice as applied to firms and resource owners, and the usefulness of such theories in predicting market behavior. (3 cred.; jr. and sr. with consent, grad.; prereq. 81 or 144) Boddy
- 104s. **Market Structure and Price Theory.** Application of price theory to industry behavior. Includes analysis of interindustry competition; price and output policies under conditions of imperfect competition. (3 cred.; jr. and sr. with consent, grad.; prereq. 103) Boddy
- 105f. **The History of Economic Thought: Before 1870.** This course and Econ. 106 are designed to acquaint the student with the principal economic writings of the past so that contemporary theory may be seen in perspective. Throughout, particular theories are related to the problems and policies of the times. This course concentrates primarily on the classical economists, Marx, and the beginnings of neoclassical economics. (3 cred.; jr., sr., grad.; prereq. grade of B or better in 80 and 81 or equiv. or §) Buttrick
- 106w. **The History of Economic Thought: After 1870.** (Continuation of Econ. 105) Traces the development of neoclassical economics through the 1930's. Separate attention is given to the origins of macrotheory. (3 cred.; jr., sr., grad.; prereq. grade of B or better in 80 and 81 or equiv. or §) Buttrick
- 108f. **City Planning.** (Same as Arch. 104, Pol. 123, and Soc. 106) (3 cred.; sr.; no prereq.)
- 110f. **Price Policy.** Selected topics in managerial and economic problems concerning market price and price policy. Methods by which prices are set under actual market conditions, administered prices, price leadership, international cartels, and government intervention. (3 cred.; jr., sr., grad.; prereq. B.A. 77 or Econ. 185)
- 120f. **Economic Development.** Designed to explore the conditions necessary for increasing income, the measurement of economic growth, and problems of "underdeveloped" areas. The principal focus is on capital formation. (3 cred.; jr., sr., grad.; prereq. grade of B or better in 80 and 81 or equiv. or §) Buttrick
- 121f. **Introduction to the Theory of Statistics.** Designed to acquaint the nonspecialist with some of the basic concepts and methods of classical statistics. For those interested in further study, serves as a preparation for the more systematic and intensive treatment in Econ. 122-123. Deals largely with the discrete probability distributions (thus avoiding the need for calculus) and is focused on problems of hypothesis testing and estimation. (3 cred.; jr., sr., grad.; prereq. Math. 7 or equiv. or §) Hurwicz
- 122w. **Theory of Statistics I.** Primarily one-variable problems. The 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 cred.; jr., sr., grad.; prereq. 121 and ¶Math. 51, or §) Hurwicz
- 123s. **Theory of Statistics II.** Primarily an extension to the many-variable case of the concepts treated in Econ. 122. Analysis of covariance. Discriminant analysis and statistical selection. Distribution-free methods. (3 cred.; jr., sr., grad.; prereq. 122 and Math. 51 or §) Hurwicz
- 124w. **Theory of Employment, National Income, and the Price Level I.** Determination of the equilibrium values for real output, employment, the price level and the rate of interest under specified assumptions regarding the demand for and supply of money, the demand for and supply of labor, technical conditions of production and the investment and consumption functions. (3 cred.; jr., sr., grad.; prereq. 80 or equiv.) Brownlee
- 125s. **Theory of Employment, National Income, and the Price Level II.** Effects of governmental monetary and fiscal policies upon the equilibrium levels of output, employment, prices, and interest rates. An introduction to dynamic analysis. (3 cred.; jr., sr., grad.; prereq. 124) Brownlee
126. **Economic Problems of Latin America.** The development of economic resources; influence of foreign economies; organization for production; state of the industrial arts; domestic markets and transportation; government finance; present tendencies in respect to economic progress, economic security, and social control. (3 cred.; jr., sr., grad.; prereq. 7 or equiv.; offered when feasible)
- 127s. **Economics of the U.S.S.R.** The rise of the Soviet economic system. The development of the economic organization of the state, and of the planning and control of the use of resources and the distribution of product. The performance of the economy in agriculture and industry under the five-year plans. Internal and external economic



- policy. Public finance, income distribution, and economic incentives under the Soviet system. (3 cred.; jr., sr., grad.; prereq. 20 cred. in social science including 7 or equiv.) Boddy
128. **Economics of Western Europe.** The structure and organization of the economy of countries in Western Europe. The analysis of current internal and external economic problems and policies. Recent developments in production, public finance, income levels, and income distribution. The course will commonly emphasize one particular country of Western Europe, not necessarily the same from year to year. (3 cred.; jr., sr., grad.; prereq. 20 cred. in social science including 7 or equiv.; offered when feasible)
137. **Analytical Methods in Business Decision-Making I.** This course (together with 138) is designed to acquaint the student with some recently developed methods for solving selected problems in business choice. Decision-making as a problem in finding maxima (or minima) subject to constraints. Problems involving the maximization of linear functions subject to inequalities (linear programming). Applications to production, advertising, and purchasing decisions. (3 cred.; jr., sr., grad.; prereq. 81 or equiv., Math. 50 or equiv., or §; offered when feasible) Brownlee, Hurwicz
138. **Analytical Methods in Business Decision-Making II.** Problems involving the maximization of nonlinear functions. Decisions involving risk. Applications to inventory and insurance problems. Information processing as related to choice of organizational structure. (3 cred.; jr., sr., grad.; prereq. 137 or §; offered when feasible) Brownlee, Hurwicz
140. **The Co-operative Movement.** The history and philosophy of various co-operative developments. Similarities and contrasts between agricultural marketing co-operatives, consumer co-operatives, trade unions, and others. Consumer co-operatives as a medium for economic control. (3 cred.; jr., sr., grad.; prereq. 7 or equiv.; offered when feasible)
- 142f,w,s. **Monetary and Banking Policy.** An advanced course in money and banking policy viewed from the social standpoint with primary reference to the problems of the Federal Reserve System. Selected problems in monetary policy; monetary reconstruction and monetary reform. (3 cred., §64; jr. and sr. with consent, grad.; prereq. 3 and 80 or equiv.) Smith and staff
- 143f,w,s. **Economic Analysis: Income and Employment.** The determinants of national income, employment, and price level, with particular attention to aggregate consumption and investment. (3 cred., §80; jr. and sr. with consent, grad.; prereq. 7 or equiv.) McKenna and staff
- 144f,w,s. **Economic Analysis: Firms and Households.** The analysis of individual decision-making, by firms and households, under conditions of monopoly, competition, and monopolistic competition. (3 cred., §81; jr. and sr. with consent, grad.; prereq. 7 or equiv.) Brownlee and staff
- 145s. **International Finance and Foreign Exchange.** Mechanics of international payments. The forces which may upset the equality of a country's foreign payments and receipts, and the alternative methods—fiscal and monetary policy, gold standard, flexible exchange rates, import or exchange controls—by which a balance may be restored. The role in this connection of the International Monetary Fund. (3 cred.; jr., sr., grad.; prereq. 64 or equiv.) Coen
- 149f,s. **Business Cycles.** Analysis of factors involved in business fluctuations. Comparison of theories of their causes. Examination of proposals for the stabilization of employment, production, and capital formation. Introduction to the statistical data and methods of business forecasting. (3 cred.; sr., grad.; prereq. 64 or equiv. or §) Smith
- 155f,w,s. **The Modern Corporation.** Incorporation. The various types of corporate securities and their uses. Financial plans for industrial, utility, and other types of corporations. Financial affairs of an established business. General financial problems of the holding company, consolidations, mergers, and reorganizations. (3 cred., §75; jr. and sr. with consent, grad.; prereq. 3 and 7 or equiv.) Stehman and staff
160. **Readings in Economics.** Special readings to be arranged with the student to cover areas in economics especially useful to his individual program and objectives but not available in the regular course offerings. (Cred. ar.; jr., sr., grad.; prereq. consent of adviser and instructor in the field covered)
- 161f,w,s. **General Manpower Economics and Labor Problems.** Includes: (1) marketing of manpower resources; (2) institutional structure of labor markets; (3) economic and social problems arising out of labor marketing processes; and (4) methods, procedures, and proposals for solving these problems. This course covers the basic materials of Econ. 73 plus advanced discussion and special assignments. (3 cred., §73; jr. and sr. with consent, grad.; prereq. 7 or equiv.) Yoder and staff

- 162f. Labor Movements.** An analysis of the development of labor movements in Europe and the United States. An examination of the origins of labor movements, their growth, the problems faced under various forms of governments, and an analysis of the economic and social consequences of these developments. (3 cred.; jr., sr., grad.; prereq. 73 or 161) Ulman
- 163w. Union Government and Policies.** An analysis of the structural nature and the operation of contemporary American unions, the nature of the internal administration and government of unions, and the economic and social issues arising out of relationships with managements as found in matters of hours, wages, and other conditions of employment. (3 cred.; jr., sr., grad.; prereq. 73 or 161) Ulman
- 164f. Labor Legislation: Collective Bargaining.** An analysis of: (1) employer-employee-union relationships and their social control; emphasis is placed upon the actions of legislative, executive, and judicial branches of the government; and (2) the economic and social implications of issues arising in this area. (3 cred.; jr., sr., grad.; prereq. 73 or 161) Turnbull
- 166s. Settlement of Industrial Disputes.** Major consideration of the economic impact and implications of principal methods of settling labor disputes, including mediation, conciliation, fact-finding, and voluntary and compulsory arbitration. (3 cred.; jr., sr., grad.; prereq. 73 or 161) Turnbull
- 172s. Economics of Transportation.** The economics of the agencies of modern transportation, including rail, water, highway, air, and pipeline. Relative advantage of each agency, national transportation policy, regulation, rate-making, taxation, co-ordination of services. (3 cred., §B.A. 71; jr., sr., grad.; prereq. 20 cred. in social science, including 7 or equiv.) Nightingale
- 175f,w,s. Government Regulation of Market Behavior.** A study of the administrative and legislative controls in the United States in the following areas: general restraints of trade and monopoly, regulation of the standards of fair competition, licensing and regulation of entry into trade and professions, and the regulation of public utility rates and services. The emphasis will be on the economic and legal analysis of federal regulation, but state and local regulation will be studied. (3 cred., §85; jr. and sr. with consent, grad.; prereq. 81 or 144 for majors, suitable background in law or political science for others, or §) Boddy and staff
- 176f,w. Introduction to International Economics.** The techniques of international economic analysis. The approach, while primarily theoretical, will indicate the relevance of the theory to current problems. The balance of payments; the foreign exchanges; free trade versus protection; techniques of trade control; international commercial policies; contemporary international economic problems and institutions. (3 cred.; jr., sr., grad.; prereq. 7 or equiv.) Coen
- 178w. Economics of Consumption.** The nature of human wants; the origins and the personal distribution of money income and purchasing power; demand and price; standards and levels of living; relationship of consumption to the population problem and possibilities for improvement in the plane of consumption. (3 cred.; jr., sr., grad.; prereq. 7 or equiv.)
- 179s. Economic Problems of the Far East.** A survey of recent economic developments in the Far East, especially in China and Japan. The ways in which these developments illustrate and are governed by economic principles are examined. Economic regionalism, problems of population and migration, the control of raw materials, industrial efficiency, internal economic institutions, and international commercial policies, as they occur in the Far East, are among the topics discussed. (3 cred.; jr., sr., grad.; prereq. 7 or equiv.) Gaumnitz
- 185w. Economics of Marketing.** Covers: (1) the role of market distribution in our total economy; (2) the costs of market distribution; (3) regional specialization and market distribution; (4) public, quasi-public, and corporate control of market distribution; and (5) the role of the consumer in market distribution. (3 cred., §B.A. 77; jr., sr., grad.; prereq. 7 or equiv.) Lewis
- 186s. International Economic Problems.** Examination of current issues of international economic policy. (3 cred.; jr., sr., grad.; prereq. 176..145 recommended) Coen
- 190w. National Income Analysis.** The conceptual framework for the study of income flows, the use of statistical materials within this framework, and the use of the results for measurement and welfare. (3 cred.; jr., sr., grad.; prereq. 80 or equiv.) McKenna
- 191f-192w.† Public Finance.** Analysis of public expenditures and budgeting, fiscal policy, debt management, and taxation in terms of economic effects, fiscal process, and social policy. Topics include: expenditure theory; budgetary process; alternative budgetary policies; debt burden; the taxing process; taxation, incentives, and mar-

- kets; tax incidence; technical problems of income, profits, and sales taxation; defense finance. (6 cred., §189, §B.A. 58; jr., sr., grad.; prereq. 7 or equiv.) Heller
- 193s. **State and Local Taxation.** Main problems of state and local finance and proposed solutions, including co-ordination of national, state, and local fiscal policy and administration. (3 cred.; jr., sr., grad.; prereq. 189 or 192 or B.A. 58) Borak
- 195s. **Fiscal Policy.** (1) Theoretical framework and goals of fiscal policy; (2) the potential contribution of taxation, government expenditures, and debt transactions as instruments for achieving full employment, price stability, and economic growth; and (3) institutional limitations to the use of fiscal policy. (3 cred.; sr. with consent, grad.; prereq. 20 cred. in social science, including a course in public finance and 64 or equiv.) Heller
196. **Advanced International Price Theory.** Use of geometrical methods of analysis to compare the effects of free trade and protection on the size and rate of growth of world output, and on the distribution of income between countries and within a country. Customs unions. International investment. (3 cred.; jr., sr., grad.; prereq. 81 or 144 and 176; offered when feasible)
197. **Business Cycles and the Structure of Production.** (3 cred.; jr., sr., grad.; prereq. 149; offered when feasible)

### For Graduate Students Only

- 200a,b,c. Seminar in Employment Theory
202. Methodology in Economics
205. Seminar in Economic Structure and Behavior
206. Seminar in Market Prices
210. Seminar in Business Cycles and Employment Theory
213. General Equilibrium Theory
- 214a,b,c. Theory of Monopolistic Competition
215. Welfare Economics
216. Topics in Mathematical Economics
- 217a,b,c. Seminar in Statistical Inference and Econometrics
- 233-234.† Seminar in Public Finance
- 243-244.† Seminar in Money and Banking
- 251-252. Seminar in Industrial Relations
299. Graduate Research in Economics

## EDUCATIONAL PSYCHOLOGY

**Department Chairman**—Willis E. Dugan

The following courses in educational psychology, offered by the College of Education, are regularly open to students in the College of Science, Literature, and the Arts:

- 140w. **Instruments and Techniques of Measurement.** An 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 cred.; sr., grad.; prereq. 120 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 two mornings per week required for practice administration of tests. (3 cred.; sr., grad.; prereq. 120 or equiv.) Reynolds

## ENGLISH

For courses in writing, see page 69.

**Department Chairman**—Theodore Hornberger; **Associate Chairman**—James T. Hillhouse

**Major Advisers in the College of Science, Literature, and the Arts**—Associate Professors Jackson, Montgomery, Moore; Assistant Professors Buckley, Levenson.

**Major Sequence in the College of Science, Literature, and the Arts—**

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 Senior College 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 Senior College.

Prerequisites: (1) 21-22 or 22-23, or 21, 23. (2) *Either* (a) three units in one foreign language, or (b) two units in *each* of two foreign languages, a unit being either one year in high school or 5 credits in college.

All English majors shall write three papers of a minimum of 3,000 words in Senior College 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, and German (in that order), 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. See page 8.

**Major Advisers in the College of Education—**Professor Dora Smith; Associate Professor Allen.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—Major recommendation: Engl. 22-23 (10 cred.); Engl. 55-56 (6 cred.); Engl. 73-74 (6 cred.); Engl. 165 (3 cred.); Comp. 27-28 (6 cred.); 6 cred. in speech; 3 additional cred. in English courses numbered 100 or above.

Minor recommendation: Engl. 22-23 (10 cred.); Engl. 55-56 (6 cred.); Engl. 73-74 (6 cred.); Comp. 27-28 (6 cred.).

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 Ed. C.I. 122, Literature for Adolescents.

### Junior College Courses

**A-B-C. Freshman English.** A combined course in literature and composition. The composition is equivalent to that in Comp. 4-5-6 and meets the requirements for graduation. The literature read consists of novels, short stories, plays, and poetry—both English and American, and mostly modern—and is intended to interest not only the student who expects to major in English, but also the one who would enjoy, and profit from, the study of literature but who wants to major in some other subject. See English Composition, page 69.

**19f-20w.‡ Great English Writers.** A 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, or Goldsmith. **20:** Such writers as Wordsworth, Byron, Shelley, Keats, Tennyson, Browning, or Arnold. (6 cred., §21 or 22 or 23; soph., jr., sr.; prereq. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or exemption from requirement) Montgomery

- 21f-22w-23s.†† **Introduction to Literature.** A chronological study of English literature with its historical background. An 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 cred.; prereq.††) Buckley, Coxe, Monk, Moore
- 23w-22s.†† **Introduction to Literature.** (3rd and 2nd qtrs. of 21-22-23. See 21f-22w-23s.) Montgomery
- Clas.24f,s. Technical Terms of Science, Medicine, and the Humanities.** (3 cred.; soph., jr., sr.; no prereq.) Swanson
- 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, 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. 37: Short fiction. 38: Poetry and drama. 39: The novel since Thomas Hardy. (9 cred.; soph., jr., sr.; prereq.††) Montgomery (f)
- Clas.42f,s. Greek Mythology.** (2 cred.; soph., jr., sr.; no prereq.) Forbes
- Clas.43w. Ancient Mythology in Relation to Literature and Art.** (2 cred.; soph., jr., sr.; no prereq.) Forbes

Attention of students is called to Hum. 1-2-3, 11-12-13, and 21-22-23 (page 72).

### Senior College Courses

Engl. 52-53, 55-56, 66-67, 73-74, and 75 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 52f-53w.‡ **The English Novel.** 52: The reading of novels by Defoe, Fielding, Smollett, Jane Austen, Scott, and the Brontës. 53: The reading of novels by Thackeray, Dickens, Trollope, George Eliot, Meredith, and Hardy. (6 cred.; jr., sr.; prereq.\*\*\*) Moore
- 55f-56w. **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 two or three 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: The reading of plays from Shakespeare's 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 cred.; jr., sr.; prereq. \*\*; students may not start with 56 except by Δ)
- 55w-56s. **Shakespeare.** (See 55f-56w)
- 55s. **Shakespeare.** (1st qtr. of 55-56. See 55f-56w)
- 56f. **Shakespeare.** (2nd qtr. of 55-56. See 55f-56w)
- 66f-67w.‡ **The Literature of the Bible.** (Formerly 40-41, *The Bible as Literature*) 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 cred.; jr., sr.; prereq.\*\*) Jackson
- 73f-74w.‡ **American Literature.** Notable American authors from the 17th century to the present. (6 cred.; jr., sr.; prereq.\*\*) Hornberger, Turpie
- 73w-74s.‡ **American Literature.** (See 73f-74w) McDowell
- 75f,w,s. **Chaucer.** The reading of selections from *The Canterbury Tales* with introduction dealing with the grammar and literary forms of 14th-century English. (4 cred.; jr., sr.; prereq.\*\*) Clark (f), Atkins (w), Stange (s)

\*\* Comp. 4-5-6 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 Comp. 4-5-6 or Comm. 1-2-3 or exemption from requirement.

‡‡ Two quarters are required for English majors in the College of Science, Literature, and the Arts; the second and third quarters, for English and language arts majors, and for English minors, in the College of Education; and the third quarter, for language arts minors in the latter college. Three quarters are recommended for all students.

- Clas.81f. Greek Tragedy in Translation.** (3 cred.; jr., sr.; prereq. 9 cred. in literature, English beyond A-B-C, or foreign literature...or Δ) McDonald
- Clas.82w. Aristophanes and Roman Drama in Translation.** (3 cred.; prereq. same as 81) McDonald
- 97f-98w-99s. Proseminar in English Literature.** Studies in three major periods—Renaissance, Restoration and 18th century, 19th century. Selected authors will be read to investigate the literary traditions and styles characteristic of each period. There will be a long paper, written in consultation with the instructor and counting as one of the three long papers required for majors (see page 64). Six credits of this course may be counted as credits numbered above 99 in the major sequence. Students are urged to take all three quarters. (9 cred.; sr.; prereq. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or exemption from requirement, B average and Δ) Krieger
- 100f. Old English (Anglo-Saxon).** An introduction to the sounds and grammar with some prose reading. The relation to Modern English is stressed. (4 cred.; jr., sr., grad.; prereq.§§) Allen
- 102w. Readings in Old English Prose and Verse.** Critical reading of texts, and introduction to versification. (3 cred.; jr., sr., grad.; prereq. 100) Brown
- 103s. Beowulf.** An introduction to the Old English poem, with reading of considerable portions of the text. (3 cred.; jr., sr., grad.; prereq. 100) Brown
- 104f. Emerson and Thoreau.** (3 cred.; jr., sr., grad.; prereq.§§) Turpie
- 105w. Hawthorne and Melville.** (3 cred.; jr., sr., grad.; prereq.§§) Marx
- 106s. Whitman and Mark Twain.** (3 cred.; jr., sr., grad.; prereq.§§) Marx
- 109f-110w. Romantic Poets of the Early Nineteenth Century.** 109: Wordsworth, Coleridge, Scott, etc. 110: Byron, Shelley, Keats, etc. (6 cred.; jr., sr., grad.; prereq.§§) Jackson
- 111s. Henry Adams and Theodore Dreiser.** (3 cred.; jr., sr., grad.; prereq.§§) Levenson
- 113s. American Short Story.** A historical examination of the American short story from the 18th century to the present. (3 cred.; jr., sr., grad.; prereq.§§) Turpie
- 114f. The Midwest in Literature.** (3 cred.; jr., sr., grad.; prereq.§§; offered 1955-56 and alternate years) Buckley
- 115s. The Development of English Prose Style.** Definition of six broad types of prose style on historical principles. (3 cred.; jr., sr., grad.; prereq.§§; offered 1956-57 and alternate years) Brown
- 116. The Development of English Prose Style.** Studies in the styles of selected writers since 1700. (3 cred.; jr., sr., grad.; prereq.§§; offered when feasible)
- 120f-121w-122s. The Interpretation of Poetry.** A study of 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 cred.; jr., sr., grad.; 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 cred.; sr., grad.; prereq.§§ and Δ) Gray
- 126f-127w. Drama, 1660-1870.** The history of English drama from the opening of the theaters in 1660. 126: The Restoration and early 18th century. The heroic play, tragedy, comedy of manners, beginnings of sentimental comedy. 127: The development of sentimentalism in the 18th century. The reaction: Goldsmith and Sheridan. Early 19th-century drama. (6 cred.; jr., sr., grad.; prereq.§§) Hillhouse
- 129s. Modern Drama, 1880 to the Present.** A survey of the chief dramatists, English, American, and Continental, from the time of Ibsen. (3 cred.; jr., sr., grad.; prereq. 55-56 or 126-127) Hillhouse
- 130w-131s. English Poetry, 1832 to 1901.** 130: The early and mid-Victorians: Tennyson, the Brownings, Clough, Fitzgerald, Arnold, and others. 131: The pre-Raphaelites and after: The Rossetti, Swinburne, Morris, Wilde, and the poets of the 1890's. (6 cred.; jr., sr., grad.; prereq.§§; offered 1955-56 and alternate years) Montgomery
- 134s. The Origins of American Naturalism.** (3 cred.; jr., sr., grad.; prereq.§§; offered 1956-57 and alternate years) 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 cred.; jr., sr., grad.; prereq. 55-56) Brown
- 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 cred.; jr., sr., grad.; prereq.§§) Stange

- 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. The emphasis in 142 will be on British authors; in 143, on American authors. (6 cred.; jr., sr., grad.; 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 cred.; jr., sr., grad.; prereq. 75 and 100 or ¶100; offered 1955-56 and alternate years) Clark
- 151s. **Recent Poetry.** The 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 cred.; jr., sr., grad.; prereq. §§) Jackson
- 154f-155w.‡ **American Novel.** The history of the American novel from the beginning to the present. (6 cred.; jr., sr., grad.; prereq. §§) Bowron
- 156s. **American Drama.** (3 cred.; jr., sr., grad.; prereq. §§; offered 1955-56 and alternate years) Hornberger
- 157w-158s. **American Poetry.** A 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 cred.; jr., sr., grad.; prereq. §§; offered 1955-56 and alternate years) Tate
- 159w-160s.‡ **Colonial Literature in America.** (6 cred.; jr., sr., grad.; prereq. §§; offered 1956-57 and alternate years)
- 162f,s. **Milton.** The minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes*. (3 cred.; jr., sr., grad.; prereq. 21-22 or 55-56) Jackson (f), Unger (s)
- 165f,w. **Introduction to Modern English.** (Formerly *The Historical Study of Modern English*) A scientific approach to the sounds and grammar of present-day English, with some attention to syntax; implications for a reasonable attitude toward English usage in America. (3 cred.; jr., sr., grad.; prereq. §§) Allen
- 166s. **Historical Backgrounds of Modern English.** A general survey of the historical influences upon, and the changes within, the language as both a popular and a literary medium of communication. (3 cred.; jr., sr., grad.; prereq. §§) Allen
- 168w-169s. **The Tragic in Modern Fiction.** A 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 cred.; jr., sr., grad.; prereq. §§) Krieger
- 170w. **Shakespeare's Later Contemporaries.** Selected plays of Chapman, Jonson, Dekker, Marston, Webster, Heywood, Beaumont and Fletcher, Middleton, Ford, and Shirley. (3 cred.; jr., sr., grad.; prereq. 55-56)
- 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 the field methods of American dialect geography and with access to the unpublished collections of the Linguistic Atlas of the Upper Midwest. (3 cred.; jr., sr., grad.; prereq. 5 cred. in English literature, including language, above A-B-C, or Δ) Allen
- 175s. **Chaucer.** The reading of *The Canterbury Tales* with introduction dealing with the grammar and literary forms of 14th-century English. (4 cred., \$75 or equiv.; jr., sr., grad.; prereq. 100) Jackson
- 176f-177w.‡ **Study of Meter and Rhyme.** Standard verse forms—ballad stanza, heroic couplet, blank verse, sonnet, etc. Varieties of line and foot—trochaic, dactylic, anapaestic, etc. (6 cred.; jr., sr., grad.; prereq. §§; offered 1956-57 and alternate years) Jackson
- 178w. **The South in Literature.** (3 cred.; jr., sr., grad.; prereq. §§; offered 1956-57 and alternate years) Tate
- 180s. **The Influence of Poe.** A study of the influence of Poe on the French "Symboliste" school and the influence of this school on modern literature, chiefly poetry, in English. (3 cred.; jr., sr., grad.; prereq. §§; offered 1956-57 and alternate years) Tate
- 181s. **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 cred.; jr., sr., grad.; prereq. §§; offered 1955-56 and alternate years) O'Connor

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

- 182w. **The Far West in Literature.** Expansion beyond the Mississippi as a force in American thought and letters: the literature of exploration and travel; the Pacific Coast regional movement; Mark Twain. (3 cred.; jr., sr., grad.; prereq. §§)
- 183f. **The Poetry of T. S. Eliot.** (3 cred.; jr., sr., grad.; prereq. §§; offered 1956-57 and alternate years) Unger
- 184f-185w-186s. **The Interpretation of Drama.** Critical analysis of plays: Modern, Renaissance, and ancient. (9 cred.; jr., sr., grad.; prereq. §§..55-56 recommended) Reisman (f), Coxe (w,s)
- 187f-188w-189s. **Eighteenth-Century Literature.** Survey of English literature from 1700 to 1790. Parallel readings and critical essays. Graduate students will submit a term paper each quarter. (9 cred.; jr., sr., grad.; prereq. §§) Monk
- 191f. **Imagery and Symbolism in English and American Literature.** A study of manifold literary influences, from the 17th-century onward, upon T. S. Eliot and other 20th-century writers. (3 cred.; jr., sr., grad.; prereq. §§) Atkins
- 193s. **The Poetry of W. B. Yeats.** (3 cred.; jr., sr., grad.; prereq. §§; offered 1955-56 and alternate years) Unger
- 194f-195w-196s. **Elizabethan Literature: Prose, Poetry, Drama.** 194: From the beginning of the Tudor period to about 1580, with attention to the Medieval origins of the drama. 105: From the 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 cred.; jr., sr., grad.; prereq. §§) Brown
- 197f-198w-199s. **Seventeenth-Century Literature.** 197-198: A survey of the prose and non-dramatic poetry of the century down to 1660. 199: Dryden and his contemporaries. (9 cred.; jr., sr., grad.; prereq. §§) Unger (f,w), Monk (s)
- 200w-201s. **Advanced Chaucer.** The more important poems apart from *The Canterbury Tales*. The treatment will be primarily literary and historical, linguistic proficiency being presumed. (6 cred.; sr. with  $\Delta$ , grad.; prereq. 75 or equiv.) Clark
- 202f-203w. **Elizabethan Nondramatic Literature.** 202: Tudor prose: "courtesy books" (Eliot, Ascham), voyages (Drake, Raleigh), criticism (Gascoigne, Sidney, and others), fiction (Lyly, Sidney, Nashe), history (More, Fox, Hollinshead, and others), tracts and essays (Nashe, Bacon, and others). 203: Tudor lyric and narrative poetry. (6 cred.; sr. with  $\Delta$ , grad.; offered when feasible) Brown
- 204f-205w-206s. **The Rise and Development of Standard English.** An inductive study of the development of the English vocabulary and lexicography (204), historical phonology (205), and historical morphology and syntax (206), with attention to the history of attitudes toward usage. (9 cred.; sr. with  $\Delta$ , grad.; prereq. 100 or equiv., or 204 with ¶100; students may enter 205 but not 206) Allen
- 207w. **Dr. Johnson and His Circle.** Particular attention to Boswell and to Johnson's influence on his contemporaries. (3 cred.; jr., sr., grad.; prereq. §§; offered 1955-56 and alternate years) Moore

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, 108, 181, 182, 191-192-193; Ger. 53-54-55, 140-141-142; Hum. 51-52-53, 61-62-63, 71-72-73; Ital. 164; 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

- 210-211-212. **Studies in Seventeenth-Century Literature**
213. **Bibliography and Methods of Literary Research**
- 228-229-230. **Eighteenth-Century Novel**
- 231-232-233. **Shakespeare's Tragic and Comic Art**
- 234-235-236. **Studies in Medieval English Culture**
- 240-241-242. **The Canterbury Tales**
- 246-247. **English Literary Criticism**
- 250-251. **Studies in Modern Literature**
- 253-254-255. **American Romanticism I**

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



- 256-257-258. Spenser and Milton  
 259-260-261. Nineteenth-Century Novel I  
 265-266-267. American Romanticism II  
 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

## ENGLISH COMPOSITION

**Major and Minor Sequences**—There is no major sequence in composition. The minor sequence is subject only to the usual college rules (see page 12); and a major in English with a minor in composition is permissible.

**Concurrent Registration in Composition Courses**—Students may not register for more than one composition course 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 (a) the student's rank in his high school graduating class, (b) his score in the American Council on Education Examination, (c) his score on the Co-operative English Test, and (d) his grade on an impromptu theme on an assigned subject, the student is assigned to one of four 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, Comp. 4-5-6, or Comm. 1-2-3. If assigned to Category 2, he must take Engl. A-B-C, Comp. 4-5-6, or Comm. 1-2-3. If assigned to Category 3, he must take Comp. 4-5-6 or Comm. 1-2-3. If assigned to Category 4, he must take Preparatory English; and he must, after passing it, take Comp. 4-5-6 or Comm. 1-2-3.

Engl. A-B-C is a 15-credit course consisting of 9 credits of literature and 6 of composition; Comp. 4-5-6, a 9-credit course in composition; and Comm. 1-2-3 (offered in the Department of General Studies [see page 71]), a 12-credit course in composition and speech. The student may satisfy the requirement in English for graduation, or for admission to the Senior College, by passing any of these courses or by being assigned to Category 1. Preparatory English, offered in the General Extension Division (see the evening class bulletin), is a no-credit course in composition.

Any student who has already completed one or more quarters of composition in another college or university must consult Mr. Steinmann, in 222 Folwell Hall, before registering.

Any student who receives a grade of A in the composition part of Engl. A or B or in Comp. 4 or 5 may, upon recommendation of his instructor, be exempted from any further requirement in English. Any student who receives a grade of A or B in Comp. 4 or 5 may, upon recommendation of his instructor, elect the following quarter of Engl. A-B-C.

### Junior College Courses

**Af-Bw-Cs. Freshman English.** A combined course in literature and composition. The composition is equivalent to that in Comp. 4-5-6 and meets the requirement for graduation. The literature read consists of novels, short stories, plays, and poetry—both English and American, and mostly modern—and is intended to interest the student who would enjoy, and profit from, the study of literature but who wants to major in some other subject. (15 cred.; prereq. assignment to Category 1 or 2 [see "Important note," above])

- Aw-Bs. Freshman English.** (1st two qtrs. of A-B-C. See Af-Bw-Cs)  
**As. Freshman English.** (1st qtr. of A-B-C. See Af-Bw-Cs)  
**Bf-Cw. Freshman English.** (2nd and 3rd qtrs. of A-B-C. See Af-Bw-Cs)  
**Cf. Freshman English.** (3rd qtr. of A-B-C. See Af-Bw-Cs)  
**4f-5w-6s.\*\* Freshman Composition.** Practical training in reading and writing. (9 cred.; prereq. assignment to Category 1, 2, or 3 [see "Important note," page 69])  
**4w-5s. Freshman Composition.** (1st two qtrs. of 4-5-6. See 4f-5w-6s)  
**4s. Freshman Composition.** (1st qtr. of 4-5-6. See 4f-5w-6s)  
**5f-6w. Freshman Composition.** (2nd and 3rd qtrs. of 4-5-6. See 4f-5w-6s)  
**6f. Freshman Composition.** (3rd qtr. of 4-5-6. See 4f-5w-6s)

Attention is called to Comm. 1-2-3 (page 71).

- 7f. Composition Review.** A refresher course, including the reading of current magazines and the writing of themes; designed to review basic principles of analysis and organization necessary to the writing of clear and logical exposition. Not to be confused with Comp. 27. (3 cred.; prereq. 4-5-6 or Comm. 1-2-3...students who have taken Engl. A-B-C admitted only by  $\Delta$ )
- 25s. Grammar and Rhetoric.** A study of some of the basic principles of grammar and rhetoric; and the composition of papers both analyzing selected readings according to these principles and exemplifying these principles. (3 cred.; soph., jr., sr.; prereq. Engl. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or exemption from requirement) Steinmann
- 27f-28w.†† Advanced Writing. 27:** A course in formal exposition, stressing adequate content, logical development, and organization of material. (Not to be confused with Comp. 7.) **28:** A course in the writing of description and narration, stressing methods and technique, particularly in simple narratives of general or technical interest: biography, travel, expanded incident, process, sketch. (6 cred.; prereq. Engl. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or exemption from requirement)
- 27w-28s.†† Advanced Writing.** (See 27f-28w)
- 27w.†† Advanced Writing.** (1st qtr. of 27-28. See 27f-28w)
- 27s.†† Advanced Writing.** (1st qtr. of 27-28. See 27f-28w)
- 28f.†† Advanced Writing.** (2nd qtr. of 27-28. See 27f-28w)
- 28s.†† Advanced Writing.** (Continuation of 27 and 28) For students who wish further opportunity to write. Readings from current writers with special attention to technique. (3 cred.; prereq. 27; offered when feasible)
- 30f,w,s. Advanced Writing for Prelegal Students.** (3 cred.; prereq. 6 or Comm. 3... or Engl. C, or  $\Delta$ ...and Phil. 2 or 2A)

### Senior College Courses

Comp. 65 is open to Junior College students who have an average grade of at least B in the prerequisite courses.

Comp. 67-68 is open to Junior College students who have an average of at least B in two quarters of Comp. 27, 28, 29, 65.

Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee: See a statement on page 24.

- 58f,w,s. Business Reports and Letters.** Style, forms, and methods in business writing. (3 cred.; jr., sr.; open to students in business administration and, with  $\S$ , to others; prereq. Engl. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or exemption from requirement) Guthrie and staff

\*\* A special section of 4-5-6 will be established for two groups of foreign students: (1) with credit, to undergraduate students who need to fulfill the freshman English requirement for entrance to Senior College and for graduation; and (2) without credit, to other students, undergraduate and graduate, who do not need to fulfill the freshman English requirement but do desire to improve their English. It will be so conducted as to meet the foreign student's special problems in English and, in that and other ways, to help him adapt himself to American life on and off the campus.

†† For journalism majors and 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 it is preferable to take 27 first. Students not required to take 28 may take 29 instead; and all students are at liberty to take all three quarters. Students not required to take 28 should take it if they wish a first course in description and narration; they should take 29 if they wish either a second course in description and narration (following 28) or further training in exposition.

- 65w. **The Writing of Research Papers and Articles.** (3 cred.; jr., sr.; prereq. Engl. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 and 6 additional cred. in English or composition, or 5 cred. in Engl. 21-22-23, and average of B in prerequisite courses) Buckley
- 67f-68w. **Problems of Style.** Studies in James Joyce, Thomas Mann, Willa Cather, and Marcel Proust. (6 cred.; jr., sr.; prereq. average of B in two quarters of 27, 28, 29) Atkins
- 101f-102w-103s.\*\* **The Writing of Fiction and Poetry.** A study of the principles of composition in these arts. Class meetings are devoted to the analysis of examples drawn from standard sources, meetings in the first two quarters to fiction, those in the third to poetry; but the student's compositions may be in either form in any quarter. (9 cred.; jr., sr., grad., others with ‡; prereq. for undergraduates 6 cred. above 50 in composition or literature or §) Unger (s)
- 117s. **Playwriting.** (3 cred.; jr., sr., grad.; prereq. Spch. 115-116 or §)

### *For Graduate Students Only*

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

## FAMILY LIFE

See General Studies, page 72.

## FINE ARTS

See Art, page 30.

## FRENCH

See Romance Languages, page 135.

## GENERAL STUDIES

**Department Chairman**—Russell M. Cooper.

The Department of General Studies includes interdepartmental or divisional courses devised especially for the purposes of general education. They are designed to supplement the courses of other departments in helping the student to achieve a well-rounded education, and they are adapted to the needs of students expecting to specialize elsewhere as well as to those in the College of Science, Literature, and the Arts.

The courses have been arranged in six groups, each dealing with a different phase of the student's general educational development. In registering for these courses, write the group heading (or abbrev.) in the column labeled "department," as indicated in the listings that follow.

### Communication

**Comm.1f-2w-3s. Communication.** A course to help students use the English language more effectively, with constant practice in speaking and writing, in listening and reading. 1: How words convey meaning, and social attitudes toward various language practices. 2: Logical and psychological means of persuasion. 3: The mass communication mediums of press, radio, and film, with special attention to the causes of blocked, distorted, and inadequate communicating. Nine regular conferences with the instructor, use of speech equipment, and special conferences with the speech or writing consultants. The course is accepted as equivalent to Comp. 4-5-6 in satisfying any

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\*\* Attention is called to an arrangement combining work in composition and work in literature. A student may get (with permission from Mr. Gray) a further training in the writing of fiction by registering for Engl. 123-124-125, The Technique of the Novel. Similarly, a student may get (with permission from Mr. Tate) additional training in the writing of poetry by registering for Engl. 120-121, Interpretation of Poetry.

requirements of the University. (12 cred.; prereq. assignment to Category 1, 2, or 3 [see "Important note," page 69])

**Comm.1w-2s. Communication.** (Two qtrs. of 1-2-3. See 1f-2w-3s)

**Comm.1s. Communication.** (1st qtr. of 1-2-3. See 1f-2w-3s)

**Comm.2f-3w. Communication.** (2nd and 3rd qtrs. of 1-2-3. See 1f-2w-3s)

**Comm.3f. Communication.** (3rd qtr. of 1-2-3. See 1f-2w-3s)

### Family Life

With recognition that preparation for marriage and family living is an important part of general education, five courses are provided below. While it is assumed that the student will elect only those courses most appropriate to his personal needs, a maximum of 15 credits in the field may be applied toward the B.A. degree.

**F.L.1f,w,s. Preparation for Marriage.** A discussion of such topics as the function of the family today, problems of dating and courtship, the engagement, relations of husband and wife, family crises, and bases of marital stability. (3 cred.; no prereq.) Dyer, Hansen, Luckey, Neubeck, and staff

**F.L.1Af,w,s. Preparation for Marriage.** Designed for Senior College and older or married students. (See 1f,w,s) Dyer and staff

**F.L.14s. Nutrition and Food Management.** Scientific principles of nutrition; food purchasing; food preparation and service. The class is limited to 24 students, and will afford practical laboratory experience. (5 cred., §H.E. 30; no prereq.; offered when feasible)

**F.L.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 cred.; no prereq.) Ludwig

**F.L.20f,w,s. Consumer Education.** Aid to wise buying; effective consumer demand upon the market; consumer credit and banking procedures; insurance and annuities from the buyer's viewpoint; distribution and stability of income; governmental efforts to protect consumers. (3 cred.; no prereq.) Price

**F.L.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; the development of self-direction; the provision of good environment for child growth. (3 cred., §C.W. 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; no prereq.) Overlade

### Humanities

The humanities are concerned with man—his values, his purposes, his aspirations. The subject reveals itself in the great works of the human spirit, as expressed in the arts, literature, and philosophy. While a distinctive field of study, they are related to the social sciences, which deal with relations between men, and the natural sciences, which deal with the world outside of man. The first three courses that follow emphasize great human issues as depicted by fictional, dramatic, philosophical, and artistic materials, while the Arts sequence is concerned more explicitly with the development of aesthetic appreciation.

### Junior College Courses

**Hum.1f,w,s.\*\* Humanities in the Modern World I.** The old regime, the revolution, neo-classicism, and romanticism. Period: from about 1740 to about 1820. Authors: Voltaire, Rousseau, Burke, Paine, Goethe, and the poets. One historical novel, Tolstoy's *War and Peace*. (5 cred.; no prereq.) Ames, Blum, Bryan, Deer, Gray, Kwiat, Ramsland, Wood

**Hum.2f,w,s.\*\* Humanities in the Modern World II.** The industrial revolution; liberalism and socialism; the psychology of the individual. Period: from about 1776 to 1890.

\*\* Students in Hum. 1, 2, 3 and 51-52-53 will attend, in addition to the regular class sessions, concerts and exhibitions with hours to be arranged.

