

*The Bulletin
of the University of
Minnesota*



*ANNOUNCEMENT
AND PROGRAM
of
EXTENSION CLASSES*

in MINNEAPOLIS
in ST. PAUL
on THE CAMPUS

1936 - 1937

University of Minnesota

General Extension Division



FIRST SEMESTER
September 28 to February 6

SECOND SEMESTER
February 8 to June 5

VOL. XXXIX

NO. 40

AUGUST 8 1936

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minn. Accepted for mailing at special rate of postage, provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918

CALENDAR

1936			
September	14	Monday	Registration, first semester, begins
September	28	Monday	Classes begin
October	3	Saturday	Last day for registration without extra fee
November	23	Monday	Mid-semester grades due
December	19	Saturday	Christmas recess begins
1937			
January	4	Monday	Classes resumed
January	25	Monday	Registration, second semester, begins
February	1 to 5		Examinations, first semester
February	6	Saturday	First semester closes
February	8	Monday	Second semester classes begin
February	13	Saturday	Last day for registration without extra fee
April	5	Monday	Mid-semester grades due
May 31 to June	5		Examinations, second semester
June	5	Saturday	Second semester closes
June	13	Sunday	Baccalaureate service
June	14	Monday	Sixty-fifth annual commencement

WHERE TO REGISTER

- Minneapolis: 402 Administration Building, University of Minnesota, Main 8177, Richard R. Price, Director
(Campus)
- Minneapolis: 690 Northwestern Bank Building, Marquette Ave. and Sixth St. South, Main 0624, A. H. Speer, Resident Manager
(Downtown)
- St. Paul: 500 Robert St., Extension Center, Cedar 7312, C. H. Dow, Resident Manager
- Duluth: 404 Alworth Building, Melrose 7900, John L. Macleod, Resident Manager

The Administration Building on the University campus may be reached by going two blocks on Church Street from the Washington Avenue car line, or three blocks on 17th Avenue S.E., from the Oak-Harriet car line.

OFFICE HOURS

From September 21 to October 3, and from February 1 to February 13 (registration periods), 8:30 a.m. to 8:30 p.m., including Saturdays.

At other times, 8:30 a.m. to 5:00 p.m.; Saturday, to 12 m.

From September 14 to March 5 the campus office will be open from 8:30 a.m. to 8:30 p.m., except on Saturday.

REGISTRATION TIME

All registrations should be made and fees paid, before the first week of each semester. Registrations made later than Saturday, October 3, for the first semester, and Saturday, February 13, for the second semester, are subject to a late registration fee.

ANNOUNCEMENT AND PROGRAM

of

EXTENSION CLASSES

In Minneapolis, Downtown

In St. Paul, Downtown

On the Campus

UNIVERSITY OF MINNESOTA

1936-1937

First Semester

September 28 to February 6

Second Semester

February 8 to June 5

THIS BOOK CONTAINS all information regarding extension classes, as well as the program for the current year. Classes are grouped in four units, as follows:

S.L.A. Classes, page 13

Education Classes, page 33

Business Classes, page 38

Engineering Classes, page 47

FOREWORD

*To give thought, that one may do common things uncommonly well,
is the first essential toward the achievement of important things.*

—ERNEST BATCHELDER

In offering this, its twenty-fourth annual program of extension classes in the Twin City area, the General Extension Division has the same ideal that has been present through its entire history—the idea of affording opportunity to students to earn credits toward college degrees at times when they are not able to attend on a full-time basis, to secure certain sorts of training that may add to their vocational proficiency, and to acquire the open mind and the habit of thoughtful study which characterize the best of our citizenry. Probably the last item of that ideal is, because of its inclusiveness, the most important.

Because education should never be restricted and because we all study best the things in which we are most interested, the program has been made as varied as possible, in the hope that it will afford to almost everyone something to attract, or something which will satisfy some need. Not all the common things of life are represented there, but many that prospective students may well endeavor to do uncommonly well, and in the process find satisfactions without limit.

KEEP THIS BOOK FOR FUTURE REFERENCE

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PROGRAM INFORMATION

Extension classes are ordinarily offered on the basis of a demand already established, and of the distribution of that demand over a series of years. Some classes are offered every year, a few every semester; other classes may have a limited demand and cannot be offered so frequently. Those described and programmed in this bulletin are those for which it is anticipated there will be a sufficient demand during the year to insure their organization.

Classes on Demand.—Extension classes will be conducted in any available subject on petition of a sufficient number of students. The exact number will depend on the subject and the conditions of offering, and will be determined on application. Such a petition may be made to any office of the Division, and should be accompanied by self-addressed envelopes for each petitioner, in which notice may be given of the status of the class. When a class is organized in this manner fees may be paid without the late registration fee any time during the week of the first class meeting, but **no refund of fees will be made for cancellation.**

Minimum Size Classes.—Classes programmed for any semester will not ordinarily be organized for a smaller enrolment than fifteen. Under exceptional circumstances some advanced or continuation classes may be conducted for a smaller enrolment, while on the other hand in some classes a larger number may be required. All such variations of the rule are made only with the approval of the director.

Any announced class may be withdrawn if its registration is not considered sufficient. In such case students may transfer their registration to some other class, or may have a full refund of the fees paid. If a class with a subminimum registration is continued no refunds will be made for cancellation therefrom.

Class Schedule.—The majority of classes meet once a week for two (academic) hours for a period of seventeen weeks, the last of which is devoted to the examination, and carry three credits. This may be considered the standard class. Exceptions, such as classes meeting for a longer period, or those in laboratory sciences meeting twice a week, and carrying more credit, are noted in the description and program of the class.

Five-credit classes in beginning languages, history, mathematics, and some other subjects are announced in some number in this program. Such classes meet for an actual time of two hours and forty-five minutes, which, with an allowance for a recess, makes a session of approximately three hours.

Wherever possible classes are scheduled either at 6:20 p.m., closing at 8:00, or at 8:05 p.m., closing at 9:45. This enables a student to attend two classes in one evening. Classes meeting for more than two hours cannot conform to this schedule. The time of meeting for each class is stated in the program.

Holidays.—Extension classes meet regularly for the entire semester without regard to holidays, except for the Christmas recess. For this recess, classes will be suspended Saturday, December 19, and will resume on Monday, January 4. Classes whose meetings fall on any holiday may, by agreement between students and instructors, be dismissed, but such meetings must be made up by extra meetings before the close of the semester in which they occur.

Places of Meeting.—Classes meet in designated buildings on the University campus, Minneapolis, or in places chosen for convenience in downtown Minneapolis and St. Paul. The location of these places is printed on the outside back cover of this bulletin.

English Placement Tests.—All students beginning the work in English composition are, by general university regulation, required to take the placement tests prescribed by the Department of English. These tests will be given according to the following schedule:

First Semester:

7:30	Thursday	September	24	Room 110, Folwell Hall, Campus
7:30	Thursday	October	1	Room 110, Folwell Hall, Campus
7:30	Thursday	September	24	St. Paul, Extension Center 200

Second Semester:

7:30	Thursday	February	4	Room 110, Folwell Hall, Campus
7:30	Thursday	February	11	Room 110, Folwell Hall, Campus
7:30	Thursday	February	4	St. Paul, Extension Center 200

Class Indications.—The number prefixed to the title of a class, as well as the title itself, is usually the same as that used for the corresponding class in the bulletin of the college where it originates. The letters *ex* affixed to a number indicate either that the class has no corresponding class offered in day classes, or that it is a material modification for extension purposes of a corresponding day class; it does not indicate necessarily that a class does not carry credit toward a degree.

Classes marked with a † are what are known as continuation classes requiring the completion of two, or sometimes three, classes before credit is given for either.

The time and place of meeting of classes is indicated by abbreviations, which in most cases, will be obvious. The days of the week are indicated by the first letters, and the buildings in St. Paul and Minneapolis by the titles or abbreviations of them. For example, "T 6:20 St.P.Pub.Lib.Aud." means that the class will meet on Tuesday at 6:20 in the auditorium of the St. Paul Public Library. In some cases a number precedes the letter indicating the day of the week. This refers to the number of the class offered so that there may be no confusion as to which class is offered in either semester.

GENERAL INFORMATION

ADMISSION

Because of the broad and general purpose for which they are organized, extension classes are open to all persons who can profitably pursue them. The only requirements, therefore, are sufficient maturity and ability to study successfully the work undertaken.

N.B.—The only exception to this is in the case of classes in the College of Science, Literature, and the Arts numbered 100 or above, where every registrant must have completed the prerequisites.

Those wishing to count extension class study toward any university degree must satisfy requirements for admission to the University as well as specific requirements for the degree concerned. These requirements are explained in paragraphs below (see page 5). Those who do not desire this credit need not meet any university entrance requirements, and may freely choose among the classes offered in terms of their needs and desires, ordinarily without regard to prerequisites.

Regularly Matriculated University Students.—No student regularly registered for the day class work of any unit of the University of Minnesota may register concurrently for an extension class without the approval of the dean of his college. Such approval is not usually granted when the extension class would increase the student's work beyond the normal load.

Dropped Students.—A student who has been dropped by any unit of the University may not register for extension classes until such time as he has been accepted for readmission to his unit.

EXTENSION CERTIFICATES

For the completion of specified amounts of work, in definite fields, the General Extension Division awards certificates. The basis for these awards is the completion of 90 credits, of which at least 25 must have been earned at the University of Minnesota. Credits earned in other accredited institutions, as well as in the various colleges of the University of Minnesota, will be accepted to the extent that they meet certificate requirements. Credits earned by the correspondence study, in the University of Minnesota or any institutions accredited to it, will be accepted for not more than 45 of the 90 credits required. For detailed requirements see Science, Literature, and the Arts classes, page 13, Business Classes, page 38, and Engineering Classes, page 47.

CREDITS

A large proportion of all extension courses carry credit that may be applied toward a university degree whenever a student becomes properly registered in one of the colleges of the University, and has met the prerequisites for the courses involved. Students may accumulate credits toward a degree in advance of registration in a particular college, but are advised to secure the acceptance of their credentials for admission as early as possible.

In response to particular demands some classes are offered that are outside the field of regular university instruction. They may, however, carry credit toward an appropriate General Extension Division certificate. (Exception must be made of the Junior College certificate since that is part of the work for a degree and may include only courses which carry degree credit.) Such courses are indicated in the program of classes. A few sub-collegiate classes are offered carrying no credit whatever.

Every student who successfully completes the work of an extension class, including the final examination, receives the credit stated in the announcement of the class. This credit is permanently recorded in the office of the university registrar and remains as extension credit until such time as the student may qualify for its transfer to some other college of the University.

It is assumed that every student registers on this credit basis, plans to do the work of the class, to take the final examination, and to receive a grade. This is probably good educational procedure, assuring the best results for the student.

Auditors.—Students who do not desire, or are unable, to do the entire work of a class may be accepted as auditors, upon petition for this privilege upon blanks provided. Those in this status will not be expected to participate in class work, nor take the final examination, and may never receive credit for the work. A registration may be changed to the status of auditor at any time during progress of a class up to the time for the final examination. Auditors pay the same fees as other students.

N.B.—Registration blanks make no provision for registration as an auditor. The filing of one of the above blanks is necessary to procure this status.

An auditor may change to the credit status not later than the eighth week of a semester. Apply to any extension office.

Amount of Credit.—Classes meeting for two hours once a week for a semester normally carry 3 quarter credits. (Altho extension classes are on a semester basis, credits are computed in quarter hours in accordance with the regular university usage.) Classes meeting oftener than once a week, or for more or less than the two-hour period carry appropriate credit based upon their relation to the normal three-credit class. Such variations are indicated in connection with each class concerned.

Prerequisites for Credit.—For the benefit of students who expect to use their credits toward a degree each class announcement contains a statement of prerequisites. These consist of other classes that should precede the class to which they refer. Extension students may ordinarily disregard these prerequisites; there are only a few cases where they must be observed. **The only requirement for such students is that they be sufficiently mature and competent to do the work of the class for which they register.** Of this the instructor will be the judge; and only when the lack of previous classes results in inability to do the work of a class will a student be excluded.

Candidates for a degree may even enter classes without prerequisites, provided they are otherwise competent, but they must ultimately meet the prerequisites in some way before the credit can be used toward a degree.

Residence Credit.—By action of the University Senate attendance in extension classes in Minneapolis, St. Paul, and Duluth is interpreted as meeting the requirements of residence at the University; that is, such attendance may be counted in fulfilling the requirement of time spent in residence study, as prescribed for various degrees by the University or by the separate colleges. (This interpretation does not apply to extension classes outside the three cities named, nor to correspondence study.)