- Authors: Carlyle, Mill, Marx, Smith, Malthus, Ibsen, Flaubert, Dostoyevsky, and the poets. (5 cred.; prereq. 1) Ames, Blum, Bryan, Deer, Gray, Kwiat, Ramsland, Wood
- Hum.3f,w,s.\*\* Humanities in the Modern World III.** The impact of science and evolution; religion and morals in a changing world. Period: from about 1840 to about 1914. Authors: Huxley, Arnold, Turgeneff, Nietzsche, Shaw, Mann, and the poets. (5 cred.; prereq. 2) Ames, Blum, Bryan, Deer, Gray, Kwiat, Ramsland
- Hum.4f. Humanities in the Modern World IV.** An introduction to the study of the humanities since World War I. The authors studied include Freud, Lenin, Koestler, T. S. Eliot, Kafka, Ortega, and others. The background topics include civilization between two wars, the impact of psychoanalysis, communism versus fascism, etc. (5 cred.; prereq. 1 or 2 or 3) Blum, Kwiat, Vogelbaum
- Hum.11f-12w-13s. The European Heritage.** Great books as ideal representations of civilized man by himself, taken in association with notable works of fine art. Stress will be laid on ideals and forces of continuing importance for use in present-day civilization.
- Hum.11f. The Greek Heritage.** The golden age of Athens—tragedy, the concepts of goodness and beauty, the struggle for the state; the age of reason—the concepts of reason, justice, order. Selected readings in the historians and Aristotle; longer readings in Homer, Plato, the dramatists. Greek architecture and sculpture. (5 cred.; no prereq.) Ames
- Hum.12w. Roman and Medieval Heritage.** Roman jurisprudence and organization; epicureanism and stoicism. Selections from Lucretius, Epictetus, Marcus Aurelius. Medieval faith, theocracy. Selections from St. Augustine, Dante, Chaucer. Ecclesiastical and feudal architecture. (5 cred.; no prereq.) Ames
- Hum.13s. The Renaissance and Reformation.** Humanism; magnificence and individualism; secularism, skepticism, political realism; the Protestant strain; modern science and scientific method. Selected readings in Machiavelli, More, Montaigne, Swift, Shakespeare, Calvin, Luther, Rabelais, Cervantes. Renaissance architecture, sculpture, and painting. (5 cred.; no prereq.) Ames
- Hum.21f.†† American Life I.** The growth of individualism and democracy (with particular attention to minorities) as recorded in American history, social thought, literature, and the arts. (3 cred.; no prereq.) Kwiat, Noble, Turpie
- Hum.22w.†† American Life II.** The place in American civilization of the land, the city, and the good life; their implications and interrelations. (3 cred.; no prereq.) Kwiat, Noble, Turpie
- Hum.23s.†† American Life III.** The growth and interrelation of nationalism, regionalism, and internationalism in American culture and thought. (3 cred.; no prereq.) Kwiat, Noble, Turpie

**The Arts**—The following four courses comprise a sequence for students seeking an elementary understanding of art, music, poetry, theater arts, and aesthetics. The student may elect any number of the offerings and in any order except that either Art 1 or Mus. 10 must precede Phil. 4.

**Art 1f,w,s. Principles of Art.** (4 cred.; no prereq.) Torbert

**Mus.10f,w,s. Introduction to Music.** (4 cred.; no prereq.) Riedel

**Spch.8s. The Art of the Theater.** (4 cred.; no prereq.) Amberg

**Phil.4s. Introduction to Philosophy of Art.** (4 cred.; prereq. Art 1 or Mus. 10; offered when feasible) Hoppers

### Senior College Courses

Senior College courses in this department are not open to Junior College students except by special permission of the Scholastic Committee.

**Hum.51f-52w-53s.††† Humanities in the Modern World.** This course is similar to Hum. 1-2-3 except that it is confined to juniors and seniors. (15 cred., §corresponding quarter of Hum. 1-2-3; jr., sr.; no prereq.) Amberg, Bowditch, Ross

**Hum.54f. Humanities in the Modern World.** This course is similar to Hum. 4 except that it is confined to juniors and seniors. (5 cred., §Hum. 4; jr., sr.; no prereq.) Vogelbaum

\*\* Students in Hum. 1, 2, 3 and 51-52-53 will attend, in addition to the regular class sessions, concerts and exhibitions with hours to be arranged.

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

- Hum.61f-62w-63s.‡** **The European Heritage: from Homer to Molière.** This course is similar to Hum. 11-12-13 except that it is confined to juniors and seniors. (15 cred., §corresponding quarter of Hum. 11-12-13; jr., sr.; no prereq.) Nelson, Vogelbaum
- Hum.71f-72w-73s.†††** **Humanities in the United States.** An interdisciplinary study of three things in the history of American civilization (the Puritan tradition; Jacksonian democracy; modern industrialism) conducted on a more advanced level than Hum. 21-22-23. (9 cred.; jr., sr.; no prereq.) Levenson
- Hum.131f-132w-133s.** **Humanities Proseminar.** Topic for course: The arts, the sciences, and civilization. (3 cred. per qtr.; sr., grad.) Ross

For information concerning a major in the humanities, see page 90.

### Natural Science

Several general education courses in natural science are listed below, each serving a distinctive purpose. N.Sci. 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, while 7-8-9 is for those wishing to explore the world of life.

Any of these Junior College courses may be applied toward the group "D" requirement in the natural sciences for admission to the Senior College of the College of Science, Literature, and the Arts, the School of Business Administration, and the College of Education. Under Plan I, the course must be taken in its entirety. Students taking 1-2-3 may not receive credit for 4-5-6 or 7-8-9, but they may take both 4-5-6 and 7-8-9 for credit. Students who have taken the elementary course of any science department may not register for the corresponding portion of these natural science courses.

#### Junior College Courses

- N.Sci.1f-2wt-3s.** **Orientation in the Natural Sciences.** An integrated survey course in which the 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 cred.; fr., soph.) Graubard
- N.Sci.4f-5wt-6s.** **The Physical World.** Essential elements of astronomy, physics, chemistry, and geology, selected to illustrate the methods of science and to acquaint the student with the physical universe around him. (10 cred.; fr., soph.; no prereq.) Buchta (f,w)
- N.Sci.7f-8w-9s.†** **General Biology.** An introduction to the study of living things, both plant and animal, and to the major biological concepts, including their relationship to men. (10 cred.; fr., soph.; no prereq.) Hall (f,w), Merrell, Gall (w,s)

#### Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- Phil.81f-82w-83s.†** **Science and Civilization.** Designed primarily as senior integrative course. (9 cred.; jr. with §; no prereq.) Scriven
- N.Sci.171f-172w-173s.** **The Development of the Sciences.** The aim of this course is to provide a 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 is 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 cred.; jr., sr., grad.; prereq. one year of biological and of physical science in high school or college, or §) Graubard

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

### Personal Orientation

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.

**P.O.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 cred.; no prereq.)

**P.O.1lf,w,s. Choosing a Vocation.** Assistance to students in understanding themselves as the best basis for vocational-educational planning. Consideration of occupational trends, descriptions, and adjustment problems. Active student participation through discussion and individual projects. (2 cred.; fr., soph.; no prereq.) Hewer

### Social Science

It is important that every student understand the crises of our age. S.Sci. 1-2-3 provides a broad social orientation for Junior College students while the other courses help the student to develop further his own social analysis and outlook.

#### Junior College Courses

**S.Sci.1f-2w-3s. Introduction to Social Science.** An integrated study of the factors—historical, political, economic, social, psychological, and cultural—that influence and are influenced by man's conduct. The course is organized around three basic themes: (1) development of personality, (2) work as a central aspect of modern life, and (3) the quest for community. (12 cred.; course may satisfy the social science requirement for admission to the Senior College of the College of Science, Literature, and the Arts, the College of Education, and the School of Business Administration; credit is given for each portion of the sequence completed, but to satisfy Group C under Plan I, though not under Plan II, it must be taken in its entirety; no prereq.) Nelson, Sibley, and staff

**S.Sci.1w-2s. Introduction to Social Science.** (1st two qtrs. of 1-2-3. See 1f-2w-3s)

**S.Sci.1s. Introduction to Social Science.** (1st qtr. of 1-2-3. See 1f-2w-3s)

**S.Sci.2f-3w. Introduction to Social Science.** (2nd and 3rd qtrs. of 1-2-3. See 1f-2w-3s)

**S.Sci.3f. Introduction to Social Science.** (3rd qtr. of 1-2-3. See 1f-2w-3s)

**S.Sci.11f-12w-13s.† International Relations.** A survey of the world's critical areas and an examination of international forces in war and peace. This course offers a basis for informed evaluation of future as well as present international situations. (9 cred.; fr., soph.; no prereq.) Turner, Cooper

#### Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

**S.Sci.51f-52w-53s.† Introduction to Social Science.** This course is similar to 1-2-3 except that it is confined to juniors and seniors and is conducted on a more advanced level. (12 cred., §corresponding qtr. of 1-2-3; jr., sr.; designed for students with little background in social science and hence not open to majors in a social science department or to anyone who has taken several social science courses; no prereq.) Nelson

**S.Sci.81f-82w-83s.† Public Affairs Forum.** Introduction to contemporary American and world problems. Lectures, study, and forum discussion concerning selected issues. (9 cred.; jr., sr.; for social science majors, approval of adviser is required for counting this course as part of the 15 credits outside of major and minor; no prereq.) Rogers

## GEOGRAPHY

**Department Chairman**—Jan O. M. Broek

**Major Advisers in the College of Science, Literature, and the Arts**—Professor Weaver, Associate Professor Borchert; Instructor Eidt.

**Major Sequence in the College of Science, Literature, and the Arts**—Thirty credits in Senior College courses in geography, including Geog. 70, 138, 170, and also 160 and 165 upon recommendation of "Department." Prerequisites: Geog. 1, 4, 41, and Geol. 1-2 and A. In addition, the student is strongly urged to earn (a) 6 Senior College credits in geology, preferably in geomorphology; (b) at least 9 Senior College credits in other social sciences; (c) a course in statistics, preferably P.H. 140.

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

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

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—Major recommendation: a minimum of 28 credits in geography, including 1, 4 or 41, 112, 113, and 143, and 5 additional credits from Geol. 1-2 or 8.

Minor recommendation: a minimum of 18 credits in geography, including 1, and 4 or 41.

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

## Junior College Courses

- 1f,w,s. **Geography of Natural Resources.** The physical characteristics and geographic distribution of the world's natural resources; major regional differences in the problems of physical resource development. (5 cred., sold Geog. 11; no prereq.) Borchert
- 4f,w,s. **Human Geography.** The geography of population and principal ways of life; the capacity of the earth for future population. (5 cred., sold course 45; no prereq.) Broek (f,s), Eidt (w)
- 41f,w,s. **Geography of Commercial Production.** An introductory course in 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 cred.; no prereq.) Weaver

## Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

60. **Major Relief Patterns of the Continents.** Major regional differences in relief of the earth's land surface. Emphasis on map study, distribution patterns, surface characteristics of regions and regional boundaries. (2 cred.; jr., sr.; prereq. 1; offered when feasible)
- 67s. **Geography of Minnesota.** A geographical survey of the physical resources, population, and commercial production of Minnesota. Field trips in eastern Minnesota. (3 cred., sold course 47; jr., sr.; prereq. 5 cred. in geography or #) Borchert
- 70f. **Introduction to Cartography.** The principles of map projections, their construction and properties. Types of maps. Problems and practice in the construction of specialty maps. (3 cred., sold course 111; soph. with C average, jr., sr.; prereq. 10 cred. in geography) Eidt
- 90f,w,s. **Readings.** (Cred. ar.; jr., sr.; prereq. 12 cred. in geography and #) Broek and staff
101. **Western and Central Europe.** An introduction to the major physical and cultural regions of Europe as a whole, followed by a more intensive discussion of the population patterns, resources, and industries in the individual countries of western and



- central Europe. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
105. **Mediterranean Region.** A regional survey of the lands adjacent to the Mediterranean Sea in southern Europe, western Asia, and northern Africa. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
106. **Scandinavia.** The physical and human geography of Denmark, Finland, Iceland, Norway, and Sweden, and adjacent waters considered both by individual countries and as a region. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
- 107w. **Soviet Union.** The character of and bases for the regional diversity of physical resources, population, agriculture, manufacturing, and transportation in the U.S.S.R. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #) Borchert
- 109f. **Middle America.** Physical and human geography of the West Indies and of the mainland from Mexico to Panama. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #) Eidt
- 110w. **South America.** A regional survey of the physical resources, population, agriculture, manufacturing, and transportation in the countries of South America. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #) Eidt
- 112f. **Western Anglo-America.** A regional examination of the physical and human geographic patterns of the western portions of the United States and Canada. (3 cred., \$old course 71; jr., sr., grad.; prereq. 5 cred. in geography or #) Weaver
- 113w. **Eastern Anglo-America.** A regional examination of the physical and human geographic patterns of southeastern Canada and the eastern, southeastern, and middle-western United States. (3 cred., \$old course 71; jr., sr., grad.; prereq. 5 cred. in geography or #) Weaver
114. **Historical Geography of North America.** (3 cred., \$old course 53; jr., sr., grad.; prereq. 1, and 10 additional cred. in either geography or history; offered when feasible)
117. **The Middle East.** Environment and human occupation in their relationship to present regional differentiation within Southwestern Asia. Natural resources of the area and their development. Problems of international relations. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
118. **Africa.** The physical resources and their use, in the light of the competing cultures and economic forces which have helped shape the human geography of the continent. (3 cred., \$old course 103; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
- 121w. **Southeast Asia.** This course deals with Burma, Thailand, Indochina, Malaya, Indonesia, and the Philippine Islands; the areal differentiation of the social-economic structure within the framework of physiographic regions; geographic aspects of the problems of population pressure, development of resources, and international relations. (3 cred., \$old course 120; jr., sr., grad.; prereq. 5 cred. in geography or #) Broek
122. **East Asia.** The physiographic features of China, Korea, and Japan, together with the forms of resource utilization in their regional diversity. Geographic aspects of the problems of population pressure, development of resources, and international relations. (3 cred., \$old course 120; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
126. **Australia and New Zealand.** A geographic survey of the physical and human resources of Australia and New Zealand. (2 cred., \$old course 104; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
128. **Polar Regions.** An at-first-systematic-and-then-regional examination of the physical environment, and of man and his way of life in the Arctic, Subarctic, and Antarctic realms. A survey is made of the principal eras of geographic discovery in these parts of the world. (3 cred., \$old course 125; jr., sr., grad.; prereq. 1 or #; offered when feasible)
- 133f. **Introduction to Climatology.** The content and uses of our climatic record; world patterns of temperature, atmospheric circulation, moisture, and related elements; the world regional pattern of climate and its basis; uses and limitations of climatic classifications. (3 cred.; jr., sr., grad.; prereq. 1 or #) Borchert
- 134w. **Advanced Climatology.** The 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 the literature on regional climatic problems; analogous regions on the other continents. (3 cred.; jr., sr., grad.; prereq. 133 or Aero. 173 or #) Borchert
- 138w-139s-140. **Advanced Cartography and Map Reading.** Analysis of maps. Compilation of maps from statistical, descriptive, and cartographic sources. Interpretation of topo-

- graphic maps and aerial photographs and the compilation of maps from them. Exercises in the representation of relief. Map projections. Outline of historical cartography and the bibliography of maps. (3 cred. per qtr.; jr., sr., grad.; prereq. 70 or #; 140 offered when feasible) Eidt
- 143w-144. **Political Geography.** Scope and content of political geography as exemplified by various writers, followed by an analysis of politically important areas. (3 cred. per qtr., §old course 43; jr., sr., grad.; prereq. 12 cred. in geography, history, or political science, or #; 144 offered when feasible) Broek
150. **Agricultural Geography.** An analysis of the geographic patterns of the world's principal commercial and subsistence crops and the more broadly inclusive agricultural systems of which they are a part. Special emphasis will be placed on the ecologic, economic, and human factors which have been operative in creating the defined distributions. (3 cred.; jr., sr., grad.; prereq. 1 or 41 and 10 additional cred. in geography or economics, or #; offered when feasible)
152. **Industrial Geography.** A geographic analysis of the various factors influencing the location of manufacturing, as illustrated by major industrial regions. Consideration will be given to changes in geographic patterns of industry and their social-economic implications. (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or #; offered when feasible)
153. **Urban Geography.** (3 cred.; jr., sr., grad.; open to students majoring in one of the social sciences or architecture; for others #; offered when feasible)
- 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 cred., §old course 155; sr., grad.; prereq. 15 cred. in geography) Broek
- 165w. **Source Materials for Geographic Research.** A survey of bibliographic aids and archival sources of geographic material at the international, national, and local levels. Particular attention will be given to methods of handling data and the preparation of written reports. (3 cred.; sr., grad.; prereq. 15 cred. in geography) Weaver
- 170s. **Field Course.** Field trips in the vicinity of the Twin Cities. Reports on selected topics. (3 cred.; sr., grad.; prereq. 15 cred. in geography) Borchert, Eidt

### For Graduate Students Only

251. **Seminar in Human Geography**  
 252. **Seminar in Economic Geography**  
 253. **Seminar.** Subject to be announced  
 254. **Seminar in Physical Geography**  
 255. **Seminar.** Subject to be announced  
 301. **Research Problems**

## GEOLOGY AND MINERALOGY

Department Chairman—George A. Thiel

**Major Advisers in the College of Science, Literature, and the Arts—**Professor Goldich; Associate Professors Swain, Wright; Assistant Professor Sloan.

**Major Sequence in the College of Science, Literature, and the Arts—**(1) Geol. 1-2, A-B, or equivalents; (2) Geol. 23-24, 25 which should be taken as early as possible; (3) Math. 50; (4) a year of college chemistry; (5) a year of college physics, preferably Phys. 7-8-9 (Phys. 8 and 9 are Senior College courses recommended as part of a minor). Courses in drawing or cartography, geophysics, and surveying, preferably C.E. 17 (see *Bulletin of the Institute of Technology*), are recommended.

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

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

*Junior College Courses*

There are two 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 cred.), or 8 and A (7 cred.); 2 and B (5 cred.) may be taken after either of these sequences.

- If, w, s. General Geology (Physical).** A study of geologic processes and of the materials on which they operate. (3 cred.; no prereq.)
- 2f, w, s. General Geology (Historical).** A résumé of the history of the earth and its inhabitants as recorded in the rocks. (3 cred.; prereq. 1 or 8)
- Af, w, s. General Geology Laboratory (Physical).** The physical properties of common minerals and rocks; interpretation of topographic maps. (2 cred.; prereq. 1 or 8 or 1 or 8)
- Bf, w, s. General Geology Laboratory (Historical).** Identification of fossils; interpretation of geologic maps. (2 cred.; prereq. A)
- 8s. Earth Features and Their Meaning.** An introductory course. A general education elective. An 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 cred.; not open to students who have had Geol. 1 or N.Sci. 6 in General Studies; cannot be followed by Geol. 1 for credit; may be followed by Geol. 2 or Geol. A; does not count toward the Junior College requirement for science unless accompanied or followed by Geol. A; no prereq.) Thiel
- 23f-24w. Mineralogy.** The crystal systems; morphological, physical, and chemical characters of minerals; classification and description of common minerals. Determinative work in laboratory, blowpipe analysis, sight identification. (8 cred.; soph., jr., sr.; prereq. a term of college chemistry) Gruner
- 25s. Rock Study.** The occurrence and origin of rocks; their mineral and chemical composition and classification. (2 cred.; soph., jr., sr.; prereq. 24) Goldich

*Senior College Courses*

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 62s. Mineralogy of Precious Stones.** Characteristic physical and chemical properties of gems and precious stones. The natural geological settings and occurrences. Synthetic gemstones and imitations. The fashioning of stones. The history of precious stones as related to man. (3 cred.; jr., sr.; no prereq.) Gruner
- 70s. Geologic Field Methods.** Application of the plane table, altimeter, hand level, and Brunton compass to actual problems in the field. (2 cred.; prereq. 25 and trigonometry)
- 100. Field Work in Northern Minnesota.** (July 15 to 30, approximately) Selected areas in the iron district of Minnesota. A comprehensive report will be required for Graduate School credit. (3 cred.; jr., sr.; prereq. 25)
- 101f. Sedimentation.** Environments of sedimentation. The origin of sedimentary rocks and their primary structures; lithologic associations. (3 cred.; jr., sr., grad.; prereq. 24) Thiel
- 102w. Methods of Study of Sediments.** Methods used in the study of sediments and sedimentary rocks. Textural and mineralogical analysis of clastic and nonclastic materials. (3 cred.; jr., sr., grad.; prereq. 101, 106) Thiel
- 103w. Micropaleontology.** The study and classification of Foraminifera, Ostracoda, and other small fossils, and their use in stratigraphy. (3 cred.; jr., sr., grad.; prereq. 107) Swain
- 104s. Micropaleontology.** Advanced study of selected groups of microfossils. (2 cred.; jr., sr., grad.; prereq. 103; offered 1955-56 and alternate years) Swain
- 106f. Petrography.** Optical methods for identification of minerals in thin sections and immersion media; introduction to microscopic work on rocks. (3 cred.; jr., sr., grad.; prereq. 25) Goldich
- 107f. Invertebrate Paleontology.** Morphology and classification of important fossil groups, principles of paleontology. (3 cred.; jr., sr., grad.; prereq. B or Δ) Sloan
- 108w. Stratigraphic Paleontology.** The uses of fossils in stratigraphy; environmental analysis; detailed study of a selected fauna. (3 cred.; jr., sr., grad.; prereq. 107) Sloan

- 109s. **Advanced Invertebrate Paleontology.** Procedures in taxonomy, preparation of a paleontologic report. (3 cred.; jr., sr., grad.; prereq. 108) Sloan
- 110w-111s. **Economic Geology.** The nature, genesis, and distribution of mineral deposits; relation of mineral deposits to structure and surficial alteration. (6 cred.; sr., grad.; prereq. 125 and 151) Schwartz
- 112s. **Petroleum Geology.** The composition and origin of petroleum, methods of exploration, and the geology of the important oil-producing regions. (3 cred.; sr., grad.; prereq. 125 and 151) Swain
- 114s. **Geology of Minnesota and Adjoining Areas.** The structure, stratigraphy, and lithology of the rocks and their associated mineral resources with emphasis on the Precambrian. (3 cred.; jr., sr., grad.; prereq. 25; offered 1955-56 and alternate years) 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. A comprehensive report will be required for Graduate School credit. (3 cred.; jr., sr., grad.; 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 cred.; jr., sr., grad.; prereq. A and 2) Wright
- 119Aw. **Geomorphology of Eastern United States.** General geology of the physiographic provinces east of the Great Plains, with emphasis on the landforms and the Cenozoic history. Map study. (3 cred.; prereq. 118 or 125; offered 1955-56 and alternate years) Wright
- 119Bw. **Geomorphology of Western United States.** General geology of the physiographic provinces from the Great Plains westward, with emphasis on the landforms and the Cenozoic history. Complementary to Geol. 119A. Map study. (3 cred.; jr., sr., grad.; prereq. 118 or 125; offered 1956-57 and alternate years) 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 cred.; jr., sr., grad.; prereq. A and 2) Wright
- 121f. **Crystallography.** The symmetry relations in the 32 crystal classes, and 230 space groups. Crystal drawings and measurements. Projections and mathematical calculations. (3 cred.; jr., sr., grad.; prereq. trigonometry and a year of college chemistry) Gruner
- 125f. **Structural Geology.** Rock deformation: its mechanics, causes, and effects in the Earth's crust. Laboratory work in three-dimensional analyses of geologic structures. (4 cred.; jr., sr., grad.; prereq. 25)
- 131w-132s. **Petrology.** Petrographic description of igneous, metamorphic, and sedimentary rocks; their mineral and chemical composition, classification, origin, and alteration. Laboratory methods; preparation of samples. (8 cred.; jr., sr., grad.; prereq. 106) Goldich
- 137s. **Principles of Chemical Geology.** A study of geochemical literature. Methods in geochemical research and application of chemical and physical-chemical principles to geologic problems. (3 cred.; jr., sr., grad.; prereq. 25) Gruner
- 140w. **Applied Petrography.** Application of petrographic techniques to problems in mining and petroleum geology. (3 cred.; jr., sr., grad.; prereq. 131) Goldich
- 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 cred.; jr., sr., grad.; prereq. 125)
- 145s. **Aerial Photographs.** Elements of photogrammetry, construction of mosaics and of planimetric and topographic maps, stereovision, geologic and geomorphic interpretation, field use. (3 cred.; jr., sr., grad.; prereq. A and 2) Wright
- 146f-147w. **Soil Mineralogy.** The 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 and agriculture and civil engineering. (6 cred.; jr., sr., grad.; prereq. a term of college chemistry) Gruner
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 cred., granted after field report is completed; jr., sr., grad.; prereq. 125; not given for fewer than six students)

- 151w-152s. **Stratigraphy.** Principles and methods illustrated by selected stratigraphic reports; stratigraphic history of United States; index fossils of each geologic period; term paper in 152. (6 cred.; jr., sr., grad.; prereq. 107) Swain
- 153f. **Subsurface Stratigraphy.** The application of sample logs, electrical logs, and other methods to the detailed stratigraphy of the subsurface in selected areas. (2 cred.; jr., sr., grad.; prereq. 151) Swain
- 154w. **Geological Oceanography and Limnology.** Study of sedimentary and biological processes in modern oceans and lakes and their application to geology and paleontology. (2 cred.; jr., sr., grad.; prereq. 118 and 101, or  $\Delta$ ; offered 1956-57 and alternate years) Swain
- 155w. **Vertebrate Paleontology.** The stratigraphic and morphologic aspects of fossil vertebrates. (3 cred.; jr., sr., grad.; prereq. 107 or Zool. 22 or  $\Delta$ ; offered 1955-56 and alternate years) 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 including blowpipe analysis. (3 cred.; sr., grad.; prereq. 24) Gruner
- 166w-167s. **Mineralography.** Methods of studying opaque minerals and applications to problems in ore genesis and history. (6 cred.; sr., grad.; prereq. 111, 131) Schwartz
- 170f,w,s. **Geologic Problems.** Individual research in laboratory, or field problems at Senior College and graduate levels. (1-3 cred. per qtr.; jr., sr., grad.; prereq. consent of major adviser)
- 171f,w,s. **Preparation of Geologic Report.** Preparation under close supervision of a geologic report, with maps and other illustrations, on an acceptable area or subject. Preliminary manuscript due at midquarter. (1 cred.; sr., grad.; prereq. 150 or  $\Delta$ )
- 175s. **Field Work in Glacial Geology and Geomorphology.** Mapping of surficial deposits and landforms of a selected area in Minnesota. One day of field work each week. (3 cred.; jr., sr., grad.; prereq. 118, 120) Wright
- 176w. **Pleistocene Geology.** Pleistocene history of the glaciated and unglaciated areas, particularly North America, Europe, and the Mediterranean. Relation of Pleistocene climatic changes to soils, biogeography, and archaeology. (3 cred.; jr., sr., grad.; prereq. 120; offered 1955-56 and alternate years) Wright
- 177w. **Advanced Geomorphology.** Geomorphology of rivers, lakes, and oceans; landforms of arctic, desert, and tropic regions; quantitative geomorphology; other selected subjects. (3 cred.; jr., sr., grad.; prereq. 118; offered 1956-57 and alternate years) Wright

*For Graduate Students Only*

- 211-212-213. **Research in Paleontology**
214. **Seminar in Economic Geology**
215. **Advanced Course in Principles of Economic Geology**
216. **Mining Geology**
217. **Research Course in Petroleum Geology**
218. **Advanced Structural Geology**
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 the College of Science, Literature, and the Arts—  
Associate Professors Downs, Ramras; Assistant Professor Menze.

**Major Sequence in the College of Science, Literature, and the Arts**—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 Downs.

**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 64-65-66 or 91, 92; and 15 additional credits in courses numbered 56 or above, of which at least 9 should be in literary courses. Minor recommendation: Ger. 57, 58, 59, 68 and 8 additional credits in courses numbered 56 or above.

### Junior College Courses

**NOTE**—There are three course sequences in first-year German, 1-2-3, 1a-2a-3a, and 1b-2b-3b, each of which prepares the student for the second-year course 4. 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.

**1f-2w-3s. Beginning German.** Five class meetings a week. The course aims to give a knowledge of the elements of grammar and the facility to read and write easy German. (15 cred.; no prereq.; students submitting one year of high school German for entrance take Ger. 2; those offering two years take Ger. 3)

**1w-2s. Beginning German.** (1st two qtrs. of 1-2-3. See 1f-2w-3s)

**1s. Beginning German.** (1st qtr. of 1-2-3. See 1f-2w-3s)

**1af-2aw-3as. Beginning German: Conversational Section.** Ten class meetings a week in 1a and 2a. Five hours of demonstration (introduction to texts dealing with real-life situations; necessary grammar by analysis from texts already learned) plus five hours of intensive drill in sections small enough to permit giving each student individual attention. Five class meetings a week in 3a. Less home study required than in other beginning sequences. (15 cred.; no prereq.) Menze

**1bf-2bw-3bs. Beginning German: Language and Culture.** Five class meetings a week. The objectives of the course are to provide, without emphasis on formal grammar, the foundation of a reading knowledge adequate for cultural or professional purposes; to give an introduction to German culture and its contributions to Western civilization; and to encourage an understanding of the nature of language by systematic comparison between German and English. The course will stress direct experience with a variety of reading material in German and English. (15 cred.; no prereq.) Ramras

**2f-3w. Beginning German.** (2nd and 3rd qtrs. of 1-2-3. See 1f-2w-3s)

**3f. Beginning German.** (3rd qtr. of 1-2-3. See 1f-2w-3s)

**4f,w,s. Intermediate German.** (5 cred.; prereq. 3 or 3a or 3b, or three years of high school German)

**24f-25w-26s. Chemical German.** (9 cred.; chemists, miners; no prereq.)

**27f-28w-29s. Chemical Prose.** (9 cred.; chemists; prereq. two years of high school German or one year of college German)

**33s. Medical German.** (5 cred.; premed.; prereq. 3 or 3a or 3b)

**41f-42w-43s. Readings from German Chemical Periodicals.** (6 cred.; prereq. 26 or equiv.)

### Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee.

**50f-51w-52s. Reading German for Juniors and Seniors.** Aim of the course: 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; individual projects in extensive reading. (9 cred.; prereq. jr., sr.)

- 53f-54w-55s.‡ **German Classics in English Translation.** (Formerly 73-74-75) (This course requires no knowledge of the German language.) German literature from medieval to modern times is discussed 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, Werfel. (6 cred.; jr., sr.; no prereq.) Wood
- 56w,s. **Reading and Analysis of Literary Texts.** Short stories and plays are read to develop reading fluency and appreciation of literary values. (3 cred.; prereq. 4 or four years of high school German)
- 57f-58w-59s.‡ **Composition.** (Formerly 50-51-52) Review of German grammar, with emphasis upon colloquial usage, and original compositions. (6 cred.; jr., sr.; prereq. 4) Downs
- 61f-62w-63s.‡ **Conversation.** (Formerly 53-54-55) Systematic development of vocabulary in areas relating to everyday life and practice in the use of spoken German. (6 cred.; jr., sr.; prereq. 4) Menze
- 64f-65w-66s.‡ **Advanced Conversation and Essay Writing.** (6 cred.; jr., sr.; prereq. 59, and 3a or 63)
- 68s. **German Pronunciation.** (Formerly 58) Study of 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 cred.; jr., sr.; prereq. 4) Downs
- 69w,s. **German Pronunciation and Diction.** (Formerly 59) Open only to candidates for the German play. (1 or 2 cred.; jr., sr.; prereq. 3) Ramras
- 70f-71w-72s.‡ **Lyric Poetry from Goethe to Rilke.** 70: Goethe period. 71: Heine to the end of the 19th century. 72: Twentieth century. (6 cred.; jr., sr.; prereq. 56, or 4 and Δ) Pfeiffer, Wood
- 73f-74w-75s.‡ **German Drama from Lessing to the Present.** (Formerly 63-64-65) 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 cred.; jr., sr.; prereq. 56, or 4 and Δ) Ramras
- 76f-77w-78s.‡ **German Prose of the Nineteenth and Twentieth 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. (6 cred.; jr., sr.; prereq. 56 or 4 and Δ) Pfeiffer, Menze
80. **History of the German Language.** (3 cred.; jr., sr.; prereq. 6 cred. above 69; offered when feasible) Downs
- 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 cred.; jr., sr.; prereq. 3 cred. above 69) Prottengeier
- 94f-95w-96s.‡ **Survey of Literature.** (Formerly 70-71-72) 94: Early German literature. Reading and discussion of Old High German and Middle High German classics in modern German translation. 95: From the Renaissance through Goethe and Schiller. 96: From Romanticism to the 20th century. (9 cred.; jr., sr.; prereq. 3 cred. above 69) Downs, Pfeiffer, Wood
- 99s. **Faust I.** (Formerly 77) (3 cred.; jr., sr.; prereq. 6 cred. above 69) Wood

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 193 are 14 credits above 69 or equivalent.

- 103f-104w-105s.‡ **German Syntax and Composition.** Required of all graduate majors. (3 cred.; prereq. 66 or equiv.; offered 1956-57 and alternate years)
- 133f-134w-135s.‡ **Bibliography and Research Methods.** (Formerly 166-167-168) Required of all graduate majors and minors. (3 cred.; prereq. 11 cred. above 69; offered 1955-56 and alternate years)
- 140f-141w-142s.‡ **Drama in Translation.** (Formerly 180-181-182) (9 cred.; prereq. 9 cred. in theater arts or literature above 50; no knowledge of the German language required; offered 1955-56 and thereafter when feasible) Menze

- 150f-151w-152s.‡ **The Age of Luther.** (Formerly 130-131-132) (9 cred.; offered when feasible) Downs
- 160f-161w-162s.‡ **Klopstock, Wieland, Lessing, Herder.** (9 cred.; offered 1955-56 and every third year) Ramras
- 163f-164w-165s.‡ **Goethe.** (9 cred.; offered 1956-57 and every third year) Ramras
- 166f-167w-168s.‡ **Schiller.** (9 cred.; offered 1957-58 and every third year) Ramras
- 170f-171w-172s.‡ **Romanticism.** (9 cred.; offered 1956-57 and every third year) Pfeiffer
- 173f-174w-175s.‡ **The Nineteenth-Century Novel.** (9 cred.; offered 1957-58 and every third year) Pfeiffer
- 176f-177w-178s.‡ **The Nineteenth-Century Drama.** (9 cred.; offered 1955-56 and every third year) Wood
- 180f-181w-182s.‡ **The Twentieth-Century Novel.** (9 cred.; offered 1955-56 and every third year) Pfeiffer
- 183f-184w-185s.‡ **Studies in the Literature of the Twentieth Century.** A survey of the literary movements as represented in the drama, the lyric, and the shorter prose forms. (9 cred.; offered 1957-58 and every third year) Wood
- 186f-187w-188s.‡ **Lyric Poetry.** 186: From the Renaissance through Sturm und Drang. 187: From Goethe through Romanticism. 188: From Heine to Rilke. (9 cred.; offered 1955-56 and every third year) Wood
- 190f-191w-192s.‡ **English-German Literary Relations.** (9 cred.; offered when feasible) Pfeiffer
- 190af-191aw-192as.‡ **French-German Literary Relations.** (9 cred.; offered when feasible)

### *For Graduate Students Only*

253. Seminar: **Classical Period**
254. Seminar: **Romanticism**
255. Seminar: **Literary Criticism**

### Germanic Linguistics and Philology

- 110f-111w-112s.† **Middle High German.** (9 cred.; prereq. 94 and 11 cred. above 69 or equiv.; offered when feasible) Downs
- 113f-114w.‡ **Gothic.** (6 cred.; prereq. 80 and 11 cred. above 69 or equiv.; offered 1956-57 and thereafter when feasible) Downs
- 118f-119w-120s.‡ **Old High German.** (9 cred.; prereq. 94 and 11 cred. above 69; offered 1957-58 and thereafter when feasible) Downs
125. **History of the German Language.** (3 cred.; prereq. 80 and 11 cred. above 69 or equiv.; offered when feasible) Downs
126. **Historical German Grammar.** (3 cred.; prereq. 110-111-112 or 113-114-115; offered when feasible) Downs
- 194s. **Old Saxon: The Heliand.** (3 cred.; offered 1956-57 and thereafter when feasible) Downs
- Scan.195f-196w-197s.† **Old Norse: Language and Literature.** (9 cred.; prereq. knowledge of one Germanic language other than modern English; offered 1955-56 and thereafter when feasible) Downs

### GREEK

See Classics, page 53.

### HEBREW

See Slavic and Oriental Languages, page 145.

### HISTORY

**Department Chairman—Herbert Heaton**

**Major Advisers in the College of Science, Literature, and the Arts—**Professors Burt, Deutsch, Heaton, Jones, Jordan, Osgood, Steefel, Thompson, Tyler, Willson, Wolf; Associate Professors Anderson, Beatty, Bowditch, Loehr; Assistant Professor Chambers.



**Major Sequence in the College of Science, Literature, and the Arts—**

Students will take the equivalent of at least two 9-credit courses in history numbered from 65 to 170. These will normally come in the junior year. In the senior year, students, if they have maintained to the end of the junior year an honor point average of 1.5 in all work, may take at least one course numbered 170 or above; all other majors in history will take an additional number of courses with numbers 65 to 170 in the senior year, but will not take courses numbered 170 or above. Normally a history major will consist of Senior College courses aggregating at least 27 credits.

(Prerequisites: Hist. 1-2-3 or 4-5-6 or 14-15-16, and 20-21-22.)

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

*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—**Associate Professors Bowditch and Loehr.

**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 Senior College courses. See the *Bulletin of the College of Education*.

Minor recommendation: a minimum of 27 credits of which at least 9 credits must be in Senior College 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*.

**Junior College Courses**

- 1f-2w-3s.‡ **Civilization of the Modern World.** 1: The rise of the European state system as framework within which Western civilization developed, and the economic, cultural, political, intellectual, and religious implications of the emerging system. 2: The struggle for control over the Western states system, and the emergence of liberal democracy in the modern world. 3: The impact of industrialism upon Western and world civilization in the 20th-century. (9 cred.; no prereq.) Wolf
- 1w-2s. **Civilization of the Modern World.** (2 qtrs. of 1-2-3. See 1f-2w-3s) Bowditch
- 3f. **Civilization of the Modern World.** (3rd qtr. of 1-2-3. See 1f-2w-3s) Bowditch
- 4f-5w-6s.‡ **English History.** 4: Conquest and settlement, the feudal age, foreshadowings of limited monarchy and popular government. 5: Tudors, Stuarts, and Hanoverians, parliament versus king, colonization and American Revolution. 6: The coming of democracy, Britain and Europe, Empire and Commonwealth. (9 cred.; no prereq.) Burt
- 11f-12w-13s.‡ **Medieval and Renaissance History.** 11: The Roman heritage, the "age of faith," the feudal age, the crusades. 12: Towns and trade, learning and literature, Gothic. 13: Renaissance and Reformation, the rise of national states, exploration and discovery. (9 cred.; for music and art students...others by Δ; no prereq.) Thompson
- 14f-15w-16s.‡ **Ancient Civilization.** (9 cred.; no prereq.) Jones
- 14Af-15Aw-16As.‡ **Ancient Civilization with Basic Readings.** (15 cred.; no prereq.) Jones
- 17s. **Modern Economic and Social Problems.** A historical survey of contemporary problems created by changes in the organization and methods of production and trade, in class relationships, political institutions and ideas; and of the efforts made by farmers, manufacturers, bankers, wage-earners, consumers, voluntary associations, and governments to find conservative, reformist, or revolutionary solutions. (5 cred.; 3rd qtr. fr., soph., jr., sr.; no prereq.; offered when feasible) Heaton
- 20f-21w-22s.‡ **American History.** A survey of the political, economic, and social history of the United States with emphasis on the forces that resulted in the emergence of modern America. 20: Colonial and early national period. 21: Sectionalism and national development. 22: Modern America. (12 cred.; soph., jr., sr.; no prereq.) Osgood, Chambers, Noble

## Senior College Courses

Except where otherwise stated, there are no prerequisites for the courses numbered 50 to 169.

Senior College courses with numbers less than 100 are open to third quarter sophomores who have an average grade of at least C in 9 credits of history. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

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

- 50f-51w-52s.‡ **Ancient Civilization.** (9 cred., §14-15-16; jr., sr.) Jones  
 53f-54w-55s.‡ **Civilization of the Modern World.** (9 cred., §1-2-3; jr., sr.) Wolf  
 56f-57w-58s.‡ **History of England.** (9 cred., §4-5-6; jr., sr.) Burt  
 62f-63w.‡ **Cultural History of China.** 62: Prehistoric times to 600 A.D. 63: 600 A.D. to the present. (6 cred.; jr., sr.; may be taken in conjunction with Art 178s; offered 1955-56 and alternate years) Mather  
 62af-63aw.‡ **Cultural History of Japan.** 62a: Prehistoric times to 1600 A.D. 63a: 1600 A.D. to the present. (6 cred.; jr., sr.; offered 1956-57 and alternate years) Shea  
 65f-66w-67s.‡ **Medieval European History.** 65: Decline of the Roman Empire. 66: The Feudal Age. 67: The Crusades, Gothic Architecture, Thomas Aquinas. (9 cred.; jr., sr.; offered 1956-57 and alternate years) Hoyt  
 65af-66aw-67as.‡ **Renaissance and Reformation.** 65a: The Age of Dante and Petrarch. 66a: Italian Renaissance. 67a: The European Renaissance and Reformation. (9 cred.; jr., sr.; offered 1955-56 and alternate years) Hoyt  
 70f-71w-72s.‡ **English Constitutional History.** 70: The medieval period. 71: Early modern times. 72: In the last two centuries. (9 cred.; open to prelegal soph. with at least a C average in 4-5-6, 1-2-3, or in all their college work, and to all jrs. and srs.) Thompson, Willson  
 76f-77w-78s.‡ **Canadian History and Canadian-American Relations.** 76: Rise and fall of the French Empire in America. 77: From British conquest to federation. 78: The Dominion of Canada from its formation. (9 cred.; jr., sr.) Burt  
 79f-80w-81s.‡ **The United States in the Twentieth Century.** A discussion of the political, economic, diplomatic, and social history of the U.S. from the Spanish-American War to the present. 79: 1896-1912. 80: 1912-1929. 81: 1929- . (9 cred.; jr., sr.) Chambers  
 83as. **American Agricultural History.** Development of American agriculture from the Colonial period to the present. (3 cred.; soph., jr., sr.; offered when feasible) Loehr  
 86f-87w-88s.‡ **American Colonies.** 86: In the 17th century. 87: In the 18th century. 88: The Revolutionary crisis. (9 cred.; jr., sr.) 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 cred.; jr., sr.; offered 1956-57 and each year thereafter). Bowditch  
 90f-91w-92s.‡ **The American West.** An interpretation of the American frontier from its establishment in the colonies to its disappearance as a factor in American life. 90: The Colonial frontier. 91: Mid-America. 92: The Far West. (9 cred.; jr., sr.) Osgood  
 93f-94w-95s.‡ **American Diplomatic History.** 93: American diplomacy, 1776-1848. 94: The period of national development. 95: The United States as a world power. (9 cred.; jr., sr.) Beatty  
 97f-98w-99s.‡ **Minnesota and the Northwest.** (9 cred.; jr., sr.) Jordan  
 100f-101w-102s.‡ **History of the Ancient Near East.** (9 cred.; jr., sr., grad.; offered 1957-58 and every third year) Jones  
 100af-101aw-102as.‡ **History of Greece to 200 B.C.** (9 cred.; jr., sr., grad.; offered 1955-56 and every third year)  
 100bf-101bw-102bs.‡ **History of Rome.** (9 cred.; jr., sr., grad.; offered 1956-57 and every third year) Jones  
 103f-104w-105s.‡ **Medieval European History.** 103: Decline of the Roman Empire. 104: The Feudal Age. 105: The Crusades, Gothic Architecture, Thomas Aquinas. (9 cred.; jr., sr., grad.; offered 1956-57 and alternate years) Hoyt  
 103af-104aw-105as.‡ **Renaissance and Reformation.** 103a: The Age of Dante and Petrarch. 104a: Italian Renaissance. 105a: The European Renaissance and Reformation. (9 cred.; jr., sr., grad.; offered 1955-56 and alternate years) Hoyt  
 106f-107w-108s.‡ **Continental Europe.** 106: The Reformation and the religious wars. 107: The 17th century. 108: The 18th century. (9 cred.; jr., sr., grad.) Wolf

- 106af-107aw-108as.‡ **Continental Europe.** 106a: Reconstruction after the Napoleonic wars, liberalism and nationalism, the revolutions of 1820, 1830, 1848. 107a: Napoleon III, the first "modern" dictator; making the kingdom of Italy and the second German Reich. 108a: 1871-1914, forty years of peace and preparation for war. (9 cred.; jr., sr., grad.; offered 1956-57 and alternate years) Steefel
- 109f-110w-111s.‡ **Europe in the Twentieth Century.** 109: 1900-1918; 110: Peace conference, Soviet Union, and the western powers. 111: Fascist totalitarianism, origins and history of World War II. (9 cred.; jr., sr., grad.) Deutsch
- 112f-113w-114s.‡ **Economic History of Europe.** 112: Economic life in ancient and medieval times. 113: Economic developments in the early modern world. 114: Economic developments since 1750. (9 cred.; jr., sr., grad.) Heaton
- 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 cred.; jr., sr., grad.; offered when feasible) Willson
- 118as. **Scandinavia During World War II.** (3 cred.; jr., sr., grad.; prereq. 106a-107a-108a or 122-123-124 or #; offered when feasible)
- 120f-121w.‡ **Modern France.** 120: Political, social, and economic history of France from Vienna settlement to the establishment of the Third Republic. 121: The struggle of the Third and Fourth Republics to meet the challenge of the 20th century. (6 cred.; jr., sr., grad.; prereq. 9 cred. in history or 15 cred. in social science, or major in French; offered 1956-57 and each year thereafter) Bowditch
- 122f-123w-124s.‡ **History of the Scandinavian Countries.** (9 cred.; jr., sr., grad.; offered when feasible)
- 125f-126w-127s.‡ **Russia.** 125: The origins of the Slav, the eastward movement and the rise of the principality of Moscow. 126: The Empire from Peter the Great through the Great Reforms of Alexander II. 127: From Alexander II to the present. (9 cred.; jr., sr., grad.) Anderson
- 125af-126aw-127as.‡ **Eastern Europe and the Middle East in the Nineteenth and Twentieth Centuries.** The Balkan countries, Poland, Hungary, Czechoslovakia, Turkey, Persia, Afghanistan, the Arabic People. 125a: The Balkan countries, Poland, and Hungary up to World War I. 126a: The post-World War I states in this area including Czechoslovakia, Austria, and Albania up to World War II. 127a: The Islamic Middle East, 1800 to the present. (9 cred.; jr., sr., grad.; prereq. 1-2-3; offered 1956-57 and each year thereafter) Anderson
- 128f-129w-130s.‡ **Modern England.** Tudor and Stuart periods. 128: 1485-1588, from Henry VII to the defeat of the Spanish Armada. 129: 1588-1642, from the Spanish Armada to the English civil wars. 130: 1642-1714, from the civil wars to the death of Queen Anne. (9 cred.; jr., sr., grad.; offered 1956-57 and alternate years) Willson
- 128af-129aw-130as.‡ **Modern England, 1714 to the Present.** 128a: 1714-1783, the eighteenth century. 129a: 1783-1867, the coming of democracy. 130a: 1867-1945, democracy, socialism, empire, and war. (9 cred.; jr., sr., grad.; offered 1955-56 and alternate years) Willson
- 131f. **Economic Developments in the Scandinavian Countries in the Last Half-Century.** (3 cred.; jr., sr., grad.; prereq. a course in economic theory, modern economic history, or #; offered when feasible)
- 134f-135w-136s.‡ **World War II.** 134: Origins and background. 135: The war period, 1939-1942. 136: The period 1943-1945. (9 cred.; jr., sr., grad.) Deutsch
- 137f-138w-139s.‡ **The Early National Period in United States History.** 137: 1783-1815. 138: 1815-1835. 139: 1835-1850. (9 cred.; jr., sr., grad.; offered 1956-57 and alternate years) Jordan
- 137af-138aw-139as.‡ **American History, 1850-1900.** 137a: From the Compromise of 1850 to Appomattox. 138a: From 1865 to 1880. 139a: From 1880 to 1900. (9 cred.; jr., sr., grad.) Loehr
- 140f-141w-142s.‡ **History of Germany.** 140: Germany to 1648. 141: Germany, 1648-1871. 142: Germany since 1871. (9 cred.; jr., sr., grad.; prereq. 1-2-3 or major in German or #; offered 1955-56 and alternate years) Steefel
- 143f-144w-145s.‡ **American Folklore.** (9 cred.; jr., sr., grad.; offered 1955-56 and alternate years) Jordan
- 146f-147w-148s.‡ **American Economic and Social History.** 146: Colonial life. 147: From the Revolution to 1860. 148: Developments since 1860. (9 cred.; jr., sr., grad.) Loehr
- 146af-147aw-148as.‡ **History of the South.** 146a: 1607-1840. 147a: 1840-1890. 148a: 1890- . (9 cred.; jr., sr., grad.) Noble
- 149f-150w-151s.‡ **Social and Intellectual History of the United States.** (9 cred.; jr., sr., grad.) Tyler

- 152-153.† **The Immigrant in American History and Life.** A chapter in social, religious, cultural, and political history. (6 cred.; jr., sr., grad.; offered when feasible)
- 154f-155w-156s.† **Canadian History and Canadian-American Relations.** 154: Rise and fall of the French Empire in America. 155: From British conquest to federation. 156: The Dominion of Canada from its formation. (9 cred.; grad.) Burt
- 157f-158w-159s.† **Survey of Latin-American History.** 157: The colonial period. 158: The Latin-American republics. 159: Recent Latin-American history. (9 cred.; jr., sr., grad.) Beatty
- 168w-169s.† **Readings in the Works of Great Historians.** (6 cred.; sr., grad.; required of all Ph.D. candidates) Steefel

Courses numbered 170 to 200 are open to seniors and to graduate students upon recommendation of advisers; prerequisites are appropriate lecture courses and consent of department.

### Selected Readings in European History

- 170f-171w-172s.† **Ancient History.** (9 cred.; sr., grad.) Jones
- 173f-174w-175s.† **Medieval and Renaissance History.** (9 cred.; sr., grad.) Hoyt
- 173af-174aw-175as.† **Medieval English History.** (9 cred.; sr., grad.) Thompson
- 176f-177w-178s.† **Seventeenth-Century France.** (9 cred.; sr., grad.; prereq. reading knowledge of French) Wolf
- 176af-177aw-178as.† **Russian History.** (9 cred.; sr., grad.; prereq. 125-126-127 and a reading knowledge of Russian, German, or French, or §; offered 1956-57 and each year thereafter) Anderson
- 176af-177bw-178bs.† **Scandinavian History.** (9 cred.; sr., grad.; offered when feasible)
- 176cf-177cw-178cs.† **Recent European History.** (9 cred.; sr., grad.; prereq. lecture course in 20th-century Europe or World War II, or §) Deutsch
- 176df-177dw-178ds.† **Nineteenth-Century European History.** (9 cred.; sr., grad.; prereq. reading knowledge of French or German and 106a-107a-108a or §; offered 1955-56 and alternate years) Steefel
- 179f-180w-181s.† **European Economic History Since 1700.** (9 cred.; sr., grad.) Heaton
- 182f-183w-184s.† **English History, Tudor and Stuart Periods.** (9 cred.; sr., grad.) Willson

### Selected Readings in American History

- 185f-186w-187s.† **The Problem of Slavery in American History with Emphasis on the South.** (9 cred.; sr., grad.; offered 1956-57 and alternate years) Tyler
- 185af-186aw-187as.† **The West in American History.** (9 cred.; sr., grad.) Osgood
- 185bf-186bw-187bs.† **American Diplomatic History.** (9 cred.; sr., grad.) Beatty
- 185cf-186cw-187cs.† **Twentieth-Century American History.** (9 cred.; sr., grad.) Chambers
- 185df-186dw-187ds.† **Nineteenth-Century American History.** (9 cred.; sr., grad.) Jordan
- 185ef-186ew-187es.† **Problems of the Eighteenth Century; Some Phases of Early American Social and Intellectual History.** (9 cred.; sr., grad.; offered 1955-56 and alternate years) Tyler
- 188f-189w-190s.† **American Economic History.** (9 cred.; sr., grad.; offered 1956-57 and alternate years) Loehr
- 188af-189aw-190as.† **American History 1850-1900.** (9 cred.; sr., grad.; offered 1955-56 and alternate years) Loehr
- 191f-192w-193s.† **Relations of the United States, Great Britain, and British North America.** (9 cred.; sr., grad.) Burt
- 194f-195w-196s.† **Latin-American History.** (9 cred.; sr., grad.; prereq. reading knowledge of Spanish; offered 1956-57 and alternate years) Beatty

### For Graduate Students Only

200. **Historical Bibliography and Criticism**
- 208-209-210.† **Seminar in American History**
- 208a-209a-210a.† **Seminar in American History**
- 208b-209b-210b.† **Seminar in American History**
- 221-222-223.† **Seminar in European Economic History**
- 224-225-226.† **Seminar in Modern European History**
- 230-231-232.† **Seminar in Ancient History**
- 240-241-242.† **Seminar in Latin-American History**

## HOME ECONOMICS

(School of Home Economics)

**Director**—Louise A. Stedman

The courses in home economics listed below and on page 90 are open to students from the College of Science, Literature, and the Arts, 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. H.E. 56 and 57; H.E. 120 (or)
2. H.E. 20; H.E. 57; H.E. 120 (or)
3. F.L. 15; H.E. 120

*Junior College 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 the consumer. (4 cred., §G.C. 15; fr., soph., jr.; not open to men; no prereq.) Wolff (f)
- 20f,w,s. Introduction to Related Art.** The development of an appreciation of the art involved in the everyday life of the student. Experiences in making selections in varied fields such as dress, house furnishings, etc., are directed toward a discriminating taste. The arts and crafts of various countries are studied briefly for their contribution toward breadth of view, enjoyment, and understanding of other cultures. (4 cred., §56; fr., soph., jr.; not open to Home Economics seniors; no prereq.) Myren
- 30f. Introduction to Nutrition.** For students wishing a discussion of the application of the principles of nutrition to the selection of food. (2 cred., §F.L. 14, G.C. 14, or H.E. 31; intended for SLA students...open to home economics students only by special permission of director of School of Home Economics; no prereq.; offered on Minneapolis Campus)
- 31f,w,s. Introduction to Nutrition.** Application of nutrition principles to the food selection of college students. Includes information on the relation of food to the promotion and maintenance of health. (3 cred., §G.C. 14 or H.E. 30; not open to Home Economics seniors; no prereq.) Gormican (f,w)
- 34s. Nutrition Problems.** A consideration of the problems commonly met by adults and children in typical families. (4 cred., §H.E. 76 or 170 and 171; 3rd qtr. soph., jr., sr.; prereq. 31, 40, physiology or human biology)
- 40f,w,s. Food Preparation.** The development of technique and the application of fundamental science principles to cookery processes and preservation. The establishment of good standards for food products. (5 cred.; no prereq. for SLA students)

*Senior College Courses*

- 52f. Introduction to Textiles.** Factors which influence the quality and value of fabrics used in men's and women's wearing apparel and household furnishings. Designed primarily for students in merchandising. (3 cred.; for SLA, Bus.Ad., U.C., and ArtEd. students; no prereq.) Gorham
- 56w. Applications of Color and Design I.** The needs of individual students determine largely the specific content of the course. It is devoted to a general study of color and design applications in various areas, including problems relating to dress and a brief study of some of the arts and crafts of other countries. Arrangement of display cases studied through actual experience. (3 cred., §H.E. 20; not open to H.E. students; no prereq.) Everson
- 57s. Applications of Color and Design II.** (Continuation of 56) Emphasis upon house planning and furnishing problems. Rooms are arranged. Field trips. (3 cred., §H.E. 24 or 180; not open to H.E. students; prereq. 56 or 20, or Δ) Ludwig

- 70w. Advanced Food Preparation.** (Continuation of 40) Emphasizes particularly the scientific principles that underlie cookery processes and food preservation. (3 cred.; jr., sr.; prereq. 40 and  $\Delta$ ) Gordon
- 76f. Nutrition.** Application of the principles of nutrition to the problems of food selection most commonly met in everyday living. (4 cred., §H:E. 34 or 170 and 171; jr., sr.; prereq. 30 or 31, and 40) Gormican
- 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 cred.; jr., sr.; prereq. 40, 41 advised) Jeary
- 120f,w,s. Art History.** A general view of the history of art from the Egyptian period to the present. The 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 cred.; jr., sr., grad.) Esteros

## HOW TO STUDY

See General Studies, page 75.

## HUMANITIES

**Program Chairman**—Ralph G. Ross

**Major Advisers in the College of Science, Literature, and the Arts**—Professor Ross; Associate Professor Kwiat; Assistant Professors Ames, Bryan, Ramsland.

**Major Sequence in the College of Science, Literature, and the Arts**—This major rests upon the general humanities courses offered in the Department of General Studies, with Senior College electives in the several departments of the humanities program. There must be a minimum of 60 credits in Senior College courses. Specifically, these requirements are as follows:

1. Four quarters of Humanities in the Modern World and three quarters of European Heritage, taken either in Junior or Senior College. Any honor points earned in Junior College sections are not computed in determining the honor points of the major.
2. Nine Senior College credits in social science (history included).
3. Nine Senior College credits in history of art (see page 32) or history of music.
4. Nine Senior College credits in philosophy.
5. Eighteen Senior College credits in literature (English or foreign).
6. Nine Senior College credits in Humanities Proseminar

**For courses labeled "Humanities,"** see the Department of General Studies, page 72. For all other courses in the program, see the separate departments mentioned in the above lists of requirements.

## INTERNATIONAL RELATIONS AND AREA STUDIES

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

**Major Advisers in the College of Science, Literature, and the Arts**—

(a) *General International Relations Major*—Professors Jan O. M. Broek, Harold C. Deutsch, Werner Levi; Associate Professor Charles H. McLaughlin; Assistant Professor John E. Turner.

(b) *Area Studies*—Northwest Europe: Scandinavia—Professor Alrik Gustafson; British Isles, France, Germany—Professor Lawrence W. Steefel. 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 area 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*.

(c) *Preparation for the Foreign Service*—Professor Asher N. Christensen; Associate Professor 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 and one of the area study majors, with the emphasis determined by the student's interests.

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. Senior College students who expect to proceed to such advanced training are advised to acquaint themselves early with the prerequisites.

For full information about programs at either the undergraduate or the graduate level consult the special bulletin, *Programs in International Relations and Area Studies*. Some of the essential features of the undergraduate programs are indicated as follows.

**Courses in the Junior College**—Students may satisfy the group requirements under either Plan I or Plan II, but in either case should complete four 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 Senior College training in foreign language is required in international relations and in area study majors, students should lay a proper foundation for this in the Junior College.

Since the Senior College majors include courses selected from several social sciences care should be exercised to complete any Junior College courses which are prerequisite to the advanced courses in these departments. Selection can ordinarily be made from the following list, but ad-

visers should be consulted as to variations and special recommendations peculiar to the several majors.

(Credits shown in parentheses)

Anth.1—Introduction to Anthropology: Pre-historic Man and Culture (5)	Hist.17—Modern Economic and Social Problems (5)
Anth.2—Introduction to Anthropology: Cultural Anthropology (5)	Hist.20-21-22—American History (12)
Econ.1-2—Business History (10)	Pol.1-2-3—American Government and Politics (9)
Econ.5—Elements of Statistics (3 or 5)	Pol.A-B-C—The State and the Modern World (9)
Econ.6-7—Principles of Economics (10)	Pol.25—World Politics (3)
Geog.1—Geography of Natural Resources (5)	S.Sci.1-2-3—Introduction to Social Science (12)
Geog.4—Human Geography (5)	S.Sci.11-12-13—International Relations (9)
Geog.41—Geography of Commercial Production (5)	Soc.1—Man in Modern Society (3)
Hist.1-2-3—Civilization of the Modern World (9)	Soc.3—Social Problems (3)

The Junior College 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 (10)	Mus.31-32-33—Music Literature (6)
Engl.21-22-23—Introduction to Literature (15)	Phil.1—Problems of Philosophy (5)
Engl.37-38-39—Modern Literature (9)	Phil.20—Social Philosophy (3)
Hum.1-2-3-4—Humanities in the Modern World (20)	Phil.107—Philosophy in Modern Literature (3)

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 Senior College**—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 Senior College courses must be earned in all.

In the general international relations major these courses must be chosen from approved offerings distributed among at least three social science departments and must 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 Senior College level. 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, whenever 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 Senior College 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, page 135.



## JAPANESE

See Slavic and Oriental Languages, page 143.

## JOURNALISM

(School of Journalism)

**Director**—Ralph D. Casey

**Major Advisers in the College of Science, Literature, and the Arts**—Professors Casey, Charnley, Emery, Gerald, Nixon; Associate Professors Ford, Jones, Kildow, Wilson; Instructors Hage, Perry.

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

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 five 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*. B.A. degree requirements are on page 11 of this bulletin.

The principal fields of journalism, some of which overlap or require substantially similar preparation, are: daily and weekly newspaper reporting, editing, and other editorial work; daily and weekly newspaper circulation, editorial administration, and business management; advertising and promotion; radio and television news work, script and continuity writing, and advertising; news photography; press association work; magazine writing, editing, and administration; book editing and publishing; agricultural or home economics journalism; public relations and public opinion; media analysis and mass communications research; journalism teaching.

Preparation for journalism involves this emphasis: a sound liberal education, a study of the social implications and professional responsibilities of a free press, and a fundamental knowledge of journalistic techniques and procedures. The journalism major student, to obtain the basic background of the historic, social, economic, and cultural crosscurrents in society, is asked to meet the Arts College freshman and sophomore requirements, and to plan a Senior College program, in conference with his adviser, which supports and extends his professional training. Emphasis in this supporting work, though it is always designed to meet individual needs, is largely upon the social studies, the humanities, and literature. About three-fourths of the student's total University courses is devoted to work of this kind.

The journalism major begins his journalism work with a course in basic journalistic writing in his sophomore year. To prepare himself both with knowledge of communications as social institutions and with the specialized techniques of the forms of journalism in which he is interested, he takes a major sequence "core group" in junior and senior years, together with a number of elective courses. These journalism courses take about half the student's time in the Senior College.

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

All prejournalism students must meet the freshman English and public health requirements as described on pages 8 and 9. All must include Comp. 27-28, Jour. 13, and Pol. 1-2 or 5 in their Junior College programs. All must include either 8 credits in American history (Hist. 20-21-22) in their Junior College programs, or 6 credits in their Senior College 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. 18-19.

It is recommended that the prejournalism student meet Junior College requirements (see page 8) whether he elects Plan I or II, so as to include substantial basic work in the following fields:

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

**Natural Science**—N.Sci. 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 Junior College total of 84 to 90 credits should include courses from the areas listed above, or other areas chosen in consultation with the journalism adviser. An especially recommended course is Econ. 6-7, which is required for the five-year program. Other electives 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, 17; two 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 Junior College or Senior College.

The fourth hour Tuesday is free of Journalism classes, to make it easier for journalism major students to attend vocational counseling and other professional meetings occasionally scheduled at this hour by the School of Journalism. Journalism majors are urged to keep these hours free of other classes insofar as possible.

**Major Sequence Leading to the Joint Degrees of Bachelor of Arts in the College of Science, Literature, and the Arts, and of Master of Arts in the Graduate School**—Jour. 51-52, 55, 73, 101, 109-110, 113, 121, 130, 140-141, 142, 200 and one additional course in the 200 series. Total credit requirement for M.A. under Plan A, 207 credits, under Plan B, 225 credits. Modifications of the five-year program requirements may be approved in terms of a student's special professional interests. Language optional except where needed to support specialization. For the M.A., specialization is provided in one of the social sciences related to journalism and in a journalism field centering about one of the following graduate seminars: international news communication and comparative foreign journalism, communication agencies as social institutions, history of communications, media analysis, public opinion and propaganda, and government and mass communications.

**Major Sequence in the College of Science, Literature, and the Arts**—Jour. 51-52, 55, 73, 101, 109-110, 140-141, 142, and 9 additional credits in journalism chosen in conference with the adviser. (*Modified major sequences for students in advertising or management and in agricultural or home economics journalism are described below.*) Students of marked ability may substitute for these 9 additional credits Senior College courses in other departments with the approval of the major adviser in journalism.

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

**Major Sequence for Journalism Students with Advertising Specialization**—Jour. 51, 55, 65, 86, 151, 152, Psy. 156, B.A. 77 and 87, and 9 hours of

electives in journalism, or related social sciences, or other approved areas. Additional Junior College requirements are: Econ. 6-7 and Psy. 1-2.

**Minor Sequence for Such Students**—A student may meet the minor requirement by a minor sequence of 15 credits or two minors of 9 credits each in Senior College courses in the College of Science, Literature, and the Arts, or by a special 15-credit sequence to be chosen from the following courses: B.A. 51, 53, 112, 113, 114, 180 (C, Marketing), 194, Econ. 84, 85, 110, Psy. 140.

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

**Major Sequence for Journalism Students with Newspaper Management Specialization**—Jour. 51, 55, 65, 73, 86, 93, 95, 101, 151, and 12 additional credits chosen in conference with the adviser from among Jour. 78, 109-110, 113, 115, 118, 121, 130-131, 140-141, 142, 152, and 177.

**Minor Sequence for Such Students**—B.A. 77 and 87 and Psy. 156, and 6 additional credits selected from among Art 65, B.A. 114 and 194, Jour. 130 and Psy. 140. Junior College prerequisites are Econ. 6-7 and Psy. 1-2.

**Radio-Journalism Specialization**—Journalism majors with professional interest in radio and television news work, script and continuity writing, advertising, or station administration may elect courses in journalism and speech, in conference with their advisers, to meet elective requirements and minor requirements. Such students usually elect from among Jour. 67, 68, 87, 88, 113, 120, and 130-131, and Spch. 65, 66.

**Combined Curriculum in Journalism and Agriculture**—This curriculum is intended for those who wish to prepare for some branch of journalism which relates to agriculture. Students intending to major in agricultural journalism may register in the College of Science, Literature, and the Arts or in the College of Agriculture, Forestry, and Home Economics. For the complete curriculum, students should consult advisers in either the School of Journalism or the office of the assistant dean of the College of Agriculture, Forestry, and Home Economics.

**Combined Curriculum in Journalism and Home Economics**—This curriculum prepares students for professional work in areas of newspaper, magazine, advertising, radio, public relations, and other journalistic activity in which proficiency in home economics subject matter is necessary. The curriculum offers a major journalism sequence combined with general home economics background and specialization in selected home economics fields. Its flexibility makes it possible to suit its requirements to the individual needs of each student. Students electing the curriculum register in the College of Science, Literature, and the Arts. They design their programs in consultation with major advisers in both the School of Journalism and the School of Home Economics.

**Minor Sequence**—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 Senior College journalism courses, to be chosen in conference with the adviser. Jour. 78, 90, 110, 111, 121, and 130 are recommended.

**Minor Sequence in the College of Education**—Jour. 11, 41, 69, 82, and 9 additional credits chosen from among Jour. 55, 90, 103, 110, 111, 120, 121, and 130. Ed.T. 74 (see *Bulletin of the College of Education*), offered by the School of Journalism, is a required education elective for students in this sequence.

**General Education Courses in Mass Communications**—A group of courses dealing primarily with the social aspects of mass communications is open to students majoring in other departments and may be used for

a nonprofessional minor by undergraduates and graduates: 103, Literary Aspects of Journalism; 106, Critical Writing; 109-110, History of Journalism; 111, International Communications and Foreign Affairs; 113, Mass Communications; 115, Communication Media Analysis; 120, Development of Radio and Television Communications; 121, The Press in a Dynamic Society; 125, Communication Systems of the Free World; 126, Communications in Authoritarian Society; 130-131, Communication Agencies, Propaganda, and Public Opinion; 177, Freedom of the Press and Communications Law.

### Junior College Courses

- 10f,w,s. Photography.** (Same as Art 10) Fundamentals of photography: the use of cameras, developing, printing and other elementary techniques. Lectures and laboratory. (3 cred.; soph., jr., sr.; no prereq.) Liebling
- 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 cred.; soph., jr., sr., with average of C; prereq. Engl. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or Rhet. 1-2-3 or exemption from English requirement) Ford
- 13f,w. 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. (3 cred.; soph., jr., sr., with average of C; prereq. Engl. A-B-C or Comp. 4-5-6 or Comm. 1-2-3 or English exemption, and proof of typewriting skill of 35 net words a minute or ¶Econ. 33 or 32) Charnley, Hage, Kildow
- 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 cred.; soph., jr., sr.; prereq. for 14, C average in 13 and in all work, or ¶, and Comp. 27-28 or ¶Comp. 27-28, and proof of typewriting skill of 35 net words a minute or ¶Econ. 33; prereq. for 15, C average in 13-14 and in all work, or ¶, and Comp. 27-28 or ¶Comp. 27-28, and satisfaction of typewriting requirement) Charnley, Hage
- 18w,s. Principles of Advertising.** Theory, principles, and functions of advertising; its role in the economic, social, and marketing structure. Newspapers, magazines, and radio and television as advertising media. (3 cred.; soph., jr., sr.; prereq. 13, C average, and Comp. 27-28 or ¶Comp. 27-28) Perry
- 19f,s. Business News and Feature Writing.** A course for journalism majors planning to specialize in advertising. Gathering material for and writing news stories, feature articles, and other types of copy in the business-advertising field. The audiences in this field; the media. (3 cred.; soph., jr., sr.; prereq. 18) Perry
- 41w. Editing for Nonmajors.** Lectures and laboratory in elementary news and magazine editing. (3 cred.; jr., sr.; not open to SLA students without consent of director of School of Journalism; prereq. 11 or 13) Ford

### Senior College Courses

Senior College courses in the School of Journalism are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 51f,s. News Editing.** Lectures and laboratory in basic copy editing problems and techniques. (3 cred.; jr., sr.; prereq. 15, or 19, or B average in 13-14)
- 52w. News Editing.** Lectures and laboratory in news selection and page make-up; press association teletype service. (3 cred.; jr., sr.; prereq. 51 and 55)
- 55f,w,s. Advertising and Newspaper Typography.** Principles of graphic presentation. Laboratory practice in preparation of layouts and their reproduction in type. Study of appropriate uses of type. (3 cred.; prereq. for journalism majors, Senior College standing...for others, 11 or 13 and 41) Wilson
- 58f. Newspaper and Periodical Design and Typography.** Analysis of major trends in format, make-up, and typography of printed media. Experiments in make-up. Lectures and individual laboratory projects. (3 cred.; jr., sr.; prereq. 55 and ¶; offered 1955-56 and alternate years) Wilson

- 59f. 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 cred.; jr., sr.; prereq. 55; offered 1956-57 and alternate years) Wilson
- 65f.s. Graphic Arts: Processes.** Letterpress, offset lithography, and gravure printing processes; engravings and copy preparation; significant graphic arts developments. (3 cred.; jr., sr.; prereq. consent of major adviser in School of Journalism or in School of Business Administration) Wilson
- 66f.w.s. Pictorial Journalism.** The analysis, use, and influence of the news picture; technique of the "picture-story"; the picture magazine; picture editing; advertising photography; use of the news camera. Lectures and laboratory. (3 cred.; jr., sr.; prereq. 10, 13 or §) Kildow
- 67f.w. Radio and Television News Writing.** The gathering, writing, and editing of news for broadcast; television news; use of recorders; special events; "backgrounding" and commentary in radio and television news practice. In laboratory, students edit news programs from press association teletype service for KUOM. (3 cred.; jr., sr.; prereq. 15) Haskins
- 68s. Problems in Radio and Television Writing.** The audience and its responses; planning and writing scripts in dramatics, public affairs, and other radio and television fields; fundamental broadcasting production problems; program-planning. (3 cred.; jr., sr.; prereq. for journalism majors, 51 and §...for speech-radio majors, 13 and §) Charnley
- 69s. Newspaper and Magazine Articles.** (For minors only) Technique of writing feature articles for newspapers and magazines. Study of markets open to free-lance writers. Analysis of published articles. Writing and submitting articles for publication. (3 cred.; jr., sr.; prereq. 41) Ford
- 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 cred.; jr., sr.; prereq. 15 or 19) Charnley, Hage
- 74w. Magazine Editing.** Problems of magazine layout and make-up; book publishing problems. Individual projects in magazine editing and in advanced magazine writing. (3 cred.; jr., sr.; prereq. 55, 73 and §) Charnley
- 78f. Public Relations.** Theories and techniques of the public relations function; the public relations counsel and publicity expert; study of public relations programs and campaigns for industry, social agencies, government. (3 cred.; sr.; prereq. 51, 55, and 19 or 73, or 41, 55, and 69) Emery
- 82s. Supervision of School Publications.** For those who plan to become advisers of high school or college newspapers, yearbooks, magazines. Course emphasis is upon editorial content, staff organization, editing, typography, make-up, and business management of such publications. (3 cred.; jr., sr.; prereq. 41 or 51) Kildow
- 86f.w.s. Advertising Copy Writing.** Advertising media; advertising appeals; techniques of writing advertising copy for newspapers, magazines, direct mail, posters, brochures; planning advertising campaigns. (3 cred.; jr., sr.; prereq. 51 or 41, and 55 and 65) Perry, Wilson
- 87w. Radio and Television Advertising.** The relation of radio and television advertising to the sponsor, the station, the network, and the station representative; program selection, time buying, program ratings. Preparation and presentation of radio and television advertising copy. (3 cred.; sr.; prereq. 19 and 120, or 69 and B.A. 188) Perry
- 88w. Radio and Television Station Administration.** The broadcasting station in community life. Administrative problems in programming, traffic, time sales, management. FCC and other regulations affecting station operation. Problems in license application, public service programming, etc. (3 cred.; jr., sr.; 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. Contemporary influences on communications media. Studies of individual newspapers, columnists, commentators. (3 cred.; jr., sr.; 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 organization and responsibility. (3 cred.; jr., sr.; prereq. 51 or §1)
- 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 cred.; jr., sr.; prereq. 51)
- 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 cred.; sr., grad.; prereq. 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 cred.; jr., sr., grad.; prereq. ♯) Ford
- 106f,s. **Critical Writing.** The theory and practice of writing book, theater, and motion picture reviews. Analysis of the work of leading critics and critical periodicals. Weekly reviews are written. (3 cred.; jr., sr., grad.; prereq. a Senior College writing course and ♯) Ford, Gray
- 109w-110s. **History of Journalism.** 109: Development of newspapers and periodicals from early beginnings in Europe through the 1860's in the United States. 110: The emergence of modern journalism and 20th-century developments in newspapers and other mass media. (6 cred.; jr., sr., grad.) Emery, Ford
- 111f. **International Communications and Foreign Affairs.** The channels of international communication and the news gathering agencies. Factors affecting flow of news throughout the world. The role of the foreign correspondent. The relation of communications to foreign affairs and international understanding. (3 cred.; jr., sr., grad.; prereq. 15 cred. in the social sciences, with inclusion of a Senior College history or political science course in international relations recommended) Nixon
- 113f,s. **Mass Communications.** Principles and theory based upon research into the problems of communicating information and ideas to group and mass audiences by newspaper, radio, television, film, books, and other media. Comparative studies of content, comprehension, and influence. (3 cred.; sr., grad.; prereq. journalism major or ♯) Nixon
- 115w,s. **Communication Media Analysis.** Methods for analyzing the content and audiences of newspapers, periodicals, radio, television, and motion pictures. Attitude and opinion studies involving these media. (3 cred.; jr., sr., grad.; prereq. 51 and ♯, or Econ. 5 or Psy. 70 or equiv. and ♯) Jones
118. **Selected Topics in Journalism.** (3 cred.; sr., grad.)  
**As. Advanced Reporting of Public Affairs.** (Prereq. 101 and ♯) Hage  
**Bs. Projects in Media Analysis.** (Prereq. 115 and ♯) Jones  
**Cf,w,s. Selected Readings in Journalism.** (Prereq. journalism majors with B average and ♯) Nixon, Casey
- 120f. **Development of Radio and Television Communications.** Historical and economic development of aural broadcasting, television, and facsimile; government regulation; radio and the press; radio and television as social factors; broadcasting in other countries. (3 cred.; jr., sr., grad.; prereq. 15 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 cred.; jr., sr., grad.; prereq. for journalism majors, 15 or 18...for others, ♯) Gerald
- 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, with some attention to the problems of constructing a free press in Germany, Italy, Japan, and less developed areas. (3 cred.; jr., sr., grad.; prereq. 15 cred. in the social sciences with a Senior College course in international relations or comparative government recommended) Nixon
- 126s. **Communications in Authoritarian Society.** Traditional relationships between government and communications media in authoritarian nations. Rise of the totalitarian regimes; their impact upon the structure and operations of mass communication media. Case studies of communications in selected Communist, Fascist, and neo-Fascist states. (3 cred.; jr., sr., grad.; prereq. 15 cred. in the social sciences with a Senior College course in international relations or comparative government recommended; offered 1956-57 and thereafter when announced)
- 130f-131w. **Communication Agencies, Propaganda, and Public Opinion.** Theories of public opinion formation and propaganda; propaganda techniques of governments, political parties, pressure groups, etc. Democratic and authoritarian methods of opinion control. Ideological campaigns and psychological warfare. (6 cred.; jr., sr., grad.; prereq. 15 cred. in social sciences for 130, 130 for 131) Casey
- 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 cred.; sr., grad.; prereq. 51 and 15 cred. in the social sciences for 140, 140 for 141) Gerald, Emery, Nixon
- 142s. **Current Communications Problems.** The individual project method is used for analyses of communications problems of current importance in the light of their social, economic, and technological environment. The course is conducted in small seminar-like groups. (3 cred.; sr., grad.; prereq. 51) Nixon, Emery, Gerald
- 150s. **Public Relations in Community Services.** Principles and practices of public relations and educational campaigns in public health, social work, and other community service fields. (2 cred.; sr., grad.; prereq. consent of major adviser and #; not open to those who have had 78, nor ordinarily to journalism majors) Emery
- 151w,s. **Newspaper Advertising.** The role of newspaper advertising; the newspaper's relations with the retail advertiser, national representative, and advertising agency; organization of newspaper advertising departments; rate structures, services. Retail advertising. (3 cred.; jr., sr., grad.; prereq. 51, 55, and 86 or #, or 41, 55 and #) Perry
- 152f,s. **Advanced Newspaper Advertising.** Policy problems of advertising departments; sales programs and newspaper sales promotion; advertising salesmanship. (3 cred.; jr., sr., grad.; prereq. 51, 151 and #)
- 177s. **Freedom of the Press and Communications Law.** The Anglo-American concept of freedom of speech and press, its development under the Constitution of the United States, and the present areas of tension. Statutes and administrative regulations affecting freedom of information, publishing, and broadcasting. (3 cred.; jr., sr., grad.; prereq. 51 or #) Gerald

### *For Graduate Students Only*

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

## LATIN

See Classics, page 53.

## 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 and special library work, Associate Professor Berninghausen; 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 announcement of the Graduate School.

A special 23-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.

The College of Science, Literature, and the Arts offers undergraduate library science courses prerequisite to admission to the graduate program.

With the approval of a Library School faculty adviser, SLA students may register for these prerequisite courses as electives.

### Junior College Courses

**1f,w,s. Use of Books and Libraries.** Study of reference material for personal study and research. (3 cred.; fr. and soph. only except by  $\Delta$ ; no prereq.) Moen, Clapp, Vander-Bloom

### Senior College Courses

- 50f. Libraries and Society.** Social trends affecting libraries and their functions in modern society; librarianship as a profession. (3 cred.; no prereq.) Shove
- 53w. School Library Management.** Primarily for students without previous experience in a school library. (3 cred.; for College of Education students only; no prereq.)
- 55f. Library Administration.** Introduction to principles of library administration, organization, and management. (3 cred.; no prereq.) Berninghausen
- 61f,w,s. Library Practice.** (3 cred.; prereq. 18 cred. in library science) Giefer
- 62f. Reference I.** General reference tools and other sources of information in theory and practice of reference work. (3 cred.; no prereq.)
- 70f. Reading Guidance.** The library user, his personality and background; the matching of book and user. (3 cred.; no prereq.)
- 74w. Library Materials in the Classroom.** (2 cred.; for College of Education students only; no prereq.) Berrisford
- 83f. Cataloguing and Classification.** (3 cred.; no prereq.)
- 131s. Public Library Extension and Development.** Larger units of service, laws, finance, promotion; the state library agency. (3 cred.; prereq. 55) Wezeman
- 153f. History of Books and Printing.** The alphabet; manuscript books; the printed book from earliest times to the present. (3 cred.; no prereq.) Shove
- 154w. The Public Library.** Theories and principles of administration. (3 cred.; prereq. 55) Wezeman
- 155s. The College and University Library.** Educational functions of the college and university library and the administrative organization to perform these functions. (3 cred.; prereq. 55) Shove
- 156w. Special Libraries.** Procedures of newspaper, insurance, medical, technical, and other special libraries. (3 cred.; prereq. 55)
- 157w. School Library Problems.** Service in large units, relationships with public libraries, planning library quarters, budgets, training for school librarianship. (3 cred.; prereq. 55)
- 163w. Reference II.** Reference material in subject fields, subject bibliography. (3 cred.; prereq. 62)
- 164s. Reference III.** Specialized reference tools; government publications; administration of the reference department; special problems in large libraries. (3 cred.; prereq. 62, 163) Russell, Wezeman
- 165w. Advanced Bibliography.** Specialized trade and national bibliographies, domestic and foreign. (3 cred.; no prereq.) Shove
- 171f,w. Reading Guidance for Children.** (3 cred.; prereq. 70)
- 172s. Reading Guidance for Adolescents.** (3 cred.; prereq. 70)
- 173s. Reading Guidance for Adults.** (3 cred.; prereq. 70) Wezeman
- 175s. Publishers and Publishing.** A study of the book trade including methods of distribution. (3 cred.; no prereq.) Shove
- 176s. Communication Media and the Library.** (3 cred.; no prereq.) Berninghausen
- 184w. Cataloguing and Classification II.** Special problems of cataloguing and classification, including study of the Library of Congress Classification. (3 cred.; prereq. 83) Simon-ton
- 185f,w,s. Special Problems.** Individual study on library problems for advanced students in library science. (1-3 cred.; prereq. consent of director of Library School) Shove, Fulmer, Berninghausen, Wezeman

## LINGUISTICS AND COMPARATIVE PHILOLOGY

Committee Chairman—Donald C. Swanson, acting chairman

Major Adviser in the College of Science, Literature, and the Arts—Assistant Professor Swanson.



**Major Sequence in the College of Science, Literature, and the Arts—**  
 Clas. 106-107, Anth. 181 or Clas. 108, 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 cred.; jr., sr.; prereq. one year of foreign language study on college level or equiv. or §) Swanson  
 Clas.106f-107w. **Introduction to the Study of Language.** (3 cred. per qtr.; jr., sr., grad.; prereq. 56 or §) Swanson  
 Clas.108s. **Cultural Aspects of Language.** (3 cred.; jr., sr., grad.; prereq. any two courses numbered above 50 in a foreign language) Swanson  
 Ling.151f-152w-153s. **Honors Course.** (1-3 cred. per qtr.) Swanson and staff  
 Anth.181s. **Descriptive Linguistics.** (4 cred.; jr., sr., grad.; prereq. §; 3 hrs. lect., 2 hrs. lab. per week) Spencer

### For Graduate Students Only

- Ling.201-202-203. **Directed Readings**

### Celtic

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

### Classics

- Lat.133s. **Vulgar Latin.** (3 cred.; jr., sr., grad.; open to advanced students of Latin or a Romance language with §) Swanson

### English

- Engl.100f. **Old English (Anglo Saxon).** (4 cred.; jr., sr., grad.; prereq. 5 cred. in literature in English department, exclusive of classics and A-B-C) Allen  
 Engl.102w. **Readings in Old English Prose and Verse.** (3 cred.; jr., sr., grad.; prereq. 100) Brown  
 Engl.103s. **Beowulf.** (3 cred.; jr., sr., grad.; prereq. 100) Brown  
 Engl.147f-148w-149s. **The Literature of England in the Middle Ages Exclusive of Chaucer.** (9 cred.; jr., sr., grad.; prereq. 75 and 100 or ¶100; offered 1956-57 and alternate years) Clark  
 Engl.165f.w. **Introduction to Modern English.** (3 cred.; jr., sr., grad.; prereq. 5 cred. in literature in English department, exclusive of classics and A-B-C) Allen  
 Engl.166s. **Historical Backgrounds of Modern English.** (3 cred.; jr., sr., grad.; prereq. 5 cred. in literature in English department, exclusive of classics and A-B-C) Allen  
 Engl.174s. **American English.** (3 cred.; jr., sr., grad.; prereq. 6 cred. in English literature, including language above A-B-C, or §) Allen

### French

- Fren.171f-172w-173s.† **History of the French Language.** (9 cred.; jr., sr., grad.; prereq. one year of Latin, or §) 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 cred.; prereq. 94 and 11 cred. above 69; offered when feasible) Downs

- Ger.113-114.‡ Gothic. (6 cred.; prereq. 80 and 11 cred. above 69 or equiv.; offered 1956-57 and when feasible thereafter) Downs
- Ger.118f-119w-120s.‡ Old High German. (9 cred.; prereq. 94 and 11 cred. above 69 or equiv.; offered 1957-58 and when feasible) Downs
- Ger.125. History of the German Language. (3 cred.; prereq. 80 and 11 cred. above 69 or equiv.; offered when feasible) Downs
- Ger.126. Historical German Grammar. (3 cred.; prereq. 110-111-112 or 113-114-115; offered when feasible) Downs
- Ger.194s. Old Saxon: The Heliand. (3 cred.; offered 1956-57 and when feasible) Downs

### Sanskrit

- Skt.123f-129w-130s. Readings in Sanskrit. (9 cred.; sr. with ‡, grad.; prereq. at least two Senior College courses in early European languages) Swanson
- Skt.131-132. Introduction to Sanskrit. (6 cred.; sr. with ‡, grad.; prereq. at least two Senior College 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 cred.; prereq. knowledge of one Germanic language other than modern English; offered 1955-56 and when feasible) Downs

### Semitic

- Sem.121f-122w-123s. Introduction to Arabic Grammar and Reading. (9 cred.; jr., sr., grad.; prereq. two courses above 50 in any foreign language) Irving
- Sem.124f-125w-126s. Introduction to Biblical Hebrew. (9 cred.; jr., sr., grad.; no prereq. but this course cannot be used to satisfy language requirements; offered when feasible)

### Slavic

- Slav.113f-114w-115s. Old Church Slavie (Old Bulgarian). An introduction to Slavic linguistics. (9 cred.; prereq. Skt. 131-132 or equiv.) Magner
- Russ.125f-126w-127s. History of the Russian Language. (9 cred.; jr., sr., grad.; prereq. Russ. 51-52-53 or equiv.) Magner

### Spanish

- Span.171f-172w-173s.† History of the Spanish Language. (3 cred.; jr., sr.; prereq. 20 and one year of Latin or ‡; offered when feasible)

### For Graduate Students Only

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

### MARRIAGE

See General Studies, page 72.