CREDIT TOWARD A UNIVERSITY DEGREE

Students who wish to become candidates for a degree must meet the requirements for admission into the school or college granting the degree, and the requirements regarding the conversion of extension credits into credits toward a degree. Admission to the University is either by certificate or by examination, as defined below.

Admission by Certificate.—The applicant must present a certificate of graduation from an accredited preparatory school, or certificates showing that he has passed examinations in preparatory subjects as given by the Minnesota State Board of Education, or corresponding examinations in another state where such examinations are recognized by the state university in that state, or examinations given by the College Entrance Board, or by the regents of the University of the State of New York, or examinations in preparatory courses offered by correspondence study by the University of Minnesota. Such certificates are to be filed for evaluation by the university registrar. (For specific subjects and units of each required, see the Bulletin of General Information of the University.)

Admission by Examination.—Applicants for admission to the University (this does not apply to admission to extension classes; see above under Admission to Extension Classes) who are high school graduates, or who are at least nineteen years of age, and are unable to meet the requirements for entrance by certificate will be admitted provisionally, and subject to one year of satisfactory work at the University, upon passing the following tests:

- a. College aptitude test
- b. Test of proficiency in English
- c. Such special placement tests as the school or college to which the candidate desires admission may prescribe.

Applicants failing to pass tests (b) or (c) may apply for a subsequent examination upon payment of a fee of \$5 at any scheduled date. Those failing to pass test (a) may enter only upon satisfactorily meeting the entrance requirements by the certificate method.

Conversion of Extension Credit into University Credit.—Extension credit will become credit toward a university degree when the student has formally presented himself to the proper official of the college of his choice and has been accepted as having completed the required work for entrance into an accepted curriculum at the time of his

application. In the College of Science, Literature, and the Arts application will be made to the assistant dean for the Senior College, following the completion of the two years' work of the Junior College. In the School of Business Administration and the College of Education, application will be made to the Students' Work Committee of the college concerned.

N.B.—Students accepted for a degree in the above manner should have each semester's registration for extension classes approved by an official of their college.

In the Institute of Technology extension credits must be validated by the successful completion of a comprehensive examination in the work covered by the extension classes, the examination to be set by the college. The necessary examinations will be given to the student, without charge, when he applies for admission into the college at the time when he is ready to complete the work for a degree beyond what can be given in extension classes.

It is possible, as an increasingly large number of students are realizing, to complete a considerable portion of the requirements for a Bachelor's degree in extension classes. The curriculum requirements of each college must be met and the student will be held for any requirements, such as comprehensive final examinations, which may be given from time to time. In the major and minor subjects chosen by the candidate for a degree there will always be advanced courses which cannot be offered by the Extension Division because of insufficient demand. In order that the student may make a practical program which will enable him to get the greatest benefit from his extension classes and reduce to a minimum the time that is spent in securing advanced courses in day classes, it is necessary that advice and assistance should be sought at the earliest possible moment.

Advanced Standing.—This University accepts credits earned at all reputable colleges and universities, state teachers colleges, and junior colleges if they are accredited to the University. Such credits are accepted as far as they represent courses equivalent to those offered in this University. They must be certified upon the official blank of the institution granting them and give specific information regarding the subject and its descriptive title, time spent, number of credits, the grade, the preparatory units presented for entrance, and a statement of honorable dismissal.

Work done at nonaccredited institutions will be accepted for advanced standing only upon satisfactory completion of a comprehensive examination for each course presented, and in limited amount. If such examinations are taken within six weeks after formal matriculation they are given without charge. A fee of \$5 is charged if the examination is taken at a later date. Students desiring advanced standing should consult the Students' Work Committee through which arrangements will be made either for the evaluation of credentials or for special examinations.

Filing of Credentials.—Students who have previous records in other institutions are urged to file their credentials for admission with advanced standing as early as possible. This makes possible the determination of the student's present status and the giving of specific advice as to the work which should be taken up.

Graduate Credit.—Under the regulations of the Graduate School credits earned in extension classes may not regularly be counted toward a graduate degree.

REGISTRATION

1. **Registration Dates.**—First semester, September 14 to October 3; second semester, January 25 to February 13. Registrations will be accepted after these dates, on terms stated below, paragraph 6.

2. Registration may be either by mail, or by personal application. Those desiring to register by mail should make application (by mail, telephone, or in person) to the main office of the General Extension Division for registration blanks, program of classes, and

other necessary material. These will be promptly supplied so that students may not be delayed in making necessary study of classes offered and in filing registration.

3. The registration blank, consisting of several sections, no one of which should be detached, must be filled out completely according to instructions printed thereon.

4. Registration accompanied by the payment for fees may be mailed to the main office of the General Extension Division, 402 Administration Building, University of Minnesota, Minneapolis. The receipted fee statement, constituting formal acceptance of the registration, will be returned by mail. Registrations with fee payments will be accepted if delivered in person to any of the offices of the General Extension Division.

5. Those desiring to register in person will apply at any one of the offices during their office hours, as listed on inside cover. Students registering for the first time are advised to register in person in order that they may be assisted or advised by those in attendance. A member of the Students' Work Committee is in attendance during the office hours at the main office, and resident managers in other offices endeavor to be available for most of the registration period.

6. **Late Registration.**—Students should register before the first meeting of their classes, but they are permitted to register up to and including Saturday of the third week of either semester. For this privilege a late registration fee is charged. For registrations made from Monday, October 5 to Saturday, October 10, for the first semester, and from Monday, February 15, to Saturday, February 20, for the second semester, the fee is one dollar (\$1). Dates are inclusive. Following these periods the fee is two dollars (\$2). The fee applies to each class for which registration is made.

N.B.—Registrations sent by mail and postmarked later than midnight of October 3 for the first semester, and February 13, second semester, will be subject to the late registration fee and will be held up until the fee is paid.

Students desiring to register later than the third week of a semester must secure the approval of the Students' Work Committee. Registrations made later than the end of the fourth week carry no credit.

7. **Completion of Registration.**—A registration is completed when payment of fees is received; the receipted fee statement mailed to the student is his evidence of completion. Class cards are mailed to the instructor and become his evidence of the completion of the student's registration. The failure of an instructor to receive a class card usually indicates that the registration has failed of completion; the student should make sure of his responsibility in the matter. Matters of irregularity may be referred to the Students' Work Committee. No credit for a class will be granted unless registration is complete.

8. **Change of Registration.**—Students who desire to transfer from one class to another may do so by making application to the main office of the General Extension Division. There is no fee for transfers. After the third week of the semester such a change requires the approval of the instructor to whose class the change is made. If the change is made after the eighth week of the semester no credit can be allowed for either class involved. Failure to observe this regulation, so that proper record of transfer may be made, may result in loss of credit.

9. **Cancellation.**—Students who cease to attend a class should have their registration officially cancelled by application to the main office of the General Extension Division. Failure to do this leaves an incomplete record which has the possibility of becoming an embarrassment.

10. **Advice on Registration.**—The Students' Work Committee of the General Extension Division is ready to advise students regarding a number of matters. Students registering for the first time may learn what classes are most appropriate for them, in view of their preparation. Those planning to earn a certificate, or a degree, may save themselves mistakes in choosing classes which do not count in their courses. Those who have accumulated a number of credits may be advised as to what certificate or degree they should work for, and what classes to choose. Credits may be submitted for evaluation and the determination of advanced standing. Consultations may be had any time either by telephone or by personal interview. Students who wish to make most effective use of their study should not neglect to check their work with the committee.

All candidates for degrees will be directed to the proper official in the college involved, from whom authoritative advice regarding the degree and the appropriate curriculum may be had.

FEES

The usual fee for an extension class meeting once a week, for two hours, and continuing for one semester, carrying 3 credits, is \$10. Wherever the fee is more or less than this standard the amount is stated in the announcement of the class. For classes meeting for two hours and forty-five minutes, and carrying 5 credits, the fee is \$17. Classes in chemistry and other sciences have fees varying with the amount of laboratory involved. These are tuition fees, do not include texts or materials, and are the same for auditors as for regular students.

Laboratory Fees.—These charges for materials or service are made in connection with certain classes where necessary. In most cases they are payable with the tuition, but in classes in chemistry at the Chemistry Department.

Material Fees.—In some classes material is furnished, usually in place of textbooks, and a minimum charge is made, payable at time of registration. All classes involving extra fees are indicated in their description (announcement).

Late Registration.—For the privilege of registration after the regular time a fee is charged, on a schedule set up in paragraph 6, under Registration.

Registration is not complete until fees have been paid. Checks should be for the exact amount due, and made payable to the University of Minnesota.

Special Fees for Examinations.—For the removal of a grade of Condition, examinations are given, for which the fee is \$1. This should be paid before the examination; the grade cannot be recorded until the fee is paid. For special examinations for credit for work done elsewhere a fee of \$5 is charged, except under conditions specified on page 7 (Advanced Standing). This exception applies to comprehensive examinations given for credit in the Institute of Technology.

Refunds.—Students who cancel their registration before the ninth week of a semester may obtain a pro rata refund of the tuition fee according to a scale established by the Board of Regents, provided written notice is given any office of the General Extension Division at the time of cancellation.

N.B.—Applications for refund because of cancellation must be made no later than December 5, for the first semester, or April 17, for the second semester. They will not be considered if made later.

Two dollars (\$2) of each fee is non-refundable, being withheld to cover registration expense. Remittance of refunds by mail requires a period of time, but immediate refunds may be had by making application in person between 9:00 a.m. and 12:00 m. or 1:00 and 3:00 p.m., at the campus office of the General Extension Division.

EXTENSION STUDENT LOAN FUND

The General Extension Division has at its disposal a fund from which it can make loans for tuition to needy and worthy students. Prospective students who find it difficult or impossible to pay tuition fees should make application to the director for assistance.

STUDENTS' WORK REGULATIONS

Admission.—Students are accepted in extension classes whenever they manifest the desire, the maturity, and the ability to profit by the work. No university entrance requirements need be met. The only provision is that students shall be of such ability that their presence in a class will not impair the work of the rest of the class. Instructors will be the judges of this ability. In some classes of an advanced nature ad-

mission will be conditional on experience or preparation. No regulation is intended to exclude any student who can profit by the work. (For details dealing with regularly matriculated students, dropped students, see under Admission, page 4.)

Normal Load.—The maximum amount of extension work to be carried by students regularly employed in some vocation is 9 or 10 credit hours, the equivalent of 3 three-credit or 2 five-credit classes, per semester. Twelve credit hours may be allowed by permission of the Students' Work Committee, provided the student's record of a previous semester shows an average of $1\frac{1}{2}$ honor points per credit hour. Permission for more than 12 credit hours may be granted under exceptional circumstances.

Correspondence Study.—Students may be enrolled for both extension classes and correspondence study courses only with the permission of the Students' Work Committee. The amount of work taken by such a combination may not exceed the permissible maximum stated in the paragraph above.

Attendance.—Attendance at every meeting of a class is expected; success in the work of a class is based on this attendance. Instructors are required to report continuous absences in order that the Students' Work Committee may inquire into the causes of absence and the student's intentions, may recommend what may be best for the student, and determine the student's status. Such inquiry and recommendation is entirely in the interest of the student and in no sense disciplinary; extension students are in classes for very definite purposes, are quite competent to govern their comings and goings, and may be trusted to give the attendance necessary to the accomplishment of their purposes.

Examinations.—Examinations in all classes are given during the last week of each semester. All students desiring credit must pass these examinations.

Other examinations or quizzes are entirely at the option of the instructor.

Examinations for the removal of the grade of Condition (E) will be given on application at a time and place agreed upon by the student and the instructor. A fee of one dollar (\$1), payable at any office of the General Extension Division, is charged for a condition examination.

Special examinations for advanced standing or for credit for work done elsewhere will be given on application. (See page 7.)

Grades—Four grades, A, B, C, and D are given for work of varying degrees of merit, D being the lowest passing grade. Work below passing is marked E, a condition, or F, a failure. Work which is of at least D grade, but for acceptable reasons not complete, may be marked I, incomplete, provided not more than one fourth remains incomplete.

A condition is a temporary grade representing a deficiency which may be made up without repeating the course. It may be removed by additional work, by an examination, or by both. If not removed within two semesters following the resumption of the student's extension class work it becomes a failure. Pending such removal the student may register for a continuation or dependent class in a succeeding semester. The permanent grade resulting from the removal of a condition may not be higher than C.