### MATHEMATICS

Department Chairman—Raymond W. Brink

Major Advisers in the College of Science, Literature, and the Arts—Professors Brink, Hart, Cameron; Associate Professors Gibbens, Kalisch, Olmsted; Assistant Professor Loud.

Major Sequence in the College of Science, Literature, and the Arts—Math. 50, 51 (or 50a, 51a), 52, 62; and either 15 additional credits in Senior College courses in mathematics, other than 70, or 6 additional credits in

Senior College courses in mathematics, other than 70, together with 10 credits of Phys. 101-103-105.

(Prerequisites: Math. 6, 7, 30 or 15, 16, 30)

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

All students majoring in mathematics who have not studied a foreign language are urged to study French or German. 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 Adviser in the College of Education**—Professor Hart.

**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. 50, 51 (or 50a, 51a), 60, and 5 additional credits in courses numbered above 51.

Minor recommendation: entrance credit in solid geometry or its equivalent; Math. 50 (or 50a), 60.

Math. 20 is strongly recommended as an elective, to be taken preferably in the freshman or sophomore year, in connection with either a major or minor recommendation.

**Placement Tests**—In each of Math. 1, 6, 7, 8, and 15 a placement test will be given at some time within the first two weeks of the quarter. Any student who fails in the test in Math. 1 may be required to drop the course and to review elementary mathematics before taking college mathematics. Any student who offers high school higher algebra as a substitute for Math. 1 and who fails the placement test given in Math. 6, 8, or 15 will be required to take Math. 1 before taking more advanced mathematics. A student who has had a substantial course in higher algebra in high school should be able to pass the placement test in Math. 6, 8, or 15. Any student who offers high school trigonometry as a substitute for Math. 6 and who fails the placement test on analytical trigonometry given in 7 will be required to take 6 before taking 7.

Prerequisites for any course in mathematics may be waived if a petition for registration in the course is approved by the department chairman.

### Junior College Courses

**1f,w,s.\*\* Higher Algebra.** Essentially the equivalent of the second year of high school algebra; included are: factoring, fractions, linear equations and systems in one or more unknowns, graphing, exponents, radicals, quadratic equations. (5 cred.; prereq. one year of elementary algebra††; open for credit to any student offering not more than one-half year of high school higher algebra for entrance and to other students by  $\Delta$ ) In choosing a section of the above course the student should be guided by the schedule of hours for its winter quarter continuation. The fall-winter sequences are: At I hour, 1f-8w, and 1f-15w; at III hour, 1f-6w; at V hour, 1f-15w; at VI hour, 1f-6w (See fall quarter *Class Schedule*)

**6f,w,s.†† Trigonometry.** Includes: definitions and properties of trigonometric and inverse trigonometric functions, logarithms, solution of triangles with applications, radian measure, functions of two angles, double angles, etc., identities, trigonometric equations. (5 cred.; prereq. plane geometry and either Math. 1 or high school higher algebra††; open for credit even to students offering high school trigonometry for entrance)

\*\* Prebusiness students who elect mathematics to meet the requirement of 10 credits in mathematics or laboratory science should take 1 and 8 if they have not had high school higher algebra, and 8 and 20 if they have had high school higher algebra.

†† Read the announcement about placement tests which precedes the heading, Junior College Courses.

- 7f,w,s.††§§ College Algebra.** The standard course emphasizing logical aspects. Includes: systems of quadratic equations, ratio, proportion, variation, progressions, permutations, combinations, probability, binomial theorem, mathematical induction, inequalities, complex numbers, theory of equations, determinants, and applications. (5 cred.; prereq. 6, or high school trigonometry if approved by the department chairman following the placement test††)
- 8f,w,s.\*\*††§§ Commerce Algebra.** College algebra including logarithms. College algebra for business students. Differs from 7 in its lower prerequisite and in including logarithms and other computational topics and in omitting determinants and certain other topics of logical interest. (5 cred.; primarily for prebusiness students\*\* but open also to others; prereq. 1, or high school higher algebra††)
- 15f-16w.††§§ Elementary Mathematical Analysis.** A course for premedical and other students who desire a survey of college mathematics including trigonometry, algebra, and calculus, with emphasis on fundamental ideas rather than on technical preparation for more advanced courses in mathematics. (10 cred.; prereq. plane geometry and either Math. 1 or high school higher algebra††)
- 15w-16s.††§§ Elementary Mathematical Analysis.** (See 15f-16w)
- 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 cred.; prereq. 8, or 6 and 7, or 15 and 16)
- 21s. Introduction to the Mathematics of Life Insurance.** Probability, mortality tables; actuarial notation and computation of net premiums for pure endowments, various types of contingent annuities and life insurance policies; policy reserves. (3 cred.; prereq. 20; offered when feasible)
- 30f,w,s. Analytic Geometry.** A study of geometry by means of algebra. Topics included: Cartesian and polar co-ordinates, straight lines, circles, conic sections, loci of given equations, equations of given loci, solid analytic geometry. (5 cred.; prereq. 6 and 7 or 6 and 8, or 15 and 16)
- 49. Analytic Geometry and Calculus I.** This course and 50a and 51a constitute a year's sequence including in more integrated form essentially the same topics as 30, 50, and 51. (No student may receive credit in both 49, 50a, 51a and 30, 50, 51 except by permission of department; students who have taken 49 and wish to take more mathematics should continue with 50a-51a; as prerequisites for other courses in mathematics, 49-50a-51a may be substituted for 30, 50, 51) (5 cred.; prereq. 6 and 7, or 6 and 8, or 15 and 16; offered when feasible)
- G.E.70f,w,s. The Slide Rule.** (1 cred.; prereq. 6 or 8, or 15 and 16; see G.E. 70 in the *Bulletin of the Institute of Technology*)

### Senior College Courses

Math. 50, 51 (or 50a, 51a), 52, 62, 107, 108 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 50f,w,s. Calculus I: Differential Calculus.** Included: derivatives and differentials of elementary functions; curve tracing; definitions of velocity, acceleration, curvature, etc.; maxima and minima; related rates; mean value theorems; indeterminate forms; infinite series, expansions of functions. (5 cred.; jr., sr.; prereq. 30)
- 50a. Analytic Geometry and Calculus II.** (See 49) (5 cred.; jr., sr.; prereq. 49; offered when feasible)
- 51f,w,s. Calculus II: Integral Calculus.** Includes: Formal integrations; geometrical and physical meaning of constants of integration; definite integrals; fundamental theorem

\*\* Prebusiness students who elect mathematics to meet the requirement of 10 credits in mathematics or laboratory science should take 1 and 8 if they have not had high school higher algebra, and 8 and 20 if they have had high school higher algebra.

†† Read the announcement about placement tests which precedes the heading, Junior College Courses.

§§ No student may receive credit for more than one of the three courses 7, 8, and 15. If a student has taken 6 and wants more mathematics, he should take 7; if he has taken 15-16 and wants more mathematics, he should consult the chairman of the department, Room 119 Folwell Hall.

- of integral calculus; approximate integration; geometrical and physical applications; improper integrals; multiple integrals. (5 cred.; jr., sr.; prereq. 50)
- 51a. **Analytic Geometry and Calculus III.** (See 49) (5 cred.; jr., sr.; prereq. 50a; offered when feasible)
- 52f,w,s. **Intermediate Calculus.** Topics in calculus not adequately treated in 50 and 51. Includes an increased emphasis on theoretical aspects, an introduction to ordinary differential equations, and to partial differentiation and multiple integration. (5 cred.; jr., sr.; prereq. 51)
- 60f,s. **Synthetic Metric Geometry.** A course in 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 cred.; jr., sr.; prereq. 30)
- 62w. **Introduction to the Theory of Equations.** A study of complex numbers, solution of algebraic equations, properties of polynomials; isolation of the real zeros of a real polynomial; determinants and linear equations. (3 cred.; jr., sr.; prereq. 50 or registration in 50 and §) Carlson
70. **History of Elementary Mathematics.** (3 cred.; jr., sr.; prereq. 30; offered when feasible)
- 102-103. **Advanced Analytical Geometry.** (6 cred.; jr., sr., grad.; prereq. 51; offered when feasible)
- 106f. **Differential Equations.** A problem course, methods for solving ordinary differential equations of various types with the necessary theory for developing these methods. (3 cred.; jr., sr., grad.; prereq. 51) Gibbens
- 107w-108s. **Advanced Calculus.** A study in detail of some topics in calculus; partial differentiation; multiple integrals and change of variable; basic ideas and applications of vectors. Line and surface integrals; Stokes' and Green's theorems; exact differentials; Beta and Gamma functions. (6 cred.; jr., sr., grad.; prereq. 52) Hatfield
- 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; Galois imaginaries; finite algebras; Pythagorean and Heronian triangles; Diophantine equations. (3 cred.; jr., sr., grad.; prereq. 51) Slye
- 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 to 6 cred.; jr., sr., grad.; prereq. 51)
111. **The Development of the Number System.** A 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. (3 cred.; jr., sr., grad.; prereq. 51; offered when feasible)
- 112A-112Bw-112C. **Mathematical Logic.** An introduction to the techniques and problems of formal systems of logic. The predicate calculus and various formal systems of number theory are developed. The theory of recursive functions is studied and applied to the completeness and decision problems of formal systems. (3 cred. per qtr.; jr., sr., grad.; prereq. 52 or Phil. 154 or Phil. 247 or §; 112C offered when feasible) Orey
- 115-116. **Differential Geometry.** (6 cred.; jr., sr., grad.; prereq. 136; offered when feasible)
118. **Vector Analysis.** The algebra of vectors; scalar product; vector product; triple products. Elements of the differential and integral calculus of vectors; space curves; gradient; divergence; curl; Stokes' and the divergence theorems. (3 cred.; jr., sr., grad.; prereq. 51; 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 cred.; jr., sr., grad.; prereq. 119 or 131; 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 cred.; jr., sr., grad.; prereq. 51) Hart
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 cred.; jr., sr., grad.; prereq. 30; offered when feasible)
- 125Aw-125Bs. **Introduction to Theory of Functions.** A careful examination of the notions of limit, sequence, series, function, derivative and integral, designed to give the students a more mature understanding of these concepts. The technique of develop-

- ing accurate proofs, and the roles of both intuition and logic in connection with these techniques. (6 cred.; jr., sr., grad.; prereq. 51) Cameron
- 127f-128w-129s. Applied Mathematics for the Social and Biological Sciences.** A course designed to give students of these fields a mastery of the mathematical tools and concepts other than statistics that are most useful to them. Examples and problems will be taken from the fields concerned. In addition to other fundamental material, topics include matrices, functions of several variables, probability, difference equations, two-person games. (9 cred.; jr., sr., grad.; prereq. 15-16 or 51) Nering
- 131w. Advanced Algebraic Theory.** Linear dependence and independence of vectors of  $n$ -tuples with real or complex entries; dimension; matrices; systems of linear equations; special (orthogonal, symmetric, unitary, hermitian, normal) matrices; bilinear, quadratic, hermitian forms; characteristic values and vectors; diagonalization of symmetric, hermitian, normal matrices and quadratic and hermitian forms. (3 cred.; jr., sr., grad.; prereq. 51)
- 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. (3 cred.; jr., sr., grad.; prereq. 50 or 150) Slye
- 137. Advanced Theory of Equations.** Symmetric functions, resultants, indeterminate equations, reciprocal equations and the construction of regular polygons. (3 cred.; jr., sr., grad.; prereq. 51, 62; offered when feasible)
- 140. Projective Geometry.** A study of geometric properties invariant under projective transformations; theorems of Desargues, Pascal, and Brianchon, and applications. The methods used in some quarters are mainly synthetic and in other quarters they are mainly analytic. (Offered when feasible)
- 142. Theory of Invariants.** (3 cred.; jr., sr., grad.; prereq. 131 or 137; offered when feasible)
- 144f-145w-146s. Fourier Series and Orthogonal Functions.** The general theory of orthogonal 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 cred.; jr., sr., grad.; prereq. 51; offered 1956-57 and alternate years)
- 157f-158w-159s. Methods of Applied Mathematics.** An integrated study of analytic tools commonly used in applications of mathematics, with many problems and an emphasis on developing the student's technique. Material will include topics from complex variables, matrices, ordinary and partial differential equations, calculus of variations, asymptotic expansions, etc. (9 cred.; jr., sr., grad.; prereq. intermediate calculus or  $\Phi$ ) Olmsted
- 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. (3 cred. per qtr.; jr., sr., grad.; prereq. 131)
- 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 equations of second order of interest in physics. Normal form, adjoint equations, series solutions, equations of Fuchsian type, hypergeometric, Bessel and Legendre equations. (3 cred.; jr., sr., grad.; prereq. 106; offered when feasible)
- 187. Non-Euclidean Geometry.** The foundation of Euclidean geometry. Euclid's fifth postulate and its implications. Hyperbolic plane geometry and trigonometry. Elliptic plane geometry and trigonometry. The consistency of the non-Euclidean geometry. The elements of inversion. (3 cred.; jr., sr., grad.; prereq. 51; offered when feasible)
- 199Aw-199Bs-199C. Problem Course.** The course is intended to develop problem-solving techniques in many areas of mathematics. Problems are proposed at each meeting to be discussed at subsequent meetings. Topics considered range from elementary to advanced levels. The course will be adapted to students of varied backgrounds. (3 cred. per qtr.; jr., sr., grad.; prereq. intermediate calculus and 9 additional cred. in mathematics)

### *For Graduate Students Only*

- 200. Galois Theory**  
**201. Valuation Theory**  
**202. Linear Algebras**  
**203-204-205. Advanced Topics in Mathematical Statistics**

- 206-207-208. Theory of Functions  
 209. Advanced Modern Algebra  
 212-213. Point Set Topology  
 214A-215B. Topological Algebra  
 215-216. Topological Groups  
 220. Algebraic Topology  
 221. Calculus of Variations  
 231A-231B-231C. Seminar in Algebraic Function Theory  
 239A-239B-239C. The Fourier Transform  
 245. Introduction to Lebesgue Integrals  
 246-247. Integration in Function Space  
 252-253. Linear Spaces  
 258-259-260. Theory of Probability  
 271-272-273. Theory of Linear Differential and Integral Equations  
 284-285-286. Stochastic Processes  
 291-292-293. Banach Spaces

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 chairman of the Department of Mathematics.

## MILITARY SCIENCE AND TACTICS

Department Chairman—Colonel Robert T. Connor, Artillery

The programs in military science and tactics leading to commissions in the U. S. Army Reserve are available for students in the College of Science, Literature, and the Arts as well as for those in other colleges of the University. For information concerning the requirements and the opportunities in these programs, consult the *Bulletin of Army, Navy, Air ROTC* of the University of Minnesota or call at the Military Science and Tactics office, 108 Armory.

The College of Science, Literature, and the Arts will accept credits from basic and advanced courses in military science and tactics to fulfill a minor toward the B.A. degree.

### Basic Courses

- 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 cred. per qtr.; no prereq.)  
 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 cred. per qtr.; prereq. 1-2-3 or 6 months of honorable military service\*\*)

### Advanced Courses

- 151f-152w-153s. **First Year Advanced Course ROTC.** Small unit tactics and communications; organization, function, and mission of the Arms and Services; military teaching methods; leadership; school of the soldier and exercise of command. (3 cred. per qtr.; prereq. 4-5-6 or one year of honorable military service\*\*)  
 154f-155w-156s. **Second Year Advanced Course ROTC.** Logistics; operations; military administration and personnel management; service orientation; school of the soldier and exercise of command. (3 cred. per qtr.; prereq. 151-152-153)

\*\* Students who have completed six 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 one 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.

## MUSIC

**Department Chairman**—Paul M. Oberg.

**Major Advisers in the College of Science, Literature, and the Arts**—Professors Aliferis, Oberg; Associate Professor Schuessler; Assistant Professors Downes, Malcolm, Rymer.

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.

Students majoring in music must fulfill the requirements of both the Junior and Senior Colleges as stated on pages 8 and 13 of this bulletin. The department recommends that students follow Plan I, especially if they contemplate working for an advanced degree. 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.

**Requirements for music majors**—

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

Students electing Senior College sequences A and B are required to play or sing a *Senior College Qualifying Examination* before enrolling in Senior College.

**Junior College**

**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 to 4 credits per quarter

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

**Senior College**

During junior and senior years a student must complete an academic minor (see page 11) and one of the following major sequences:

**A. Applied Music—Instrumental**—Total of 36 credits in applied music (Junior and Senior College credit), including a minimum of 6 credits in Mus. 11, Piano, or Mus. 11C, Class Piano (functional knowledge of the instrument or exemption by demonstrated ability). Senior recital required.

Mus. 76, Form and Analysis, 3 credits

Mus. 97-98-99, Counterpoint, 6 credits

15 additional Senior College credits in music

**B. Applied Music—Vocal**—Total of 36 credits in applied music (Junior and Senior College credit), including a minimum of 12 credits in Mus. 11, Piano, or Mus. 11C, Class Piano, or demonstrated ability to play simple accompaniments. Senior recital required.

Mus. 63-64-65, Vocal Literature, 6 credits

Mus. 76, Form and Analysis, 3 credits

15 additional Senior College credits in music



**C. History and Literature**—Total of 24 credits in applied music (Junior and Senior College credit), including a minimum of 12 credits in Mus. 11, Piano, or Mus. 11C, Class Piano (functional knowledge of the instrument or exemption by demonstrated ability).

Mus. 76, Form and Analysis, 3 credits

Mus. 97-98-99, Counterpoint, 6 credits

Mus. 121-122-123, Advanced Harmony, 6 credits

A minimum of 21 credits from: Mus. 104-105-106, 108, 124-125-126, 130, 131, 132, 144-145-146, 151-152-153, 154-155-156, 164-165-166

**D. Theory and/or Composition**—Total of 24 credits in applied music (Junior and Senior College credit), including a minimum of 12 credits in Mus. 11, Piano, or Mus. 11C, Class Piano (functional knowledge of the instrument or exemption by demonstrated ability).

Mus. 76, Form and Analysis, 3 credits

Mus. 97-98-99, Counterpoint, 6 credits

Mus. 121-122-123, Advanced Harmony, 6 credits

Mus. 141-142-143, Orchestration, 6 credits

Theory major: 15 elective Senior College credits in music

Composition major: Mus. 127-128-129, Composition, 6 credits, plus 9 elective Senior College credits in music

**E. Normal Piano**—Total of 30 credits in Mus. 11, Piano (Junior and Senior College credit). A public performance required.

Mus. 70-71-72, Normal Piano, 6 credits

Mus. 76, Form and Analysis, 3 credits

Mus. 80-81-82, Advanced Normal Piano, 6 credits

Mus. 97-98-99, Counterpoint, 6 credits

9 additional Senior College credits in music

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

For a special curriculum in music education see the *Bulletin of the College of Education*. For courses in music education which are open to students in the College of Science, Literature, and the Arts, see page 113.

### Music Minors

A departmental minor consists of 15 Senior College credits in music worked out in consultation with the chairman of the department.

### Junior College Courses

**1f,w,s. Fundamentals of Music.** Knowledge of the piano keyboard, major and minor scales, triads, elementary ear training, rhythmic dictation. (2 cred.; for nonmusic majors; no prereq.) Edes

**1Tf-2Tw-3Ts. Music Theory.** Development of musicianship through both auditory and visual perception; participation in ear training, sight singing, keyboard drills. (9 cred.; primarily for music majors and minors) Fetter, George

**1Tw-2Ts. Music Theory.** (1st two qtrs. of 1T-2T-3T. See 1Tf-2Tw-3Ts) George

**3Tf. Music Theory.** (3rd qtr. of 1T-2T-3T. See 1Tf-2Tw-3Ts) George

**4Tf-5Tw-6Ts. Music Theory.** (Continuation of 1T-2T-3T) Greater emphasis on harmonic analysis, part writing and clef reading. (12 cred.; prereq. 3T) Malcolm

**4Tw-5Ts. Music Theory.** (1st two qtrs. of 4T-5T-6T. See 4Tf-5Tw-6Ts) Malcolm

**6Tf. Music Theory.** (3rd qtr. of 4T-5T-6T. See 4Tf-5Tw-6Ts) 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. This with Art 1, Phil. 4 and Spch. 8 forms a sequence in Fine Arts. (4 cred.; no prereq.) Riedel

**28f-29w. Minneapolis Symphony Demonstration Rehearsals.** A practical guide to intelligent listening and better understanding of symphonic music through specially arranged rehearsals of the Minneapolis Symphony Orchestra. (2 cred.; fr., soph., jr., sr.; no prereq.)

- 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 cred.; no prereq.) Ivory
- 34f-35w-36s. **History of Music.** Musical styles and forms from the 9th to 20th centuries. (6 cred.; prereq. 3T) Downes
- 40f-41w-42s.‡‡ **Orchestra.** Performance of orchestral literature; three concerts annually; players from all colleges are invited to participate. (3 cred.; 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 cred. upon completion of 3 qtrs. participation; prereq. §) Aliferis
- 43Af-44Aw-45As.‡ **Church Music Choir.** Attention will be paid to church music in hopes of appearing at Vesper services in Twin Cities churches. (3 cred.; prereq. §)
- 43Sf-44Sw-45Ss.‡‡‡ **St. Paul Campus Chorus.** This group prepares for at least one public appearance each quarter as well as for special events connected with St. Paul Campus. (3 cred.; prereq. §)
- 46f-47w-48s.‡‡‡ **Concert Band.** Rehearsals and appearances cover standard band literature; several appearances each quarter. (3 cred.; open to men and women of all colleges; prereq. §) Prescott

### Courses in Applied Music

A student may not register for a course in applied music for credit¶¶ until he has passed the required entrance examination.

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

### APPLIED MUSIC ENTRANCE REQUIREMENTS

#### 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 nineteenth- or twentieth-century composer.

**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.

#### 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.

Courses numbered from 11 through 27 carry either 2 credits (minimum of ten private half-hour lessons) or 4 credits (minimum of ten pri-

\*\* Students may receive credit for two years or six quarters of work.

‡‡ Students majoring in music may earn 12 credits in orchestra.

¶¶ Students may not take special examinations in applied music for work done elsewhere while in residence at the University.

vate hour lessons) per quarter. The first 12 credits in one of these courses count as Junior College; additional credits in the same course count as Senior College. A maximum of 36 credits in applied music may count toward a baccalaureate degree.

- Af, w, s. Piano.** (No cred.; for students without entrance requirements in piano; no prereq.; private lessons) Rymer, Weiser
- Df, w, s. Voice.** (No cred.; for students without entrance requirements in voice; no prereq.; private lessons) Schuessler, Stern
- 11f, w, s. Piano: Individual Lessons.** (2-4 cred. per qtr.) Rymer, Weiser
- 11Cf, w, s. Piano: Class Lessons.**†† (2 cred. per qtr.)
- 12f, w, s. Voice: Individual Lessons.** (2-4 cred. per qtr.) Schuessler, Stern
- 12Cf, w, s. Voice: Class Lessons.**†† (2 cred. per qtr.)
- 13f, w, s. Violin.** (2-4 cred. per qtr.) Cullen, Druian
- 14f, w, s. Viola.** (2-4 cred. per qtr.) Druian
- 15f, w, s. Cello.** (2-4 cred. per qtr.) Jamieson
- 16f, w, s. Double Bass.** (2-4 cred. per qtr.) Fitch
- 17f, w, s. Flute.** (2-4 cred. per qtr.) Opava
- 18f, w, s. Oboe.** (2-4 cred. per qtr.) Angelucci
- 19f, w, s. Clarinet or Saxophone.** (2-4 cred. per qtr.) Fitch, Handlon
- 20f, w, s. Bassoon.** (2-4 cred. per qtr.) Santucci
- 21f, w, s. Trumpet.** (2-4 cred. per qtr.) Adelstein
- 22f, w, s. French Horn.** (2-4 cred. per qtr.) Linder
- 23f, w, s. Trombone.** (2-4 cred. per qtr.) Law
- 24f, w, s. Tuba.** (2-4 cred. per qtr.) Law
- 25f, w, s. Percussion.** (2-4 cred. per qtr.) Dahlgren
- 26f, w, s. Harp.** (2-4 cred. per qtr.) Miller
- 27f, w, s. Organ.** (2-4 cred. per qtr.) Berryman, Jennings

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*.

### Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 53f-54w-55s. Romantic Movement.** Musical literature of the 19th and 20th centuries with special reference to the influences of the Romantic philosophy; nationalism and 20th-century idioms. (6 cred.; jr., sr.; prereq. 35)
- 60f-61w-62s.‡ Instrumental Ensemble.** Performance of chamber music of great composers, sonatas, trios, quartets, quintets, etc. (6 cred.; jr., sr.; no prereq.) Oberg
- 63f-64w-65s.‡ Vocal Literature.** Designed to train students in small group singing (trios, quartets, etc.); repertoire from madrigals to opera and oratorio. (6 cred.; jr., sr.; prereq. 6 cred. in 12 or 12C)
- 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 cred.; prereq. ‡) Aliferis
- 70f-71w-72s. Normal Piano.** Piano pedagogy presenting approaches to teaching of rhythm, technique, all phases of interpretation, ear training, at various age and advancement levels including preschool, adult beginner, and regular grades I through V; appropriate teaching materials. (6 cred.; jr., sr.; prereq. two years of piano)
- 76f. Form and Analysis.** Key, harmonic, and form analyses of important contrapuntal and homophonic music, especially that of Bach and Beethoven. (3 cred.; jr., sr.; prereq. 6T) George

\*\* Students may receive credit for two years or six quarters of work.

†† 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.

- 77f-78w-79s. Elementary Composition.** Form through original work in melodic construction of phrases, periods, and sections, leading to melodic composition in smaller homophonic forms. (6 cred.; jr., sr.; prereq. proficiency examination and §) George
- 80f-81w-82s. Advanced Normal Piano.** Practical application of Mus. 70-71-72 through supervised individual and group teaching. (6 cred.; sr.; prereq. 70-71-72)
- 90f-91w-92s. Advanced Instrumental Ensemble.** Performance of more difficult chamber music looking toward public presentation. (6 cred.; sr.; prereq. 60-61-62) Oberg
- 93f-94w-95s. Improvisation.** To encourage the student toward greater flexibility in service-playing; continuation of application of harmonic and contrapuntal technique to extemporization at the organ. (3 cred.; jr., sr.; prereq. 6T and 12 cred. in Mus. 27, or §) Berryman
- 97f-98w-99s. Counterpoint.** Strict, 16th-century and Bach-style counterpoint in two and three parts; writing of canons, motets, inventions, fugues. (6 cred.; jr., sr.; prereq. 6T) Fetler
- 104f-105w-106s. American Music.** Music in America from early colonial times to the present through reading and record listening. American Indian music, European folk music transplanted to this continent, origin and development of jazz and contemporary American music included. (6 cred.; jr., sr., grad.; prereq. 36, or 9 cred. in American history or American studies) Riedel
- 108f. Heinrich Schütz: His Life and Works.** Schütz's life as influenced by political events in central Europe in the first half of the 17th century; Protestant hymn and psalm literature, its musical elaborations in Schütz's works; his importance in the fields of the madrigal and monody, sacred concerto and cantata, and passion; Schütz compared to Bach. (3 cred.; jr., sr., grad.; prereq. 6 cred. in music history or history of art or German literature or political history to 1700, or §; offered 1955-56 and alternate years) Riedel
- 121f-122w-123s. Advanced Harmony.** Chromatic harmony through analysis of representative 19th- and 20th-century works, with emphasis on theories of Hindemith, Schenker, Schönberg. (6 cred.; jr., sr., grad.; prereq. 6T) George
- 124f-125w-126s. History of Opera.** Opera as music and drama, including production, styles, cultural background, from late 16th century to present day with emphasis on modern repertoire, broadcast during the year by the Metropolitan Opera Company. (9 cred.; jr., sr., grad.; prereq. 9 cred. in history of music or history of art or history of theater or European history from 1600, or §; offered 1956-57 and alternate years) Downes
- 127f-128w-129s. Composition.** Original work in various forms. (6 cred.; jr., sr., grad.; prereq. 97-98-99 and 121-122-123) Fetler
- 130f. Symphonies of the Classical Era.** Rise of the classical symphony through Mozart and Haydn: the evolution of its form and style in relation to contemporary thought and art through the French revolution. (3 cred.; jr., sr., grad.; prereq. 6 cred. in music history or art history or political history since 1750 or English or German literature since 1750, or §; offered 1955-56 and alternate years) Downes
- 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 cred.; jr., sr., grad.; prereq. same as 130; offered 1955-56 and alternate years) Downes
- 132s. Symphonies of the Romantic Era.** Symphonies and symphonic poems of the romantic masters; selected works of Schubert, Schumann, Mendelssohn, Berlioz, Liszt, Brahms, Franck, Dvorak, Tschaiowsky, Bruckner, Richard Strauss; their relation to the dominant romantic trends of the 19th century. (3 cred.; jr., sr., grad.; prereq. same as 130; offered 1955-56 and alternate years) Downes
- 134f-135w-136s. History of Church Music.** Trends from the beginning to the present including the relationship of music to various theologies and liturgies. (6 cred.; jr., sr., grad.; prereq. 34-35-36 or §) Berryman
- 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 cred.; jr., sr., grad.; prereq. 6T) Jennings
- 141f-142w-143s. Orchestration.** Scoring instruments of the orchestra for ensemble combinations and full orchestra. (6 cred.; jr., sr., grad.; prereq. 6T) Aliferis
- 144f-145w-146s. Bach Through Beethoven.** Forms, techniques, styles of the late Baroque and Classical periods with particular attention to Bach, Handel, Gluck, Mozart, Haydn, Beethoven. (9 cred.; jr., sr., grad.; prereq. 36; offered 1956-57 and alternate years) Downes
- 151f-152w-153s. Introduction to Musicology.** Scope, aims, methods and resources of musical research, including bibliography and evaluation of primary and secondary sources. (9 cred.; jr., sr., grad.; prereq. 34-35-36; offered 1955-56 and alternate years) Downes

- 154f-155w-156s. **Music in the Middle Ages and Renaissance.** Monophonic music from the period of Gregorian chant to English madrigal school. (6 cred.; jr., sr., grad.; prereq. 34-35-36; offered 1955-56 and alternate years) Riedel
- 164f-165w-166s. **Music in the Baroque Era.** Music of early, middle, and late Baroque periods in Italy, The Netherlands, Germany, Austria, France, Spain. (6 cred.; jr., sr., grad.; prereq. 34-35-36; offered 1956-57 and alternate years) Riedel
- 175w. **Training in Advanced Musicianship.** Sight singing and dictation of melodic, harmonic, rhythmic, two- and three-part contrapuntal materials; score reading, both vocal and instrumental; training in tonal memory; aspects of conducting. (3 cred.; jr., sr., grad.; prereq. 6T) Aliferis
- 177s. **Analysis of Contemporary Music.** Twentieth-century styles and techniques including works of Bartok, Hindemith, Stravinsky, Schönberg. (3 cred.; jr., sr., grad.; prereq. 6T) Fetler
- 197f-198w-199s. **Advanced Counterpoint.** Bach's *Art of the Fugue*; practice in technique of writing three- and four-voice fugues with emphasis on special contrapuntal devices and problems; analysis of polyphonic examples of various periods. (6 cred.; jr., sr., grad.; prereq. 97-98-99) 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 students in the College of Science, Literature, and the Arts:

- Mu.Ed.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 cred.; jr., sr.; prereq. Mu.Ed 4-5-6 or §) Prescott
- Mu.Ed.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 cred.; jr.; prereq. Mus. 6T) Ivory

## NATURAL SCIENCE

See General Studies, page 74.

## NAVAL SCIENCE

**Department Chairman**—Captain Frank Bruner, U.S.N.

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 the College of Science, Literature, and the Arts 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.

The College of Science, Literature, and the Arts will accept credits from junior and senior courses in naval science to fulfill a minor toward the B.A. degree.

*Junior College Courses*

- 11f. **Naval Orientation.** Naval history and sea power. (3 cred.) Miller
- 12w. **Naval Orientation.** Functions of the Navy within the National Military Establishment. (3 cred.) Miller
- 13s. **Naval Orientation.** Duties and responsibilities of a naval officer. (3 cred.) Miller
- 21f. **Naval Weapons.** (3 cred.) Stello
- 22w. **Principles of Fire Control.** (3 cred.) Stello
- 23s. **Applied Naval Electronics.** (3 cred.) Stello

*Senior College Courses*

I. LINE OFFICER SEQUENCE

- 51f. **Naval Engineering.** (3 cred.) Ostlund
- 52w. **Naval Engineering, Introduction to Celestial Navigation.** (3 cred.) Ostlund
- 53s. **Celestial Navigation.** (3 cred.) Ostlund
- 61f. **Naval Operations, Administration, and Leadership.** (3 cred.) Fallon
- 62w. **Naval Operations, Administration, and Leadership.** (3 cred.) Fallon
- 63s. **Naval Operations, Administration, and Leadership.** (3 cred.) Fallon

II. SUPPLY CORPS OFFICER SEQUENCE\*\*

- 57f. **Introduction to Supply, Naval Finance, and Naval Accounting.** (3 cred.) McCulloh
- 58w. **Supply Ashore.** (3 cred.) McCulloh
- 59s. **Supply Afloat.** (3 cred.) McCulloh
- 67f. **Advanced Supply Afloat and Ship's Store.** (3 cred.) McCulloh
- 68w. **Naval Clothing and Small Stores Commissary.** (3 cred.) McCulloh

III. MARINE CORPS OFFICER SEQUENCE\*\*

- 54f. **Evolution of the Art of War I.** (3 cred.) Dillow
- 55w. **Evolution of the Art of War II.** (3 cred.) Dillow
- 56s. **Modern Basic Strategy and Tactics.** (3 cred.) Dillow
- 64f. **Amphibious Warfare I.** (3 cred.) Dillow
- 65w. **Amphibious Warfare II.** (3 cred.) Dillow

NORWEGIAN

See Scandinavian, page 141.

PERSONAL ORIENTATION

See General Studies, page 75.

PHILOSOPHY

Department Chairman—Wilfrid Sellars

**Major Advisers in the College of Science, Literature, and the Arts—**Professor Feigl; Associate Professors Brodbeck, Holmer, Hospers, Shaw

**Major Sequence in the College of Science, Literature, and the Arts—**Two courses from Phil. 50-51-52, one of which shall be 52, and others to make a total of at least 30 credits in Senior College 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.)

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\*\* Students in both the Supply Corps and Marine Corps sequence courses take Nav. 63 during the spring quarter as this is a required background course toward a commission in the Navy or Marine Corps.

Although there is no language requirement for the undergraduate major in philosophy, attention is called to the language requirements for the M.A. (one foreign language) and Ph.D. (two foreign languages, of which one 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, 2, 3, 1A, 2A, and 3A 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, or 3 and 3A. The sections of courses 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.

The attention of students majoring in other departments is called to the many courses in the following lists which bear directly or indirectly on their field of concentration.

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 155).

### *Junior College Courses*

- 2Af-1Aw-3As. Selected Problems of Logic, Selected Problems of Philosophy, Selected Problems of Ethics.** A special sequence of courses in philosophy especially for pre-legal freshmen but open to other students. Only by special permission of the instructor will prelegal students be admitted to 1Aw-3As without 2Af, or to 3As without 1Aw (3 cred. per qtr.; open to prelegal fr., some other fr.,\*\* and to soph., jr., sr.; no prereq.) Terrell
- 1f,w,s. Problems of Philosophy.** Introduction to the subject; the main fields of investigation; permanent problems; principal methods and schools of philosophy; historical and contemporary views. (5 cred.; open to some fr.\*\* and to soph., jr., sr.; no prereq.) Holmer, Hospers, Raab
- 2f,w,s. Logic.** A study of the difference between logical and fallacious reasoning; the functions and uses of language; rules of good definition and sound argument. (5 cred.; fr., soph., jr., sr.; no prereq.) Raab, Scriven, Shaw, Terrell
- 3f,w,s. Ethics.** An examination of the problems which arise when human beings attempt to think systematically about conduct and values (are there absolute standards?) the problem of free will, and a survey of historical views about the right and the good. (5 cred.; open to some fr.\*\* and to soph., jr., sr.; no prereq.) Hospers, Raab, Terrell
- 4s. Introduction to Philosophy of Art.** An elementary study of certain fundamental principles in the appreciation of the arts, with emphasis upon elements of form and expression which the various arts have in common. (This course forms part of a sequence with Art 1, Mus. 10, and Spch. 8. It may not be taken, however, unless Art 1 or Mu. 10 has been taken previously. For a more thorough study of the philosophy of art, see course 151-152) (4 cred.; prereq. Art 1 or Mus. 10; offered when feasible) Hospers
- 10w. Science and Religion.** An inquiry into the nature of science and religion as currently interpreted, with an attempt to find grounds of conflict and/or reconciliation. (2 cred.; soph., jr., sr.; no prereq.) Holmer
- 20. Social Philosophy.** A study of conflicting social philosophies of today; liberalism vs. authoritarianism; evaluation of various social, political, and economic institutions in terms of ethical ideals; other problems of social morality; social reconstruction; social utopias. (3 cred.; soph., jr., sr.; no prereq.; offered when feasible)
- 40s. Logic of Scientific Reasoning.** An introduction to the principles of scientific method; definition and classification; observation, measurement, experiment; elementary statistical concepts; hypotheses, theories, evidence, and confirmations; the nature and limits of the scientific enterprise. (3 cred.; fr., soph., jr., sr.; prereq. 2) Terrell

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\*\* Courses 1A, 2A, 3A are open in any quarter to a limited number of freshmen with the permission of their advisers. Course 2 is open to freshmen. Courses 1 and 3 are open to third-quarter freshmen.

## Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 50f-51w-52s.‡ **General History of Western Philosophy.** A survey of the major developments in Western philosophic thought from its beginnings among the Greeks to the middle of the 19th century. 50: Greek Philosophy; Socrates, Plato, Aristotle. 51: Stoicism, Epicureanism, and the Medieval Christian Synthesis. 52: Modern Philosophy from Descartes to Hegel; the impact of science; backgrounds of contemporary philosophical problems. (15 cred.; jr., sr.; no prereq.) Shaw
59. **Aesthetics.** The role of art in society; aesthetic values and standards; analyses of aesthetic expression, representation, form, matter, medium, etc.; style and other philosophical problems in the history of art. (See 151-152) (3 cred.; jr., sr.; no prereq.; offered when feasible)
73. **Philosophy of Law.** A survey of the classical philosophies of law from Plato through the 19th century. The nature and method of law, justice, and the judicial process in the light of contemporary thought. (3 cred.; soph., jr., sr.; prereq. 6 cred.; offered when feasible)
- 81f-82w-83s.‡ **Science and Civilization.** The course attempts to provide an adequate understanding of the evolution of the sciences and of the scientific point of view within the frame of the history of civilization; the meaning of the fundamental problems, methods, concepts, and assumptions of modern science; and the human and social implications of science in the contemporary world. (9 cred.; designed primarily as a sr. integrative course, but open to jrs. with §; no prereq.) Scriven
- 101f. **Principles of Philosophy.** Topics include knowledge, meaning, truth, reality, mind, and nature, human values, and action. (4 cred.; open only to srs. and grads. who have not had 1; no prereq.) Brodbeck
- 103w. **Eighteenth-Century Philosophy.** The philosophic background of the 18th Century Enlightenment; rationalist and empiricist currents; deism; optimism; the great chain of being. Readings from the works of Locke, Hume, Voltaire, Diderot, Pope, and others. (3 cred.; jr., sr., grad.; for history and literature students as well as philosophy majors; no prereq.) Shaw
- 104s. **Nineteenth-Century Thought.** Main currents in European philosophy; British and French philosophical psychology and social philosophy. German thought: Hegel, Marx, Schopenhauer, Nietzsche. (3 cred.; jr., sr., grad.; prereq. §) Brodbeck
- 105f. **Introduction to American Philosophy: Puritanism to Pragmatism.** A study of Puritanism, the Revolutionary period, transcendentalism, and evolutionism. (3 cred.; jr., sr., grad.; especially for students of American history and literature) Raab
- 106w. **American Philosophy from William James.** (Continuation of 105) (3 cred.; jr., sr., grad.; prereq. 105 or §) Raab
- 107w. **Philosophy in Modern Literature.** A survey of basic philosophical ideas in modern civilization as they are expressed in major works of literature. (3 cred.; jr., sr., grad.; prereq. major or minor in philosophy or literature, or §) Terrell
- 108w. **Political and Social Ethics.** A discussion of the ethical principles, theoretical and practical, at the basis of the political order. (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52, or §) Hospers
- 109f. **History of Ethics.** A study of the most significant contributions to the development of ethical theory in western philosophy, with emphasis on British writers of the modern period (17th-19th centuries). (3 cred.; jr., sr., grad.; prereq. Phil. 3, one quarter in the history of philosophy, or §) Terrell
- 112f-113w. **Plato.** Study of the philosophy of Plato based on analysis of major dialogues. (6 cred.; jr., sr., grad.; prereq. 50 or §) Sellars, Shaw
- 114s. **Aristotle.** Study of the philosophy of Aristotle based on analysis of selected passages from his major works. Particular attention given to his relationship to Plato. A survey will be made of Aristotelian tradition in Western philosophy. (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52, or §) Shaw
- 115s. **Epicureanism and Stoicism.** Greek philosophy after Aristotle. Modern elements in stoic logic. (3 cred.; jr., sr., grad.; prereq. 50; offered 1956-57 and alternate years) Shaw
- 116w. **Skepticism.** The development of Greek and Roman skepticism; the revival of skepticism in the French Renaissance and its influences in the 17th and 18th centuries. (3 cred.; jr., sr., grad.; prereq. 50; offered 1956-57 and alternate years) Shaw



- 118f. **Readings in Medieval Philosophy.** An analysis of selected works of the principal medieval philosophers. (3 cred.; jr., sr., grad.; prereq. 50, 51 or §; offered when feasible) Shaw
- 120f. **Rationalism.** The philosophies of Descartes, Spinoza, and Leibnitz. (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or §) Raab
- 121f. **Descartes.** An analysis of the philosophical works of Descartes. (2 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or §; offered when feasible)
- 122w. **Spinoza.** A study of the philosophy of Spinoza based primarily on the analysis of his *Ethics*. (2 cred.; jr., sr., grad.; prereq. 121 or §; offered when feasible)
- 123s. **Leibnitz.** A study of the philosophy of Leibnitz based on the analysis of selected philosophical writings. (2 cred.; jr., sr., grad.; prereq. 121 or §) Sellars
- 130f. **Locke and Berkeley.** An analysis of the principal epistemological works of Locke and Berkeley with emphasis upon their sources and influence. (3 cred.; jr., sr., grad.; prereq. 52 or §) Hospers
- 131s. **Hume.** A detailed study of Hume's *Treatise* and *Inquiry*. (3 cred.; jr., sr., grad.; prereq. 52 or §) Shaw
- 134s. **Kant.** A study of the philosophy of Kant based on an analysis of selected passages from his major works. (3 cred.; jr., sr., grad.; prereq. 52 or §; offered 1956-57 and alternate years) Sellars
- 137w. **Kierkegaard and Scandinavian Philosophy.** A study of the philosophical tradition in the Scandinavian countries, with special reference to Kierkegaard and his significance. (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52, or §) Holmer
- 140w. **Contemporary Philosophy.** A study of current systematic and critical philosophies, especially idealism, naturalism, realism, pragmatism, positivism, and existentialism, as represented by their principal exponents. (3 cred.; jr., sr., grad.; prereq. 52 or §) Raab
143. **Philosophy of John Dewey.** A survey of the ethical, social, educational, and logical contributions made to modern thought by this distinctively American thinker. (3 cred.; jr., sr., grad.; prereq. 52 or §; offered when feasible)
- 147f-148w-149s. **Readings in Recent Philosophy.** An intensive study of works by leading figures in recent philosophy (Russell, Whitehead, Moore, Collingwood, Wittgenstein). (9 cred.; jr., sr., grad.; prereq. 52 or §) Raab and staff
- 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 cred.; jr., sr., grad.; prereq. one course from 50-51-52, or §) Sellars, Hospers
- 151f-152w. **Principles of Aesthetics.** The nature of the aesthetic experience; standards of aesthetic evaluation; beauty in art and beauty in nature; the status of subject matter in the arts; the relation of form and content; the concepts of representation, expression, style, meaning, and truth in the arts; the use of symbols in art; the relation of the arts to knowledge, and to society; the relation of aesthetics to ethics. (6 cred.; jr., sr., grad.; prereq. §) Hospers
- 154f. **Elements of Symbolic Logic.** A systematic introduction to modern logic. The topics include the dimensions of language; calculus of propositions, classes, and relations; applications to foundations of mathematics. (4 cred.; jr., sr., grad.; prereq. 2 or §) Brodbeck
- 157s. **Metaphysics.** A study of some recent attempts to discover general principles characteristic of the universe. (4 cred.; jr., sr., grad.; prereq. one course from 50-51-52, or §) Terrell
- 158w. **Theory of Knowledge.** An analysis of the logical structure and experiential roots of knowledge. The topics include meaning, validity, truth, reason and experience, induction, criteria of objectivity, and reality. (4 cred.; jr., sr., grad.; prereq. 2 or §) Feigl, Sellars
- 160f. **Philosophy of Science.** An attempt to provide a clear understanding of the meaning, methods, and implications of modern science through the examination of basic concepts, presuppositions, and procedures. The topics include description, explanation, prediction, experimentation; space, time, number, matter, energy; causality, probability, statistics; organic life, evolution, mind. (4 cred.; jr., sr., grad.; prereq. 2 or §) Feigl
- 164f. **The Logic of the Social Sciences I.** A philosophical examination of the foundations of the 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 the social scientist in a democratic society. (3 cred.; jr., sr., grad.; prereq. 15 cred. in social science, psychology, education, history, or philosophy, or §) Brodbeck
- 165s. **The Logic of the Social Sciences II.** A closer and more specific study of the items introduced in the preceding course, with greater attention to the logical methods and problems peculiar to each of the specialized social sciences. (3 cred.; jr., sr., grad.; prereq. 164) Brodbeck
- 167f. **Philosophy of History.** A study of the idealistic, theological, and economic interpretations of history, with particular reference to the concepts of progress, continuity, pluralism, etc., and to the philosophical aspects of historical methods. (3 cred.; jr., sr., grad.; prereq. 6 cred. in philosophy or 10 cred. in history) Holmer
170. **Comparative Philosophy.** A survey of the principal Oriental philosophies, Hindu, Buddhist, Taoist, and Confucian, with special attention to comparisons and contrasts with Western systems. (3 cred.; jr., sr.; grad.; prereq. one course from 50-51-52, or §; offered when feasible)
- 180f. **History of Religions.** A survey of some phases of primitive religions and of the history, literature, and chief teachings of the more highly developed faiths. (3 cred.; jr., sr., grad.; prereq. 6 cred. in philosophy) Holmer
- 181w. **Psychology of Religion.** Current interpretations of religious experience and behavior, according to various psychologies. (3 cred.; jr., sr., grad.; prereq. 6 cred. in philosophy) Holmer
- 182s. **Philosophy of Religion.** Discussion of the ground and sanctions of religion, according to various philosophies. (3 cred.; jr., sr., grad.; prereq. 6 cred. in philosophy) Holmer
- 190f-191w-192s. **Seminar in Philosophy.** Topics to be arranged according to students' interests. (9 cred.; sr., grad.; prereq. 9 cred. in philosophy, or §) Feigl, Holmer, Sellars, and staff

### *For Graduate Students Only*

- 206-207. **Seminar in Comparative Philosophy**
- 210-211-212. **Seminar in Moral Philosophy**
215. **Seminar in Aesthetics**
216. **Seminar in Philosophy of Criticism**
- 220-221-222. **Seminar in Philosophical Analysis**
- 223-224-225. **Seminar in Philosophy of Language**
- 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**

## PHYSICAL EDUCATION FOR MEN

**Department Chairman—Louis F. Keller**

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 students in the College of Science, Literature, and the Arts. Students planning to enter the College of Education later are held to a requirement of 3 credits.