A failure represents a deficiency so serious that the student must repeat the course in order to obtain credit in it. Following a failure the student will not be permitted to register for a continuation class.

Incomplete work may be completed in any way the instructor may prescribe, and should have the student's earliest attention. If this is not done within two semesters following the resumption of the student's extension class work the grade becomes a condition or a failure, as the instructor may elect, subject to the rules applying to those grades.

Credits and Honor Points.—Credits are used to indicate the amount of work done, in terms of the time spent in classes and in preparation for them. It is expected

that at least two hours will be spent in preparation for every hour spent in class. Quality of work is expressed in honor points assigned to the several grades. Each credit with a grade of C carries one honor point; of B, two; of A, three. The grade D carries no honor point, and the grade F one minus honor point which cannot be cancelled by repeating the course with a passing grade.

Most of the colleges of the University make use of these honor points in determining student status, requiring an average grade of C (one honor point per credit) for graduation, and making concessions to students with higher ratings. Students in extension classes who are seeking degrees should consult an officer of the college in which a degree is sought regarding the status of honor points in that college. The General Extension Division requires a C average for all its certificates.

Grade Reports.—Reports of students' grades are sent to the office of the university registrar at the close of each semester. A report of each student's grades and credits is sent from that office, and will not be furnished by the office of the General Extension Division.

Instructors are required to report at each mid-semester all grades below D, on the work so far completed. On the basis of these reports students are advised and counselled by the Students' Work Committee.

The Students' Work Committee.—This committee of the General Extension Division has direct supervision of the work done by students of the division. It functions in an advisory capacity for those desiring information about the sequence of courses, certificates, relation of extension classes to the work of other colleges, credits presented from other colleges, the organization of a program of study, and other similar matters. For candidates for degrees it offers its services in securing the advice and direction of the proper officials of the college concerned, from whom only can issue authoritative information.

Appointments with the committee may be made at any time by application at any office of the General Extension Division. Under ordinary circumstances these conferences should be held during usual business hours; during registration periods these hours are extended to the evening; at other times special appointments may be made as necessary.

THE UNIVERSITY LIBRARY

"Students registered in the Extension Division and attending classes in Minneapolis or St. Paul are entitled to draw books to be used in connection with their courses. They are subject to all library regulations including those in regard to return upon demand and to fines for overdue books." (Library Rules.) Extension students are urged to make as extensive use of the library as possible, for the enrichment of their study, and at times even for the basic matter of their classes. A copy of the Library Handbook which contains the rules applying to all students may be had at the loan desk.

THE MINNESOTA DAILY

Extension students may subscribe to the *Minnesota Daily*, student newspaper, at the rates applying to all students; these are \$3.50 for the school year, or \$1.25 per quarter, payable in advance. Application should be made to the Business Manager of the *Daily*, Pillsbury Hall.

ATHLETIC FACILITIES

The use of university athletic facilities is open to extension students on the same basis as to full-time day students. This is upon the payment of fees for special services, as follows:

Gymnasiums: Equipment fee \$1, towel fees \$1, and locker fee 25 cents, for a quarter (11 weeks).

Swimming Pool: Towel fee \$1 and locker fee 25 cents, for a quarter.

Golf Course: Students who are registered for extension classes in the second semester (April 1 to close of the year) may play golf at the University of Minnesota Recreation Field at the regular student rate until September 15. Identification cards must be procured in advance, and they will be issued on presentation of fee statements at the office in the Athletic Building. This can be done by mail.

STUDENT SEASON ATHLETIC BOOKS

The student season athletic book admits to all intercollegiate athletic events, except swimming, during the college year. It is a privilege book and consequently the privilege may be denied to any student who violates any of the conditions under which the book is issued.

Who May Purchase.—Any student enrolled in any department of the University, including Graduate, Extension, etc., whether regular or special, and carrying a minimum scholastic load of three quarter credits, who presents a receipted fee statement at the time of the sale, covering a course of study running concurrent with the time for which the book is issued, is entitled to purchase one book if single, or two if married. **Students in correspondence study courses are not eligible to this privilege.**

The privilege books must be exchanged the first week in January for new privilege books, covering the winter and spring sports schedule. This exchange will not be made unless a receipted fee statement for the winter quarter or second semester is presented, except that extension students may make this exchange without a fee statement by paying a \$2 transfer fee per ticket, and thus obtain the privilege books for the winter and spring schedules. **This transfer fee will be applied to the registration fee for the second semester if the extension student enrolls for the second semester.** If the student fails to enroll for the **second semester of the same academic year**, the exchange ticket may be used for all remaining winter and spring sports, but the transfer fee will be retained by the Department of Athletics.

The price of the student book is \$7.

Where Purchased.—The sale begins Freshman Week each year and ends the day before the first game. Books may be purchased at the Minneapolis or St. Paul offices of the Extension Division or at the ticket booth in the Administration Building. Extension students are expected to make their purchase through the office where they register. They must appear in person with fee statement. If the student is buying an additional book for husband or wife, the husband or wife must also be present at the time for the purpose of photographic identification.

Seat Location.—At football games the seat location will be in the student section, the exact seat to be determined by lottery. This section is not open to nonstudents nor can students sit outside of this section. Nonstudents will not be admitted to the section at basket-ball games. For all other events the book admits to unreserved sections.

Cancellation of Registration—Refunds.—The student season book is a privilege extended to students only and it becomes void the moment an individual ceases to be a student in the University whether by cancellation of registration, expulsion, or in any other manner. The book is not transferable and cannot be resold, nor will the purchase price be refunded after the book has been used for any event except in cases where the student is required, by the University, to cancel his registration.

SCIENCE, LITERATURE, AND THE ARTS CLASSES

The classes offered in this department are selected from the program of the College of Science, Literature, and the Arts, or from classes offered by other colleges but carrying credit in the College of Science, Literature, and the Arts. This selection makes available a portion, at least, of the university offerings in liberal arts to those who may be interested in pursuing a college degree, and also to those who are interested in exploring for their own satisfaction the various fields of human knowledge.

Candidates for Degrees.—All students who have the slightest desire or hope to acquire a Bachelor's degree should consult the Students' Work Committee regarding the details of the completion of the work of the Junior College, the application for acceptance in the Senior College, and the appointment of a major adviser. Work done in extension classes in Minneapolis, St. Paul, and Duluth may yield credits acceptable toward a degree, and counts for residence study; but unless this work is done with the advice and consent of the college it may not be accepted. The college itself says:

"The college has always required for graduation a definite period of residence in the Senior College and a minimum number of hours of Senior College courses. Under the new regulations which go into effect for students entering after September 15, 1936, the normal period of residence in the Senior College is six quarters. The amount of Senior College work may not be decreased by extra credits earned in the Junior College except by special permission at the time of the transfer to the Senior College. It is imperative that students should register in the Senior College as soon as they have completed the requirements for admission."

EXTENSION CERTIFICATES

Credits earned in this department may be applied towards either of two certificates which are offered by the General Extension Division for the completion of 90 credits of work, the equivalent of two years' full time residence in the University. These certificates are as follows:

Junior College Certificate.—Requirements for this certificate correspond to the requirements for the first two years of the work of the College of Science, Literature, and the Arts. These represent one half of the work for a Bachelor's degree, and consequently, all of the credits must conform to degree standards as to the subjects and courses involved, prerequisites, and correspondence to similar courses offered in day classes. In addition, a candidate for this certificate must have met university entrance requirements, (see page 6).

I. To obtain this certificate the student must earn 90 credits and must maintain a C average. (Honor points may not be counted to reduce the total of 90 credits, but they may be applied whenever these credits are employed in meeting the requirements of a degree in the Senior College of Science, Literature, and the Arts.)

II. The following group requirements must be met:

1. English Composition 4-5-6 (9 credits) or English A-B-C (15 credits) or exemption from the requirement. All students desiring to register for these classes will take a placement test. See page 4.
2. Foreign Language. A total of 20 credits (18 if in 3-credit units) in one foreign language, in high school and college courses combined. For every full year of such language presented for entrance, the above requirement shall be reduced 5 credits. Students, for instance, who have had two years of a foreign language in high school may complete by taking 10 credits in that same language in college courses.

The work done in English or a foreign language may be counted toward the subject requirement in Group A.

3. Ten credits (9 if in 3-credit units) in each of five subjects, one to be chosen from each of Groups A, B, C, and two to be chosen at large from Groups A, B, C, D.

Group A. *Humanities*: English and foreign languages and literature, speech, music, fine arts.

Group B. *Social Studies*: Anthropology, economics, geography, history, political science, sociology.

Group C. *Natural Sciences*: Astronomy, botany, chemistry, geology (including laboratory), physics, psychology (including laboratory), zoology.

Group D. Philosophy, mathematics.

III. These credits may be earned in any classes offered by the University, or by correspondence study courses, or may be transferred from another accredited institution under the regular university rules of transfer.

IV. Students who have, previous to September, 1934, begun work on these requirements under the provisions existing at that time may complete under those provisions.

V. These requirements may be modified to conform to the requirements for admission to specific schools and colleges of the University, such as the prebusiness, premedical, pre dental, or other requirements. Specific information regarding this will be given by the Students' Work Committee.

VI. A student may not count credits for the beginning courses (two semesters) in more than one foreign language (exclusive of Greek and Italian), except on petition.

The order in which the credits are accumulated is not material. It is always best to take classes in one subject in their regular order, each preparing for that which follows. Outside of this, subjects or classes may be taken in any order to suit the student.

Liberal Education Certificates.—In contrast to the Junior College certificate this represents work that may be done without regard to any degree requirements, any particular sequence of classes, or prerequisites, except ability of the student to do the work of the class. The requirements are reduced to a minimum, that minimum being quite flexible; they are a requirement in English, a breadth or spread requirement, and a concentration requirement. The details are as follows:

1. English—9 credits, in any classes for which student has preparation.
2. Spread—at least 6 credits, two classes, in each of the three following fields: natural sciences (astronomy, botany, chemistry, geology, physics, psychology, zoology, or mathematics); social science (anthropology, economics, geography, history, political science, sociology); arts or humanities (fine arts, languages, philosophy, speech). Total 18 credits.
3. Concentration—at least 18 credits in one subject, or in closely related subjects.
4. Electives—45 credits. To make a total of 90. All elections may be made regardless of college lines, as student interest dictates.

This certificate is recommended to those who are not interested in a college degree, but nevertheless wish to pursue their study with some sort of system and organization.

Extension classes are open to registration by any person qualified to profit by the study. Ordinarily only those who expect to qualify for a university degree will be expected to meet the requirements of prerequisites. Prerequisites are stated for their information.

Classes numbered 100 and above are taught by regular members of the graduate faculty, require a large amount of outside reading, with term reports, and all registering for them, auditors as well as those working for credit, must have had all the prerequisites.

DESCRIPTION AND PROGRAM OF CLASSES

ACCOUNTING

(See Business Classes, page 40)

ADVERTISING

(See Business Classes, page 42)

ANATOMY

2-2a ex Elementary Neuro-Anatomy. 3 credits each semester. \$10.

The central nervous system and the functional distribution of the peripheral nerves. Will be adapted to the needs and the qualifications of members of the class. Students may enter either semester. Prerequisites and conditions of credit at the discretion of the department.

FIRST SEMESTER	SECOND SEMESTER
W 7:00 Campus Anatomy 104, Gillaspay	W 7:00 Campus Anatomy 104, Gillaspay

5 Human Anatomy. 4 credits. \$13.50.

Primarily for students in physical education. Study of dissected specimens, but no dissection. No prerequisites.

FIRST SEMESTER
MT 7:30 Campus Anatomy 304, Jones

ART

(See Fine Arts, p. 20; Art Education, p. 34; Engineering, p. 49; Cartooning, p. 17)

ASTRONOMY

11 Descriptive Astronomy. 3 credits. \$10.

The general principles and fundamental facts of astronomy; illustrated by lantern slides, simple problems, and naked eye and telescopic observations. Higher mathematics not necessary. No prerequisites.

FIRST SEMESTER
W 6:20 Campus Physics 166, Luyten

13 Practical and Stellar Astronomy. 3 credits. \$10.

Supplements Astronomy 11, which however is not prerequisite; higher mathematics not necessary. A detailed description of the constellations and individual stars, the structure of the sidereal universe, and such problems as the determination of time from the stars; extended opportunity for the use of the telescope and the observation of the heavenly bodies.

SECOND SEMESTER
W 6:20 Campus Physics 166, Luyten

BACTERIOLOGY

41 General Bacteriology. 5 credits. \$17 and \$2 laboratory fee.

Culture media; methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. Prereq. for degree, 10 cred. in chemistry and 10 cred. in biology.

FIRST SEMESTER
TTh 7:30 Campus Millard 214, Skinner

102 Special Bacteriology. 4 credits. \$13.50 and \$2 laboratory fee.

The pathogenic bacteria especially in relation to definite diseases; principles of infection and immunity. For technicians and others. Prereq. for degree: Bact. 41.

SECOND SEMESTER
TTh 7:30 Campus Millard 214, Novak

116 Immunity. 3 credits. \$10 and \$2 laboratory fee. Meets for one quarter, 11 weeks.

General and special laboratory technique; immunological phenomena; preparation of vaccines; production and collection of immune sera; demonstrations of various immune substances; technique of forensic blood tests, the Wasserman test, modified Wasserman, and the Kahn test; allergy, anaphylaxis, atopy; blood grouping. Primarily for technicians; for prerequisites for credit, see instructor.

FIRST SEMESTER
MW 7:30 Campus Millard 214, Novak

152 Bacteriological Methods. 5 credits. \$17 and \$2 laboratory fee.

A laboratory course in standard and approved methods for the bacteriological examination of water, milk, and foods; preparation and use of standard culture media; methods for standardization of germicides. Prereq., Bact. 41.

SECOND SEMESTER
MW 7:30 Campus Millard 201, Skinner

114 Yeasts, Molds, and Actinomycetes (Higher Bacteria) Offered 1937-38.

AIR CONDITIONING

(See *Engineering Classes*, page 53)

BIRDS OF MINNESOTA

(See *Zoology*, page 32)

BOOK REVIEWS

(See *English Classes*, page 19)

BOTANY**1 General Botany.** 4 credits. \$13.50.

A survey lecture course on plants and their human interest, contributing to liberal culture; characteristics of living matter; fundamental facts of structure, growth, and reproduction; relation of plants to their environment and to each other; principles underlying inheritance, variation, plant breeding, and organic evolution. No prereq.

FIRST SEMESTER
M 6:20-8:30 Campus Botany Aud., Huff

10ex Minnesota Plant Life. 3 credits. \$10.

A study of our native wildflowers, trees, shrubs, ferns, liverworts, mosses, lichens, and mushrooms. A class for teachers, camp and scout leaders, and all who would know more of their native plants and their habits. No prerequisites.

N.B.—If registration is sufficient a second section will be arranged, meeting at 8:05.

SECOND SEMESTER
M 6:20 Campus Botany 4, Huff

7 Taxonomy of Flowering Plants. 3 credits. \$10.

A general study of the classification and relationships of flowering plants. For prerequisite consult instructor.

SECOND SEMESTER
W 6:20 Campus Botany 1, Rosendahl or
assistant

Home Gardening I. No credit. 17 weeks. \$10.

A class for those who want home surroundings beautiful with growing things, and like to take a hand in the growing process. Attention to soil and seeds; planting and transplanting; propagation of plants, shrubs, annual and perennial plants and vines; designing a garden; care and maintenance—in fact just the things a home gardener needs, and wants to know. Lectures, demonstrations, discussions, and projects for working out—practical and instructional. Open, without prerequisites, to all who are interested.

SECOND SEMESTER
W 8:05 Campus Botany 5, Phillips

Home Gardening II. No credit. 17 weeks. \$10.

A continuation of Home Gardening I dealing with special gardening problems in greater detail; garden construction and maintenance, fall work in the garden, plant propagation and culture, with some attention to indoor gardening or house plant culture. Lectures, demonstrations, and student projects. Open to all.

FIRST SEMESTER
W 8:05 Campus Botany 5, Phillips

Garden Design and Materials. No credit. 17 weeks. \$10.

An introduction to the principles and practices of landscape design, especially for amateur gardeners who wish to know more about planning as well as planting gardens and home grounds; combined with a study of plant materials—trees, shrubs, vines, and herbaceous plants with special reference to their use and importance in landscape gardening. Illustrated lectures and design problems a feature. Open to all.

FIRST SEMESTER
T 8:05 Campus Botany 4, Phillips

CARTOONING

Cartooning. Extension credit only. \$12.50.

Principles and art of devising and drawing cartoons for reproduction in newspapers and magazines; the problem of the cartoon so far as its message is concerned; the technique of drawing with especial reference to reproduction and individual style; the comic strip, the political cartoon, etc. No previous training in drawing necessary. Students furnish their own materials. Meets for two and one half hours.

FIRST SEMESTER
W 7:00 Campus Jones 207B, Asch

SECOND SEMESTER
W 7:00 Campus Jones 207B, Asch

CHEMISTRY

(See *Engineering Classes*, page 49)

CHILD WELFARE

40 Child Training. 3 credits. \$10.

The physical and mental development of the child; the training of young children; behavior problems and their various aspects; techniques of good and bad management. Prereq. for degree, Psy. 1-2.

SECOND SEMESTER
M 6:20 Mpls. N. W. Bank Bldg. 690, Faegre
M 8:05 St. Paul, Ext. Center 200, Cummings

80 Child Psychology. 3 credits. \$10.

A survey of the psychology of the young child from the standpoint of development and learning. Prereq., Psy. 1-2.

SECOND SEMESTER
T 7:30 Campus Folwell 105, McGinnis

82 Later Childhood and Adolescence. 3 credits. \$10.

The meaning of adolescence; growth and personality development; vocational guidance; sex education, social adjustment, and emancipation from the family. Prereq., Psy. 1-2.

FIRST SEMESTER
M 6:20 Mpls. N. W. Bank Bldg. 690, Faegre
M 8:05 St. Paul, Ext. Center 200, Cummings

140 Behavior Problems. 2 credits. \$7.

Nature and origin of behavior difficulties. Emphasis on the relation between early behavior trends and later maladjustment. Prereq., 12 cred. in psy., ed. psy., or soc.

FIRST SEMESTER
T 7:30 Campus Folwell 105, McGinnis

CLASSICAL LANGUAGES

(In English)

Formerly listed as Greek, in English

45 Ancient Mythology in Relation to Modern Literature and Art. 3 credits. \$10.

No knowledge of Greek or Latin required.

The origin, development, and importance of myth and legend in ancient Greece and Rome, with particular reference to their influence in European art and literature since the Renaissance; illustrated lectures. No prereq.

FIRST SEMESTER
M 7:00 Mpls. Pub Lib., D'Arms
W 7:00 St. P. Pub. Lib. 6, D'Arms

47 Ancient Sources of the Modern World. 3 credits. \$10. No knowledge of Greek or Latin required.

An examination of the contributions of ancient Greece and Rome to modern civilization, including art and architecture, economics, engineering, language, law, literature, philosophy, and political science; illustrated lectures. No prereq.

SECOND SEMESTER
M 7:00 Mpls. Pub Lib., D'Arms
W 7:00 St. P. Pub. Lib. 6, D'Arms

ECONOMICS

(See *Business Classes*, page 45)

ENGLISH

*Classes in Composition***Subfreshman Composition.** No credit. \$7.50.

Intensive drill on grammatical forms, punctuation, sentence structure, and theme writing; for those not prepared to carry successfully Eng. 4-5-6. Satisfactory completion admits to Composition 4 without placement test.

FIRST SEMESTER		SECOND SEMESTER			
W	6:20	Campus Folwell 212, Litchfield	W	6:20	Campus Folwell 212, Litchfield
Th	8:05	St. P. Ext. Center 204, Litchfield			

4-5-6 Freshman Composition. 3 credits each semester. \$10.

Practical training in writing, largely exposition; analysis of specimens of good prose; reports on assigned readings. Designed for students having the equivalent of high school English, presupposing a mastery of spelling, grammar, and punctuation.

N.B.—All students registering for Composition 4 will take the required tests in English before permanent assignment to classes. See page 4.

FIRST SEMESTER		SECOND SEMESTER					
4	T	6:20	Campus Folwell 226, Grandy	4	W	6:20	Campus Folwell 226, Nolte
	T	6:20	St. P. Ext. Center 208, Nolte		Th	8:05	St. P. Ext. Center 204, Nolte
	Th	6:20	Campus Folwell 226, Scallon	5	T	6:20	Campus Folwell 226, Grandy
5	W	6:20	Campus Folwell 226, Nolte		Th	6:20	St. P. Ext. Center 204, Nolte
6	T	8:05	St. P. Ext. Center 201, Nolte	6	T	6:20	Campus Folwell 204, Scallon
	Th	6:20	Campus Folwell 204, McFadyen				

4-5-6 Freshman Composition, for Engineers. 3 credits each semester. \$10.

Covers the regular work in Freshman Composition (see above) but assigned readings and themes will be on engineering and allied subjects, giving practice in the problems of expression peculiar to engineering. Prereq., placement test, as for other sections of English 4-5-6. (See page 4.)

FIRST SEMESTER		SECOND SEMESTER					
4	Th	6:20	Campus Main Eng. 107, Guthrie	5	Th	6:20	Campus Main Eng. 107, Guthrie

27-28† Advanced Writing. 3 credits each semester. Both required for credit. \$10.

For those who wish to continue the study of writing beyond Composition 4-5-6. (Formerly called Sophomore Composition.) Prepares for Short Story Writing 69-70. Prereq., Comp. 4-5-6 or exemption. Students may enter either semester.

FIRST SEMESTER		SECOND SEMESTER					
27	W	8:05	Campus Folwell 213, Avery	28	W	8:05	Campus Folwell 213, Avery
	Th	6:20	St. P. Ext. Center 201, Christie		Th	6:20	St. P. Ext. Center 201, Christie

69-70† Short Story Writing I and II. 3 credits each semester. Both required for credit. \$10.

The technique of the short story with constructive work in story writing. For those with experience in writing. Prereq., average of B in two semesters of 27-28, 29 or 65.

FIRST SEMESTER		SECOND SEMESTER					
69	M	6:20	Campus Folwell 205, Briggs	70	M	6:20	Campus Folwell 205, Briggs

91-92 Seminar in Writing (Advanced Short Story). 3 credits each semester. \$10.

For advanced students who write with facility and desire personal direction. Criticism of manuscript submitted. Prereq., senior standing and 9 credits in Senior College English courses.

FIRST SEMESTER		SECOND SEMESTER					
91	M	8:05	Campus Folwell 304, Phelan	92	M	8:05	Campus Folwell 304, Phelan

English for Every Day. No credit. Meets for one quarter, 12 weeks. \$7.50.

Drill in the mechanics of good English, clearing up common errors in grammar, usage, sentence structure, for those grown careless or puzzled as to correct form, or for teachers desiring a simple method for language fundamentals. No prereq.

FIRST SEMESTER	
M	6:20
W	6:20

St. P. Ext. Center 204, Hayes
Campus Folwell 205, Hayes

Writing for Every Day. No credit. Meets for one quarter, 12 weeks. \$7.50.

Similar drill on language fundamentals, applied to written English, as in English for Every Day. No prereq.

FIRST SEMESTER	
M	8:05
W	8:05

St. P. Ext. Center 204, Hayes
Campus Folwell 205, Hayes

Business English. See Business Classes, page 44.**Radio Script Writing.** See Business Classes, page 43.

Courses in Literature

1-2† Freshman Literature. 3 credits each semester. Both required for credit. \$10.

A beginning class in the study and appreciation of English prose, poetry, and drama. Students may enter either semester. No prerequisites.

FIRST SEMESTER				SECOND SEMESTER			
1	T	8:05	St. P. Ext. Center 204, Avery	2	T	8:05	St. P. Ext. Center 204, Avery
	W	6:20	Campus Folwell 204, Avery		W	6:20	Campus Folwell 204, Avery

21-22-23 Introduction to Literature. 5 credits each semester. \$17. Meets for one period of 3 hours each week. Two consecutive semesters required for credit.

A survey of English literature as to history and types of writing. 21, pre-eighteenth century; 22, eighteenth century; 23, nineteenth century. Prerequisite to major in English; 22 and 23 required for teacher's certificate. Students may enter any semester. Prereq., Comp. 4-5-6, or exemption.

FIRST SEMESTER				SECOND SEMESTER			
22	M	7:00	Campus Folwell 204, Avery	23	M	7:00	Campus Folwell 204, Avery
	W	6:20	St. P. Ext. Center 206, Hessler		W	6:20	St. P. Ext. Center 206, Hessler

Judging Modern Books and Plays. See Journalism Classes, page 23.

A class designed to assist the reader in passing rather critical judgment on books and plays as they appear. Open to all with or without credit.