- 1Af-Bw-Cs. **Sports Education.** 1A-B-C is an orientation course in a variety of recreational sports. The 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. (1 cred. per qtr.; no prereq.)

- 1Aa.** Badminton, Bowling††, Golf\*\*, Handball, Paddleball, Squash, Touchball, Weight Lifting, Vancisin and staff  
Swimming, Beginning (for nonswimmers only). Boyce, Thorpe  
Adapted Activities. (Prereq. \$) Osell
- 1Bw.** Badminton, Bowling††, Golf\*\* (Beginning), Handball, Paddleball, Skating, Weight Lifting, Vancisin and staff  
Swimming, Beginning. Boyce, Thorpe  
Adapted Activities. (Prereq. \$) Osell
- 1Cs.** Bowling††, Golf\*\*, Handball, Squash, Tennis, Weight Lifting. Vancisin and staff  
Swimming, Beginning. Boyce, Thorpe  
Adapted Activities. (Prereq. \$) Osell
- 2Aa-Bw-Cs. Sports Education.** The program in 2A-B-C offers an opportunity to develop proficiency in an elected recreational sport in which the student has had previous experience (1 cred. per qtr.; no prereq.)
- 2Aa.** Archery  
Ballroom Dancing, Coeducational  
Body Building. Osell  
Fencing  
Golf, Advanced.\*\* Bolstad  
Gymnastics and Weight Lifting. Ostrander  
Handball and Squash  
Square and Folk Dancing, Coeducational  
Swimming, Intermediate. (Prereq. ability to swim 50 yards) Boyce, Thorpe  
Swimming, Advanced. (Prereq. ability to swim 100 yards) Boyce  
Touch Football, Volleyball
- 2Bw.** Badminton. Brain  
Ballroom Dancing, Coeducational  
Basketball. Vancisin  
Body Building. Osell  
Fencing  
Gymnastics and Weight Lifting. Ostrander  
Life Saving. Boyce  
Skating, Figure  
Square and Folk Dancing, Coeducational  
Squash and Handball. Brain  
Swimming, Intermediate. (Prereq. ability to swim 50 yards) Boyce  
Volleyball
- 2Cs.** Archery  
Ballroom Dancing, Coeducational  
Body Building. Osell  
Fencing  
Golf.\*\* Bolstad  
Gymnastics and Weight Lifting. Ostrander  
Life Saving. (Prereq. ability to swim 40 yards) Boyce  
Paddleball, Horseshoes  
Softball, Volleyball  
Square and Folk Dancing, Coeducational  
Swimming, Intermediate. Boyce, Thorpe  
Tennis, Advanced. Brain

## 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 students in the College of Science, Literature, and the Arts. Students planning to enter the College of Education 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 121.

\*\* Student must furnish his own equipment.

†† The bowling alleys will charge students the regular cost per game.

A physical education fee of \$3.25 per quarter is charged for all activity courses. In addition, a \$3.25 fee is charged for the following numbered courses: 54, 76, 87, 88. 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.

### *Fall Quarter*

#### **Aquatics**

- Swimming, Beginning
- Swimming, Advanced Beginning
- Swimming, Intermediate
- Swimming, Advanced
- American Red Cross Senior Life Saving

#### **Individual Sports**

- Archery, Elementary
- Badminton, Elementary
- Bowling
- Fencing
- Social Games and Mixers
- Rifle marksmanship

#### **Body Building**

- Posture and Individual Exercise

#### **Rhythms**

- Ballroom Dance, Elementary
- Folk and Square Dance
- Modern Dance, Elementary
- Tap Dance

#### **Team Sports**

- Volleyball

### *Winter Quarter*

#### **Aquatics**

- Swimming, Beginning
- Swimming, Advanced Beginning
- Swimming, Intermediate-Advanced
- American Red Cross Senior Life Saving

#### **Individual Sports**

- Archery, Elementary
- Badminton, Elementary
- Bowling
- Fencing
- Rifle marksmanship
- Skating, Elementary
- Social Games and Mixers
- Tennis, Elementary

#### **Body Building**

- Posture and Individual Exercise

#### **Rhythms**

- Ballroom Dance, Elementary
- Folk and Square Dance
- Modern Dance, Elementary
- Modern Dance, Intermediate-Advanced

#### **Team Sports**

- Basketball
- Volleyball

*Spring Quarter***Aquatics**

- Canoing
- 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**

- Posture and Individual Exercise

**Rhythms**

- Ballroom Dance, Elementary
- Folk and Square Dance
- Modern Dance, Elementary
- Modern Dance, Intermediate-Advanced
- Tap Dance

**Team Sports**

- Softball

**Additional Elective Courses**—These courses may not be used to meet a college requirement in physical education:

- 25f,s. American Red Cross First Aid (Standard Course). (2 cred.; no prereq.)
- 26w. American Red Cross First Aid (Advanced). (1 cred.)
- 54f,w,s. Camp Leadership. (3 cred.; no prereq.)
- 76s. Advanced Folk Dance. (2 cred.; prereq. #)
- 80s. Principles of Rhythm. (3 cred.; prereq. #)
- 87w. Dance Composition. (2 cred.; prereq. #)
- 88s. Advanced Problems in Dance Composition. (2 cred.; prereq. #)

**PHYSICS**

**Department Chairman**—Alfred O. C. Nier

**Major Advisers in the College of Science, Literature, and the Arts**—Professors Buchta, Valasek, and Wall.

**Major Sequence in the College of Science, Literature, and the Arts**—Phys. 50, 50A, 100-102-104; 107-109-111, plus 9 additional credits of which at least 3 must be in courses having laboratory.

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

**Major Adviser in the College of Education**—Professor Buchta  
For the specialized curriculum in natural 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 department. Students who have any credit in one of the sequences 1-2-3, 4-5-6, or 7-8-9 should consult the department chairman before registering in another sequence.

### Junior College Courses

- 1f-2w-3s. Introduction to Physical Science.** Demonstration lectures on the principles of physics and the physical phenomena underlying these principles. A course designed for those who wish a general cultural introduction to physics but do not plan to major in that subject. (9 cred.; prereq. high school algebra and plane geometry; this course taken without 1a-2a-3a does not satisfy any of the laboratory science requirements for entrance to the Senior College)
- 1af-2aw-3as. Introduction to Physical Science Laboratory.** Laboratory course given in conjunction with Phys. 1-2-3. (3 cred.; 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)
- 4f-5w-6s. General Physics.** (Primarily for premedical and prepharmacy students) 4: Mechanics. 5: Heat and electricity. 6: Sound and light. Laboratory work is an integral part of course. (15 cred.; prereq. Math. 15-16, or with consent of department chairman Math. 6, and either Math. 7 or 8, which are courses in college algebra [premedical and prepharmacy students should take Math. 15-16])
- 7f-8w-9s. General Physics.** (Primarily for students majoring in physics, mathematics, or chemistry.) Mechanics, heat, electricity, sound, light. Laboratory work is an integral part of the course. (15 cred.; Senior College cred. allowed for Phys. 8 and 9 to students not majoring in chemistry, mathematics, or physics; prereq. differential calculus or ¶differential calculus for 7; courses should be taken in order given above)

### Senior College Courses

Senior College 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 cred.; prereq. 9 or 14 and Math. 51 or ¶Math. 51)
- 50aw,s. Intermediate Physics Laboratory.** Laboratory, parallel to Phys. 50. (1 cred.; prereq. 50 or ¶50)
- 100f-102w-104s. Mechanics and Electromagnetism.** A theoretical course in mechanics, electricity, and electromagnetism designed to prepare students for advanced work. (9 cred.; jr., sr., grad.; prereq. 9 and Math. 106 or ¶Math. 106, or §)
- 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. (15 cred.; jr., sr., grad.: prereq. 9 and ¶Math. 106, or §)
- 107f-109w-111s. 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. (9 cred.; jr., sr., grad.; prereq. 50 or § and Math. 51; students may enter any quarter with §) Hintz
- 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 cred. per qtr.; jr., sr., grad.; prereq. consent of department chairman) Nier and 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 cred.; prereq. 50 or ¶107) Blair
- 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 cred.; prereq. 50 or ¶109) 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 cred.; prereq. 121, 146 or §) Blair
- 123f-124w-125s. Thermodynamics, Kinetic Theory, and Statistical Mechanics.** A theoretical course in thermodynamics, kinetic theory of gases, and statistical mechanics designed to prepare students for advanced work. (9 cred.; prereq. 9 and Math. 106 or §)
- 126f-127w-128s. Solid State Physics.** An introduction to the physics of crystalline solids. Topics include: structure and types of solids; theory of ionic crystals; vibrational

- modes; thermal, electrical, and magnetic properties; theory of conduction electrons; semiconductors; crystal imperfections and their resultant phenomena. (9 cred.; sr., grad.; prereq. 101-103-105 or equiv.)
- 131f. Geometrical Optics.** Fundamentals of ray optics and a study of its applications to optical instruments and their components. (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) Valasek
- 133f. Physical Optics.** Wave theory of interference, diffraction, polarization and double refraction with a study of their applications. (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51) Valasek
- 134f.w. Experimental Optics.** Laboratory work in spectrometry, optics of compound lenses, photometry, absorption, interferometry, and polarized light. (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51; 1 lect. and 5 lab. hrs. per week) Valasek
- 135. Spectroscopy.** Light sources, instruments, and methods used in spectroscopy of the x-ray, ultraviolet, visible, and infrared regions of the spectrum. (3 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51; offered when demand warrants)
- 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 cred.; jr., sr., grad.; prereq. 15 cred. in physics, Math. 51; 1 lect. and 5 lab. hrs. per week) 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 cred.; prereq. 9 and Math. 51; 3 lect. and 3 lab. hrs. per week) Blair
- 146w. Physics of Vacuum Tubes and Associated Circuits.** Thermionics, vacuum tube circuits, with emphasis on applications to physics research. (4 cred.; prereq. 144 or #; 3 lect. and 3 lab. hrs. per week) 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 cred.; prereq. 146 or #; 3 lect. and 3 lab. hrs. per week) Blair
- Zool.155f,156w,157s.‡ Biophysics.** (3 cred. per qtr.; jr., sr., grad.; prereq. 28 cred. distributed between physics and biology, and ‡...physical chemistry and general physiology recommended; since schedule for this course is uncertain, students wishing to take it should consult department) Schmitt
- 181f-183w-185s. Atomistics and Elementary Quantum Mechanics.** An introduction to wave mechanics, atomic structure, and nuclear physics. (9 cred.; jr., sr., grad.; prereq. 101-103-105 or equiv. or #) Williams
- 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. (9 cred.; sr., grad.; prereq. 101-103-105 or equiv., Math. 106, 107-108 or 157-158-159 or I.T.M. 80, I.T.M. 150-152-153 or equiv.)

### *For Graduate Students Only*

- 204-205-206. **Statistical Thermodynamics**
- 207-208-209. **Electrodynamics, Theoretical Optics, and the Theory of Relativity**
- 210-211-212. **Quantum Mechanics**
- 213-214-215. **Seminar in Contemporary Experimental Physics**
- 216-217-218. **Seminar in Contemporary Theoretical Physics**
- 225-226-227. **Advanced Quantum Theory**
- 228-229-230. **Nuclear Theory**
- 231-232-233. **Theory of Atomic and Molecular Structure**
- 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. **Collision Processes of High Energy Particles**

The following courses will be offered when feasible.

- 201-202-203. **Dynamics of Fluid Motion**
- 234-235-236. **Advanced Theory of Optics and Optical Instruments**
- 261-262-263. **Mathematical Foundations of Quantum Mechanics**

## Geophysics

(School of Mines and Metallurgy)

- G.Phys.108f. Introduction to General Geophysics—Physics of the Earth.** (3 cred.; jr., sr., grad.; prereq. Phys. 7-8-9, Geol. 1-2...Geol. 125 recommended but not required) Mooney
- G.Phys.109w. Introduction to General Geophysics—Elementary Seismology.** (3 cred.; jr., sr., grad.; prereq. Phys. 7-8-9, Geol. 1-2) Mooney
- G.Phys.110s. Introduction to Exploration Geophysics.** (3 cred.; jr., sr., grad.; prereq. Phys. 7-8-9, Geol. 1-2...Geol. 125 recommended but not required) Mooney
- G.Phys.125f. Principles of Gravity and Magnetic Exploration.** (2 cred.; jr., sr., grad.; prereq. Phys. 7-8-9, Geol. 125, I.T.M. 25) Mooney
- G.Phys.126w. Principles of Seismic Exploration.** (2 cred.; jr., sr., grad.; prereq. Phys. 7-8-9, Geol. 125, I.T.M. 25) Mooney
- G.Phys.127s. Principles of Electrical Exploration.** (2 cred.; sr., grad.; prereq. Phys. 9, Geol. 125, I.T.M. 25) Mooney
- G.Phys.130s. Special Problems.** Individual research. (1-3 cred.; prereq. §) Mooney

These courses are part of a five-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 students in College of SLA.

## PHYSIOLOGY

(College of Medical Sciences)

**Department Chairman—Maurice B. Visscher**

**Major Adviser in the College of Science, Literature, and the Arts—Dr. King.**

**Major Sequence in the College of Science, Literature, and the Arts—Phsl. 106-107;** 15 credits in approved Senior College courses in related fields.

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

### Junior College Courses

- 4f,s. Human Physiology** (4 cred.; will not count for credit for admission to the Medical School except by permission of the dean of that school; prereq. 1 qtr. zoology, 1 qtr. chemistry; students may register for lectures without laboratory)

### Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 60w. Human Physiology.** (6 cred.; primarily for medical technology and 5-year nursing students; prereq. courses in physiological chemistry and human or mammalian anatomy)
- 101w. Human Physiology.** (Formerly 58-59) (10 cred.; primarily for dental students; prereq. courses in physiological chemistry and human or mammalian anatomy) Visscher and staff
- 106s-107su. Human Physiology.** (Formerly 103-104) (15 cred.; jr., sr.; primarily for medical and graduate students; prereq. courses in zoology, organic chemistry, and neuro-anatomy; this is now a single course, and registration for either 106 or 107 singly is not permitted; students may register for lectures without laboratory) Visscher and staff



## POLITICAL SCIENCE

**Department Chairman**—Lloyd M. Short

**Major Advisers**—Professors Anderson, Christensen, Levi, Mills, Short; Associate Professors McClosky, McLaughlin, Sibley, Warp; Assistant Professor Turner.

**Preparation for a Major Sequence**—Fourteen or fifteen credits, including Pol. 1-2 (6 cred.) or 5 (5 cred.), and A-B (6 cred.), and 3 credits selected from 3 (3 cred.), C (3 cred.), and 25 (3 cred.); plus history (Hist. 1-2-3 or 4-5-6 or 20-21-22), or economics (Econ. 6-7 and 5), or sociology (Soc. 1 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 (courses numbered 51-52-53, 80, and those numbered from 100 to 139); (b) comparative government (courses numbered from 140 to 159); (c) political theory (courses numbered 160-166); (d) international relations (courses numbered 85 and 171-199); and (e) political behavior (courses numbered 167-168-169). In addition the student must show ability to study independently and write a satisfactory term paper in at least one of the three chosen fields (see Pol. 94).

To these ends the major student will be required to obtain 30 credits in Senior College courses in political science. He will elect to concentrate in one of his three 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 90 in this bulletin and the special bulletin, *Programs in International Relations and Area Studies*; consult Mr. Christensen, Mr. Levi, Mr. McLaughlin, or Mr. Turner.

**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 1-2-3, A-B, 25, and at least 18 credits in Senior College courses.

*Minor recommendation:* At least 23 credits in political science, including 1-2-3, or A-B-C, 25, and not less than 11 credits in Senior College courses.

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

**Note for Graduate Students**—Courses in political science that are indicated as being open to juniors, seniors, and graduates 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.

### Junior College Courses

- 1f-2w†-3s. American Government and Politics.** An analysis of the principles, organization, procedures, and functions of government in the United States—national, state, and local. Attention will be given throughout to current issues. (9 cred.; no prereq.) Christensen
- 1w-2s.† American Government and Politics.** (1st two qtrs. of 1-2-3. See 1f-2w-3s) Naftalin.
- 5f,w,s. American Government and Politics.** (Covers most of 1-2; 5 may be substituted for 1-2 whenever 1-2 is required.) (5 cred., §1-2; no prereq) Naftalin and staff
- Af-Bw†-Cs.¶¶ The State in the Modern World.** An examination of principles, structure, and operation of the modern state. Emphasis on nation state; historical development; democratic government: United States, Great Britain; totalitarian government: Nazi Germany, Soviet Russia; conflict between states. (9 cred.; no prereq.) Lippincott
- Aw-Bs.¶¶¶ The State in the Modern World.** (1st two qtrs. of A-B-C. See Af-Bw-Cs) Turner
- 25f,s. World Politics.** Introduction to contemporary international relations; the policies of the great powers; nationalism; imperialism; internationalism. (3 cred.; no prereq.) Mills

### Senior College Courses

Senior College courses in this department are open to Junior College students who have an average grade of C in the prerequisite courses, subject to the general rule that 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 cred.; jr., sr.; prereq. 9 cred.; 53 may be taken before taking 51-52; registration limited to Minnesota residents; 53 offered when feasible) Naftalin
- 80f. National Government in the United States.** Special reference to current problems and developments. (3 cred.; jr., sr.; not open to soph. or students who have had 1-2 or equiv.; no prereq.) Warp
- 85w,s. Problems of World Politics.** (3 cred.; jr., sr.; prereq. 25 or Hist. 1-2-3 or #; offered winter quarter 1955-56 and spring quarter 1956-57) Mills
- 91f-92w-93s. Honors Work in Selected Fields.** (Cred. ar.; jr., sr.; prereq. 18 cred.; consult major advisers)
- 94f,w,s. Major Paper.** (No cred.; jr., sr.; required of all majors; consult major advisers)
- 101f. Principles of the American Constitution I.** Nature of constitutions, judicial review, national-state and interstate relations. (3 cred.; jr., sr., grad.; prereq. 1-2 or equiv.) Anderson
- 102w. Principles of the American Constitution II.** Organization and powers of the national government. (3 cred.; jr., sr., grad.; prereq. 101 or equiv.) Anderson
- 103s. Principles of the American Constitution III.** Constitutional rights, due process and equal protection of the law. (3 cred.; jr., sr., grad.; prereq. 101 or 102 or equiv.) Anderson
- 104-105-106. American Constitutional Development.** Influence of constitutionalism on American institutions; antecedents of our constitutional system; framing of the Constitution of 1787; executive, legislative, judicial roles in constitutional change; issues and trends

¶¶ C may be taken concurrently with B.

- in constitutional growth. (9 cred.; jr., sr., grad.; prereq. 9 cred. or Hist. 20-21-22; offered when feasible)
- 108w. Legislative Organization and Procedure.** A study of Congress and the state legislatures at work. (3 cred.; jr., sr., grad.; prereq. 6 cred.) Short
- 116f-117w.† Local Government.** Theory, legal basis, areas, organization, politics, and administration. (6 cred.; jr., sr., grad.; prereq. 9 cred. or §) Naftalin
- 118s. Local Government.** Major functions, state supervision, finance. (3 cred.; jr., sr., grad.; prereq. 116 or §; offered when feasible)
- 120f. Municipal Functions.** (3 cred.; jr., sr., grad.; prereq. 6 cred.) Ludwig
- 121w. Municipal Administration.** (3 cred.; jr., sr., grad.; prereq. 120 or §) Ludwig
- 122s. Municipal Problems.** Intensive study of selected municipal problems. Individual conferences (no regular class). (3 cred.; jr., sr., grad.; prereq. 121 or §) Ludwig
- 123f. City Planning.** (Same as Arch. 104, Econ. 108, and Soc. 106) Social, economic, political, geographic, and technical phases of modern city planning. (3 cred.; sr., grad.; no prereq.) Broek, Caplow, Christensen, Vaile, Vivrett, and Warp
- 124f. Recent Social Legislation.** Federal, state, and local programs in the field of public assistance and social security, with particular emphasis on the major programs of the Social Security Act, health insurance, and housing. (3 cred.; jr., sr., grad.; prereq. 6 cred.) Christensen
- 126w-127s. Government and the Economic Order.** A survey of the relation of government to all of the major areas of the economy; it includes a consideration of powers, politics, programs, administration, and safeguards. (6 cred.; jr., sr., grad.; prereq. 1-2 or 5) Warp
- 131f. Public Administration.** Organization and areas, administrative responsibility. (3 cred.; jr., sr., grad.; prereq. 6 cred.) Short
- 132w. Public Administration.** Personnel administration. (3 cred.; jr., sr., grad.; prereq. 131 or §) Short
- 133s. Public Administration.** Financial administration. (3 cred.; jr., sr., grad.; prereq. 131 or §) Short
- 135. Problems of Public Planning.** (2 cred. without term paper, 3 cred. with term paper; soph. with §, jr., sr., grad.; prereq. 9 cred.; offered when feasible)
- 137f. American Political Parties.** The role and functions of the party in American government; party composition and organization; the process of nomination and policy formulation; the regulation of party organization and activities. (3 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in social science) Christensen
- 138s. American Political Campaigns and Elections.** (3 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in social science) Naftalin
- 141f-142w.† European Governments.** Theory and practice. (6 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in social science) Turner
- 143s. Government of the U.S.S.R. and Adjacent States.** An analysis of the government and politics of Soviet Russia that seeks to explain the rise of Bolshevism; the sources and nature of its ideology; the history of the Communist regime; institutional character; the organization of power; the role of the party; foreign, economic, and cultural policies; significance for Western civilization. (3 cred.; jr., sr., grad.; prereq. 6 cred.) Turner
- 145f. Government and Politics of the Scandinavian Countries.** (3 cred.; jr., sr., grad.; prereq. Pol. C or equiv. or §)
- 146w. Social Legislation and Social Institutions in the Scandinavian Countries.** (3 cred.; jr., sr., grad.; prereq. Soc. 1 or §)
- Psy.147s. Political Psychology.** (3 cred.; jr., sr., grad.; prereq. Psy. 1-2, 4-5, and 9 cred. in social science) Bird
- 149f. Government and Politics of the British Empire—India and the Tropical Colonies.** (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered 1956-57 and alternate years) Mills
- 150w. Government and Politics of the British Empire—Development of Dominion Status.** (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered 1956-57 and alternate years) Mills
- 151s. British Problems of Closer Union.** Problems of unity within the British Dominions; regional unions with adjacent states. (3 cred.; jr., sr., grad.; 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 cred.; jr., sr., grad.; prereq. 6 cred. or §) Turner
- 154w. Chinese Government and Politics.** Constitutional and political development in China; political ideas, government, political parties, and problems. (3 cred.; jr., sr., grad.; prereq. 6 cred. or §) Turner

- 155w-156s. Government and International Relations in Latin America.** An analysis of the factors that have conditioned the constitutional and political organization of the principal Latin-American states; their relations with the other American nations, the development and the nature of the inter-American political system. (6 cred.; jr., sr., grad.; prereq. 6 cred. or #; offered in a 3-quarter sequence, 155f-156w-157s during 1956-57) Christensen
- 160f. American Political Thought.** From colonial times to the present; Puritanism; the Constitution; utopianism; Calhoun; history of anarchist, socialist, populist, and syndicalist thought; social Darwinism; conservatism; development of legal theory; political thought and American literature. (3 cred.; prereq. 6 cred. or 12 cred. in social science or #) Sibley
- 161w. Problems of Democracy.** An analytical treatment; postulates and implications of the theory; moral foundations; democratic theory and the economic order; liberty and authority; equality; representation; spiritual order; democratic theory and practical politics; critics of democracy. (3 cred.; prereq. 6 cred. or 12 cred. in social science or #) Sibley
- 162s. Recent Political Thought.** Main currents from Marx to the present day; Marx, Marxism, and their critics; non-Marxist socialism; syndicalism; anarchism; Roman Catholic and Protestant theories; conservatism; conceptions of Gandhi; European legal theory; political thought in literature. (3 cred.; prereq. 6 cred. or 12 cred. in social science or #) Sibley
- 164f. Development of Political Thought: Ancient.** Hebrew ideas, Moses to the second Isaiah; classical Greek thought; Plato and Aristotle; primitive natural law; Cynics and Stoics; theory in Roman Republic and Empire; 1st-century Christianity. (3 cred.; prereq. 6 cred. or 12 cred. 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 cred.; prereq. 6 cred. or 12 cred. 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 cred.; prereq. 6 cred. or 12 cred. in social science or #) Sibley
- 167f-168w-169s. Political Behavior.** Analysis of the various aspects of political behavior, with attention to such topics as: the role of personality and leadership; the functions of myth, ideology, and interests; group behavior and public opinion; factors in voting and elections; the consequences of organization; attitudes and the psychology of political preference; quantitative techniques and the measurement of political behavior. (9 cred.; jr., sr., grad.; prereq. 6 cred. or 12 cred. in social science or #) McClosky
- 171. Scandinavian Foreign Policy.** (3 cred.; jr., sr., grad.; prereq. 6 cred. in history or political science or #; offered when feasible)
- 175f-176w†-177s. Conduct of American Foreign Relations.** The Department of State and the Foreign Service; diplomatic and consular functions and problems; agencies for economic and military assistance; relations with international organizations; treaties and executive agreements; formulation of policy. (9 cred.; jr., sr., grad.; prereq. 9 cred. or Hist. 93-94-95) McLaughlin
- 180f-181w†-182s. International Law.** 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. (9 cred.; jr., sr., grad.; prereq. 9 cred. or #) McLaughlin
- 184f. International Organization I.** Development and conditions of success. United Nations and regional organizations. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #) Levi
- 185w. International Organization II.** Specialized agencies and other organs for the promotion of international co-operation, especially in the social and economic field. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #) Levi
- 186s. International Organization III.** International offices and civil service; international administration; planning for an international order. (3 cred.; jr., sr., grad.; prereq. 6 cred. or #) Levi
- 187f. Problems of European Organization.** Plans for political, economic, and social reconstruction of Europe; contributions of European and non-European nations toward

- reconstruction; present situation in key states; politics of reconstruction. (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered when feasible) Levi
191. **East Asia in International Relations I.** The period of separatism. (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered when feasible) Levi
192. **East Asia in International Relations II.** The period of inequality. (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered when feasible) Levi
193. **East Asia in International Relations III.** Contemporary development. (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered when feasible) Levi
- 194s. **The Far East in International Relations.** (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered when feasible) Turner
- 195f. **Colonial Government and the Problems of Imperialism.** Motives of American, British, Dutch, French, and Spanish colonization; ancient and modern imperialism. (3 cred.; jr., sr., grad.; prereq. 6 cred. or §; offered 1955-56 and alternate years) Mills
- 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 cred.; jr., sr., grad.; prereq. 25 or Hist. 125a-126a-127a) Mills

### For Graduate Students Only

- 201-202. Readings in American Government
- 204-205.† Seminar in Public Law
- 207-208-209. Seminar in Jurisprudence
- 210-211-212.† Special Seminar in Public Administration
214. Seminar in Political Parties
215. Seminar in Comparative Public Administration
- 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
- 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
- 236-237. Seminar in Federalism and Intergovernmental Relations
- 238-239.† Seminar in the History and System of International Law
240. International Constitutional Law
241. Interdepartmental Seminar in East and South Asia
- 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, page 139.

### PSYCHOLOGY

Department Chairman—Paul E. Meehl

**Major Advisers in the College of Science, Literature, and the Arts—**Professors Bird, Elliott, Longstaff, Paterson, Tinker; Associate Professors Clark, MacCorquodale; Assistant Professor Jenkins.

A student considering the choice of a major in psychology should consult the Student Counseling Bureau prior to seeking his first conference with a major adviser.

**Major Sequences in the College of Science, Literature, and the Arts—**

A. *Experimental psychology.* Prerequisites: 1-2 and 4-5. Course 55 is recommended. Courses 101-102-103; 125-126; and 12 additional credits in Senior College psychology courses. Messrs. Tinker and Russell.

*B. Human and animal behavior.* Prerequisites: 9 credits in psychology. Courses 114; 148; 151; either 152 or 153; 165; and 12 additional credits in Senior College courses either in psychology or zoology. Messrs. Elliott, MacCorquodale, and Russell.

*C. Differential psychology.* Prerequisites: 1-2 and 4-5. Course 3 is recommended. Course 70 or equivalent; 125-126-127; 130 or 160; and 12 additional credits in Senior College psychology courses of which 6 credits may be in educational psychology or child welfare. Messrs. Paterson, Longstaff, Clark, and Jenkins.

*D. Social and political psychology.* Prerequisites: 1-2 and 4-5. Course 70 or equivalent; 140; 147; 167; 168; and 12 additional Senior College psychology credits. It is recommended that students elect Jour. 115 and 130-131 as part of the 12 additional credits required. Psy. 156 is recommended to students with certain interests. Messrs. Bird and Clark.

All students majoring in psychology are strongly urged to elect courses in mathematics, especially Math. 15-16, and 127-128-129. Math. 15-16 or 51 and Zool. 1-2-3 are required for students planning to enter graduate work in clinical psychology.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

Majors in psychology may take not more than 33 Senior College credits in psychology, educational psychology, and child welfare combined. This is in accordance with the general principle that a liberal arts degree should not involve overspecialization.

The following fundamental courses in each sequence require original work and should not be taken until as late in the student's program as possible. Sequence A, courses 101-102-103; sequence B, courses 151, and 152 or 153; sequence C, 125-126, 127; sequence D, 167, 168.

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

### Junior College Courses

**1f-2w.††† General Psychology.** A general introduction to the study of human behavior with emphasis on the development of the individual. (6 cred.; soph., jr., sr.; no prereq.) Bird, Elliott, MacCorquodale, Russell

**1w-2s.††† General Psychology.** (See 1f-2w) Heron

**1s-2s.††† General Psychology.** (6 cred.; soph., jr., sr.; no prereq.) Russell

**3s. Psychology Applied to Daily Life.** A course in the uses of psychological methods in solving such problems as come up in vocational counseling in business offices and factories, in advertising, in social and political life, and in everyday life. (3 cred.; prereq. 1-2) Longstaff and staff

**4f-5w.† Introductory Laboratory Psychology.** Simple experiments illustrating the subject matter of contemporary psychology. Included are human and animal learning, visual experience, differences in artistic, musical, and other kinds of abilities, measurement of each student's personality traits, and reactions to advertisements. (4 cred.; soph., jr., sr.; prereq. 1-2 or 1-2; sections limited to 48) Tinker and staff

**4w-5s.† Introductory Laboratory Psychology.** (See 4f-5w) Tinker and staff

**4s-5s.† Introductory Laboratory Psychology.** (See 4f-5w) (4 cred.; soph., jr., sr.; prereq. 1-2 or 2 or 1-2 or 2) Tinker and staff

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\*\* Psy. 1-2 is intended to be the normal beginning course in psychology. It is a prerequisite for all advanced courses in psychology. It is the course prerequisite to business, education, law, medicine, and social work. 1-2, together with 4-5, meets the natural science requirement for entrance to the Senior College under Plan I.

## Senior College Courses

In this department courses numbered between 50 and 65 are open to sophomores who have an average grade of at least C in all their courses and an average of B<sub>+</sub> 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 cred.; jr., sr.; prereq. 1-2; offered 1956-57 and each year thereafter) Heron
- 55s. Psychology of Sensation.** An elementary treatment with demonstrations of sensory perception in such areas as vision, hearing, touch, and kinesthesia. Demonstrations and discussions will be related to the everyday experiences of the individual. (3 cred.; jr., sr.; prereq. 1-2) Tinker
- 70f,s. Principles of Psychological Measurement.** The uses and limitations of the fundamental varieties of psychological measurement. Psychophysical methods, scaling methods, and psychometric methods. (3 cred.; jr., sr.; prereq. 1-2, 4-5) Clark
- 86s. Biographical Psychology.** Human personalities in relation to their ancestries, their bodies, and their environments, physical and social. (3 cred.; sr.; prereq. 12 cred. in psychology) Elliott
- 90f,91w,92s. Readings in Psychology.** Tutorially directed reading and preparation of reports on special topics, usually supplementing an advanced course already completed. (Cred. ar.; jr., sr.; prereq. 1-2 and 3 additional cred., and written #) Elliott, Bird, Paterson, Tinker, Heron, Longstaff, Clark, Meehl, MacCorquodale, Rosen, Russell, Schachter, Jenkins
- 101f-102w†-103s. Experimental Psychology.** An advanced treatment of emotions, psychophysical methods, association, reaction time, sensation, and perception. After several experiments involving the use of standard equipment, the student completes a minor research project. (3 cred. per qtr.; jr., sr., grad.; prereq. 1-2, and 4-5 or equiv. in another science) Tinker
- 108f. Systems of Psychology.** A reading course on the chief systems or schools of theoretical psychology. A term paper is required. (3 cred.; sr., grad.; prereq. preparation for advanced work in psychology and #) Elliott
- 114w. Human Behavior.** An integrative approach, examining the background, development, and organization of human behavior. Consciousness and purpose are treated as properties of the living body. (3 cred.; sr., grad.; prereq. 1-2, 4-5 or Zool. 1-2-3, or Phil. 1) Elliott
- 118s. The Psychology of Language.** The nature and forms of verbal behavior; motivational and emotional influences in the emission of speech; the problem of reference or meaning; internal language processes; etc. Emphasis on experimental data. (3 cred.; jr., sr., grad.; prereq. 9 cred. in psychology or 6 cred. and #) 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 cred. per qtr.; sr., grad.; prereq. 1-2, 4-5 or 5 cred. in statistics) Paterson (for advanced majors or minors); Jenkins (for general students)
- 125s,126s.† Psychology of Individual Differences.** (See 125f-126w) (6 cred.; offered when feasible) Jenkins
- 127f,w,s. Projects in the Psychology of Individual Differences.** (3 cred.; sr., grad.; primarily for majors in Sequence C; prereq. 125-126) Paterson, Longstaff, Jenkins
- 128f-129w. Psychology of Learning.** Psychological theory: its characteristics and function. Critical analysis of all learning theories and their application to problems of normal and abnormal behavior. (3 cred. per qtr.; jr., sr., grad.; prereq. 9 cred. in psychology) Heron
- 130w,s. Vocational and Occupational Psychology.** Psychology of individual differences in intelligence, aptitudes, interests, and training, with special reference to vocational guidance and problems of occupational adjustment. Lectures and laboratory work. (3 cred.; jr., sr., grad.; prereq. 9 cred. in psychology) 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. Particular reference to motivation in complex situations involving set, level of aspiration, the Zeigarnik effect, frustration, etc. (6 cred.; jr., sr., grad.; prereq. 9 cred. in psychology) Russell
- 135f-136w-137s. Occupational Counseling.** Occupational information as used in counseling. Study of educational and occupational training opportunities and requirements.

- Psychological techniques in case analysis, interviewing, and remedial work. Types of vocational problems. Illustrative case histories. (2 cred. per qtr.; sr., grad.; prereq. 9 cred. or § for 135-136, 130 for 137)
- 140w. Social Psychology.** A study of experimental investigations of group behavior. Special emphasis will be put upon the place of emotions, drives, and personality traits in the adjustment of individuals to the demands of modern societies. (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5, and 9 cred. in social science) Bird
- 144f-145w.† Abnormal Psychology.** Normal and abnormal behavior contrasted. Emphasis on the dynamics, and particularly the social determinants, of personality maladjustments. (6 cred.; jr., sr., grad.; prereq. 9 cred. in psychology, or 6 cred. in psychology with either Zool. 1-2-3 or 12 cred. in social science) Bird, Rosen
- 147s. Political Psychology.** A consideration of problems and points of view falling within the area of both political science and psychology. The importance of deriving techniques for the identification of political attitudes. The part played by psychological factors in the determination of belief, propaganda, and public opinion. (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5, and 9 cred. in social science) Bird
- 148w. Physiological Psychology.** The elements of neural anatomy and physiology, tonus, neuromuscular set, integration, and the neural basis of learning. The treatment of these topics will stress their importance for psychology. (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5 or Zool. 1-2-3, or §) Hathaway
- 151f. Animal Psychology.** Historical, philosophical, and biological foundations; consciousness; motivation; learning; reasoning; judgment; abnormal behavior; social influences. (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5 or equiv. in another science) Heron
- 152w, 153s.‡ Individual Investigations in Animal Psychology.** Each student, working independently, attempts the solution in the laboratory of a definite problem. (3 cred. per qtr.; jr., sr., grad.; prereq. 151) Heron
- 155s. Industrial Psychology.** Psychological problems in industrial production with special reference to biomechanics (the adaptation of the machine to the capacities and limitations of the operator), work and effort, and the role of communication in an industrial organization. (3 cred.; jr., sr., grad.; prereq. 1-2 and Math. 15-16 or equiv. or 10 cred. of statistics) Russell, Jenkins
- 156f, w. Psychology of Advertising.** Psychological analysis of the basic principles underlying advertising and selling. Consumer research is stressed. Research techniques for investigating advertising problems and the analysis of consumer wants are considered in detail. (3 cred.; jr., sr., grad.; prereq. 1-2 and Principles of Economics) Longstaff
- 160f, w. Psychology in Personnel Work.** (3 cred.; jr., sr., grad.; prereq. 1-2, 4-5, or 3 cred. in statistics, and Principles of Economics or §) Longstaff
- 165f. Advanced General Psychology.** A reconsideration of the topics of general psychology with special emphasis on behavior theory and the methods of science. Historical backgrounds, learning, motivation, and emotion are discussed. (3 cred.; jr., sr., grad.; prereq. 1-2 and one course numbered above 50) MacCorquodale
- 167w. Techniques and Problems of Public Opinion Analysis.** Emphasis on the determinants of opinion, formulation of questions, methods of sampling, social implications of polling, and applications of polling to elections, morale, and national and international issues. (3 cred.; sr., grad.; prereq. 140 or 147 for undergraduate students, a course in statistics for graduate students) Clark
- 168s. Research Project in Public Opinion Analysis.** Students in journalism will be assigned to problems in co-operation with technical advisers in journalism. (3 cred.; sr., grad.; prereq. 167) Clark
- 171f-172w.† Clinical Psychology.** A survey of the methods of clinical psychology emphasizing basic concepts and research problems, especially in a psychiatric setting. Theory of diagnosis, the history and mental status, structured tests, major diagnostic groups, psychological deficit, prediction, psychotherapy, and interprofessional relations. (6 cred.; sr., grad.; prereq. 145 and a course in mental measurements or statistics; students intending to use this course professionally should postpone taking it until they are in the Graduate School)

### *For Graduate Students Only*

- 200-201-202. History of Psychology I: European  
 203-204-205. History of Psychology II: American  
 207-208-209. Group Dynamics  
 210-211-212. Research Problems  
 215,216,217. Seminar in Special Areas of Psychology and Related Sciences  
 219. Psychology of Personality



- 220-221-222. **Personality, Its Structure and Dynamics**  
 230-231-232. **Field Work in Psychometrics and Applied Psychology**  
 235-236-237. **Clinical Practice in the Student Counseling Bureau**  
 240,241,242. **Seminar in Student Personnel Work**  
 243-244. **Experimental Psychodynamics**  
 Phil.244-245-246. **Seminar: Philosophy of Psychology**  
 246. **Advanced Abnormal Psychology**  
 C.W.247-248. **Clinical Child Psychology**  
 C.W.249. **Treatment of Disabled Children**  
 250-251-252. **Topics in Psychology**  
 253-254. **Clinical Use of Projective Techniques**  
 257-258-259. **Methods of Research in Group Behavior**  
 260-261-262. **Seminar in Diagnostic and Therapeutic Interviewing**  
 265-266-267. **Seminar in Advanced Clinical Psychology**  
 270. **Advanced Psychological Measurement**  
 271-272-273. **Seminar in Recent Literature of Psychology**  
 274. **Preclinical Practicum in Clinical Psychology**  
 280-281-282. **Psychology for Fellows in Psychiatry or Neurology**  
 285. **Clinical Interviewing**  
 286. **Advanced Biographical Psychology**  
 290. **Introduction to Projective Techniques**  
 291. **Practicum in Interpretation of 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 the College of Science, Literature, and the Arts**—Professors Anderson and Thomson; Professor Treloar for Biostatistics.