55-56† Shakespeare I and II. 3 credits each semester. \$10. Both required for credit.

Shakespeare's development as a dramatist; a careful study of a selected list of plays. Prereq., Comp. 4-5-6, or exemption, and 6 additional credits, or 10 credits in 21-22-23.

FIRST SEMESTER				SECOND SEMESTER			
55	T	6:20	St. P. Ext. Center 204, Nichols	56	T	6:20	St. P. Ext. Center 204, Nichols

75 The Canterbury Tales (Chaucer). 3 credits. \$10.

An introductory study of Chaucer's principal Tales, with instruction in reading fourteenth century English. Prereq., same as for Shakespeare.

FIRST SEMESTER			
W	8:05	Campus Folwell 103, Dunn	

73-74† American Literature I-II. 3 credits each semester. Both required for credit. \$10.

Lectures on American literature with extensive readings from the principal poets and prose writers of the United States; some attention to novelists. For prereq., consult instructor.

FIRST SEMESTER				SECOND SEMESTER			
73	W	6:20	Campus Folwell 105, McDowell	74	W	6:20	Campus Folwell 105, McDowell

The New Testament As Literature. No credit. \$10.

This is in effect a continuation of the Old Testament classes in the Bible As Literature. It is offered without credit for those interested. Open to all.

FIRST SEMESTER			
M	4:15	St. P. Ext. Center 201, Powell	
Th	4:30	Campus Folwell 113, Powell	

Rudyard Kipling I-II. No credit. \$10.

The interpretation and evaluation of the work of the man considered by many the greatest genius in English letters in our time. Open to all.

FIRST SEMESTER				SECOND SEMESTER			
T	4:30	Mpls. N. W. Bank Bldg. 603, Powell		T	4:30	Mpls. N. W. Bank Bldg. 603, Powell	
W	4:15	St. P. Ext. Center 201, Powell		W	4:15	St. P. Ext. Center 201, Powell	

Book Reviews. No credit. Meets one hour weekly. \$5.

Reviews of current fiction, biography, plays, poetry. Books by significant authors will be discussed so that members of the class may be informed about books they do not have time to read, and may also have a basis for selecting books to include on their reading lists. Open to all.

FIRST SEMESTER				SECOND SEMESTER			
T	7:00	Campus Folwell 102, Hurd		T	7:00	Campus Folwell 102, Hurd	

Readings in Contemporary Literature. No credit. 10 weekly meetings. \$6.

Lecture presentations of ten significant modern writers whose books have provoked enough interest among discriminating readers to provide vigorous and stimulating discussion; Santayana, Wolfe, Mann, Lawrence, Huxley, Yeats, Frost, and others. Open to all.

FIRST SEMESTER			
M	4:15	Campus Folwell 109, Acker	
W	4:15	St. P. Ext. Center 203, Acker	

FINE ARTS

For technique classes see Art Education, p. 34; Engineering Classes, pp. 49, 51; and Cartooning, p. 17.

57 American Architecture. 3 credits. \$10.

The historical development of architecture in the United States from earliest colonial times to the present; particular attention to the sources of early styles, and to the distinctions between different periods and regions; the problem of the skyscraper; the private house and current sociological development. For prerequisites consult instructor.

FIRST SEMESTER

Th 8:05 Campus Folwell 114, Robb

58 American Sculpture and Painting. 3 credits. \$10.

The representative arts in the United States from their earliest manifestations to the present. Examination of the work of various artists in an effort to determine what constitutes the specific American quality of their styles. For prerequisites consult instructor.

SECOND SEMESTER

Th 8:05 Campus Folwell 114, Robb

G.C.119-120 Art for Every Day. Credit in General College only. \$10.

Understand and enjoy the art you see every day. All of the principles underlying art forms, from the funny paper to the Sistine Madonna, from a cabin to a cathedral, are easily understood and applied when they are explained, discussed, and experimented with. This class will have an hour's lecture and a two-hour period devoted to discussions devoted to the solution of the art problems with which we are all faced—such as arranging furniture, choosing clothes, or planting a garden. Frequently this period will be spent in the University Gallery, discussing the current exhibit, or in one of the Fine Arts rooms, with the prints and books in the Carnegie Collection. Not a class for professional or technical training, but an opportunity for those who just like art and want to get a better understanding of it. Open to all, regardless of art ability.

FIRST SEMESTER

W 6:20 Campus Westbrook 206, Faulkner

SECOND SEMESTER

W 6:20 Campus Westbrook 206, Faulkner

GEOGRAPHY

11 (51) Human Geography. 5 credits. \$17.

A study of the factors of the environment (space relationships, climate, soils, drainage, topography, mineral wealth, contact with the sea, fauna and flora) with particular reference to their limiting effect on man's activities. Projects of current interest, such as the Boulder Dam, T.V.A., the Shelter Belt, and others used as illustrative material. Basic for all geography classes. Counts toward a minor in geography. No prereq.

FIRST SEMESTER

T 6:20 Campus Burton 103, Davis

43 Political Geography. 3 credits. \$10.

A study of geographic conditions as they affect national and international relations. Such potential causes of international disputes as the Polish Corridor, Austria, and the Balkans, the Ukraine, Manchukuo and Mongolia, Ethiopia, the Philippines, the Caribbean countries, the Gran Chaco; character and production of areas involved and their economic and political value. Does not count toward a minor in geography. No prereq.

FIRST SEMESTER

W 6:20 Campus Burton 103, Hartshorne

47 Geography of Minnesota. 3 credits. \$10.

A study of the natural resources of the state and the human activities as related thereto. Does not count toward a minor in geography. Prereq., Geog. 11 or 41.

SECOND SEMESTER

W 6:20 Campus Burton 103, Dicken

120 Geography of Asia. 3 credits. \$10.

Areal differentiation in the major geographic regions of Asia. Special consideration of Japan, China, and India, and the geographic basis for existing conditions in those areas. Counts toward a minor in geography. Prereq., 10 credits in geography.

SECOND SEMESTER

T 6:20 Campus Burton 103, Davis

GEOLOGY

1 General Geology (Dynamic). 3 credits. \$10.

A General Geology Laboratory. 2 credits. \$7.

These classes, 1 and A combined, constitute Geology 1 of the College of Science, Literature, and the Arts.

An introductory treatment of the materials of the earth and the geologic processes; principles of earth sculpture, glaciation, volcanic activity, mountain building, etc.; geologic occurrence of gems, ores, oils, and other economic mineral resources. No prereq.

N.B.—Registrations may be made for the combined classes or for Geol. 1 alone. Students who have already completed 3 credits in Geol. 1 or 8 may register for Geol. A.

FIRST SEMESTER

I T 6:20 Campus Pillsbury 210, Thiel
A T 8:05 Campus Pillsbury 220, Arranged

2 Historical Geology. 3 credits. \$10.

B Historical Geology Laboratory. 2 credits. \$7.

These classes, 2 and B combined, constitute Geology 2 of the College of Science, Literature, and the Arts.

A study of the changing geology and life of the earth during the geologic past as interpreted from the rock record. Prereq. for degree, Geol. 1 or 8.

N.B.—Registration may be made for the combined classes, or for Geol. 2 alone. Students who have already completed 3 credits in Geol. 2 may register for Geol. B.

SECOND SEMESTER

2 T 6:20 Campus Pillsbury 210, Arranged
B T 8:05 Campus Pillsbury 210, Arranged

4 Geology of Minnesota. Not offered 1936-37.

19ex Geology of Our National Parks. Not offered 1936-37.

23 Mineralogy. 3 credits. \$10.

A study of the physical and chemical characteristics of minerals; occurrence, genesis and uses; determinative work and identification of rock and ore minerals by physical tests and blowpipe analysis. (May be used to satisfy day classes 23w and 24s.) No prereq.

FIRST SEMESTER

T 6:20 Campus Pillsbury 100, Gruner

25 Elements of Rock Study. Not offered 1936-37.

GERMAN

1-2-3 Beginning German A, B, C. 5 credits each. \$17.

N.B.—Classes in German 1-2-3-4 are offered in 5-credit units to correspond with regular day classes, meeting one period a week for 3 hours, each course counting as equivalent to one year preparatory school German.

FIRST SEMESTER

1 M 6:20 Campus Folwell 207, Davies
Th 6:20 St. P. Ext. Center 208,

Prottinger

3 M 6:20 Campus Folwell 206, Wangness
W 6:20 St. P. Ext. Center 200, Downs

SECOND SEMESTER

2 M 6:20 Campus Folwell 207, Davies
Th 6:20 St. P. Ext. Center 208, Prottinger

4 Intermediate German. 5 credits. \$17.

Modern narrative prose. Prereq., 3.

SECOND SEMESTER

M 6:20 Campus Folwell 206, Wangness
W 6:20 St. P. Ext. Center 200, Downs

17 German for Graduate Students. No credit. \$10.

Enables candidates for advanced degrees to acquire a reading knowledge of German. Presupposes no knowledge of the language.

FIRST SEMESTER

M 6:20 Campus Folwell 212, Lussy

SECOND SEMESTER

M 6:20 Campus Folwell 212, Lussy

50-51-52† German Composition and Conversation. 3 credits each semester. \$10.

A practical course in oral and written German; makes use of matters common in every day speaking and writing. Course 50 and first half of 51 in first semester, balance in second. All required for credit. Prereq., German 4.

FIRST SEMESTER

Th 6:20 Campus Folwell 202, Arranged

SECOND SEMESTER

Th 6:20 Campus Folwell 202, Arranged

HISTORY

1-2† The Modern World. 5 credits each semester. \$17.

Political, social, and economic factors. Course 1—1500-1799; Course 2—1799 to the present. Both required for credit. Meets 3 hours once a week. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
1	M	6:20	Campus Folwell 104, Mudgett	2	M	6:20	Campus Folwell 104, Mudgett
	T	6:20	St. P. Ext. Center 206, Mudgett		T	6:20	St. P. Ext. Center 206, Mudgett

4-5-6 English History. 3 credits each semester. \$10. All required for credit.

Class 5, England from 1485 to 1815; 6, from 1815 to the present.

FIRST SEMESTER				SECOND SEMESTER			
5	Th	6:20	Campus Folwell 105, Kane	6	Th	6:20	Campus Folwell 105, Kane

7-8† American History. 3 credits each semester. \$10. Hist. 7-8-9 required for credit.

Course 7—1766-1840; 8—1840-1877. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
7	M	6:20	St. P. Ext. Center 200, Kane	8	M	6:20	St. P. Ext. Center 200, Kane
	T	6:20	Campus Folwell 104, Kane		T	6:20	Campus Folwell 104, Kane

9 Recent American History (Since 1877). 3 credits. \$10.

Special emphasis on the social and economic factors. Prereq., Hist. 7-8.

FIRST SEMESTER			
W	6:20	Campus Folwell 104, Kane	

65-66 Europe Since 1871. 3 credits each semester. \$10. Both required for credit.

Class 65, 1871 to 1914; 66, 1914 to present. The background and causes of the World War, the Versailles Conference and the peace treaties, the new governments in Europe, the conflicts between democracy, communism, and fascism, particularly in Russia, Germany, Italy, and France; the chief present-day menaces to world peace. Both required for credit. Prereq., senior standing.

FIRST SEMESTER				SECOND SEMESTER			
65	T	8:05	Campus Folwell 104, Kane	66	T	8:05	Campus Folwell 104, Kane

80-81-82 Introduction to Economic History. 4½ credits each semester. \$15. All required for credit.

Survey of man's efforts to make a living from early times to the present. Emphasis upon European economic developments from which present-day society is derived. Prereq., Senior College standing.

FIRST SEMESTER				SECOND SEMESTER			
Th	6:20	Campus Folwell 104, Mudgett		Th	6:20	Campus Folwell 104, Mudgett	

Current Problems in Light of American History. No degree credit. Meets alternate weeks. \$5.

A lecture and discussion study of basic problems and movements in American history known to be related to the social, political, and economic problems of today; some of the problems: Federal Power versus State Rights, Farmer-Debtor Movement (agrarian and populist), "Sound Money" versus Inflation, Labor Movement, Growth and Control of Capital, Trusts, etc. A class for those not satisfied with traditional history teaching, and seeking interpretations. No prereq. Begins February 18 on campus, February 15 in St. Paul

SECOND SEMESTER			
M	8:05	St. P. Ext. Center 208, Kane	
Th	6:20	Campus Folwell 105, Kane	

HOME ECONOMICS

Interior Decorating, see Art Education, page 34.

Textiles, see Business Classes, page 46.

HOW TO STUDY

1 How To Study. 2 credits. \$10.

Instruction and practice in the art of effective study, as applied to subject-matter taught in colleges. Of value to all who desire to get the most out of their study efforts. Deals with the budgeting of time, efficient reading, organizing knowledge, and similar techniques. A portion of the class time will be devoted to actual practice in study. No prereq.

FIRST SEMESTER			
T	6:20	Campus Folwell 3, Baker	

JOURNALISM

13 Introduction to Reporting. 3 credits. \$10.

A study of news, its sources, methods of finding and gathering; correct style of written presentation; brief survey of the place and purpose of the newspaper and the processes of newspaper production. Prereq. for college credit, Eng. Comp. 4-5-6, or exemption.

FIRST SEMESTER

W 8:05 Campus Folwell 5, Steward

69 Newspaper and Magazine Articles. 3 credits. \$10.

The special feature article; typical subjects and their preparation for magazines, trade papers, Sunday newspapers, syndicates, house organs, etc.; the qualities that make stories salable, and the market; principles of illustration. Prereq. for college credit, Introduction to Reporting 13.

SECOND SEMESTER

W 8:05 Campus Folwell 5, Steward

76 Judging Modern Books and Plays. 3 credits. \$10. Equivalent to Critical Writing.

A class for the reader who wishes to approach modern works with a better discrimination; not a technical journalism class. Standards of judgment and the need for them; application to fiction, poetry, essays, biography, criticism, humor, scientific and philosophical writings; the modern theater and its development; the work of the dramatic critic; the motion picture and its present stage of development; responsibility of reviewers. Open to all; degree students consult instructor for prerequisites.

FIRST SEMESTER

T 8:05 Campus Folwell 110, Ford

MATHEMATICS

(Numbers of classes are those used in the College of Science, Literature, and the Arts)

20a&b Mathematics of Investment. Not offered 1936-37.

A-Bex	Elementary Algebra
Cex	Solid Geometry
5	Higher Algebra
6	Trigonometry
7	College Algebra
30	Analytic Geometry
50	Differential Calculus
51	Integral Calculus

For description and program of these classes
see Engineering Classes, pp. 52-53.

106 Differential Equations. Not offered 1936-37.

MEDICINE

§Practical Preventive Medicine. Open only to practicing physicians. \$10.

A consideration of the present status of scientific knowledge covering the more important preventive measures and their practical application in the practice of medicine. Among the subjects covered are immunization against diphtheria, scarlet fever, whooping cough, measles, etc.; the common cold, influenza, pneumonia, parasitic diseases of man of importance in Minnesota; undulant fever, tularemia, poliomyelitis and encephalitis; tetanus and gas gangrene; allergic diseases. Instructor assisted by Drs. Reimann, Riley, Ellis, O'Brien, and Green.

FIRST SEMESTER

Th 6:20 Campus Millard 129, Maxcy

§Tuberculosis and Other Diseases of the Chest. Open to practicing physicians only. \$10.

Diagnosis and treatment of bronchitis, bronchiectasis, bronchial asthma, pulmonary abscess, pneumoconiosis (particularly silicosis), carcinoma, etc. The new viewpoint on tuberculosis control will be presented, with the most modern methods of diagnosis and treatment, with special emphasis on artificial pneumothorax.

FIRST SEMESTER

Th 8:05 Campus Univ. of Minn. Hosps. Eustis
Aud., Myers

§ These classes are offered on the same evening for the convenience of those who wish to take both.

P.M.&P.H.60 Tuberculosis and Its Control. \$10.

A nontechnical class, particularly for nurses, social workers, teachers, and others interested. History of tuberculosis movement and campaign in the United States; early diagnosis and sanitary treatment; tuberculosis in children; psychology of tuberculosis; supervision of returned sanatoria patients; state program for the eradication of tuberculosis; legislation. For credit and prerequisites consult instructor.

SECOND SEMESTER
Th 7:30 Campus Univ. of Minn. Hosps. Eustis
Aud., Myers

Preventive Medicine. See Education Classes, page 37.

MUSIC**3-4-5 Harmony (First Year). 3 credits each semester. \$10.**

Study of chords, their construction, relations, and progressions. Each semester corresponds to a quarter in day classes. No prereq.

FIRST SEMESTER	SECOND SEMESTER
3 T 6:20 Campus Music 103, Malcolm	4 T 6:20 Campus Music 103, Malcolm
5 T 8:05 Campus Music 103, Malcolm	

8-9-10† Introduction to Music. 3 credits each semester. \$10.

A course in historical appreciation. Previously offered under that name but now given the numbers and title used by the College of Science, Literature, and the Arts. Designed to give an understanding of music as literature. A nontechnical account of the principal music forms, the historical origins and associations; the nature and scope of musical expressions. Extensive musical illustrations. No prereq. Entire course required for credit.

FIRST SEMESTER	SECOND SEMESTER
8-9 Th 6:20 Campus Music 103, Ferguson	9-10 Th 6:20 Campus Music 103, Ferguson

30A Physics of Tone Color and Tone Production. (Same as Physics 17.) 3 credits. \$10.

Experimental analysis of tone quality of vocal tones (vowels and consonants) and of the instruments of orchestra and wind band; effective changes of timbre through combinations of instruments and voices; modifications of quality due to architectural differences of auditoriums; mechanics of vocal and instrumental tone production; discussion of "artistic" effects. Introductory Acoustics given for benefit of non-credit students who have not completed prerequisites, which are Physics 15 or 13.

FIRST SEMESTER
M 6:20 Campus Physics 133, Pepinsky

40-41-42 Orchestra. 3 credits for the year, \$5 per semester, or 3 credits each semester. \$10 per semester.

N.B.—Students may enter either semester, and may elect one or two meetings per week, with corresponding credit and fee.

The University Symphony Orchestra made available for registration through the General Extension Division. Section 1 consists of the Symphony Orchestra, open to those qualified, both day and extension students; section 2 will furnish opportunity for acquiring the skill and orchestral routine necessary for membership in the Symphony Orchestra. Try-outs to determine section membership, for both day and extension students. Open to all players of orchestral instruments.

FIRST SEMESTER	SECOND SEMESTER
Sec. 1 W 7:30 Campus Northrop Aud., Pepinsky	Sec. 1 W 7:30 Campus Northrop Aud., Pepinsky
Sec. 2 T 7:30 Campus Music Aud., Pepinsky	Sec. 2 T 7:30 Campus Music Aud., Pepinsky

56-57-58† Bach, Beethoven, Wagner, and Brahms. 3 credits each semester. \$10.

Critical study of selections from the master works of the four greatest composers; biographical readings, topics and analyses, giving historical and literary background to culminative periods in composition. Open to those who have been in extension classes in music appreciation. 56-57-58 required for credit. Prereq., Mu. 8-9-10.

56 and 57 not offered 1936-37.

FIRST SEMESTER
58 W 6:20 Campus Music 103, Ferguson

58Aex Wagner's Ring of the Nibelungen. No credit. \$10.

Detailed study of the Ring, following the plan of 56-57-58. Prereq., 56-57-58.
SECOND SEMESTER
W 6:20 Campus Music 103, Ferguson

G.C.122-123 Music for Every Day. 3 credits each semester, in General College only. \$10.

Designed to give the student an opportunity to get the most out of the music he hears every day. Enjoying music is largely a matter of getting acquainted with it—and this comes only through repeated hearing. A lecture period of one hour, in which the essentials of music will be discussed, will be followed by a two-hour listening period, employing recordings of the music discussed in the lecture. Opportunity will also be provided for preparing for local concerts or important radio programs. A class for those who like music and wish to increase their enjoyment of it; not for the professional students of music. No prerequisites. Open to all.

FIRST SEMESTER
W 6:20 Campus Westbrook 306A, Hill

SECOND SEMESTER
W 6:20 Campus Westbrook 306A, Hill

Church Music. No credit toward degree. \$10.

Place of music in worship; qualities church music should have; characteristic church music and composers of different periods—as Gregorian, polyphonic, Bach, Palestrina—and use and interpretation appropriate to each; hymnology; service playing for organists; choir administration. Designed to develop discrimination in understanding and interpreting music of the church service; of interest primarily to clergymen, choir singers, directors, and organists. Outstanding church compositions analyzed for interpretation (as illustrations). Open to all without prerequisites.

FIRST SEMESTER
T 8:05 Campus Music 4, Sircom

N.B.—Individual instruction in music, as well as study in the regular classes offered by the Department of Music, is open to registration through the General Extension Division by students who are not able to attend day classes full time. This includes instruction in piano, organ, voice, violin, cello, and all orchestral instruments, as well as classes in history and theory of music. Students will register as for extension classes but attend the regular day sessions. The courses offered, the time and place of meeting, and the fees for individual instruction will be found in the program of classes for the College of Science, Literature, and the Arts, in the Combined Class Schedule. For further information consult any office of the General Extension Division.

NURSING

(See *Education Classes*, page 35)

ORIENTATION

(See *Science and Civilization*, page 29)

PARLIAMENTARY LAW**7ex Parliamentary Law.** 3 credits for certificate only. \$10.

Presents a system based on principles (not a mere list of rules) a knowledge of which will supply the answer to 7,000 possible questions that may arise as to procedure in a deliberative assembly. No text required. No prereq.

FIRST SEMESTER
T 8:05 St. P. Ext. Center 208, Hawley
Th 8:05 Campus Law 6, Hawley

SECOND SEMESTER
T 8:05 St. P. Ext. Center 208, Hawley
Th 8:05 Campus Law 6, Hawley

PHILOSOPHY**1 Problems of Philosophy (Introduction).** 3 credits. \$10.

Introduction to the problems of philosophy; the main fields of investigation; permanent problems; principal methods and schools of philosophy; historical and contemporary views. No prereq.

FIRST SEMESTER
T 8:05 Campus Folwell 322, Conger

2 Logic. 3 credits. \$10.

Practical aids to effective thinking; the nature of knowledge; the laws of reasoning; principles and methods of scientific proof; sources of error and incorrect thinking; prejudice and fixed convictions as interferences. No prereq.

SECOND SEMESTER
Th 6:20 Campus Folwell 205, Castell

3 Principles of Ethics. 3 credits. \$10.

A sketch of the development of morality; analysis of conscience; the nature and authority of moral principles. No prereq.

FIRST SEMESTER
Th 6:20 Campus Folwell 205, Castell

102 Philosophy of Religion. 3 credits. \$10.

A survey of the chief contemporary questions about religion and the answers afforded by the various philosophies. For prereq., consult instructor.

SECOND SEMESTER
T 8:05 Campus Folwell 322, Conger

PHYSICS**3 Elements of Mechanics.** 3 credits. \$10.

First part of general course in physics; laws of motion, force, and energy applied to solids, fluids, and gases. Prereq. for degree, higher algebra and trigonometry.

FIRST SEMESTER	SECOND SEMESTER
M 7:30 Campus Physics 166, Erikson or assistant	M 7:30 Campus Physics 166, Erikson or assistant

13 Acoustics. Not offered 1936-37.

17 Physics of Tone Color and Tone Production. See Music 30A, page 24.

23 Heat. Not offered 1936-37.

33 Optics. 3 credits. \$10.

A study of the principles underlying light phenomena. Prereq. for degree, Physics 3.

SECOND SEMESTER
W 7:30 Campus Physics 133, Valasek
or assistant

43 Electricity. 3 credits. \$10.

A study of the principles underlying electrical phenomena. Prereq. for degree, Physics 3.

FIRST SEMESTER

W 7:30 Campus Physics 133, Zeleny
or assistant

POLITICAL SCIENCE**1 American Government and Politics, Part I.** 3 credits. \$10.

Introductory study of the American system of government—national, state, and local. Constitutional basis; units and areas of government and their interrelations; forms of government and their historical development; citizenship and private rights; participation in politics; parties and elections; legislatures and legislation. No prereq.

FIRST SEMESTER

M 6:20 Campus Burton 209, Starr

2 American Government and Politics, Part II. 3 credits. \$10.

A continuation of Pol. Sci. 1. Problems of administration; the civil service; expenditures and revenue; judicial organization and procedure; law and law enforcement; government and business; social services and planning; national defense; American dependencies; foreign relations. No prereq.

SECOND SEMESTER
M 6:20 Campus Burton 209, Christensen

3 Functions of Government. 3 credits. \$10.

A critical examination of the expansion of the functions of the state; the growth of "governmentalism"—its causes and meaning for the average man. A survey of the different services which the modern state performs on behalf of its citizens. A class for those who seek to determine for themselves what the proper sphere of state activity is. Prereq., Pol. Sci. 1.