**Major Advisers in the College of Education**—Professors Anderson and Grout.

**Major Sequence in Biostatistics in the College of Science, Literature, and the Arts**—Pub.H. 110, 111, 120, 121, 130, 131, and 18 credits in Senior College public health 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 Senior College.

**Minor Sequence in Public Health in the College of Education**—Pub.H. 50 or 51 or 100 and 57, 59, 102, 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*.

### *Junior College Courses*

**3Af,w,s.\*\* Personal Health.** Normal body function; causes and prevention of disease. (2 cred., §Pub.H. 3B or G.C. 10C; fr., soph.; no prereq) Thomson

**3Bf,w,s.\*\* Personal and Public Health.** Individual and community activities for the promotion of health and safety. (2 cred., §Pub.H. 3A or G.C. 10C; does not satisfy prereq. for adv. courses in public health; fr., soph.; no prereq.)

**4s.\*\* Health Problems of the Community.** Prevention of disease in the family and community. (2 cred.; prereq. 3A or G.C. 10C, or successful passing of exemption exam.; exemption from 3A on basis of military service does not serve as a prerequisite) Eichenlaub

\*\* No credit is granted for this course in the major sequence in public health nursing.

## Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 50f,w.\*\* Personal and Community Health.** Fundamental principles of health conservation and disease prevention. (3 cred., §3A, 4, 51, 52, 53, 100, or G.C. 10C; jr., sr.; no prereq.) Thomson
- 51f,w.\*\* Community Hygiene.** Community programs for disease control. (3 cred., §4, 50, 52, 53, or 100 or those excused from 3A on basis of military service; jr., sr.; prereq. 3A or G.C. 10C) Cowan, Eichenlaub
- 57w.\*\* Health of Infant and Preschool Child.** (2 cred.; jr., sr.; prereq. 4, or 50, or 51, or 52, or 53, or 100) Boynton
- 59w,s.\*\* Health of the School Child.** (3 cred.; jr., sr.; prereq. 3A and 4, or 3A and 51, or G.C. 10C and 4, or G.C. 10C and 51, or 50, or 52, or 53, or 100; exemption from 3A on the basis of military service will not be accepted as a substitute for suitable course in personal health) Eichenlaub
- 60w,s. Tuberculosis and Its Control.** (2 cred.; for nurses, others by §; prereq. 4 or 50 or 51 or 52 or 53 or 100 and 62) Myers
- 75w. Introduction to Environmental Sanitation.** (3 cred.; jr., sr.; prereq. 4 or 50 or 51 or 52) Bond
- 100f,s. Elements of Preventive Medicine and Public Health.** (5 cred.; for public health nurses, others by §; prereq. 3A or 50, or equiv. and a course in bacteriology) Anderson, Thomson
- 102f. Environmental Sanitation I.** (3 cred.; sr., grad.; prereq. 50 or 51 or 100 or §; or ¶50, 51, or 100) Bosch, Olson
- 103f,w,s. Public Health Bacteriology.** (Cred. ar.; grad.; prereq. Bact. 101-102, 116 and §) Bauer
- 106w. Public Health Administration.** (3 cred.; prereq. 100) Anderson
- 125s. Community Health Education Programs.** (3 cred.; prereq. 100, 106) Grout
- 126s. Occupational Health Program.** (3 cred.; prereq. 53 or 100, In.Ch. 4-5 or equiv., or §) Foker
- 141s. Social and Economic Aspects of Medical Care.** (3 cred.; prereq. §)

For other courses in public health see the *Bulletin of the Graduate School*, or the *Bulletin of the School of Public Health*.

## Biostatistics

- 110f. Biometric Principles.** Univariate distributions, normal correlations, simple tests of significance. (3 cred.; sr., grad.; prereq. college algebra or §, ¶111 is necessary) Treloar
- 110s. Biometric Principles.** (See 110f) (Primarily for students not proceeding to advanced courses in biostatistics)
- 111f,s. Biostatistics Laboratory.** Practical training in techniques discussed in 110. (2 cred.; prereq. ¶110 is necessary)
- 120w. Biostatistics II.** Exact sampling distributions ( $t$ ,  $\chi^2$ ,  $F$ ); small sample tests and their power; analysis of variance. (3 cred.; prereq. 110 with grade not lower than C, ¶121 is necessary) Elveback
- 121w. Biostatistics Laboratory II.** Practical exercises in theory discussed in 120. (2 cred., ¶120 is necessary) Elveback
- 130s. Biostatistics III.** Correlation and regression with two or more variables; further discussion of  $\chi^2$  and analysis of variance. (3 cred.; prereq. 120 with grade not lower than C, ¶131 is necessary) Elveback
- 131s. Biostatistics Laboratory III.** Practical exercises associated with 130. (2 cred., ¶130 is necessary) Elveback

Other courses in biostatistics designed primarily for students in public health, medicine, or Graduate School may be opened to students in SLA by special arrangement with Mr. Treloar.

\*\* No credit is granted for this course in the major sequence in public health nursing.

### Physiological Hygiene

- 91f. **Physiological Hygiene.** (4 cred.; jr., sr.; prereq. 8 cred. in chemistry and 4 cred. in human anatomy or equiv.; in order to receive credit for this course 92w must be completed also except by §) Taylor, Brozek
- 92w. **Physiological Hygiene.** (4 cred.; jr., sr.; prereq. 91 or equiv.) Taylor, Brozek
- 95w. **Principles of Human Nutrition.** (3 cred.; prereq. a course in chemistry or biology, or §) J. T. Anderson
- 191w. **Science of Human Nutrition.** (3 cred.; prereq. §) Keys, J. T. Anderson
- 192w. **Physiology of Exercise.** (4 cred.; prereq. 92 or Phsl. 103 or equiv. and §) Taylor, Simonson
- 194w. **Human Factors in Industry.** (3 cred.; sr., grad.; prereq. §) Brozek

### RADIO

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.

### RHETORIC

(College of Agriculture, Forestry, and Home Economics)

**Department Chairman**—Ralph G. Nichols

47f,w,s. **Efficient Reading.** Designed to increase reading rate, comprehension, and vocabulary. Not a remedial course. (1 cred. for SLA students; open to all students who score above the 30th percentile on a standard reading test; no prereq.) Brown

### ROMANCE LANGUAGES

**Department Chairman**—Walter T. Pattison

**Major Advisers in the College of Science, Literature, and the Arts**—Professors Pattison, Grismer, Clefthon.

**Major and Minor Sequences in the College of Science, Literature, and the Arts**—

#### French

*Major:* Fren. 20 and 33 Senior College 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 Senior College offerings.

*Minor:* A minimum of 15 credits in courses above 52. The department recommends one of the following sequences:

1. Fren. 65-66-67 (9 credits) and 8 additional credits in Senior College French (or)
2. Fren. 60-61-62 (12 credits) and 5 additional credits in Senior College French (or)
3. Fren. 70-71-72, 80-81-82, 90-91-92.

#### Italian

*Major:* Twenty-four credits in Italian courses numbered 50 or above, and 3 additional credits chosen from the following: Engl. 75; Fren. 70-71-72, 121; Ital. 159-160, 161-162; Lat. 133; Hist. 65a-66a-67a.

## Spanish

*Major:* Either of the following sequences:

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 allowed to do graduate work until they have successfully completed 9 credits in literary courses numbered above 100: cf. Plan A).

### Studies in Latin-America and Northwest Europe

See International Relations and Area Studies, page 90.

**Major Advisers in the College of Education**—French: Associate Professor Falk; Spanish: Assistant Professor Floripe.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—

*French Major:* Fren. 20 and 36 Senior College credits in French including 54, 56, 60-61-62, 65-66-67, 100, 103-104-105. In addition, Clas. 56 (3 credits) is required.

*French Minor:* 23 credits including 54, 56, 60-61-62.

*Spanish Major:* 35 credits in courses numbered above 21, including 65-66-67 or 68-69 or 74-75-76; 53-54-55; 60 and 8 credits chosen from the following: 56; 70-71-72; 103-104-105; 171-172-173. In addition Clas. 56 (3 credits) is required.

*Spanish Minor:* 17 credits in courses numbered above 50, including 65-66-67 or 68-69 (Survey of the Literature of Spain), or 74-75-76 (Survey of the Literature of Spanish-America).

**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

### Junior College Courses

**NOTE**—There are three beginning courses in French, 1-2-3, 1a-2a-3a, and 1b-2b-3b. 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, Reading French.

**1f-2w-3s.\*\* Beginning French.** This beginning course stresses correct pronunciation of French, the basic essentials of grammar, and the reading of simpler prose texts. Oral French and conversation at this level are given all possible attention. (15 cred.; no prereq.; students submitting one year of high school French for entrance must take 2 and those offering two years must take 3)

**1w-2s.\*\* Beginning French.** (See 1f-2w)

**1s.\*\* Beginning French.** (1st qtr. of 1-2-3. See 1f-2w-3s)

**2f.\*\* Beginning French.** (2nd qtr. of 1-2-3. See 1f-2w-3s)

**3f,w.\*\* Beginning French.** (3rd qtr. of 1-2-3. See 1f-2w-3s)

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\*\* The sequence of courses that must be followed is 1-2-3 or 1a-2a-3a or 1b-2b-3b, and a student may not receive credit for more than one of these sequences.

**1af-2aw-3as.\*\* Beginning French: Conversational Section.** Ten class meetings a week: five hours of demonstration (introduction to texts dealing with common conversational material and real life situations; necessary grammatical analysis of sentence patterns) and five hours of intensive conversational drill in sections small enough to insure for each student individual attention. Less outside preparation required than for the standard course. (15 cred.; no prereq.)

**1bf-2bw-3bs.†\*\* Beginning French: Language and Culture.** The objectives of this course are (1) to provide without emphasis on formal grammar a practical reading knowledge of French adequate for the needs of most students in other fields; and (2) to impart a broad view and appreciation of the contribution of French culture to Western civilization. This course will stress direct experience with a variety of reading material both in French and in English. (15 cred.; no prereq.)

**NOTE—**(For students intending to continue with Fren. 4). Those who have taken Fren. 3a will normally elect Fren. 4B, while those coming from Fren. 3b will usually choose Fren. 4A. Students from Fren. 3 may select either Fren. 4A or 4B. In all doubtful cases, members of the department will be glad to give advice.

**4Af, w.s. Intermediate French: Oral and Written.** A practical grammar review combined with composition, conversation, and reading. (5 cred.; prereq. 3, 3a, 3b or three years of high school French)

**4Bf. Intermediate French: Reading and Composition.** Initiation to the techniques of literary analysis based on readings in modern French short stories, translations into English of selected literary passages, free composition, and rapid review of grammar. (5 cred.; prereq. 3, 3a, 3b or three years of high school French)

**20f, w. 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. (3 cred.; prereq. 4A or 4B)

### Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College 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 of the course: 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 cred.; open only to jrs. and srs.; cannot be counted toward either a major or a minor in French) Brackney

**53s. French Diction.** (Formerly 52) (1 or 2 cred.; jr., sr.; open only to candidates for the French play; prereq. 3-4)

**54w, s. French Conversation and Pronunciation.** Class work in practical phonetics. (3 cred.; prereq. 4A or 4B; 3 lect. and 1 lab. hr.)

**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 cred.; prereq. 20) Brackney

**60f-61w-62s. French Civilization and Culture.** (Formerly 75-76-77) A systematic study of the development of French culture, with oral and written French exercises based on the material of the course. (12 cred.; prereq. 4A or 4B) Desgranges, Blinoff, and staff

**65f-66w-67s. Survey of French Literature.** (Formerly 70-71-72) (9 cred.; prereq. 4A or 4B) Clefton

**70f-71w-72s. Seventeenth-Century French Literature.** (Formerly 115-116-117) (6 cred.; for undergraduate students only; prereq. 20) Desgranges

**80f-81w-82s. Eighteenth-Century French Literature.** (Formerly 118-119-120) (6 cred.; for undergraduate students only; prereq. 20) Clefton

**90f-91w-92s. Nineteenth-Century French Literature.** (Formerly 110-111-112) (6 cred.; for undergraduate students only; prereq. 20) Falk

\*\* The sequence of courses that must be followed is 1-2-3 or 1a-2a-3a or 1b-2b-3b, and a student may not receive credit for more than one of these sequences.

- 100f. **Advanced French Phonetics.** (3 cred.; jr., sr., grad.; prereq. French major or §) Sullivan
- 103f-104w-105s. **French Syntax and Composition.** (6 cred.; jr., sr., grad.; prereq. French major or §) Sullivan
- 107s. **Cours de Style.** (2 cred.; jr., sr., grad.; prereq. French major or §; offered 1956-57 and each year thereafter) Blinoff
- 110f. **French Romanticism.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Falk
- 121f. **Pre-Renaissance and Pleiade Poetry.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year)
- 124f. **Montaigne and Pascal.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Desgranges
- 125f. **The Classical Drama: Corneille and the Origins of the Classical Drama.** (3 cred.; sr. with §, grad.; offered 1955-56 and every third year) Falk
- 126w. **The Classical Drama: Racine.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Desgranges
- 128s. **La Fontaine and La Bruyère.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Desgranges
- 130w. **French Poetry of the Nineteenth Century: Lamartine, Hugo, Vigny, Musset.** (3 cred.; sr. with §, grad.; offered 1955-56 and every third year) Clefton
- 131w. **French Poetry of the Nineteenth Century: Parnassian Poetry and Baudelaire.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Clefton
- 135f-136w-137s. **Twentieth-Century French Literature.** (Formerly 157-158-159) (6 cred.; jr., sr., grad.; offered 1956-57 and each year thereafter) Blinoff
- 140f. **The Novel of the Eighteenth Century.** (3 cred.; sr. with §, grad.; offered 1955-56 and every third year) Clefton
- 142w. **Voltaire.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Clefton
- 143s. **Diderot.** (3 cred.; sr. with §, grad.; offered 1955-56 and every third year) Clefton
- 146w. **The Drama of the Twentieth Century: Claudel, Giraudoux.** (3 cred.; sr. with §, grad.; offered 1955-56 and every third year) Desgranges
- 155w. **The Novel of the Nineteenth Century: Flaubert and Maupassant.** (3 cred.; sr. with §, grad.; offered 1955-56 and every third year) Falk
- 156s. **The Novel of the Nineteenth Century: Zola and Goncourt.** (3 cred.; sr. with §, grad.; offered 1956-57 and every third year) Falk
- 158w. **The Novel of the Twentieth Century: Proust.** (2 cred.; sr. with §, grad.; offered 1956-57 and every third year) Falk
- 159s. **The Novel of the Twentieth Century: Martin du Gard, Mauriac, Glono.** (2 cred.; sr. with §, grad.; offered 1955-56 and every third year) Falk
- 165s. **Poetry in the Twentieth Century: Apollinaire, Valéry, Eluard.** (2 cred.; sr. with §, grad.; offered 1956-57 and every third year) Blinoff
- 171f-172w-173s.† **History of the French Language.** (9 cred.; jr., sr., grad.; prereq. one year of Latin or §) Brackney
- 175f-176w-177s. **Main Trends in French Literary Criticism.** (6 cred.; sr. with §, grad.; offered 1956-57 and every third year) Falk

### *For Graduate Students Only*

- 204-205-206. **Readings in Old French Literature**
- 207-208-209. **Old Provençal**
210. **French Seminar: History of "Sensibilité" in the Eighteenth Century Through the Revolution**
222. **French Seminar: The Baroque in Sixteenth and Seventeenth Century Literature**
223. **French Seminar: Religious Thought in the Seventeenth Century**
225. **French Seminar: The French Revolution in French Literature**
- 226-227-228. **French Seminar: Balzac**
- 230-231-232. **Research Methods and Material**
240. **French Seminar: Nationalism in Modern French Literature—Barrés, Maurras, Péguy**
- 259-260-261. **Directed Readings in Romance Languages**

## Italian

*Junior College Courses*

- 1f-2w. **Beginning Italian.** (8 cred., \$5; no prereq.) Nissen  
 3s. **Intermediate Italian.** (4 cred.; prereq. 2 with grade of C) Nissen  
 4f. **Intermediate Italian.** (4 cred.; prereq. 3; offered 1956-57 and alternate years) Nissen  
 5w. **Reading Knowledge of Italian.** (5 cred., \$1; prereq. knowledge of French, Latin, or Spanish; no previous knowledge of Italian necessary) Nissen

*Senior College Courses*

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 69f. **Survey of Italian Literature I.** (3 cred.; jr., sr.; prereq. \*\*; offered 1956-57 and alternate years) Nissen  
 70w. **Survey of Italian Literature II.** (3 cred.; jr., sr.; prereq. \*\*; offered 1956-57 and alternate years) Nissen  
 71w. **Modern Poetry (Leopardi, Carducci).** (3 cred.; jr., sr.; prereq. \*\*; offered 1955-56 and alternate years) Nissen  
 72f. **Modern Drama (Giacosa, Bracco, Pirandello).** (3 cred.; jr., sr.; prereq. \*\*; offered 1955-56 and alternate years) Nissen  
 73s. **Boccaccio.** (3 cred.; jr., sr.; prereq. \*\*; offered 1956-57 and alternate years) Nissen  
 74s. **Petrarch.** (3 cred.; jr., sr.; prereq. \*\*; offered 1955-56 and alternate years) Nissen  
 159f-160w. **Dante.** (6 cred.; jr., sr., grad.; prereq. one course above 50; students may enter any quarter with \$; offered 1955-56 and alternate years) Nissen  
 161f-162w. **The Sixteenth Century.** (6 cred.; jr., sr., grad.; prereq. one course above 50; offered 1955-56 and alternate years) Nissen  
 164s. **Dante in English.** (3 cred.; jr., sr., grad.; prereq. \$; no knowledge of Italian necessary) Nissen

## Portuguese

- 1f-2w. **Beginning Portuguese.** (10 cred.; no prereq.)  
 3s. **Intermediate Portuguese.** (5 cred.; prereq. 1-2)

## Spanish

*Junior College Courses*

NOTE—There are three beginning courses in Spanish, 1-2 and 3, 1a-2a and 3a, and 1b-2b-3b. The student should study the description of each sequence and select the one most suited to his needs and interests.

- 1f-2w. §§ **Beginning Spanish.** This beginning course is 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. (10 cred.; no prereq.; students submitting one year of high school Spanish for entrance must take 2; those offering two years must take 3)  
 1w-2s. §§ **Beginning Spanish.** (See 1f-2w)  
 1s. §§ **Beginning Spanish.** (1st qtr. of 1-2. See 1f-2w)  
 1af-2aw. §§ **Beginning Spanish: Conversational Section.** This beginning course stresses conversation. It aims to give the students a basic active speaking vocabulary, assurance in self-expression, and facility in the spoken language. Ten class meetings a week; five hours of demonstration (introduction to texts dealing with real-life situations and necessary grammar) plus five hours of intensive conversational drill in sections small enough to insure for each student individual attention. Less outside preparation required than for the standard course. (10 cred.; no prereq.)

\*\* The prerequisite is 3 or 4; but for students beginning Italian in the Senior College it may be 1-2 with consent of the instructor.

§§ Students may not receive credit for both 1 and 1a, 1 and 1b, or 1a and 1b.

- 1bf-2bw-3bs. §§ Spanish Language and Culture.** The objectives of this course are (1) to provide, without emphasis on formal grammar, a practical reading knowledge of Spanish adequate for the needs of most students specializing in other fields; and (2) to impart a broad view and appreciation of the contribution of Spanish and Spanish-American culture to Western civilization. These objectives will necessarily require the students to read a considerable amount of varied material both in Spanish and in English. (15 cred.; no prereq.)
- 2f. §§ Beginning Spanish.** (2nd qtr. of 1-2. See 1f-2w)
- 3f. §§ Intermediate Spanish.** Grammar review and composition. Extensive reading from modern Spanish authors and conversation. (5 cred.; prereq. 1-2 or two years of high school Spanish)
- 3w. §§ Intermediate Spanish.** (See 3f)
- 3s. §§ Intermediate Spanish.** (See 3f)
- 3as. §§ Intermediate Spanish: Conversational Section.** (Continuation of 1a-2a) (5 cred.; prereq. 1af-2aw)
- 20f,w,s. Intermediate Spanish Grammar and Composition.** (Formerly 4) This course will co-ordinate the three sequences in elementary Spanish: 1-2-3, 1a-2a-3a, 1b-2b-3b, and will prepare students from all these courses to continue with courses in the Spanish language at a higher level. Emphasis will be placed on a thorough review of Spanish grammar, and translation of highly idiomatic material from Spanish to English and from English to Spanish. (5 cred.; prereq. 3, 3a, or 3b or three years of high school Spanish)
- 21f,w,s. Introduction to Spanish and Spanish-American Literature and Culture.** This will be a broad cultural and literary course unifying the study of the Spains of the Old World and the New. The students will be introduced to Spanish and Spanish-American history, civilization, customs, art, music, and literature. Emphasis will be placed on rapid reading in texts of a cultural and literary nature, supplemented by class discussions, in Spanish, of the material read. (5 cred.; prereq. 3, 3a, or 3b or three years of high school Spanish)
- 38w-39s. Spanish Shorthand and Technical Vocabulary.** (6 cred.; prereq. B grade in 53, and 30 words a minute typing; 5 hrs. per week; offered when feasible)

### Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 52s. Spanish Pronunciation and Diction.** (1 or 2 cred.; open only to candidates for the Spanish play, to others with §; prereq. 3, 3a, or 3b) Cuneo
- 53f. Spanish Composition.** (3 cred.; jr., sr.; prereq. 20) Floripe
- 54w-55s. Spanish Conversation.** (6 cred.; jr., sr.; prereq. 53) Floripe
- 56s. Spanish Phonetics and Diction.** (3 cred.; jr., sr.; prereq. 20) Cuneo
- 57w. Commercial Spanish.** (5 cred.; jr., sr.; prereq. 20) Cuneo
- 60f. Advanced Spanish Composition.** (3 cred.; jr., sr.; prereq. 53, 54, 55)
- 61w-62s. Advanced Spanish Conversation.** (6 cred.; jr., sr.; prereq. 60)
- 65f-66w-67s. Survey of the Literature of Spain.** (9 cred.; jr., sr.; prereq. 21) Grismer
- 68w-69s. Survey of the Literature of Spain.** (10 cred.; jr., sr.; prereq. 21) Floripe
- 70f-71w-72s. Latin-American Civilization and Culture.** (9 cred.; jr., sr.; prereq. 21) Cuneo
- 74f-75w-76s. Survey of the Literature of Spanish America.** (9 cred.; jr., sr.; prereq. 21) Irving
- 90f-91w-92s. Spanish Civilization and Culture.** (9 cred.; jr., sr.; prereq. 21) Pattison
- 103f-104w-105s. Spanish Syntax and Composition.** (3 cred.; jr., sr., grad.; prereq. 60 or 160) Pattison
- 110f-111w-112s. Spanish Literature: Nineteenth Century.** (9 cred.; jr., sr., grad.; prereq. 65-66-67 or 68-69; offered 1956-57 and alternate years) Pattison
- 115f-116w-117s. Spanish Literature: Seventeenth Century.** (9 cred.; jr., sr., grad.; prereq. 65-66-67 or 68-69; offered 1955-56 and alternate years) Grismer
- 120. The Ballad.** (3 cred.; jr., sr., grad.; prereq. 65-66-67 or 68-69; offered when feasible)

§§ Students may not receive credit for both 1 and 1a, 1 and 1b, or 1a and 1b.



130. **Cervantes: Don Quijote.** (3 cred.; jr., sr., grad.; prereq. 65-66-67 or 68-69; offered when feasible)
131. **The Picaresque Novel.** (3 cred.; jr., sr., grad.; prereq. 65-66-67 or 68-69; offered when feasible)
- 140f-141w-142s. **Contemporary Latin-American Literature.** (9 cred.; jr., sr., grad.; prereq. a survey of the literature of Spain or Latin America) Floripe
- 146-147-148. **Spanish-American Novel and Short Story.** (9 cred.; jr., sr., grad.; prereq. a survey of the literature of Spain or Spanish America; offered when feasible.)
- 155f-156w-157s. **Spanish Literature: Sixteenth Century.** (9 cred.; jr., sr., grad.; prereq. 65-66-67 or 68-69; offered 1956-57 and alternate years) Grismer
- 161f-162w-163w,s. **Hispano-Arabic Culture.** (3 cred.; jr., sr., grad.; prereq. 21 and §) Irving
- 171-172-173.† **History of the Spanish Language.** (3 cred.; jr., sr.; prereq. 20 and one year of Latin or §; offered when feasible)
- 174f-175w-176s. **Contemporary Spanish Literature.** (9 cred.; sr., grad.; prereq. 65-66-67 or 68-69; offered 1955-56 and alternate years) Floripe

### 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**

## RUSSIAN

See Slavic and Oriental Languages, page 143.

## SANSKRIT

See Slavic and Oriental Languages, page 145.

## SCANDINAVIAN

**Department Chairman—**Alrik Gustafson

**Major Adviser in the College of Science, Literature, and the Arts—**Professor Gustafson.

**Major Sequence in Scandinavian Languages and Literature in the College of Science, Literature, and the Arts—**Scan. 51-52, 61 or 71, 161 or 162, 171, 172, 191-192-193 and 5 additional credits in Scandinavian numbered 51 and above.

**Major Sequence in Scandinavian Area Studies.** See special bulletin, *Program in Scandinavian Area Studies.*

### Junior College Courses

- 1f-2w. **Beginning Norwegian.** (10 cred.; no prereq.) Nelson
- 3s. **Intermediate Norwegian.** (5 cred.; prereq. 1-2 or equiv.) Nelson
- 4f-5w-6s. **Advanced Norwegian.** (9 cred.; prereq. 1-2-3 or equiv.) Nelson
- 7f-8w. **Beginning Swedish.** (10 cred.; no prereq.) Lorenzen
- 9s. **Intermediate Swedish.** (5 cred.; prereq. 7-8 or equiv.) Lorenzen
- 10f-11w-12s. **Advanced Swedish.** (9 cred.; prereq. 7-8-9 or equiv.) Lorenzen
- 22w-23s.\*\* **Scandinavian Life Today and Yesterday.** A descriptive survey of present-day Scandinavian life and culture, with some attention paid to historical origins but with primary emphasis being placed upon twentieth-century developments in political and

\*\* No knowledge of the Scandinavian languages is required except for majors in Scandinavian.

economic democracy and social reform, in architecture and painting, in music, literature, and the home crafts. (6 cred.; no prereq.) Gustafson and staff

### Senior College Courses

Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 51f.\*\* **Scandinavian Literature in the Nineteenth Century.** A survey of Danish, Norwegian, and Swedish literature from the Romantic Movement and mid-19th-century idealistic realism to the realistic and naturalistic break-through in the drama and prose fiction of the 1870's and 1880's. (2 cred.; jr., sr.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature; offered 1956-57 and alternate years) Gustafson
- 52w.\*\* **Contemporary Scandinavian Literature.** A rapid sketch of characteristic trends in the Scandinavian literature of the last half century, especially as reflected in lyric poetry, the short story, and representative autobiographical works. (2 cred.; jr., sr.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature; offered 1956-57 and alternate years) Gustafson
- 61s. **Norwegian Conversation.** Practice in conversation employing the common Norwegian vocabulary and idiom of today and based on material drawn from present-day Norwegian life. (3 cred.; jr., sr.; prereq. 1-2-3 or equiv.) Nelson
- 71s. **Swedish Conversation.** Practice in conversational Swedish of today, with subject matter drawn from immediate everyday material from present-day Swedish life. (3 cred.; jr., sr.; prereq. 10-11-12 or equiv.) Lorenzen
- Geog.106. **Scandinavia.** (3 cred.; jr., sr., grad.; prereq. 5 cred. in geography or §; offered when feasible)
- Ger.113f-114w.‡ **Gothic.** (6 cred.; prereq. 80 and 11 cred. above 69 or equiv.; offered 1956-57 and thereafter when feasible)
- Soc.117s. **Scandinavian Folk Movements: Their Social and Political Significance.** (3 cred.; jr., sr., grad.; prereq. Soc. 1 or §)
- Hist.122f-123w-124s. **History of the Scandinavian Countries.** (9 cred.; jr., sr., grad.) Steefel
- Phil.137w. **Kierkegaard and Scandinavian Philosophy.** (3 cred.; jr., sr., grad.; prereq. one course from 50-51-52 or §) Holmer
- Pol.145f. **Government and Politics of the Scandinavian Countries.** (3 cred.; jr., sr., grad.; prereq. Pol. C or equiv. or §)
- Pol.146w. **Social Legislation and Social Institutions in the Scandinavian Countries.** (3 cred.; jr., sr., grad.; prereq. Soc. 1 or §)
- 161w.\*\* **The Scandinavian Novel I.** The late 19th century. An examination of "the great tradition" in modern Scandinavian novel, together with the circumstances, intellectual and political, social and economic, out of which it grew. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Gustafson
- 162s.\*\* **The Scandinavian Novel II.** Contemporary trends. A study of characteristic trends in Scandinavian life and thought in the 20th century as expressed in the prose fiction of Sigrid Undset, Johannes V. Jensen, Olav Dunn, Hjalmar Bergman, Pär Lagerkvist, Halldor Laxness, F. E. Sillampää, and others. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Gustafson
- 171f.\*\* **Ibsen and the Beginnings of the Modern Drama.** An intensive examination of the plays of Ibsen, especially with reference to the role he has played as "the founder" of the modern European drama. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Gustafson
- 172w.\*\* **Strindberg and the Drama in Revolt and Transition.** A study of Strindberg as master of the naturalistic drama and as "the father of modernity" in the European and American theater since his day. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Gustafson
- 173s.\*\* **The Contemporary Scandinavian Theater.** An examination of the Scandinavian theater of today, particularly with reference to its "experimental" trends both in dramatic composition and staging. (3 cred.; jr., sr., grad.; prereq. 4-5-6 or 10-11-12 or 8 cred. in literature) Gustafson
176. **The Germanic Languages.** (3 cred.; offered when feasible)

\*\* No knowledge of the Scandinavian languages is required except for majors in Scandinavian.

- Hist.176bf-177bw-178bs. Readings in Scandinavian History.** (9 cred.; sr., grad.; offered when feasible) Steefel
- 191f-192w-193s. Readings in the Scandinavian Literatures.** 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 cred. per qtr.; prereq. 4-5-6 or 10-11-12) Gustafson
- 195f-196w-197s.† Old Norse: Language and Literature.** Old Norse phonology and morphology. Survey of Old Icelandic history and literature. (9 cred.; prereq. knowledge of one Germanic language other than modern English recommended; offered 1955-56 and thereafter when feasible) Downs
- 199s. Scandinavian Area Proseminar.** (3 cred.; sr., grad.; prereq. major work in Scandinavian Area Studies) Gustafson and staff

### For Graduate Students Only

- 215-216-217. Studies in Scandinavian Romanticism**
- 218-219-220. Studies in Late Nineteenth Century Scandinavian Literature**
- 221-222-223. Dramatic Interpretative Problems in Strindberg**

### SECRETARIAL TRAINING

See Economics, page 58.

### SEMITIC

See Slavic and Oriental Languages below.

### SLAVIC AND ORIENTAL LANGUAGES

**Department Chairman—Thomas F. Magner**

**Major Advisers in the College of Science, Literature, and the Arts—**  
Assistant Professor Mather, Chinese; Instructor Shea, Japanese; Assistant Professors Blinoff, Magner, Niemi, Russian.

**Major Sequences in the College of Science, Literature, and the Arts—**

#### Chinese

Chin. 51-52-53, 56-57-58, 101-102-103, 110-111, and 6 credits in Ling. 151-152-153 (Honors Course).

#### Japanese

Jap. 51-52-53, 56-57-58, 101-102-103, 110-111, and 6 credits in Ling. 151-152-153 (Honors Course).

#### 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.

#### Chinese

##### Junior College Courses

**1f-2w-3s. Beginning Chinese.** (15 cred.; no prereq.) Mather

### Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses.

51f-52w-53s. **Intermediate Chinese.** (9 cred.; jr., sr.; prereq. 3) Mather

56f-57w-58s. **Composition.** (6 cred.; prereq. 3) Mather

101f-102w-103s. **Advanced Chinese.** Readings in Chinese historical, documentary, literary, philosophical, or philological texts, selected according to the student's needs. (9 cred.; prereq. 51-52-53 or equiv.) Mather

110f-111w. **Chinese Literature in Translation.** A survey in the best available English translations of Chinese *belles-lettres* from the first millennium B.C. to the present. (6 cred.; prereq. 8 cred. in literature; knowledge of Chinese not required; offered 1956-57 and alternate years) Mather

### Japanese

#### Junior College Courses

1f-2w-3s. **Beginning Japanese.** (15 cred.; no prereq.) Shea

#### Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses.

51f-52w-53s. **Intermediate Japanese.** (9 cred.; jr., sr.; prereq. 3) Shea

56f-57w-58s. **Japanese Composition.** (6 cred.; jr., sr.; prereq. 3) Shea

101f-102w-103s. **Advanced Japanese.** Readings in modern prose and poetry; introduction to the classical language. (9 cred.; jr., sr.; prereq. 51-52-53) Shea

110f-111w. **Japanese Literature in Translation.** Chronological survey of Japanese literature from the 8th century A.D. to the present; lectures, discussions, reports; readings in translations. 110: Primitive, classical, and feudal periods to ca. 1400. 111: Feudal and modern periods from ca. 1400 to the present. (6 cred.; jr., sr., grad.; prereq. 6 cred. in literature; knowledge of Japanese not required; offered 1955-56 and alternate years) Shea

### Old Church Slavic

113f-114w-115s. **Old Church Slavic (Old Bulgarian).** An introduction to Slavic linguistics. The descriptive grammar of the earliest Slavic texts and the comparison of OCS with other Indo-European languages. (9 cred.; jr., sr., grad.; prereq. Ling. 131-132 or equiv.) Magner

### Russian

#### Junior College Courses

1f-2w-3s. **Beginning Russian.** (15 cred.; no prereq.) Magner, Niemi

#### Senior College Courses

Senior College courses with numbers less than 100 are open to Junior College students who have an average grade of at least C in the prerequisite courses.

51f-52w-53s. **Intermediate Russian.** (9 cred.; jr., sr.; prereq. 3) Magner

56f-57w-58s. **Russian Conversation.** (9 cred.; jr., sr.; prereq. 3) Blinoff

61f-62w. **Russian Composition.** (4 cred.; jr., sr.; prereq. 3) Blinoff

71f-72w-73s. **Rapid Reading of Russian Literature.** Selected readings of modern Russian prose, with the aim of attaining facility in reading. (9 cred.; jr., sr.; prereq. 51-52-53 or #) Niemi

- 75f-76w-77s.\*\* **Russian Civilization and Culture.** A consideration of various aspects of Russian culture (land, peoples, languages, institutions, intellectual and artistic trends and achievements). (9 cred.; jr., sr.; prereq. 10 cred. in history or literature; offered 1956-57 and alternate years) Blinoff
- 81-82-83. **Reading of Nonliterary Russian Texts.** (9 cred.; jr., sr.; prereq. 51-52-53 or #; offered when feasible)
- 101f-102w-103s.\*\* **Russian Literature in Translation.** 101: Pushkin, Lermontov, Gogol. 102: Turgenev and Dostoevski. 103: Tolstoy and the period from 1880. (9 cred.; jr., sr., grad.; prereq. 8 cred. in literature) Niemi
- 125f-126w-127s. **History of the Russian Language.** A linguistic analysis of the development of the Russian language from the time of the earliest records to the present. (9 cred.; jr., sr., grad.; prereq. 51-52-53 or equiv.) Magner
- 131f-132w-133s. **Russian Poetry: Nineteenth Century.** (9 cred.; jr., sr., grad.; prereq. 71-72-73 or #) Niemi

### Sanskrit

- 128f-129w-130s. **Readings in Sanskrit.** Descriptive grammar; interpretation of Vedic and classical Sanskrit texts. (9 cred.; sr. with #, grad.; prereq. at least two Senior College courses in early European languages) Swanson
- 131-132. **Introduction to Sanskrit.** Phonology and morphology from comparative viewpoint. (6 cred.; sr. with #, grad.; prereq. at least two Senior College courses in early Indo-European languages, preferably Greek, Gothic, or Latin; offered when feasible)

### Semitic

- 1f-2w-3s. **Modern Spoken Arabic.** (9 cred.; no prereq.)
- 121f-122w-123s. **Introduction to Arabic Grammar and Reading.** (9 cred.; jr., sr., grad.; prereq. two courses above 50 in any foreign language) Irving
- 124f-125w-126s. **Introduction to Biblical Hebrew.** (9 cred.; jr., sr., grad.; no prereq. but this course cannot be used to satisfy language requirements; offered when feasible)

### Serbo-Croatian

- 1f-2w-3s. **Beginning Serbo-Croatian.** (9 cred.; no prereq.) Magner

## SOCIAL SCIENCE

See General Studies, page 75.

## SOCIAL WORK

(School of Social Work)

For undergraduate prerequisites, see sequence B in the Department of Sociology. For social work courses, see the *Bulletin of the Graduate School*.

## SOCIOLOGY

Department Chairman—E. D. Monachesi

**Major Advisers in the College of Science, Literature, and the Arts—**Professors Caplow, Martindale, Monachesi, Nelson, Rose, Vold; Associate Professor Sirjamaki; Assistant Professors Francis, Taves.

**Major Sequences in the College of Science, Literature, and the Arts—***Sequence A.* General sociology is built upon a core requirement of 21 credits as follows: 53, 111, 120, 162, 180, and 140 or 141, and 170 or 171,

\*\* No knowledge of the Russian language is required.

and 9 additional credits in Senior College 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. 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, 140, 141, 162; Anth. 165; C.W. 80; Econ. 6-7; Hum. 54; Psy. 144-145; Phil. 108; Pol. 124, 162, or Soc. 170, or Soc. 172; Pub.H. 50. A student majoring in this sequence must earn a minimum of 60 credits in Senior College courses.

(Prerequisites: For Sequence B—Soc. 1, 3, 45; Pol. 1-2 or 5; Psy. 1-2.)

Education for social work is on three levels: (1) undergraduate study, which includes social sciences and some courses of primarily informational nature dealing directly with social work; (2) one year of graduate social work study which includes technical theory courses in social work and field work practice; (3) a second year of graduate study devoted to specialization in a particular field of social work, advanced field work practice and research. The undergraduate level of study prepares for some beginning positions in social work. Training at the graduate level opens opportunities for work with professional recognition. For full information regarding 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; C.W. 80; Criminal Law; H.Ed. 180; Psy. 144-145, 171-172; Pol. 124; S.W. 275. In addition students are expected to have satisfactorily completed a work experience period between the junior and senior year in a state training school for boys and girls.

(Prerequisites: For Sequence C—Soc. 1, 3, 45; Econ. 6-7; 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 Senior College.

**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 1, 14, and 3.

*Minor recommendation:* 19 or 20 credits including 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.

*Junior College 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.** A study of the characteristics of human group life. An analysis of the factors associated with development of human group life and man's social environment; the structure of the social environment and its influence upon the individual's behavior. (3 cred.; no prereq.) Sirjamaki
- 1Af,w,s. Man in Modern Society.** (3 cred.; for students of the College of Agriculture, Forestry, and Home Economics only; no prereq.) Taves
- 2f,w,s. The American Community.** A sociological analysis of modern American society. Topics emphasized include the distribution of population, urban-rural differences, social factors in business systems, occupational groups, the determination of social status, and minority group adjustment. An attempt is made to familiarize the student with current research methods. (3 cred.; prereq. 1 or 1A) Martindale
- 3f,w,s. Social Problems.** (Formerly 49) A survey course in contemporary social problems with especial emphasis on personal demoralization and social disorganization. (3 cred.; no prereq.) Johnson
- 14w,s. Rural Sociology.** A presentation of factual data necessary to an understanding of the problems of rural social life. (3 cred.; no prereq.) Taves
- 14Af,w. Rural Sociology** (3 cred.; for students of the College of Agriculture, Forestry, and Home Economics; no prereq.) Taves
- 45f,w,s. Social Statistics.** An introduction to statistical methods employed in analyses of social data including methods of measuring central tendency, dispersion, significance of differences, and correlation. (5 cred., §Econ. 5; no prereq.)