SECOND SEMESTER
T 6:20 Campus Burton 209, Kirkpatrick

15 Elements of Political Science. 3 credits. \$10.

An introductory study of the nature of the state, sovereignty and liberty, constitutions, the forms of government, and the functions of the state; principles and practices, purposes and institutions, the place which the modern state should occupy in society and the means for the attainment of that position.

FIRST SEMESTER

T 6:20 Campus Burton 209, Kirkpatrick

25 World Politics. Not offered 1936-37.

65 State and Local Government in Minnesota. 3 credits. \$10.

An analysis of the structure and functions of state and local units. Discussion of such problems as legislative organization and procedure; the executive and the administration; personnel policies; political parties; taxation and finance; city charters and types of city government. Emphasis on the changing relationships between city and state, and state and nation. Prereq., 9 credits in political science.

FIRST SEMESTER

W 6:20 Campus Burton 209, Christensen

73 *Government and Business.* Not offered 1936-37.

147 American Political Parties. 3 credits. \$10.

The policies, composition, organization, activities, and functions of the political parties of today; suffrage, elections, and related subjects; evaluation of the party as a force in American government. Prereq., 9 credits in political science.

SECOND SEMESTER

W 6:20 Campus Burton 209, Starr

148 *European Dictatorships.* Not offered 1936-37.

198 *Imperialism.* Not offered 1936-37.

Public Finance. See Business Classes, page 43.

PSYCHOLOGY**1-2 General Psychology.** 3 credits each semester. Both required for credit, except for certain extension certificates. \$10.

A general introduction to the study of human behavior with emphasis on the development of the individual.

FIRST SEMESTER

1 M 6:20 Campus Folwell 301, White
T 6:20 St. P. Pub. Lib. Aud., White
Th 4:20 Campus Folwell 109, White
Th 8:05 Campus Folwell 110, White

2 M 6:20 Campus Folwell 110, White
T 6:20 St. P. Pub. Lib. Aud., White
Th 4:20 Campus Folwell 109, White
Th 8:05 Campus Folwell 109, White

SECOND SEMESTER

3 Psychology Applied to Daily Life. 3 credits. \$10.

A course in the uses of psychological methods in solving such problems as come up in the treatment of ill health, in the courtroom, in business offices and factories, in advertising, in education, in social and political life, in artistic creation and esthetic enjoyment.

FIRST SEMESTER

W 6:20 St. P. Public Lib. Aud., White
F 8:05 Campus Folwell 109, White

SECOND SEMESTER

W 8:05 Campus Folwell 109, White

56 Psychology of Advertising. 3 credits. \$10.

Analysis of advertising, national and local, from the standpoint of attention, memory, desire, and action; experimental techniques for investigating advertising problems. Of fundamental value to all advertisers. Prereq., 1-2, and Principles of Economics.

FIRST SEMESTER

T 6:20 Campus Psychology 115, Longstaff

SECOND SEMESTER

4-5 Introductory Laboratory Psychology. 2 credits each semester. \$10.

Simple experiments illustrating the subject-matter of contemporary psychology. Included are human and animal learning, visual experience, differences in musical, artistic, and other kinds of abilities, measurement of each student's personality traits, and reactions to advertisements. May be taken with or after Psy. 1-2. Supplies the laboratory experience which is necessary for psychology to be used to satisfy the natural science requirement in the Junior College.

FIRST SEMESTER

4 W 6:20 Campus Psychology 211, Raskin

SECOND SEMESTER

5 W 6:20 Campus Psychology 211, Raskin

How To Study. See page 22.

144-145† Abnormal Psychology. 3 credits each semester. \$10. Both required for credit.

Normal and abnormal behavior contrasted; varieties of maladjustment as illustrated in criminality, deficiency, fanaticism, and insanity; the inadequacies of personality as shown in every day life. Prerequisites arranged.

FIRST SEMESTER

144 M 8:05 Campus Psychology 115,
Raskin

SECOND SEMESTER

145 M 8:05 Campus Psychology 115,
Raskin

RADIO SCRIPT WRITING*(See Business Classes, page 43)***ROMANCE LANGUAGES***French***1-2† Beginning French.** 3 credits each semester. \$10.

Grammar, pronunciation, reading, and practice in speaking. No prereq. Both required for credit.

FIRST SEMESTER				SECOND SEMESTER			
1	T	6:20	St. P. Ext. Center 201, Johnson	2	T	6:20	St. P. Ext. Center 201, Johnson
	W	6:20	Campus Folwell 227, Cleiton		W	6:20	Campus Folwell 227, Cleiton

3-4 Intermediate French. 3 credits each semester. \$10.

Grammar, review, composition, readings from modern authors. Prereq., 1-2, or 2 years of preparatory French.

FIRST SEMESTER				SECOND SEMESTER			
3	T	6:20	Campus Folwell 227, Sirich	4	T	6:20	Campus Folwell 227, Minault

5 French for Graduate Students. No credit. \$10.

Grammar and reading, preparing candidates for advanced degrees for French examination. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
T	6:20	Campus Folwell 207, Frelin		T	6:20	Campus Folwell 207, Frelin	

20a-b Elementary French Conversation and Composition I, II. 3 credits each semester. \$10.

A practical course in oral and written French with emphasis upon pronunciation and practical phonetics. Prereq., 3-4.

FIRST SEMESTER				SECOND SEMESTER			
20a	M	8:05	Campus Folwell 205, Olmsted	20b	M	8:05	Campus Folwell 205, Olmsted

68-69 Nineteenth Century French Readings. 3 credits each semester. \$10.

Selections from standard writings. May be elected in two successive years without duplication of material. Prereq., for degree, French 4.

FIRST SEMESTER				SECOND SEMESTER			
68	T	6:20	Campus Folwell 205, Guinotte	69	T	6:20	Campus Folwell 205, Guinotte

*Italian***5a-b Reading Knowledge of Italian.** 3 credits each semester. \$10.

Training in reading Italian with no drill in composition or conversation. No previous knowledge of Italian required.

FIRST SEMESTER				SECOND SEMESTER			
W	6:20	Campus Folwell 201, Nissen		W	6:20	Campus Folwell 201, Nissen	

*Spanish***1-2† Beginning Spanish.** 3 credits each semester. \$10.

Grammar, pronunciation, reading, and practice in speaking. No prereq. Both required for credit.

FIRST SEMESTER				SECOND SEMESTER			
1	M	6:20	Campus Folwell 102, Grismer	2	M	6:20	Campus Folwell 102, Grismer
	T	6:20	St. P. Ext. Center 202, LeFort		T	6:20	St. P. Ext. Center 208, LeFort

3-4 Intermediate Spanish. 3 credits each semester. \$10.

Review, composition, readings from modern authors. Attention to correspondence and commercial practice if desired. Prereq., 1-2 or 2 years of preparatory Spanish.

FIRST SEMESTER				SECOND SEMESTER			
3	M	6:20	Campus Folwell 201, Brackney	4	M	6:20	Campus Folwell 201, Brackney

20a-b Spanish Composition I-II. 3 credits each semester. \$10.

Practical composition, including correspondence. Prereq., 3-4.

FIRST SEMESTER				SECOND SEMESTER			
20a	T	6:20	Campus Folwell 209, Grismer	20b	T	6:20	Campus Folwell 209, Grismer

SCANDINAVIAN

*Norwegian***1-2 Beginning Norwegian.** 3 credits each semester. \$10.

Grammar, composition, selected readings, and easy prose and poetry. No prereq.

FIRST SEMESTER		SECOND SEMESTER	
1	Th 6:20	Campus Folwell 206, Madsen	2 Th 6:20 Campus Folwell 206, Madsen

N.B.—One of the following—that having largest registration.

4-5 Advanced Norwegian. 3 credits each semester. \$10.

Reading, conversation, and introduction to Norwegian-Danish literature. Prereq., 1-2, or 2 years preparatory Norwegian or fair reading knowledge.

OR

51-53 Modern Norwegian Literature. 3 credits each semester. \$10.

Study of the most prominent authors of Norway from 1814 to 1905; Wergeland, Welhaven, Björnson, Ibsen, Lie, Kjelland. Lectures, class reading, discussion, reports. Prereq., reading knowledge of Norwegian.

FIRST SEMESTER		SECOND SEMESTER	
51	Th 8:05	Campus Folwell 206, Madsen	53 Th 8:05 Campus Folwell 206, Madsen

71-73 Danish Literature of the 19th Century. Not offered 1936-37.

*Swedish***7-8 Beginning Swedish.** 3 credits each semester. \$10.

Grammar, composition, conversation, reading of selected prose. No prereq.

FIRST SEMESTER		SECOND SEMESTER	
7	W 6:20	Campus Folwell 206, Stomberg	8 W 6:20 Campus Folwell 206, Stomberg

10-11 Advanced Swedish. 3 credits each semester. \$10.

Continuation of language study through literary examples. Prereq. for degree, Swedish 7-8-9.

FIRST SEMESTER		SECOND SEMESTER	
10	T 6:20	Campus Folwell 206, Stomberg	11 T 6:20 Campus Folwell 206, Stomberg

SCIENCE AND CIVILIZATION

*(Formerly entitled Orientation)***1-2† Science and Civilization I-II.** 3 credits each semester. \$10.

A survey of certain aspects of contemporary thought concerning the specific physical and social sciences; nontechnical, designed for the layman. First semester, physical; second semester, social sciences. No laboratory work and no knowledge of science required. No prereq. For degree, both required for credit.

N.B.—Students may enter either class; I is not prerequisite to II.

FIRST SEMESTER		SECOND SEMESTER	
1	T 6:20	Campus Main Eng. 104, Shaw	2 T 6:20 Campus Main Eng. 104, Shaw
	Th 6:20	St. P. Ext. Center 203, Dicken	Th 6:20 St. P. Ext. Center 203, Schmidt

SOCIOLOGY

I Classes in Sociology; prerequisite to technical social work classes.**1 Introduction to Sociology.** 3 credits. \$10.

A study of the culture of human society and effect upon it of such influences as location, sex, race, custom, invention; culture patterns, processes, and social interactions; social change and means of control. No prereq.

FIRST SEMESTER		SECOND SEMESTER	
M	6:20	Campus Jones 109, Monachesi	M 6:20 Campus Jones 104, Monachesi
T	8:05	St. P. Ext. Center 202, Schmid	
Th	6:20	Campus Jones 109, Arranged	

6 Social Interaction. 3 credits. \$10.

The basis and forms of social interaction and social relationships with detailed attention to some of the fundamental behavior patterns of contemporary society. Prereq., Soc. 1.

SECOND SEMESTER	
M	6:20 Campus Jones 109, McGenty
T	8:05 St. P. Ext. Center 200, Hoffman

14 Rural Sociology. 3 credits. \$10.

A study of rural and urban relationships; the principles of sociology applied to the position of an agricultural class in an industrial society; the contributions and obligations of farmers to the larger society, and vice versa. Prereq., Soc. 1.

FIRST SEMESTER
M 6:20 Campus Folwell 3, Lundquist

SECOND SEMESTER
W 6:20 St. P. Ext. Center 208, Lundquist

49 Social Pathology. 3 credits. \$10.

A survey course in contemporary social problems with especial emphasis on the conditions and processes in personal demoralization and social disorganization. The scientific approach to the study of poverty, physical diseases and defectiveness, feeble-mindedness, insanity, vagrancy, etc. Prereq. for degree, 10 cred. in soc.

FIRST SEMESTER
W 6:20 Campus Jones 109, Schmid

53 Elements of Criminology. 3 credits. \$10.

Causes and social control of crime; treatment from the point of view of processes of social interaction. Prereq., 10 cred. in soc.

SECOND SEMESTER
T 6:20 Campus Jones 109, Vold

96 Recent Social Trends. 3 credits. \$10.

A study of social changes since 1890 with special emphasis upon their relationships to problems of human welfare; the rôle and limits of social planning and social legislation in controlling the course of change. Prereq., Sociology 1, or 10 credits in social sciences.

FIRST SEMESTER
T 6:20 Campus Jones 104, Sletto

110 Rural Organization. 3 credits. \$10.

Social organization as it affects living conditions in small towns and rural districts. Especially designed for rural social workers and specialists in rural sociology or agricultural economics. Prereq., same as for 119, below.

FIRST SEMESTER
W 8:05 St. P. Ext. Center 203, Lundquist

SECOND SEMESTER
M 6:20 Campus Folwell 3, Lundquist

119 The Family. 3 credits. \$10.

The evolution of the family; development of family unity or disunity; the rôles of the several members of the family; methods of investigation of the family. Prereq., 4 courses in soc., or Soc. 1 and 15 cred. in soc. sci., educ., phil., or psy.