*Senior College Courses*

Soc. 53 is open to third quarter sophomores who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 50f,w. An Introduction to the Theory and Practice of Social Work.** A survey of social service with consideration of areas of social needs, social agencies, their purpose and function, and the methodology and philosophy of social work practice. (5 cred.; jr., sr.; prereq. 3) Oren
- 53f,w,s. Elements of Criminology.** A general survey of the field of criminology. (3 cred.; jr., sr.; prereq. 1 or 1A or §) Vold
- 91f,s. Case Method Applied to the Study of Human Problems.** General application of the 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 cred.; jr., sr.; prereq. 50 or consent of major adviser) Oren
- 95. Introduction to Public Welfare.** The public welfare function of American government with especial emphasis on the social security programs. (3 cred.; jr., sr.; prereq. 50 or consent of major adviser; offered when feasible)
- 97f-98w-99s. Tutorial and Honors Work in Selected Fields.** (9 cred.; jr., sr.; prereq. consent of major adviser in sociology)

## I. SOCIAL PROBLEMS AND SOCIAL POLICY

- 100s. Contemporary Penology.** An analysis of some of the more important developments in recent attempts at the treatment of criminals and the prevention of crime. (3 cred.; jr., sr., grad.; prereq. 1, 53, or §) Vold
- 101f. Criminological Theories: Historical and Contemporary.** A consideration and an evaluation of the major historical and contemporary theories of criminal behavior. (3 cred.; jr., sr., grad.; prereq. 1, 53, or §) Vold
- 102w. Adult Parole and Probation.** A critical examination of problems and practices in the supervision of adult criminals. (3 cred.; jr., sr., grad.; prereq. 1, 53 or §; offered 1956-57 and alternate years) Vold
- 104w. Police Problems and Practices in the United States.** A study of personnel, organization, and public relations of police forces, with special attention to successful tech-

- niques of integrating police work with other community agencies. (3 cred.; jr., sr., grad.; prereq. 1, 53, or #; offered 1955-56 and alternate years) Vold
- 106f. **City Planning.** (Same as Arch. 104, Econ. 108, and Pol. 123) Social, economic, political, geographic, and technical phases of city planning. (3 cred.; sr., grad.; no prereq.) Broek, Caplow, Christensen, Vaile, Vivrett, Warp
- 111w. **Population Trends.** This course emphasizes the cultural and social phases of population change, with particular reference to birth rates, death rates, and migration. The implications of population change are also discussed. (3 cred.; jr., sr., grad.; prereq. 1 or #) Francis
- 112s. **World Population Problems.** A study of population policy, both historical and present-day, in Europe, Asia, and other selected areas but with special emphasis on the United States. Some discussion is given to the field of population and power politics. (3 cred.; jr., sr., grad.; prereq. 1, or #) Francis
- 115s. **Social Aspects of Housing and Standards of Living.** An analysis of the housing of the masses in relation to the problems arising in urban overcrowding, population distribution, and standard of living as affected by the distribution of national income, and the factors related to personal and social disorganization. (3 cred.; sr., grad.; prereq. 1, or #) Caplow
- 117s. **Scandinavian Folk Movements: Their Social and Political Significance.** (3 cred.; jr., sr., grad.; prereq. 1, or #)
- 118f. **Delinquent Behavior.** A critical analysis of the 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 cred.; jr., sr., grad.; prereq. 53) Monachesi
- 119w. **Modern Agencies for the Control of Juvenile Delinquency.** The 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 cred.; jr., sr., grad.; prereq. 53 and 118) Ellingston

## II. SOCIAL PSYCHOLOGY AND SOCIAL PROCESSES

- 120f,w. **Social Psychology.** Research and theory regarding the relation of the individual to social groups. Emphasis on the socialization processes; effects of social interaction and isolation; individual behavior under conditions of social organization and disorganization; cultural influence and its limits. (3 cred.; jr., sr., grad.; prereq. 1, or #) Rose
- 121s. **Advanced Social Psychology.** An examination of the methods of acquiring knowledge in social psychology, with analysis of outstanding pieces of research. The studies examined are concerned with the social psychology of small groups, neurotic behavior, mass behavior, and the making of political and economic choices. A major aim is to familiarize the student with current thinking and research in this field in the light of concepts and theories presented in the introductory course in social psychology. (3 cred.; jr., sr., grad.; prereq. 120 or #) Rose
- 122w. **Sociology of Conflict.** Manifest forms of antagonism among groups of persons; causes of conflict; methods of resolving through accommodation; the role of conflict and social change. (3 cred.; jr., sr., grad.; prereq. 1, or #) Vold
- 123s. **Intergroup Relations.** Interaction of social and cultural groups in America. Processes leading to group contact; characteristics and contributions of ethnic groups in the 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 cred.; jr., sr., grad.; prereq. 1, or #) Rose
- 124s. **Social Mobility.** Relationship of social mobility to system of social stratification. Analysis of vertical and horizontal mobility. Relationship of social mobility to social organization. Social mobility in contemporary societies with special reference to the United States. (3 cred.; jr., sr., grad.; prereq. 1, or #)

## III. SOCIAL ORGANIZATION AND SOCIAL INSTITUTIONS

- 140f,s. **Social Organization.** The 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 cred.; jr., sr., grad.; prereq. 1, or #) Sirjamaki



- 141f, w.s. **The Family.** The evolution of the family: development of family unity or disunity, the roles of the several members of the family, methods of investigation of the family. (3 cred.; jr., sr., grad.; prereq. 1, or §) Johnson
142. **Religion as a Social Institution.** (3 cred.; jr., sr., grad.; prereq. 1, or §; offered when feasible)
143. **The Newspaper as a Social Institution.** (3 cred.; jr., sr., grad.; prereq. 1, or §; offered when feasible)
- 144w. **Social Stratification.** Social stratification as a phase of social organization. Analysis of caste, estates, and social classes. Analysis of social stratification in contemporary societies with special reference to the United States. Socio-economic status and social stratification. (3 cred.; jr., sr., grad.; prereq. 1, or §)
- 145w. **Urban Sociology.** An introduction to the study of cities; urban ecology; urban institutions and the urban way of life. (3 cred.; jr., sr., grad.; prereq. 1, or §) Sirjamaiki
- 146f. **Industrial and Occupational Sociology.** This course analyzes the occupational group, the factory, and the business enterprise as social institutions, with particular attention to the contrasting functions of formal and informal organization, and to the significance of co-operation, authority, communication, status, and group norms in the working situation. (3 cred.; jr., sr., grad.; prereq. 1 and 15 cred. in sociology, psychology, political science, or economics) Caplow
- 147w. **Social Institutions of Modern France.** A 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 the 20th century. An attempt is made to supplement description from an American point of view with the perspective of French social theory. (3 cred.; jr., sr., grad.; prereq. 20 cred. of sociology, economics, or political science, or §; reading knowledge of French desirable but not essential; offered 1955-56 and alternate years) Caplow, Rose
- 148f. **Comparative Rural Societies: Latin America.** A survey course which will include in part the following topics: demographic characteristics, systems of agriculture, settlement patterns, class and caste, family life, and level of living; other social institutions and social change. (3 cred.; jr., sr., grad.; prereq. 20 cred. in sociology, economics, or political science, or §) Nelson
- 149w. **Comparative Rural Societies: Western Europe.** Course organized essentially along lines like that for Latin America (148). (3 cred.; jr., sr., grad.; prereq. 20 cred. in sociology, economics, or political science, or §) Nelson
- 150s. **Modern German Social Structure.** An examination of the social order and institutions of 20th-century Germany against a background of demography and ecological developments. (3 cred.; jr., sr., grad.; prereq. 20 cred. in social sciences; offered 1956-57 and alternate years) Martindale

#### IV. RURAL LIFE AND WELFARE

- 160f. **Rural Community Organization.** A study of the historical evolution, ecological characteristics, and demography of the rural community; the social processes, stratification, assimilation, conflict, and co-operation as manifested in rural society. (3 cred.; jr., sr., grad.; prereq. 1, or §) Nelson
- 161s. **Rural Community Analysis.** Course offered on the St. Paul Campus and intended primarily for prospective rural teachers and extension workers. Emphasis placed on methods of making field studies of communities. (3 cred.; sr., grad.; prereq. 1, or §)
- 162w, s. **Rural Social Institutions.** Factors in the rural environment which condition the functioning of rural social institutions, including the family, school, church, local government, health, and welfare. (3 cred.; jr., sr., grad.; prereq. 1 or §) Nelson

#### V. THEORIES OF SOCIAL CHANGE AND SOCIAL ORDER

- 170f. **Analytical Social Theory.** Examination of the major problems of sociological theory; survey of main types of sociological theory (positivistic, rationalistic, idealistic); study of major theoretical concepts. (3 cred.; jr., sr., grad.; prereq. 1, or §) Martindale
- 171w. **Social Life and Cultural Change.** Examination of 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 cred.; jr., sr., grad.; prereq. 1, or §) Martindale
- 172s. **Backgrounds of Modern Social Thought.** Survey of major trends of social thought from the Renaissance to the 19th century, with special attention to those factors

contributing to the origin of sociology. (3 cred.; jr., sr., grad.; prereq. 1, or #) Martindale

#### VI. RESEARCH METHODS AND TECHNIQUES

- 180w.s. **Methods of Social Research.** A survey of major methods employed in social research, including a consideration of their advantages and limitations when applied to specific types of problems. (3 cred.; jr., sr., grad.; prereq. 45 or equiv.; students in School of Social Work only [w], others [s]) Monachest
- 181s. **Problems in Rural Social Research.** A survey of methods currently used by students in investigating rural society; class reports on recent samples of rural research. (2 cred.; sr., grad.; prereq. 1, or #) Nelson
- 182f. **Statistical Methods.** Selected problems of social relationship described, analyzed, and interpreted by means of the common statistical methods. (3 cred.; grad.; prereq. 45 or equiv.) Francis
- 183s. **Problems in Social Measurement.** A theoretical analysis of problems involved in measuring social variables, including a consideration of problems of reliability, validity, and standardization in the construction of new measuring instruments. (3 cred.; jr., sr., grad.; prereq. 45 or 182 or equiv.)
- 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 to 9 cred.; jr., sr., grad.; prereq. 45 or 182 or 145 or 182)

#### *For Graduate Students Only*

#### VII. RESEARCH SEMINARS

200. Seminar: Research Problems in Criminology
- 201-202. Seminar: Research Problems in 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
- 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. Seminar: Research in Rural Social Policy
261. Seminar: Research in the Rural Community
262. Seminar: Research in Rural Social Theory
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, page 135.

#### SPEECH AND THEATER ARTS

Department Chairman—William S. Howell

**Major Advisers in the College of Science, Literature, and the Arts—**Professors Bryngelson, Gilkinson, Henrikson, Howell, Whiting, Ziebarth; Associate Professors Graham, Lassman, Smith, Thompson; Assistant Professors Ballet, Fletcher; Lecturer Josal.

**Major Sequences in the College of Science, Literature, and the Arts—**

A. *General:* Spch. 51, 61, 65, 67 or 140, 71, 81, 82 or 83, 106, 109 or 110, 119 and 169. Prerequisites: Spch. 1-2-3 or 5-6; 31, 32; Psy. 1-2.

**B. Theater:** Spch. 81, 78 or 83, 91, 92 or 93, 111, 112, and 12 other speech credits selected with the major adviser plus a comprehensive examination. Prerequisites: Spch. 1-2 or 5; 31, 32, 33, 34; Psy. 1-2.

**C. Public Speaking and Discussion:** Spch. 55, 56, 57, 61, 101, 102, 103, 106, 126, 140, 169. Prerequisites: Spch. 1-2-3 or 5-6; Psy. 1-2.

**D. Radio and Television:** Spch. 65, 66, 67, 78, 79, 81, 82, 83, 117, 142, 170. Prerequisites: Spch. 1-2-3 or 5-6; 31, 32; Psy. 1-2.

Modifications of these sequences will be permitted upon petition approved by the major adviser and the assistant dean for the Senior College.

**Major Advisers in the College of Education**—Professors Bryngelson, Gilkinson, Whiting; Associate Professors Graham, D. K. Smith; Assistant Professor Ballet.

**Requirements for a Teacher's Certificate** (applicable only to students in the College of Education)—

**Major recommendation:** 44-45 credits in speech distributed as follows: a core of 17-18 credits, Spch. 1-2 or 5, 31, 32, 67, 81; 27 credits taken in either of two curricula, as follows:

**Curriculum I**—Spch. 61, 106, 119; 9 credits selected from 51, 55 or 56, 65, 97, 101, 102, 103; 9 credits selected from 66, 71, 72, 73, and 82 or 83.

**Curriculum II**—Spch. 34, 65 or 66, 73, 78 or 83, 91 or 93, 92, 111, 112, 131 or 132.

**Minor recommendation:** Students minoring in speech and theater arts are required to take Ed.T. 75C, Spch. 1-2 or 5, plus 21 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 Theatre.

**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.

### Junior College Courses

**1f-2w.† Fundamentals of Speech.** Development of basic skills in speech: voice and action, oral reading, discussion, extemporaneous speaking. (6 cred., \$5-6; fr.,\*\* soph., jr., sr.; no prereq.) Gilkinson, Smith, and staff

**1w-2s.† Fundamentals of Speech.** (See 1f-2w) Gilkinson, Smith, and staff

**1s. Fundamentals of Speech.** (1st qtr. of 1-2. See 1f-2w) Gilkinson, Smith, and staff

**2f. Fundamentals of Speech.** (2nd qtr. of 1-2. See 1f-2w) Gilkinson, Smith, and staff

**3f,w,s. Fundamentals of Speech.** (Continuation of 1f-2w) (3 cred., \$6; fr.,\*\* soph., jr., sr.; prereq. 1-2 or 5) Gilkinson, Smith, and staff

**5f-6w. Fundamentals of Speech.** (10 cred., \$1-2-3; fr.,\*\* soph., jr., sr.; no prereq.) Gilkinson, Smith, and staff

\*\* Open to a limited number of freshmen with the approval of their advisers and the Department of Speech and Theater Arts.

- 5w-6s. **Fundamentals of Speech.** (See 5f-6w) Gilkinson, Smith, and staff
- 5s. **Fundamentals of Speech.** (1st qtr. of 5-6. See 5f-6w) Gilkinson, Smith, and staff
- 6f. **Fundamentals of Speech.** (2nd qtr. of 5-6. See 5f-6w) Gilkinson, Smith, and staff
- 8s. **The Art of the Theater.** A broad orientation in the stage arts and the film. It deals with the forms and variations of theatrical performance, such as drama, opera, musical drama, ballet, modern dance, and the film. It treats these as composite arts which include, unify, and integrate many individual arts, skills, and crafts. Lectures, demonstrations, films. (This course, together with Art 1, Mus. 10, and Phil. 4, forms a sequence in the Arts. See under General Studies, page 73.) (4 cred.; no prereq.) Amberg
- 9f,w,s. **Freshman Discussion and Debate.** Open to freshmen who win places on the Freshman Debate Squad. (1 cred.; fr. with C average; no prereq.) Bystrom
- 31f,w,s. **Introduction to the Theater.** History and theory of plays and playwrights as well as the various arts and crafts of the theater. Special projects in theater crafts. (3 cred.; fr., soph., jr., sr.; no prereq.) 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 cred.; soph., jr., sr.; prereq. 31) Whiting
- 33f,w,s. **Beginning Acting: Stage Technique.** Fundamentals of body movement, rhythm, and stage technique. Individual and group performances. (3 cred.; prereq. 32) Moulton
- 34f,s. **Stagecraft: Construction and Painting.** Theory and practice in construction, painting, and shifting of stage scenery. (3 cred.; soph., jr., sr.; prereq. 31) Josal
- 39f,w,s. **Parliamentary Procedures.** Rules of order and practice in applying these to various types of meetings. (2 cred.; prereq. Δ)

### Senior College Courses

Spch. 51, 67, 97 are open to Junior College students who have an average grade of at least C in the prerequisite courses. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 51s. **Advanced Public Speaking.** Preparation and delivery of speeches on current public issues. (3 cred.; jr., sr.; prereq. 1-2 or 5) D. K. Smith
- 55f,56w,57s. **Speech Writing and Platform Speaking.** Essentials of voice production and of effectiveness in delivery. The elements of oral style. Written speeches; practice in delivery. (9 cred.; jr., sr.; prereq. 1-2 or 5 and §) Gilkinson
- 61f,s. **Personal Development Through Speech.** A study of behavior as indicated through speech; speech symptoms evaluated from cause and effect relations; psychological 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 cred.; jr., sr.; prereq. 1-2 or 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 cred.; jr., sr.; prereq. 1-2 or 5) Schinske, Ziebarth
- 66f,w,s. **Radio Drama.** A study of the historical development of radio drama, with an analysis of the various types of radio dramas including production, direction, and acting techniques. (3 cred.; jr., sr.; prereq. 1-2 or 5...65 recommended)
- 67f,w,s. **Phonetics.** The study of the sounds of American English as they occur separately and in connected speech. Strong and weak forms, stress, assimilation. Practice in ear training. (3 cred.; jr., sr.; prereq. 1-2 or 5; students intending to take speech pathology should take phonetics the preceding year) Fletcher
- 71f,72w,73s. **Play Production: Problems of Dramatic Production in the Secondary School.** (9 cred.; jr., sr.; primarily for students in the College of Education; prereq. 1-2 or 5, 31, 32) Ballet (f,s), Josal (w)
- 78f,79w. **Advanced Acting.** 78: Characterization, styles of acting, and stage technique. Presentation of scenes from great plays. 79: Continuation with emphasis upon stage dialects. (6 cred.; jr., sr.; prereq. 31, 32) Graham
- 78w,79s. **Advanced Acting.** (See 78f,79w) Graham
- 81f,82w,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 cred.; jr., sr.; prereq. 1-2 or 5; 81 is prereq. to 82 or 83) Thompson
- 81w,82s. **Interpretative Reading.** (1st two qtrs. of 81, 82, 83. See 81f, 82w, 83s) Thompson

- 91w. **Stage Design.** Theory and practice of designing scenery as a functional environment for the stage play. (3 cred.; jr., sr.; prereq. 1-2 or 5, 31) Josal
- 92s. **Stage Lighting.** Theory and practice in applying methods and principles of lighting in the theater. (3 cred.; jr., sr.; prereq. 1-2 or 5, 31) Josal
- 93f. **Stage Costuming.** (3 cred.; jr., sr.; prereq. 1-2 or 5, 31) Moulton
- 97f,w,s. **Intercollegiate Oratory and Debate.** Open to the student who represents the University in the annual contest of the Northern Oratorical League and to students who win places on the intercollegiate debate squad. (1 to 3 cred.; soph. with C average, jr., sr.; no prereq.) Howell, Smith
- 101f,102w,103s. **Argumentation and Persuasion.** Theories of modern motivational rhetoric. Analysis of persuasive speaking; practice in preparation and delivery of oral argument. (9 cred.; jr., sr., grad.; prereq. 1-2 or 5, Psy. 1-2, 10 cred. in social science) Howell, Smith
- 105f. **Theory of Reading and Acting.** Literature as an art; its various forms; the psychology of the creative imagination; speech elements in literature; origins and nature of speech symbols and technique of their use. Collateral readings, problems, reports, term papers. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 81, 82, 83, and Psy 1-2; offered 1956-57 and alternate years) 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 cred.; jr., sr., grad.; prereq. 1-2 or 5) Howell
- 107f. **Platform Reading.** An advanced course in the oral interpretation of selected poems and plays. Speech melody, rhythm, platform technique. Problems in aesthetic analysis. Lecture recitals. (3 cred.; jr., sr., grad.; prereq. 81, 82, 83 with a grade of B in 83; offered 1955-56 and alternate years) Thompson
- 109f. **Classical Rhetoric.** (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, and  $\Delta$ ; offered 1955-56 and alternate years) Smith
- 110f. **British Rhetoric and Oratory.** Critical study of British orators, their works, the historical setting. British rhetorical theory. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, and  $\Delta$ ; offered 1956-57 and alternate years) Smith
- 111f,112w,113s. **Stage Direction.** 111: Theory of direction and preparation of the prompt book with exercises in blocking. 112: Rehearsal problems and the direction of two one-act plays. 113: Problems of management and staging; the direction of a full length play. (9 cred.; sr., grad.; prereq. 1-2 or 5, 31, 32, 33, 34, 91, 92, 93, and  $\Delta$ ) Whiting
- 115f,116w. **Playwriting and Production.** Creative practice in dramatic construction. 115: The one-act play. 116: The full-length play. (3 cred. per qtr.; jr., sr., grad.; prereq. 1-2 or 5, 31, 32, 33, or  $\Delta$ ) Thompson
- 117s. **Writing Radio and Television Drama.** Techniques of radio and television drama. The writing of an original, thirty-minute radio or television play through the stages of sketch, scenario, rough draft, and final draft. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 31, 32, or  $\Delta$ ) Thompson
- 119f. **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 cred.; jr., sr., grad.; prereq. 1-2, or 5, or  $\Delta$ ) Henrikson
- 122f. **Introduction to Research.** Graduate research in speech: selections of topics and methods of investigation. Required of all graduate majors in speech. (3 cred.; sr., grad.; prereq. 1-2 or 5, Psy. 1-2) Gilkinson
- 124w. **Experiments in General Speech.** An examination of studies of the correlates of speech skills, audience reactions, and speech improvement. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, Psy. 1-2) Gilkinson
- 126s. **History and Criticism of Public Address.** An examination of historical and critical studies of oratory. The study of orators: education and training, style, speech composition, topics and issues, historical settings. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, Psy. 1-2) Gilkinson
- 131f. **Creative Dramatics.** The principles and methods of developing original dramatizations with children. Observation of children's classes in creative dramatics. Readings, projects, term papers. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 31 or elementary education major, or  $\#$ ..Ed.C.I. 63 recommended) Graham
- 132s. **Children's Theater.** The 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 Theatre. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 31 or  $\#$ ) Graham

- 140f. Introduction to Voice Science.** Consideration of fundamental aspects of the phonetic, anatomic, physiologic, and physical bases of speech. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, Psy. 1-2) Fletcher
- 141w. Anatomy and Physiology of the Voice Mechanism.** Respiration, articulation, and phonation; practical applications to speech improvement. (3 cred.; jr., sr., grad.; prereq. 1-2 or 5, 67, 140, 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 cred.; jr., sr., grad.; prereq. 1-2 or 5, 67, 140, or #, Psy. 4-5) Fletcher
- 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 cred.; jr., sr., grad.; prereq. 1-2 or 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 cred.; jr., sr., grad.; prereq. 1-2 or 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 cred.; prereq. 1-2 or 5, 67, 152, Psy. 1-2, or #) 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 cred.; jr., sr., grad.; prereq. 152, 153, 155 or #) Lassman
- 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 cred.; jr., sr., grad.; prereq. 1-2 or 5, 61, 67, 119) Bryngelson (w), Henrikson (s)
- 164f-165w-166s. Clinical Methods and Practice in Speech Pathology.** (9 cred.; sr., grad.; prereq. 1-2 or 5, 61, 67, 119, 162, 163) Bryngelson, Henrikson, Ptacek
- 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 cred.; jr., sr., grad.; prereq. #) Ptacek
- 170w. Radio and Television Programming.** An intensive study of the theory and practice of radio and television programming. An examination of the principles of program effectiveness and a study of the program policies of the industry. The building and production of experimental programs with special emphasis on talk and discussion, and round table. (3 cred.; jr., sr., grad.; prereq. 65 or 66, or #) Ziebarth, Schinske
- 171f, 172w, 173s. History of the Theater.** A study of the plays, arts, and crafts of the theater from their beginnings to the present. Special reports and projects. (9 cred.; sr., grad.; prereq. 1-2 or 5, 31) Graham
- 174, 175, 176. Theater Backgrounds.** A study of playwrights from Aeschylus to the present day with emphasis on the theatrical effectiveness of their plays. (9 cred.; sr., grad.; prereq. 1-2 or 5, 31...courses in literature recommended; offered when feasible)
- 177f. Theater on Tour.** The selection, preparation, production, and touring of a school assembly program, presented during the fall quarter in approximately 130 schools throughout Minnesota and surrounding states. (3-6 cred.; sr., grad.; prereq. 12 or more Senior College speech credits and approval of faculty committee) Whiting and staff
- 178w. Theater on Tour.** The preparation, production, and touring of one or more full length plays, presented during the winter quarter in approximately forty-five communities throughout Minnesota and surrounding states. (3-6 cred.; sr., grad.; prereq. 12 or more Senior College 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. (Cred. ar.; jr., sr., grad.; prereq. 1-2 or 5 and 6 additional cred. and #) Bryngelson, Gilkinson, Henrikson, Howell, Whiting, Ziebarth, Graham, Lassman, Smith, Thompson, Ballet, Fletcher, Josal
- 191f, 192w, 193s. Technical Stage Problems.** Advanced study in theory of scenic design, theater architecture, stagecraft, and lighting. Special projects and reports. (9 cred.; jr., sr., grad.; prereq. 111, 112, 113) Josal

Students of theater arts are urged to acquire a strong background in dramatic literature. Among the courses recommended are: Clas. 81, 82, 181, 182; Engl. 126-127, 129, 156, 170, 184-185-186; Ger. 140-141-142; Scan. 171-172-173, 221-222-223.

*For Graduate Students Only*

- 201. General Seminar
- 203,204. Debate Coaching
- 207,208,209. Seminar in Persuasion
- 211,212,213. Seminar in Dramatic Theory
- 221,222,223. Seminar in Oral Interpretation of Literature
- 231,232,233. Seminar in Advanced Speech Problems
- 241,242,243. Seminar in Radio Research
- 251. Seminar in Listening Comprehension
- 261,262,263. Seminar in Speech Pathology
- 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

SWEDISH

See Scandinavian, page 141.

PREPARATION FOR THEOLOGICAL TRAINING

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 catalog 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 student should consult with one of the senior advisers of the pretheological program at the earliest practicable time. These advisers are Mr. Holmer (106 Westbrook Hall) or Mr. McDonald (115 Folwell Hall).

This interdepartmental major takes for granted the completion of the Plan I program in the Junior College (slightly modified as suggested below). Every attempt will be made, however, to adapt to this curriculum the programs of transfer students or those who have been following Plan II in this college.

*Junior College*

- A. **English:** A-B-C or 4-5-6 required. Additional credits to total 18 minimum in English literature, composition, and speech (Engl. 21-22-23, 37-38-39, Comp. 27-28, Spch. 1-2 or 5 recommended).
- B. **Foreign Language:** Requirements to be fulfilled according to the schedule on page 9 of this bulletin. Greek is strongly recommended.
- C. **Social Science:** 9 credits in ancient history (Hist. 14-15-16 or 50-51-52) and at least 10 credits in other social sciences (Soc. 1-2 or Econ. 6-7 recommended).
- D. **Natural Science:** 6 credits in psychology (Psy. 1-2) and 9 credits minimum in other natural sciences (N.Sci. 1-2-3 recommended).
- E. **Health:** 2 credits (Pub.H. 3A or 3B or equivalent).
- F. **Philosophy:** 5 credits in logic (Phil. 2).

**NOTE**—Appropriate courses in music are strongly recommended for students with any aptitude or interest in that field. Clinical work in remedial speech is recommended for students with speech difficulties.

### Senior College

The following are specific requirements, not all of which need be met by Senior College courses. However, at least 60 credits must be earned in Senior College courses for graduation.

- A. **Fine Arts:** 9 credits minimum in history of 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 Sciences:** 12 credits minimum in anthropology, economics, political science, sociology (Soc. 50, An Introduction to the Theory and Practice of Social Work, strongly recommended), speech, psychology.

## ZOOLOGY

**Department Chairman**—Dwight E. Minnich

**Major Adviser in the College of Science, Literature, and the Arts**—Professor Minnich.

**Major Sequence in the College of Science, Literature, and the Arts**—27 credits in Senior College courses of which at least 18 must be in courses with numbers between 49 and 100.

**Preparation for Major**—Zool. 1-2-3 or equivalent and 22, or equivalent. If possible beginning chemistry and at least one year of French or German should be completed during Junior College work.

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

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

For a course in general biology see Department of General Studies, page 74.

### Junior College Courses

- 1f-2w-3s.† **General Zoology.** Structure, physiology, embryology, classification, and evolution of animals. (10 cred.; no prereq.) Minnich, Stephens
- 14f-15w.† **General Zoology.** Structure, physiology, embryology, classification, and evolution of animals. (6 cred.; primarily for students of the College of Agriculture, Forestry, and Home Economics, and School of Nursing; no prereq.) Olson
- 22w. **Comparative Anatomy.** Comparative study of vertebrate systems, tracing the development of the various structures from the lowest forms to man. (5 cred.; soph., jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9) Eddy

### Senior College Courses

Zoology courses numbered between 50 and 100 are open to sophomores who have a grade of at least C in 1-2-3. Other Senior College courses in this department are open to Junior College students only by special permission of the Scholastic Committee. See a statement on page 24.

- 50s.\*\* **Introduction to General Physiology.** Comparative physiology of cells and cell systems. Physics and chemistry of protoplasm. (5 cred.; soph., jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9 or 15 cred. in botany, and 10 cred. in chemistry or §) Steinbach

\*\* Not open to regular three-year premedical and pre dental students.



- 51f. Introductory Animal Parasitology.** An elementary course dealing with parasitic protozoa, worms, and arthropods, and their relation to diseases of man and animals. (5 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9) Wallace
- 52w. Introductory Entomology.** General morphology, life histories, habits, and classification of insects. (5 cred.; jr., sr.; prereq. 1-2-3 or 14-15 or N.Sci. 7-8-9) Mickel
- 53s. Fauna of the Central United States.** A study of the identification, classification, and life histories of common land and fresh-water animals exclusive of insects and birds. (5 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9) Eddy
- 54f. Histology.** Microscopic structure of the tissues and organs. (5 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9) Olson
- 57w-58s.† Introductory Ornithology.** A laboratory and field course in the structure, classification, distribution, migration, habits, habitats, and identification of birds. (6 cred.; jr., sr.; prereq. 1-2-3 or 14-15 or N.Sci. 7-8-9) Warner
- 59w.\*\* General and Comparative Embryology.** A study of the embryological development of invertebrate and vertebrate forms. (5 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9 or equiv.) Spratt
- Ent.63w. Mammalogy.** Distinguishing characteristics and 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 cred.; jr., sr.; prereq. 22) Beer
- 81w. Invertebrate Zoology.** A review of the invertebrate phyla with emphasis on structure and general classification. (3 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9) Stephens
- 82f. Organic Evolution.** Survey of the history, the evidence, and the causes of evolution. (3 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9 or Bot. 1-2-3) Merrell
- 83f,s. Introduction to Genetics and Eugenics.** The 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 cred.; jr., sr.; prereq. 1-2-3 or N.Sci. 7-8-9 or Bot. 1-2-3) Reed (f), Merrell (s)
- 107-108. Protozoology.** A survey of the free-living protozoa: structure, classification, identification; physiology, reproduction, life histories; genetics and morphogenesis. (6 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3 or N.Sci. 7-8-9; offered when feasible)
- 109w. Sense Organs.** A survey of the structure and function of the sense organs of invertebrate and vertebrate animals. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 and §) Minnich
- 110s. Animal Reactions.** A survey of the nervous system, effectors, and behavior patterns of animals. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 and §) Minnich
- 112f. Advanced General Physiology.** Interactions between cell and environment; enzyme action and general protoplasmic structure and metabolism. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 with §) Steinbach
- 113w. Special Topics in Advanced General Physiology.** (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 with §) Steinbach
- 117f. Animal Ecology.** General ecology stressing ecological principles and land communities. (3 cred.; jr., sr., grad.; prereq. 15 cred. in zoology including 1-2-3, or N.Sci. 7-8-9 or entomology) Eddy
- 118w. Animal Ecology.** Experimental approach to the study of environmental factors affecting animal populations. (3 cred.; jr., sr., grad.; prereq. 15 cred. in zoology including 1-2-3, or N.Sci. 7-8-9, or entomology and §) Hodson
- 119su.§§ Limnology.** A study of the conditions for life in the water and distribution of aquatic animals. (4 cred.; prereq. 15 cred. in zoology including 1-2-3, or N.Sci. 7-8-9; offered at Lake Itasca Forestry and Biological Station only) Eddy
- 120s.§§ General Ecology of Insects.** Ecology with special reference to insects, their dispersal, distribution, abundance, natural control, and related problems. (3 cred.; jr., sr., grad.; prereq. 15 cred. in zoology or entomology) Hodson
- 121f. Ichthyology.** A study of the taxonomy and habits of North American fishes with special reference to those of upper Mississippi drainage. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9) Eddy
- 125f-126w-127s. Advanced General Entomology.** Morphology, biology, and classification of insects. (9 cred.; jr., sr., grad.; prereq. 15 cred. including 52 or equiv., or §) Mickel

\*\* Not open to regular three-year premedical and pre dental students.

§§ Either 119su or 120s or both may be taken to complete courses 117f, 118w.

- 123f-129w. **Insect Physiology.** General and comparative physiology of insects, a survey of the organ systems and their functioning in various insects. (8 cred.; jr., sr., grad.; prereq. 15 cred. in zoology or entomology and #...50 or equiv. recommended) Richards
- Bot.136su. **Organisms, Microclimate and Weather.** Relation of organisms including man to microclimate and to weather, with special emphasis on heat and temperature, moisture and wind. Lecture, laboratory, field work, and discussion. Term paper required. (4 cred.; prereq. 10 cred. in biology, botany, or zoology...course in physics recommended; offered at Lake Itasca Forestry and Biological Station only) Lawrence
- 140s. **Biological Microscopy.** Necessary elements of optics, use and limitations of the various types of microscopes, interpretation of microscopical data. Laboratory and demonstrations plus project in field of student's interest. (4 cred.; sr., grad.; prereq. 15 cred. in zoology, entomology, or botany, and #) Richards
- 144f. **Medical Entomology.** A study of the 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 cred.; jr., sr., grad.; prereq. 15 cred. including 52 or equiv. and #)
- 145w. **Parasitic Protozoa.** The structure, life histories, and economic relations of protozoal parasites of man and animals. Laboratory diagnosis. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 and #) Wallace
- 146s. **Helminthology.** Worm parasites of man and animals, their structure, life histories, and biological relationships. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 and #) Wallace
- 160w-161s. **Cytology.** A survey of cell structure and behavior with special reference to genetic cytology and cellular physiology. (6 cred.; jr., sr., grad.; prereq. 15 cred. including 1-2-3, or N.Sci. 7-8-9 with #) Gall
- 170f. **Advanced Genetics.** General laws involved in heredity and variation with their applications to micro-organisms, higher plants, and animals exclusive of man. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 83, and #) Reed, Merrell
- 171w. **Genetics of Speciation.** Application of genetic principles to problems of speciation and evolution. (3 cred.; jr., sr., grad.; prereq. 15 cred. including 83, or #) Merrell
- 175s. **Human Genetics.** A study of the inherited characters in man, particularly in relation to medicine, with some reference to the relation of genetics to marriage and to social conditions. (3 cred.; jr., sr., grad.; prereq. 83 and #) Reed
- 182s. **Experimental Embryology.** Growth, differentiation, and metabolism of developing organisms. (5 cred.; sr., grad.; prereq. 50 and 59 or equiv. and #) Spratt
- 183f-184-185. **Physiology of Development.** Designed to train advanced students in the organization, presentation, and evaluation of the 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, including sex-differentiation. (4 cred. per qtr.; sr., grad.; prereq. 182 or equiv. and #; 183 will be offered fall of 1956-57, 184 fall of 1957-58, and 185 fall of 1955-56) Spratt
- 197f-198w-199s. **Problems.** Advanced work in some special line. (Cred. ar.; jr., sr., grad.; prereq. 1-2-3 and #)

### *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**
- 237-238-239. **Research in Cytology**
- 241-242-243. **Research in Protozoology**
- 251-252-253. **Research in Genetics**
- 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.** A survey of the 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 the dynamics of biophysical systems; excitatory state, contraction, secretion, synthesis. 157: Examines integrative biophysical systems; stability of systems, transmission of intelligence, sensory mechanisms. (3 cred. per qtr.; jr., sr., grad.; prereq. 28 cred. 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*.

## Section III

# Preprofessional Curricula in Science, Literature, and the Arts

As explained on page 7 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 curricula in the College of Science, Literature, and the Arts which are prerequisite for entrance into the various professional schools are presented below.

### A. University College

See Section I, page 13.

### 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 five-year professional curriculum in architecture. It leads normally to the bachelor of arts degree with a major in architecture at the end of four years and the bachelor of architecture degree at the end of six years.

The work of the first four years constitutes a modified version of the curriculum prescribed for the Science, Literature, and the Arts 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 two years' work may be taken at the University of Minnesota in the Junior College of the College of Science, Literature, and the Arts, or at other accredited institutions. During this period the student should complete the requirements for entrance to the Senior College of the College of Science, Literature, and the Arts as stated on page 8. These requirements should include the following:

High school or college equivalents of **Math. 1, Higher Algebra and Solid Geometry**

**In.Ch. 1-2 or 6-7** if the student does not have high school credit for chemistry

**Math. 6, 7, 30, Trigonometry, Algebra, and Analytic Geometry (15 credits)**

**Phys. 1-2-3, Introduction to Physical Science (9 credits)**. If physics is used to satisfy the group D requirement, **Phys. 1a-2a-3a, Physical Science Laboratory (3 credits)** must be taken also.

**Art 23A-24A-25A, Drawing and Painting I (6 credits)**

Approved electives to make a minimum total of **90 credits**

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\*\* 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.

**Third and Fourth Years**—During these years the student is registered in the Senior College of the College of Science, Literature, and the Arts 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. The required application forms may be obtained from either 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. The following courses should be included:

- 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)
- I.T.M. 91, M.&M. 92-93, Calculus, Mechanics, Strength of Materials (12 credits)
- Approved electives to make a minimum total of 180 credits acceptable for the B.A. degree
- C.E. 38-39-41, Structural Design, or Arch. 57-58-59, Building Materials and Methods, 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:

- C.E. 38-39-41, Structural Design (9 credits)
- Arch. 57-58-59, Building Materials and Methods (12 credits)
- Arch. 71-72-73, Building Equipment (9 credits)
- Arch. 104, City Planning (3 credits)
- Arch. 105, Professional Relations (3 credits)
- Arch. 111-112-113, Architectural Design III (24 credits)
- Arch. 121-122, Architectural Design IV (18 credits)
- Arch. 123, Thesis (12 credits)
- Additional approved electives to make a minimum total of 270 credits for the two degrees

## C. School of Business Administration\*\*

The purpose of the prebusiness curriculum is to combine an opportunity for some liberal education with preliminary basic courses in economics. In recognition of the widening social responsibility of business management, the student is urged to elect courses in several fields outside of 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 given for physical education, earned in a recognized college or university with a scholarship average of C or a smaller number of earned credits which, together with quality credits, will total a minimum of 90. One quality credit is granted for every 5 honor points in excess of the number necessary for a C average.

Quality credits earned in the Junior College may be applied only toward the 90 credits required for admission to the School of Business Administration. In other words, a student who has a surplus of honor points above the number required to complete 90 credits may not use these for credit in the School of Business Administration. Any excess

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\*\* 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.

credits other than quality credits, however, may be applied toward electives in the School of Business Administration.

The School of Business Administration offers courses leading to the degrees of bachelor of business administration 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.

### A. Junior College Requirements for Admission to Sequences Leading to the Degree of Bachelor of Business Administration

Engl. A-B-C, Freshman English (15 credits) or Engl. 4-5-6, Freshman Composition (9 credits) or exemption from the requirement. Twelve credits in Communication (Comm. 1-2-3) or 9 credits in Writing Laboratory (G.C. 31A, 31B, and 31C or 31D, if ranked in the upper one-third) will satisfy the English requirement

Five credits in Higher Algebra (Math. 1), or credit in high school Higher Algebra and a passing grade in a proficiency test given by the Department of Mathematics or Commerce Algebra (Math. 8)

Nine credits in mathematics or one of the following laboratory sciences: botany, chemistry, geology, physics, zoology, or psychology with laboratory. Math. 1 and 4 additional credits in mathematics will satisfy this requirement. Fifteen credits in Orientation in the Natural Sciences (N.Sci. 1-2-3) or 10 credits in The Physical World (N.Sci. 4-5-6) or 10 credits in General Biology (N.Sci. 7-8-9) will satisfy the science requirement

Eight credits in one of the following social sciences: anthropology, geography, history, political science, sociology or 12 credits in S.Sci. 1-2-3 taken at the University of Minnesota. Social Statistics (Soc. 45) will not be accepted in fulfillment of this requirement

Ten credits in Principles of Economics (Econ. 6-7)

Sufficient electives to complete the minimum of 90 credits required for admission Business and the American Economy (Econ. A) is recommended as an introductory view for all students planning to enter the School of Business Administration

The following three courses should, if possible, be taken during the sophomore year for they are prerequisite to certain courses in the core group:

Elements of Money and Banking (Econ. 3)

Elements of Statistics (Econ. 5A or 5B)††

Principles of Accounting (Econ. 24-25-26)‡‡

Students who find it impossible to include the above courses in money and banking and accounting during the sophomore year may substitute the following after entrance to the School of Business Administration:

Money and Banking (B.A. 57)

Elementary Accounting: Combined Course (B.A. 54-55)

In addition, certain courses are required in special sequences in the School. These course prerequisites should be included in the Junior College program wherever possible. The major sequences and special course prerequisites are as follows:

**Accounting:** Mathematics of Investment (Math. 20) (prereq. Math. 8, or 6 and 7, or 15 and 16)

**Advertising:** General Psychology (Psy. 1-2)

**Retail Store Training:** General Psychology (Psy. 1-2); Typewriting (Econ. 32-33)

**Foreign Trade:** General Psychology (Psy. 1-2); 9 credits in political science; reading knowledge of a foreign language

**Industrial Administration:** See *Bulletin of the Institute of Technology*

†† Credit not granted in Econ. 5A or 5B to students who have had Social Statistics (Soc. 45).

‡‡ Students who have had a high school course or experience in bookkeeping may be admitted to Econ. 25 by passing a placement test which is normally given the first day of each quarter.

**Industrial Relations:** General Psychology (Psy. 1-2)

**Insurance:** General Psychology (Psy. 1-2); Mathematics of Investment (Math. 20) (prereq. Math. 8, or 6 and 7, or 15 and 16). Introduction to the Mathematics of Life Insurance (Math. 21) recommended but not required

**Merchandising and Selling:** General Psychology (Psy. 1-2)

**Office Management:** General Psychology (Psy. 1-2); Typewriting (Econ. 34); Office Procedures (Econ. 36)

**Secretarial and Supervisory Training:** General Psychology (Psy. 1-2); Typewriting (Econ. 34); Shorthand (Econ. 39)

**Transportation:** General Psychology (Psy. 1-2); Geography of Commercial Production (Geog. 41)

### Distribution of Courses

Of the required and elective courses in economics: Econ. A, Business and the American Economy, is recommended but not required, for background and orientation to the business world, and belongs in the freshman year. Econ. 3 may be taken in the freshman year or later. Econ. 5A or 5B and 6-7 belong in the sophomore year. The sequence Econ. 24-25-26 may be started as early as the third quarter of the freshman year. Math. 1 should be included as early in the program as possible.

Of the courses taken to meet the requirements of (1) English, (2) social science, (3) mathematics or laboratory science, freshmen should take at least two and thus leave not more than one for the sophomore year. To meet the third of these requirements, students who intend to specialize in accounting, banking, insurance, or statistics should take mathematics instead of natural science.

Courses in English, mathematics, all the laboratory sciences, and all of the social sciences are open to freshmen.

Of other courses recommended above, Psy. 1-2 (General Psychology) belongs in the sophomore year; Econ. 32-33 (Typewriting) may be taken as early as the student's first quarter in college, with the instructor's permission; foreign language, which is required in the foreign trade sequence, may be taken as early as the beginning of the freshman year.

## B. Junior College Requirements for Admission to Sequences Leading to the Degree of Bachelor of Science in Economics

### Economics Sequence

English (Comp. 4-5-6 or Comm. 1-2-3 or Engl. A-B-C) (9 or 12 or 15 credits)

Mathematics (10 credits)

Elements of Money and Banking (Econ. 3)\*\* (5 credits)

Principles of Economics (Econ. 6-7) (10 credits)

Elements of Statistics (Econ. 5A or 5B)†† (4 or 3 credits)

Political science or history (9 credits)

Philosophy (Phil. 1 or 2) (5 credits)

Additional mathematics or laboratory science (10 credits)

Electives (22 to 29 credits)

Total—(90 credits)

### Statistics Sequence

English (Comp. 4-5-6 or Comm. 1-2-3 or Engl. A-B-C) (9 or 12 or 15 credits)

Trigonometry (Math. 6) (5 credits)

College Algebra (Math. 7) (5 credits)

Analytic Geometry (Math. 30) (5 credits)

\*\* Students who do not elect the above course in money and banking during the sophomore year may substitute Money and Banking (B.A. 57).

†† Credit not granted in Econ. 5A or 5B to students who have had Social Statistics (Soc. 45).

Elements of Money and Banking (Econ. 3)** (5 credits)
Principles of Economics (Econ. 6-7) (10 credits)
Elements of Statistics (Econ. 5B)†† (3 credits)
Political science or history (9 credits)
Philosophy (Phil. 1 or 2) (5 credits)
Additional mathematics (5 credits)
Principles of Accounting (Econ. 24-25-26) §§ (9 credits)
Electives (12 to 20 credits)
Total—(90 credits)

## D. School of Dentistry¶¶

### Six-Year Dentistry Program

The six-year dentistry program consists of two years of prescribed liberal arts course work during which time students are registered in the College of Science, Literature, and the Arts and are subject to its regulations, plus four 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.

#### Admission Requirements

**General**—A minimum of 90 earned credits with a scholarship average of C is required. Quality credits may not be used to decrease this requirement. ROTC credits are acceptable, but physical education credits are not acceptable for admission. Higher algebra and plane geometry are prerequisite to the course in physics, and it is desirable that students should have had chemistry and physics in high school.

#### Required Courses

1. Comp. 4-5-6, Freshman Composition (9 credits) or Comm. 1-2-3, Communication (12 credits) or Engl. A-B-C, Freshman English (15 credits)
2. In.Ch. 4-5, 11 or equivalent, General Inorganic Chemistry and Semimicro Qualitative Analysis (12 credits). In.Ch. 1-2 may be substituted for 4-5 if no chemistry was taken in high school
3. Zool. 1-2-3, General Zoology (10 credits)
4. Or.Ch. 61-62, Elementary Organic Chemistry (8 credits)
5. Phys. 1-2-3 and 1a-2a-3a, Introduction to Physical Science and Physical Science Laboratory (12 credits)

#### Recommended Electives

1. It is recommended that at least 9 credits be taken in such liberal arts courses as: anthropology, economics, geography, history, languages, philosophy, political science, psychology, sociology, and speech
2. Especially recommended are the following electives: Art 20, 40-41-42, 44, 45; Clas. 24, Technical Terms of Science, Medicine, and the Humanities; An.Ch. 7 or 9; Math. 15-16; and Zool. 22, 82, 83

\*\* Students who do not elect the above course in money and banking during the sophomore year may substitute Money and Banking (B.A. 57).

†† Credit not granted in Econ. 5A or 5B to students who have had Social Statistics (Soc. 45).

§§ Students who have had a high school course or experience in bookkeeping may be admitted to Econ. 25 by passing a placement test which is normally given the first day of each quarter.

¶¶ 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.



It is recommended that the two years' work be distributed as follows:

**First Year**—Comp. 4-5-6 (9 credits) or Comm. 1-2-3 (12 credits) or Engl. A-B-C (15 credits); In.Ch. 4-5, 11, or 1-2, 11 (12 credits); Zool. 1-2-3 (10 credits); and electives to make a total of about 45 credits for the year's work.

**Second Year**—Or.Ch. 61-62 (8 credits); Phys. 1-2-3 and 1a-2a-3a (12 credits); and electives to make a total of 90 credits for the two years' work.

**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

1. Obtain an application blank from Window 4, Administration Building, fill it out, and return it at least six months (preferably nine months) prior to the fall quarter in which you wish to enter the School of Dentistry.

2. Apply for a change of college at the College Transfer Window (Window 5) in the Administration Building.

3. Take the American Dental Association Aptitude Test which is given three times a year under the auspices of the Student Counseling Bureau. Application blanks may be obtained at the Administration Building or at the Student Counseling Bureau.

### Seven-Year Program in Arts and Dentistry Leading to the Degrees of Bachelor of Arts§§ and Doctor of Dental Surgery††

During the first three years of this program the student does all of his work in the College of Science, Literature, and the Arts, subject to the regulations of the College, and must earn 135 credits with a scholarship average of C. At least 30 credits§§ must be in Senior College courses. He must complete the requirements for admission to the Senior College which are given on pages 8-10 as well as the usual pre-dental requirements.

During his third year the student elects work in Senior College subject to the approval of the assistant dean for the Senior College. The course work of the freshman and sophomore years in the School of Dentistry, exclusive 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 two more years.

### Program Leading to the Degrees of Graduate Dental Hygienist and Bachelor of Arts

Students may enter the two-year program in the School of Dentistry either as freshmen or upon transfer from some other college. When they

\*\* From the College of Science, Literature, and the Arts.

†† From the School of Dentistry.

§§ Restricted to students who have completed all of their required course work in the College of Science, Literature, and the Arts prior to entering the School of Dentistry.

¶¶ Thirty is the number usually required. For some students it may be reduced by special permission from the assistant dean for the Senior College.

have completed the program for dental hygienists, as specified in the *Bulletin of the School of Dentistry*, with a C average, they may enter the College of Science, Literature, and the Arts.

To receive the bachelor of arts degree, students must fulfill the group 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 two or three additional years of work are required.

## 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 four-year and five-year curricula, 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 curricula are described in the *Bulletin of the College of Education*. Students should secure a copy of the bulletin and should have an adviser in the College of Education.

Because of increasing requirements for certification and for other types of educational work, students are urged to consider taking five years of college work.

The following statement applies primarily to students preparing to teach academic subjects in high school.††

### *General Requirements for Entering the College of Education\*\**

The following general requirements apply to all students who regularly enter the College of Education at the beginning of the junior year:

1. A total of 90 to 96 credits carried with a scholarship average of C (1.0), and an average of C+ (1.5) in major courses. (For each 5 honor points in excess of the number necessary for a C average, the number of credits is diminished by 1.) For men 3, and for women 5, of these credits should be in physical education.

2. The student must have completed 6 credits in General Psychology (Psy. 1-2).

3. Health education—All students in the College of Education, before graduation, are required to take a sequence of courses in (a) personal health, (b) community health, and (c) school health. Students who are exempted by examination from the first of these requirements while registered in the College of Science, Literature, and the Arts will also be exempt from (a) in the College of Education. The number of credits will depend upon possible exemption and the sequence of courses chosen. A minimum of 6 credits covering all three fields is required unless students are exempted from (a). It is strongly urged, but not required, that requirements (a) and (b) be met before entering the College of Education.

\*\* For exception in special cases to the total credit requirement, group requirements, or other requirements, the student may consult the Student Personnel Office, College of Education, 208 Burton Hall.

†† Students who transfer to one of the specialized four-year or five-year curricula such as art education, elementary education, music education, physical education, and others should consult the *Bulletin of the College of Education* for the requirements of the first two years.

Junior College courses which may be taken to meet the requirement in personal health are as follows: Pub.H. 3A, Personal Health (2 credits) or G.C. 10C, Human Biology. The Junior College course to meet the requirement in (b) community health is Pub.H. 4, Health Problems of the Community (2 credits). The course Pub.H. 50, Personal and Community Health (3 credits), §§ taken after entering the College of Education, will meet the requirements of (a) and (b).

4. At the time of entrance to the College of Education a student must present a certificate from the Students' 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 on certain psychological tests in addition to the health and speech examinations.

#### *Group Requirements for Students Entering the College of Education*

Students preparing to teach academic subjects in high school take the first two years in the College of Science, Literature, and the Arts. To qualify for the state high school standard certificate they must have one major and one or more minors in subjects commonly taught in high schools. 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, and public health, 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 curricula. Five-year curricula are offered in English education, natural science education, and social studies education.

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 demands for teachers in the various fields and the possibility of future placement.

Before entering the College of Education the student must complete, in addition to the requirements listed above, the group requirements of the Junior College of the College of Science, Literature, and the Arts. With slight modifications the student may choose either Plan I or Plan II (see pages 8 and 9). For many people outside the fields of English and languages Plan II is preferable. For purposes of general education, courses offered in the Department of General Studies are preferred.

Modifications to meet College of Education entrance requirements are as follows:

1. In either plan 6 credits in psychology (Psy. 1-2, General Psychology) are required.

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§§ Pub.H. 50, Personal and Community Health (3 credits) is a substitute for both Pub.H. 3A and 4. It is primarily for juniors and seniors, but sophomores are sometimes allowed to take it.

2. In either plan the student is advised to complete the personal health and community health information requirement. This includes, in addition to Pub.H. 3A, Personal Health (or equivalent), the course Pub.H. 4, Health Problems of the Community.§§

3. In Plan I the student may not use psychology (with laboratory) to meet the natural science requirement in Group D.

4. In Plan II, Group D, the student must take a minimum of 9 credits in natural science exclusive of psychology and mathematics.

5. Within the total credits, a student must meet the following requirement in the Junior College: at least 15 credits in a major field with a 1.5 average and at least 10 credits in each of two minor fields. The major and minor must be selected from fields of study prevailing in high school curricula. The purpose of this requirement is to prepare the student for the study of advanced courses necessary to the completion of satisfactory teaching majors and minors.

**Specialized Curriculum.** The specialized curriculum in speech pathology is based upon two years' work in the College of Science, Literature, and the Arts. Students in this curriculum are not held to the group requirements. The Junior College work, however, is selected to meet the professional needs and specific courses are required. The student should consult the *Bulletin of the College of Education* for requirements and should confer with the adviser early in his course.

## F. Law School\*\*

Ninety credits of academic work are required for admission to the Law School. Students entering the University intending to study law register for this academic work in the College of Science, Literature, and the Arts. A scholarship average of C for all courses taken up to the time of admission to the Law School is also required. Excess honor points do not reduce the number of credits required.

The taking of the Law School Admission Test given by the Educational Testing Service of Princeton, New Jersey, is required for admission to the Law School. No particular score need be obtained. The results will be used in counseling and advising students who enter the Law School. The 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 United States. Application blanks and information pamphlets about the test are obtainable from the Student Counseling Bureau, 101 Eddy Hall, University of Minnesota, Minneapolis 14; or from the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey. The completed application form together with the required fee of \$10.00 must be received in Princeton at least ten days prior to the test date.

Before trying to plan their college course preliminary to the Law School, students should read carefully the following statements about the law courses and the combined courses in arts and law and in business administration and law.

The following course has been outlined by the Law School for the two years of college study required. The courses listed have been selected

\*\* 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.

§§ Pub.H. 50, Personal and Community Health (3 credits) is a substitute for both Pub.H. 3A and 4. It is primarily for juniors and seniors, but sophomores are sometimes allowed to take it.

for their contribution to more effective work in the Law School and to professional practice, and to provide a basic understanding of our culture and society, within the framework of which the legal system must operate. When the courses listed cannot be obtained, substitutes should be limited to the areas of knowledge indicated. A failure to conform to these requirements may result in exclusion from the Law School.

**Accounting:** Econ. 27,†† Accounting Survey (5 credits) or 24-25-26, Principles of Accounting (9 credits)

**Economics:** Econ. 6-7, Principles of Economics (10 credits)

**English:** Engl. A-B-C, Freshman English (15 credits) or Comp. 4-5-6, Freshman Composition (9 credits) or Comm. 1-2-3 (12 credits) and Comp. 30, Advanced Writing for Prelegal Students (3 credits)

**History:** Hist. 70-71-72, English Constitutional History (9 credits)

**Humanities:** Hum. 1-2-3, Humanities in the Modern World (15 credits)

**Philosophy:** Phil. 2Af-1Aw-3As, Selected Problems of Logic, Selected Problems of Philosophy, Selected Problems of Ethics (9 credits) or Phil. 2, 1, 3, Logic, Problems of Philosophy, Ethics (15 credits)

**Political Science:** Pol. A-B (first two quarters of A-B-C), The State in the Modern World (6 credits); and either C (3 credits) or 25, World Politics (3 credits)

**Psychology:** Psy. 1-2, General Psychology (6 credits)

Suggested electives to make up the total of at least 90 credits or for such additional work as the student may desire to take:

Econ. 3, Elements of Money and Banking

Hist. 1-2-3, Civilization of the Modern World

Hist. 20-21-22, American History

Hum. 21, 22, 23, American Life I, II, III

N.Sci. 1-2-3, Orientation in the Natural Sciences; or 4-5-6, The Physical World; or 7-8-9, General Biology

Other courses in anthropology, economics, political science, sociology, and speech

Courses designed for the development of physical skills or artistic talents and other courses not primarily of intellectual content may not be used for admission to the Law School.

Students taking the combined course leading to the degrees of bachelor of arts and bachelor of laws outlined below should comply with the requirements for admission to the Senior College of SLA as outlined on pages 8-10.

In electing courses it should be borne in mind that a maximum of 21 credits of approved advanced work in SLA and in other departments may be taken by law students under the four-year law school program. See the *Bulletin of the Law School*.

It is recommended that the two years' work be distributed as follows:

### FRESHMAN YEAR

<i>Fall Quarter</i>	Credits	<i>Winter Quarter</i>	Credits	<i>Spring Quarter</i>	Credits
Comp. 4f		Comp. 5w		Comp. 6s	
or Comm. 1f		or Comm. 2w		or Comm. 3s	
or Engl. Af.....	3, 4, or 5	or Engl. Bw.....	3, 4, or 5	or Engl. Cs.....	3, 4, or 5
Hum. 1f .....	5	Hum. 2w .....	5	Hum. 3s .....	5
Pol. Af .....	3	Pol. Bw .....	3	Pol. Cs .....	
Electives .....	3	Electives .....	3	or Pol. 25s .....	3
	14, 15, or 16		14, 15, or 16	Electives .....	3, 4, or 5
					14-18

†† This course in accounting is a special course for prelaw students. It is not open to students who have had all or part of Econ. 24-25-26, Principles of Accounting (3 credits per quarter).

## SOPHOMORE YEAR

Fall Quarter		Winter Quarter		Spring Quarter	
	Credits		Credits		Credits
Comp. 30f .....	3	Econ. 7w .....	5	Econ. 27s .....	5
Econ. 6f .....	5	Phil. 1Aw .....	3	Phil. 3As .....	3
Phil. 2Af .....	3	Psy. 1w .....	3	Psy. 2s .....	3
Hist. 70f .....	3	Hist. 71w .....	3	Hist. 72s .....	3
Electives .....	0-3	Electives .....	0-3	Electives .....	0-3
	14-17		14-17		14-17

**ROTC credits:** A total of 6 credits for ROTC will be accepted for admission to the Law School.

### Courses Leading to the Degrees of Bachelor of Science in Law\*\* and Bachelor of Laws\*\*

The Law School offers two undergraduate degrees: bachelor of science in law (B.S.L.) and bachelor of laws (LL.B.). The B.S.L. requires two years (90 quarter credits) of prelaw college work and two years of law study. The LL.B. requires either: (1) two years of college and four years of law, or (2) a B.A. or equivalent academic degree before entering Law School and three years plus 15 credits of law. To qualify for bar examinations and admission to practice, one must obtain the LL.B. The B.S.L., evidencing four years of substantial academic and law study, is available for those who do not wish to practice law but desire a fairly extensive knowledge of it for use in other fields.

The "Two-Four" course leading to the LL.B. is the modern Minnesota Plan for legal education, designed to give the student a broad professional training in addition to the standard technical law work. It seeks to equip him not only for general law practice but also for the numerous governmental and civic positions held by lawyers, and for the leadership traditionally assumed by the legal profession.

Students who have a B.A. or equivalent degree before entering the Law School can obtain an LL.B. degree with three years plus 15 credits of law study. The requirements can be completed in three calendar years by attendance at one Summer Session. This alternative program is mainly for students who have obtained a college degree before deciding to study law. For those who intend to study law when they enter college, the law faculty believes that the Minnesota "Two-Four" Plan offers a better balanced and more flexible program.

Students who desire only the B.S.L. degree may take either the specified prelaw subjects (see above) or 90 credits of such other prelaw work as they desire. The prebusiness course in the College of Science, Literature, and the Arts is acceptable. An average of C in the prelaw work is necessary. The two years of law work may be either the regular first and second-year law subjects or selected law courses to meet individual needs.

### Seven-Year Combined Course in Arts and Law Leading to the Degrees of Bachelor of Arts†† and Bachelor of Laws\*\*

This course requires three years of college work and four years in the Law School. The first two years of college work may be taken in any accredited college, but the third year must be taken in the College

\*\* From the Law School.

†† From the College of Science, Literature, and the Arts.

of Science, Literature, and the Arts of this University. All three years of college work may be taken before entering the Law School, or two years before entering the Law School, and the third year after the completion of one year or more of law work. The latter plan enables the student to select college work in which he may have become interested during his law course.

Students in this combined course must, before transferring to the Law School, complete the requirements for admission to the Senior College of the College of Science, Literature, and the Arts, stated on pages 8-10. The student must earn at least 90 credits with a scholarship average of C. Except for admission to the Law School this number of credits required may be reduced by application of the "quality credit" rules given on page 20. He must also earn, either before entering the Law School or after completing one year or more of the law course, 45 additional college credits, of which at least 30 must be in Senior College courses with a C average. This third year of work must be approved by the assistant dean for the Senior College of the College of Science, Literature, and the Arts. In order to satisfy the requirements for the degree of bachelor of laws, the three years of college work should include the subjects specified above for the prelaw course.

The degree of bachelor of arts is conferred when the 135 credits of college work specified above and at least the first year of the course in the Law School, with the scholastic average required by that school to remain in good standing, are completed. The degree of bachelor of laws is conferred when the work of all seven years is completed.

### Seven-Year Combined Course in Business Administration and Law Leading to the Degrees of Bachelor of Business Administration§§ and Bachelor of Laws\*\*

This program consists of two years of prelaw and prebusiness work as specified below, approximately one and one-half years in the School of Business Administration instead of the full two-year program, and three and one-half years in the Law School instead of the full four-year program, thus allowing the student to qualify for both the bachelor of business administration and the bachelor of laws degree in seven years.

The prelaw and prebusiness work must amount to 90 credits, exclusive of quality credits, and shall include the regular prelaw course (see page 169) except Econ. 27 and in addition Econ. 5 (Elements of Statistics) and Econ. 24-25-26 (Principles of Accounting).

There are two options for the remaining five years:

- A. The first year exclusively in the Law School and the second year exclusively in the School of Business Administration, or vice versa. The third and fourth years exclusively in the Law School and the fifth year to be divided between the two schools, approximately half of the program being in each school.
- B. The distribution of both the business administration and the law course throughout the five-year program.

The course requirements in Business Administration include the general core group courses exclusive of Business Law (B.A. 51-52-53). This amounts to a total of 36 credits. Substitutes, such as Econ. 185 for B.A. 77, B.A. 184 for B.A. 89, may be made with the approval of an adviser. The remaining courses—approximately 32 credits—may be elected from the

\*\* From the Law School.

§§ From the School of Business Administration.

Senior College courses in economics and business administration with the approval of an adviser.

The course requirements in the Law School include all the courses of the first and second years, the required courses of the third and fourth years, and electives sufficient with the required courses to make a total of approximately 69 credits in the third and fourth years.

Students will be registered for the joint program in the Law School and the School of Business Administration throughout the five-year period. Their programs will be subject to approval of an adviser from the Law School and an adviser from the School of Business Administration.

## G. College of Medical Sciences††

The principal curricula 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 seven-year courses of study which lead to the degree of doctor of medicine. Both require three 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 two years of work in the Medical School. In the second of the two courses, the student must meet the requirements for admission to the Senior College of the College of Science, Literature, and the Arts which he should enter, normally, after two years of residence in the Junior College. His program for the third year must be submitted for approval to the assistant dean for the Senior College. He will receive the degree of bachelor of arts after he completes satisfactorily one 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 three

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†† For detailed information about the individual subjects of study in these curricula (course numbers and titles, credits, prerequisites, etc.), see Section II of this bulletin.

‡‡ 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 11-13. 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.)



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.

### Seven-Year Course in Science and Medicine Leading to the Degrees of Bachelor of Science§§ and Doctor of Medicine§§

The minimum requirements in order to be considered for admission to the Medical School are three 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 is usually necessary in order to achieve admission.

The premedical work, for which the student is registered in the College of Science, Literature, and the Arts, must include the following required courses or their equivalent as approved by the Admissions Committee of the Medical School.

#### Required Courses

Engl. A-B-C, Freshman English (15 credits) or Comm. 1-2-3 (12 credits) or exemption from the requirement. Comp. 4-5-6 (9 credits) will be accepted as meeting part of this requirement when supplemented by additional credits in English composition, literature, or speech to make the total of at least 12 credit hours.

Zool. 1-2-3, General Zoology (10 credits) and Zool. 83, Introduction to Genetics and Eugenics (3 credits)

Chemistry—In.Ch. 1-2, 11 or 4-5, 11 or equivalent, Inorganic Chemistry (12 credits); An.Ch. 7, Quantitative Analysis (4 credits); Or.Ch. 61-62, Elementary Organic Chemistry (8 credits); and P.Ch. 107-108, Elementary Physical Chemistry (6 credits)

Mathematics—as a prerequisite for physics: Math. 1, Higher Algebra (5 credits) unless the student has had high school higher algebra; Math. 15-16, Elementary Mathematical Analysis (10 credits) or equivalent

Phys. 4-5-6, General Physics (15 credits)

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 Junior or Senior College level. Course sequences in classics (including languages), comparative philology and linguistics, history,\*\* humanities, and philosophy are accepted

It is suggested that the three years of work should be distributed as follows:

**First year**—In.Ch. 1f-2w, 11s or 4f-5w, 11s (12 credits); Math. 1, 15-16 (15 credits); Zool. 1f-2w-3s (10 credits); Comp. 4f-5w-6s (9 credits) or Comm. 1f-2w-3s (12 credits) or Engl. Af-Bw-Cs (15 credits).

**Second year**—Or.Ch. 61f-62w and An.Ch. 7s (12 credits); Phys. 4f-5w-6s (15 credits); Comp. 27f, if the student elected Comp. 4-5-6 during the freshman year (3 credits); Psy. 1f-2w or Psy. 1w-2s (6 credits); social science (12 credits).

**Third year**—P.Ch. 107f-108w (6 credits); humanities (9 credits); Zool. 83f or 83s (3 credits); and electives chosen in conference with an adviser.

\*\* History may be counted for credit in social science, or for credit in the humanities area but not toward fulfillment of both requirements.

§§ From the Medical School.

### 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.

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 Welfare	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 three 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 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 honor points at least equal to the total number of credits in the group of required subjects; also a number of honor points at least equal to 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 twelve 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 the first two years of the medical course with a C average.

Students who have completed elsewhere three 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 three years of academic work required in this eight-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 pre-medical 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 Medical School.

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\*\* and Doctor of Medicine††

During the first three years of this course, the student is registered in the College of Science, Literature, and the Arts, subject to the regulations of the College, and must earn at least 135 credits, with a scholarship average of C. (This number of credits may be reduced by application of the "quality credit" rules given on page 20.) At least 30 credits must be in Senior College courses. He must complete the requirements for admission to the Senior College, given on pages 8-10 and also the work in chemistry, mathematics, physics, psychology, zoology, and foreign language prescribed for the seven-year course in science and medicine (page 173).§§

During his third year, the student elects work in this College, subject to the approval of the assistant dean for the Senior College. 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.

For admission to the Medical School, a student's record must show a number of honor points at least equal to the number of credits in the group of required subjects; and also a number of honor points at least equal to the total number of credits. A higher standard is exacted of nonresident applicants. All admissions are subject to the limited registration regulations of the Medical School.

## 2. CURRICULUM IN NURSING‡‡

The basic professional curriculum in nursing leading to the degree of bachelor of science is a sixteen-quarter program—six quarters in the College of Science, Literature, and the Arts or any other accredited university, college, or junior college, and ten quarters in the School of Nursing. This program, open to both men and women, is planned to prepare students for staff level positions in all fields of nursing, including public health nursing. The professional portion of the program is open to (a) stu-

\*\* From the College of Science, Literature, and the Arts.

†† From the Medical School.

‡‡ For advanced professional and practical nursing curricula see the *Bulletin of the School of Nursing*.

§§ For recommended electives and the restrictions governing them; see page 174.

dents who have completed 95 quarter credits†† 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 Comp. 4-5-6 or Comm. 1-2-3 (9-15 credits)
- Zool. 14-15 or Zool. 1-2-3 (6-10 credits)
- Inorganic chemistry (8-10 credits)
- Sociology or social science (9-12 credits)
- History, political science, or economics (5 credits)
- Psy. 1-2
- Child care, child psychology, or child development (3 credits)
- Nutrition (2 credits)
- Pub.H. 3B—Personal and Public Health (2 credits)
- Physical Education (5 credits)
- 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 welfare, general studies, philosophy, physics, sociology, speech, and zoology.

An adviser from the School of Nursing faculty is assigned to pre-nursing students in the College of Science, Literature, and the Arts. 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 pre-nursing program. Those who wish to complete all pre-nursing 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.\*\*

#### Information Concerning the Professional Program in the School of Nursing (Ten Quarters)

After transferring to the School of Nursing the student devotes ten quarters to professional study. During the first two quarters the student completes courses in anatomy, physiological chemistry, bacteriology, physiology, and pharmacology and starts courses in clinical nursing. During the next eight 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*.

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\*\* 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.

†† The number of credits may be diminished, in the case of superior students, under the quality credit rule of the College of Science, Literature, and the Arts.

### 3. COURSE IN MEDICAL TECHNOLOGY

The Course in Medical Technology is a four-year course given in the College of Science, Literature, and the Arts and in the College of Medical Sciences. The degree of bachelor of science is awarded upon completion of the prescribed curriculum.

The first two years are spent in the College of Science, Literature, and the Arts. 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 College of Science, Literature, and the Arts. The entire fourth year (twelve 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 (15 credits) or Engl.4-5-6, Freshman Composition (9 credits) or Comm.1-2-3 (12 credits) or exemption from the requirement

In.Ch.1-2, 11 or 4-5, 11, General Inorganic Chemistry and Semimicro Qualitative Analysis (12 credits)

An.Ch.7, Quantitative Analysis (4 credits)

Or.Ch.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)

Phys.1-2-3, Introduction to Physical Science (9 credits)

Bact.53, General Bacteriology (5 credits)

Med.T.10-11-12, Orientation in Medical Technology (1 credit)

Med.T.30-31-32, Case Presentations (1 credit)

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 two years. For further information the student should consult special advisers in the Medical Technology office, C205 Mayo Building (telephone: Fillmore 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 four-year course leading to a bachelor of science degree in physical therapy. The first two years are spent in the College of Science, Literature, and the Arts during which time the studies are mainly in the basic sciences. The last two years are spent in the College of Medical Sciences, Department of Physical Medicine and Rehabilitation. For more detailed information see the *Bulletin of Physical Medicine and Rehabilitation*. All students who are pursuing this course should consult with the physical therapy adviser in 860 Mayo Building. Registration each quarter must be reviewed by this adviser.

Physical medicine is that part of medical science concerned with the diagnosis and treatment of disease or injury by physical means. It includes the use of heat, cold, light, water, electricity, massage, exercise, rest, and climate. Many of the treatment techniques are carried out by trained personnel called physical therapists who work under the direction of physicians.

Courses marked with two asterisks (\*\*) in the list which follows are required for entrance into the Course in Physical Therapy. The other suggested courses are desirable electives.

### Junior College Courses

#### Freshman year

- \*\*Engl. A-B-C, Freshman English (15 credits) or Comp. 4-5-6, Freshman Composition (9 credits) or Comm. 1-2-3 (12 credits) or exemption from the requirement
- \*\*In.Ch. 1-2, General Inorganic Chemistry (8 credits) or In.Ch. 4-5, General Inorganic Chemistry (8 credits) or In.Ch. 6-7, General Inorganic Chemistry (10 credits) or In.Ch. 9-10, General Inorganic Chemistry (10 credits)
- \*\*Zool. 1-2-3, General Zoology (10 credits)
- Pub.H. 3A, Personal Health (2 credits); Pub.H. 4, Health Problems of the Community (2 credits)
- Hum. 1-2-3, Humanities in the Modern World (15 credits) or Hist. 1-2-3, Civilization of the Modern World (9 credits) or Soc. 1, 2, Man in Modern Society and The American Community (6 credits) or Pol. 1-2-3, American Government and Politics (9 credits). Other social sciences acceptable.

#### Sophomore year

- \*\*Phys. 1-2-3, Introduction to Physical Science (9 credits) or Phys. 1-2-3 and Phys. 1a-2a-3a, Introduction to Physical Science and Physical Science Laboratory (12 credits) or Phys. 4-5-6, General Physics (15 credits) or G.C. 7A, Physical Science: Elements of Physics (5 credits)
- \*\*Anat. 4, Elementary Anatomy (5 credits)
- \*\*Psy. 1-2, General Psychology (6 credits)
- \*\*Psy. 3, Psychology Applied to Daily Life (3 credits) or 3 other credits in psychology (C.W. 80, 3 credits, is acceptable)
- \*\*Bact. 53, General Bacteriology (5 credits) or Phsl. 4, Human Physiology (4 credits)
- C.W. 40, Child Training (3 credits) or C.W. 80, Child Psychology (3 credits)
- P.Med. 2, Orientation to Physical Therapy (1 credit)

## 5. COURSE IN OCCUPATIONAL THERAPY

The Course in Occupational Therapy is a program of four academic years plus one quarter which is given in the College of Science, Literature, and the Arts and in the Medical School. The degree of bachelor of science in occupational therapy is awarded upon completion of the prescribed curriculum.

The first two years are spent in the College of Science, Literature, and the Arts. After completing 90 credits and the required courses of the first two 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. Ten 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, Freshman English (15 credits) or Comp. 4-5-6, Freshman Composition (9 credits) or Comm. 1-2-3 (12 credits) or exemption from the requirement
- Zool.1-2-3, General Zoology (10 credits)
- Hum.1-2, Humanities in the Modern World (10 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 (4 credits)
- Art 10, Photography (3 credits)
- Art 23, Drawing and Design I (3 credits)
- Art 33-34, Textile Design: Weaving (6 credits)

Art 49, General Crafts (3 credits)  
 C.W.40, Child Training (3 credits)  
 Physical education (1 credit)  
 P.Med.1, Orientation to Occupational Therapy (2 credits)  
 P.Med.5, Therapeutic Recreation (2 credits)  
 Pub.H.3A, Personal Health (2 credits) or Pub.H.3B, Personal and Public Health (2 credits)  
 G.C.7A, Physical Science—Physics (5 credits)  
 G.C.7C, Physical Science—Chemistry (5 credits)  
 Ind.1, Woodwork (3 credits)  
 Ind.15, Graphic Arts (3 credits)  
 Ind.20, Craftwork "A" (3 credits)  
 Electives to make a total of at least 90 credits

For more detailed information the student should consult a special adviser in the Occupational Therapy office, 860 Mayo (telephone: Fillmore 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 program reviewed each quarter. This applies to students who are still in the College of Science, Literature, and the Arts.

## H. College of Pharmacy

The College of Pharmacy offers one undergraduate course consisting of one year of prepharmacy (taken in the College of Science, Literature, and the Arts) and four years of professional study (taken in the College of Pharmacy) leading to the degree of bachelor of science in pharmacy (B.S. in Phm.).

The College of Pharmacy and the School of Business Administration offer an optional combined course consisting of one year of prepharmacy study and five years of study in pharmacy and business administration leading to the degrees of bachelor of science in pharmacy (B.S. in Phm.) and bachelor of business administration (B.B.A.).

The prepharmacy year for each of the two courses is taken in the College of Science, Literature, and the Arts and must include specified courses and elective credits as follows:

In.Ch.6,7,12 (15 credits)  
 Math.15-16 (10 credits)  
 Comm.1-2-3 (12 credits)  
 Phcy.1A-1B (3 credits)  
 Humanities (3-5 credits)

Admission to the College of Pharmacy is based upon the earned honor point ratio in required prepharmacy studies. An honor point ratio of 1.5 (C+) or above assures admission. Applicants with honor point ratios below 1.5 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 four 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 College of Science, Literature, and the Arts, is at the graduate level. The recommended preprofessional program is Sequence B of the Department of Sociology which is described on page 146 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*.



# FACULTY

## College of Science, Literature, and the Arts

Listed below are the faculty members, full or part time, with rank of instructor or above. The roster was compiled in the spring of 1955 and is approximately accurate for 1955-56.

**Administration**—Dean Errett W. McDiarmid; Associate Dean J. William Buchta; Assistant Deans Russell M. Cooper, Roger B. Page; Assistant Professor Mable Powers; Instructors Elvet G. Jones, Kenneth Kirkpatrick, Thomas C. Laughlin, Robert E. Lee, A. James McKnight, Ruth E. Westlund

**Anthropology**—Chairman E. Adamson Hoebel; Professor Lloyd Wilford; Associate Professor Robert Spencer; Instructor Charles Leslie

**Art**—Chairman H. Harvard Arnason; Professor Dimitri T. Tselos; Associate Professors Lorenz E. A. Eitner, Philip G. Morton, Malcolm H. Myers, Walter W. Quirt, John Rood, Donald R. Torbert, Elmer E. Young; Assistant Professors Bernard P. Arnest, Robert Collins, Allen Downs, Ruth E. Lawrence, Josephine L. Rollins, Hylton A. Thomas, Harold Tovish; Lecturers Cameron Booth, Warren D. Mackenzie, Mary Virginia Nagle; Instructor Jerome Liebling

**Astronomy**—Chairman Willem J. Luyten

**Botany**—Chairman A. Orville Dahl; Professors Ernst C. Abbe, Allan H. Brown, Donald B. Lawrence; Associate Professors Albert W. Frenkel, Gerald Ownbey; Assistant Professors John W. Hall, Thomas Morley; Instructor Agnes Hansen

**Classics**—Chairman Norman J. DeWitt; Associate Professor William A. McDonald; Assistant Professors Margaret M. Forbes, Donald C. Swanson

**English**—Chairman Theodore Hornberger; Associate Chairman James T. Hillhouse; Professors Huntington Brown, John W. Clark, James Gray, Tremaine McDowell, Samuel H. Monk, Allen Tate; Associate Professors Harold B. Allen, Bernard Bowron, Elizabeth Jackson, Leo Marx, Franz Montgomery, Robert E. Moore, William Van O'Connor, Leonard Unger; Assistant Professors Elizabeth Atkins, Frank Buckley, Ruth Christie, Frances K. del Plaine, Ledru O. Guthrie, Murray Krieger, J. C. Levenson, G. Robert Stange, Martin Steinmann, Jr., Mary Turpie; Instructors Hans Aarsleff, Eugene Bluestein, Jules Chametzky, Roland P. Dille, Clyde Enroth, Clifford Haga, Donald J. Hogan, Julian Markels, Clell Peterson, John R. Randall III, Virginia Rock, Marjorie Ryan, Ruth Stickney, Samson O. A. Ullmann

**General Studies**—Chairman Russell M. Cooper; Professors Raymond G. Price, Ralph G. Ross; Associate Professors George Amberg, Dorothy Dyer, Mark Graubard, Joseph Kwiat, Helen Ludwig, Benjamin Nelson; Assistant Professors Robert J. Ames, Morgan Blum, Daniel V. Bryan, Vivian Hewer, Gerhard Neubeck, Dan C. Overlade, Stanley F. Paulson, Clement Ramsland, Jay Vogelbaum; Instructors Maurine Hansen, J. Vernon Jensen, Eleanor Luckey, Richard McHughston,

Robert C. O'Hara, Mary B. Pulleyn, Norma Schmutz, Philip Siegelman, Robert H. Weber

**Geography**—Chairman Jan O. M. Broek; Professor John C. Weaver; Associate Professor John R. Borchert; Instructors Robert C. Eidt, Fred E. Lukermann

**Geology and Mineralogy**—Chairman George A. Thiel; Professors Samuel S. Goldich, John W. Gruner, George M. Schwartz; Associate Professors Frederick Swain, Herbert E. Wright, Jr.; Assistant Professors Clarence Allen, Robert E. Sloan

**German**—Chairman Herman Ramras; Associate Professors Lynwood G. Downs, Frank Wood; Assistant Professors Edwin Menze, Frederick L. Pfeiffer, Alvin Prottengeier, Gina Wangness

**History**—Chairman Herbert Heaton; Professors Theodore C. Blegen, Alfred L. Burt, Harold C. Deutsch, Tom B. Jones, Philip D. Jordan, Ernest S. Osgood, Lawrence D. Steefel, Faith Thompson, Alice F. Tyler, David H. Willson, John B. Wolf; Associate Professors George W. Anderson, W. Donald Beatty, John Bowditch, Robert S. Hoyt, Rodney C. Loehr; Assistant Professor Clarke A. Chambers; Instructor David W. Noble

**Journalism**—Director Ralph D. Casey; Professors Mitchell V. Charnley, J. Edward Gerald, Raymond B. Nixon; Associate Professors W. Edwin Emery, Jr., Edwin H. Ford, Robert L. Jones, Fred L. Kildow, Harold W. Wilson; Instructors George S. Hage, Jack B. Haskins, Roger C. Perry

**Library School**—Director David K. Berninghausen; Professors Errett W. McDiarmid, Edward B. Stanford; Associate Professors Harold Russell, Raymond H. Shove; Assistant Professors Vera M. Clausen, Ralph H. Hopp, James M. Kingsley, Harald Ostvold, Wesley C. Simonton; Instructors Maxine Clapp, Blanche Moen, Yvonne Van der Boom; Visiting Lecturers Paul D. Berrisford, Ruth M. Ersted, Gudrun Hertsgaard, William V. Jackson, Frederick Wezeman

**Mathematics**—Chairman Raymond W. Brink; Professors Robert H. Cameron, William L. Hart; Associate Professors Elizabeth Carlson, Monroe D. Donsker, Bernard R. Gelbaum, Gladys Gibbens, Gerhard K. Kalisch, John M. H. Olmsted; Assistant Professors Charles Hatfield, Warren S. Loud, Evar D. Nering, Ella Thorp; Instructors Steven Orey, John M. Slye

**Music**—Chairman Paul M. Oberg; Professor James Aliferis; Associate Professors Paul S. Ivory, Arthur B. Jennings, Gerald R. Prescott, Roy A. Schuessler; Assistant Professors Edward O. D. Downes, Rafael Druian, Mary Malcolm, Johannes Riedel, Earl V. Rymer; Instructors Bernard Adelstein, Rhadames Angelucci, Virginia Arnegard, Edward Berryman, Jenny Cullen, Marvin Dahlgren, Nancy Ann Edes, Paul Fetler, Ray Fitch, Earl George, Earl Handlon, Frederick Hughart, Thelma Hunter, Robert Jamieson, Glen Law, Waldemar Linder, Frances Miller, Emil Opava, William Santucci, Gale L. Sperry, Blake Stern, Bernhard Weiser

**Philosophy**—Chairman Wilfrid Sellars; Professor Herbert Feigl; Associate Professors May Brodbeck, Paul L. Holmer, John Hospers, Mary Shaw; Instructors Francis V. Raab, Michael Scriven, D. Burnham Terrell

**Physics**—Chairman Alfred O. C. Nier; Professors J. W. Buchta, Edward L. Hill, Otto H. Schmitt, Joseph Valasek, Clifford N. Wall, John H. Williams; Associate Professors Edward P. Ney, John R. Winckler; Assistant Professors J. Morris Blair, Warren B. Cheston, George D. Freier, Norton Hintz, Lawrence H. Johnston, Harold Mooney

**Political Science**—Chairman Lloyd M. Short; Professors William Anderson, Asher N. Christensen, Werner Levi, Benjamin E. Lippincott, Clarence C. Ludwig, Lennox A. Mills; Associate Professors Herbert McClosky, Charles McLaughlin, Arthur E. Naftalin, Mulford Q. Sibley, George A. Warp; Assistant Professor John E. Turner

**Psychology**—Chairman Paul E. Meehl; Professors Ralph F. Berdie, Charles Bird, Kenneth E. Clark, John G. Darley, Richard M. Elliott, Starke R. Hathaway, William T. Heron, Howard P. Longstaff, Donald G. Paterson, Miles A. Tinker; Associate Professors Wilbur L. Layton, Kenneth MacCorquodale, Ephraim Rosen, Stanley Schachter, William Schofield, Ben Willerman; Assistant Professors James J. Jenkins, Wallace A. Russell, Robert D. Wirt; Instructor Jay L. Clark, Clifton W. Gray, Walter O. Jewell, Lawrence S. Wrightsman

**Romance Languages**—Chairman Walter T. Pattison; Professors Herbert E. Clepton, Raymond L. Grismer; Associate Professors Emmert M. Brackney, James A. Cúneo, Guy Desgranges, Eugene H. Falk, Thomas B. Irving, Elizabeth Nissen; Assistant Professors Rodolfo O. Floripe, John M. Sullivan; Instructors Harry L. Butler, John W. Pulleyn, Jr., Dorothy E. Rundorff, Angel M. Vazquez

**Scandinavian**—Chairman Alrik Gustafson; Instructors Lilly E. Lorenzen, James S. Roberts

**Slavic and Oriental Languages**—Chairman Thomas F. Magner; Assistant Professors Marthe Blinoff, Richard B. Mather, Pearl Niemi; Instructor George T. Shea

**School of Social Work**—Director John C. Kidneigh; Professor Richard G. Guilford; Associate Professors Werner W. Boehm, Gisela Konopka, Verval Mueller, Ruby B. Pernell, Etta Saloshin, Lyndell Scott, Malcolm B. Stinson, Dorothy A. Whitmore; Assistant Professors Maurice F. Connery, Fred Gross, Helen J. Yesner; Lecturers Robert P. Bush, Janet E. King, Alma M. Laabs, Hyman S. Lippman, Werner Simon, Stanley B. Zuckerman; Instructors Beulah Compton, Miriam Cohn, Anne Oren, Alta Quello

**Sociology**—Chairman Elio D. Monachesi; Professors Theodore Caplow, Don Martindale, Lowry Nelson, Arnold Rose, George B. Vold; Associate Professors Henry W. Riecken, John Sirjamaki; Assistant Professors George A. Donohue, Roy G. Francis, Arthur L. Johnson, Marvin J. Taves

**Speech and Theater Arts**—Chairman William S. Howell; Professors Bryng Bryngelson, Howard Gilkinson, Ernest H. Henrikson, Frank M. Whiting, E. W. Ziebarth; Associate Professors Kenneth L. Graham, Frank M. Lassman, Ralph G. Nichols, Donald K. Smith, David W. Thompson; Assistant Professors Arthur H. Ballet, William W. Fletcher, Paul H. Ptacek; Lecturer Wendell Josal; Instructors John W. Bystrom, Paul H. Cashman, Audley M. Grossman, Jr., Robert D. Moulton, Roswell D. Otto, Erhart A. Schinske, Maude S. Shapiro, Phillip J. Smith, Robert G. Smith, David Welker

**Zoology**—Chairman Dwight E. Minnich; Professors Samuel Eddy, Alexander C. Hodson, Clarence E. Mickel, Sheldon C. Reed, A. Glenn Richards, Otto H. Schmitt, Nelson T. Spratt, Jr., H. Burr Steinbach; Associate Professors Magnus Olson, Franklin G. Wallace; Assistant Professors David J. Merrell, Dwain W. Warner; Instructors Allan Barr, Joseph G. Gall, Grover C. Stephens

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