FIRST SEMESTER
W 8:05 Campus Jones 109, Hoffman

120 Social Progress. 3 credits. \$10.

Theories of progress and a critique of the idea of progress; contributions of fundamental social institutions; converting drift into progress. Prereq., same as for 119. 3 credits.

FIRST SEMESTER
Th 6:20 Campus Folwell 105, Schneider

II. Classes in Technical Social Work.

N.B.—These classes are open to persons employed in social work positions who are recommended by the executive of the agency in which they are employed and then approved by an adviser in the University Training Course for Social and Civic Work. Credits thus earned will be accepted to satisfy the requirements in professional organizations. Unless prerequisites are otherwise stated the student should have completed at least 13 credits in Sociology.

60 Social Protection of the Child. 3 credits. \$10.

Social obligations to the child; development of the child-saving movement in the United States: infant and child mortality, recreation, education; courts, institutions, societies, and other public efforts for the child. Prereq., Soc. 49.

FIRST SEMESTER
T 8:05 Campus Jones 109, Doyle

64 Human Behavior. 3 credits. \$10.

Normal behavior and its transition to abnormal behavior; problems of motivation and influences of environment on human behavior.

FIRST SEMESTER
M 6:20 St. P. Wilder Disp., Lippman

65 Psychiatric Aspects of Social Case Work. 3 credits. \$10.

A detailed discussion of cases that have been under intensive treatment; analysis of methods and philosophy of treatment; the methods of psychoanalysis. Limited to twenty students.

SECOND SEMESTER
M 6:20 St. P. Wilder Disp., Lippman

127 Legal Aspects of Social Work. 3 credits. \$10.

A selected group of legal problems treated from the viewpoint of the social worker; the court system; legal process; protection and enforcement of the legal rights of indigent persons; problems of the small wage earner—garnishment, small loans, eviction; problems in domestic relations. Not designed to teach technical law, but to furnish background for understanding social problems having legal implications.

FIRST SEMESTER
T 6:20 Campus Jones 109, Finke

84-85† Principles of Case Work. 3 credits each semester. \$10. Both required for credit.

Social case work practices as applied to selected problems.

FIRST SEMESTER SECOND SEMESTER
Th 6:20 Campus Jones 2, Brocker Th 6:20 Campus Jones 2, Brocker

125 Principles of Group Work. 2 credits. \$7.

Methods of the supervision of group leaders with special emphasis on the use of conferences, both group and individual, group records and observation; such problems as the obtaining and training of leaders and the evaluation of leadership techniques.

FIRST SEMESTER
W 8:05 Campus Jones 104, Phillips

126 Technique of Leadership in Group Work. 3 credits. \$10.

Techniques of group leadership based on the educational and psychological principles involved in the group process. Discussion will be based on problems presented in group records in addition to those brought up by members of the class.

SECOND SEMESTER
W 8:05 Campus Jones 104, Phillips

SPEECH (PUBLIC SPEAKING)

Practical Speech Making. No credit. 12 weekly meetings each quarter. \$7.50 each quarter.

Designed for business and professional people, dealing only with practical speech making in everyday life, helping the student to organize his ideas so that they may be expressed with confidence and effectiveness; individual attention to cases of nervousness and embarrassment; each student speaks before the class each meeting. Students may continue through two or three quarters or may enter any quarter. New types and problems of speech presented each quarter with no duplication of work or prerequisites. Open to all.

First Quarter, September 29-October 1 to December 15-17, **Extempore Speaking.**

Second Quarter, December 29-31 to March 16-18, **Business Speaking.**

Third Quarter, March 23-25 to June 8-10, **Impromptu and After-Dinner Speaking.**

Class meets, all quarters: T 6:20 Campus Folwell 5, Fulton
Th 8:05 St. Paul Ext. Center 201, Fulton

Vocabulary Building I. No credit. Meets weekly for one hour. \$5, plus \$1 materials fee.

A practical course designed to increase students' speaking and reading vocabularies; presentation and discussion of words; exercises, reading lists. Mimeographed matter, in lieu of text, issued each meeting. Home study suggested but not required. Not a recitation course. No prereq.

FIRST SEMESTER SECOND SEMESTER
M 6:00 Campus Folwell 322, Thorvilson M 6:00 Campus Folwell 322, Thorvilson
W 7:00 Campus Folwell 322, Thorvilson W 7:00 St. P. Ext. Center 204, Thorvilson
W 6:00 St. P. Ext. Center 204, Thorvilson

Vocabulary Building II. No credit. Meets weekly for one hour. \$5, plus \$1 materials fee.

A more advanced and detailed study of words. May be taken as a continuation of Course I, or together with it. A recitation course, with written and oral composition, exercises, reports, tests, and home study recommended.

FIRST SEMESTER SECOND SEMESTER
W 7:00 St. P. Ext. Center 204, Thorvilson M 7:00 Campus Folwell 322, Thorvilson
W 6:00 St. P. Ext. Center 204, Thorvilson

1-2-3† Fundamentals of Speech. (Formerly 41-42-43). 3 credits each semester. \$10. All required for credit.

A course for the practical needs of business and professional persons. Extemporaneous speaking; organization of speech material; study of model speeches; technique of body and voice; practice for correctness and effectiveness in delivery. Prereq., Eng. Comp. 4-5-6 or exemption.

FIRST SEMESTER				SECOND SEMESTER			
1	M	6:20	Campus Folwell 308, Fulton	1	M	8:05	St. P. Ext. Center 201, Knower
	M	6:20	St. P. Ext. Center 201, Knower		W	6:20	Campus Folwell 308, Bryngelson
	T	6:20	N. W. Bank, Mpls. 603, Arranged	2	M	6:20	St. P. Ext. Center 201, Knower
	W	8:05	Campus Folwell 308, Bryngelson		T	6:20	Mpls. N. W. Bank 603, Arranged
2	M	8:05	St. P. Ext. Center 201, Knower		W	8:05	Campus Folwell 308, Bryngelson
	W	6:20	Campus Folwell 308, Bryngelson	3	M	6:20	St. P. Ext. Center 201, Knower
3	M	8:05	St. P. Ext. Center 201, Knower		T	6:20	Mpls. N. W. Bank 603, Arranged
	W	6:20	Campus Folwell 308, Bryngelson		W	8:05	Campus Folwell 308, Bryngelson

51-52 Advanced Public Speaking 1-2. Not offered 1936-37.

71-72-73† Elements of Play Production. 3 credits each semester. \$10, plus \$1 laboratory fee each semester. All required for credit.

Principles of the production of plays; directing, rehearsing, staging, make-up; organization and management of the production staff; knowledge and use of stage equipment; reading of plays; history of the theater. Conducted on practical production plan. Prereq., Speech 1-2-3.

N.B.—Students may register for either Speech 71, 72, or 73 either semester. Any member of class eligible to try out for parts in all University Theatre productions.

FIRST SEMESTER		SECOND SEMESTER			
Th	6:20	Campus Music 19, Riley	Th	6:20	Campus Music 19, Riley

77-78-79† Acting. 3 credits each semester. \$10, plus \$1 laboratory fee each semester. All required for credit.

The arts of pantomime, voice, and characterization, with exercises in one-act plays and projects of the University Theatre. Prereq., Speech 1-2-3.

N.B.—Students may register for either Speech 77, 78, or 79 either semester. Any member of class eligible to try out for parts in all University Theatre productions.

FIRST SEMESTER		SECOND SEMESTER			
M	6:20	Campus Music 19, Riley	M	6:20	Campus Music 19, Riley

Puppetry. No credit. \$10. Class limited to twenty.

History and adaptation of puppetry to education (correlating the teaching of literature, social studies, art, handicraft and spoken language), to religion, visual story telling in libraries, camp craft, occupational therapy, and recreation. Practical instruction in hand puppetry, black and white shadows, colored shadows and marionettes, including the steps necessary to a finished performance—the dramatization of the story, the making of the puppets, their authentic costuming, the construction of properties, back drops and theater, and the technique of manipulation. No textbook required, but small amount of materials. Students may enter either semester. No prereq.

FIRST SEMESTER		SECOND SEMESTER			
Th	6:20	Campus Jones 104, Meader	(Repeated on demand)		
F	6:20	St. P. Ext. Center 204, Meader	Th	6:20	Campus Jones 104, Meader
			F	6:20	St. P. Ext. Center 204, Meader

STAMP COLLECTING (PHILATELY)

Stamp Collecting. No credit. Regular weekly periods. \$10.

A class for collectors and those who might be collectors. The story of stamps and collecting; the language of philately and its significance; collecting and buying, what to do and not to do, for pleasure and for possible profit; what makes value; materials for, and handling of, a collection. Open to all.

FIRST SEMESTER		
M	6:20	Campus Folwell 113, Burgess

SWIMMING

(See Physical Education Classes, page 36)

TEXTILES

(See Business Classes, page 46)

ZOOLOGY

1-2† General Zoology. 5 credits each semester. \$17. Both required for credit.

Structure, physiology, embryology, classification, and evolution of animals. Equivalent to 1-2-3 in day classes. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
1	MW	6:20	Campus Zoology 211, Wodsedalek	2	MW	6:20	Campus Zoology 211, Wodsedalek

Birds of Minnesota. No credit for degree. \$10.

A laboratory and field class in identifying and enjoying the birds of this region. Early meetings will make use of the collections of the Museum of Natural History, but as soon as weather permits the class will meet in field locations. Study will be based on the manual by Dr. T. S. Roberts, who will be responsible for the class. Open to all.

SECOND SEMESTER		
T	8:05	Campus Zool. 204, Roberts and others

EDUCATION CLASSES

Classes offered under this head are primarily for teachers in service who are unable to attend day classes on the University campus. Only those courses have been listed that are primarily for credit in the College of Education. Many other courses are offered, especially in the academic classes of the College of Science, Literature, and the Arts, which are accepted for credit toward a degree in the College of Education. All classes are open to students (other than teachers) who may have an interest in any phase of formal education and its methods of instruction and supervision.

N.B.—Classes in Education, unless otherwise stated, carry credit only in the College of Education. They may, however, be acceptable toward General Extension Division certificates when properly approved.

CANDIDATES FOR DEGREE

Credit in the College of Education is dependent upon the qualifications of the student who must have completed the two years' work required for admission to the College of Education. This work may be completed either by graduation from a teachers college or normal school, a two-year course in the Junior College of the University or any accredited college, or in extension classes.

Students expecting to qualify for a degree should secure a copy of the College of Education Bulletin, which contains a statement of general requirements for graduation, of required courses in majors and minors, and of the specialized curricula, and should consult a major adviser as early in their course as possible. Failure to do so often delays graduation and makes extra work necessary.

The Students' Work Committee of the General Extension Division will be glad to assist students by explaining the various curricula and printed requirements for each; by advising what credits may be secured through extension classes; by assisting in securing the necessary official advice from the proper persons in the College of Education.

Students should study the requirements for Qualifying Examinations. Active teachers who have been enrolled for courses toward a degree previous to September 1, 1933, may possibly be excused from them. This is done by petition only as the result of a conference with Dr. C. W. Boardman of the University High School.

Extension classes are open to registration by any person qualified by maturity and ability to profit by the study. In practically all cases only those who expect to qualify for a university degree will be expected to meet the requirements of prerequisites. **PREREQUISITES ARE STATED FOR INFORMATION, NOT AS OBSTACLES.**

DESCRIPTION AND PROGRAM OF CLASSES

ADMINISTRATION AND SUPERVISION

119 Elementary School Curriculum. 3 credits. \$10, plus \$1 materials fee.

The principles underlying the selection and organization of subject-matter for courses in the elementary schools; critical examination of current practices. Prereq., senior standing.

FIRST SEMESTER

Th 6:20 Campus Main Eng. 203, Sorenson

150 Supervision and Improvement of Instruction. 3 credits. \$10.

Analysis of the functions and duties of the supervisor as related to the improvement of instruction; specific supervisory technique; objective analysis of classroom activity; concrete applications to present-day problems; case studies. Prereq., senior standing.

FIRST SEMESTER

T 6:20 Campus Main Eng. 203, Sorenson
Th 6:20 St. P. Ext. Center 204, Sorenson

ART EDUCATION

For other classes in Art see Fine Arts (S.L.A. Classes, page 20), Art (Engineering Classes, page 49).

1 Fundamental Experiences in Design (Principles). 3 credits. \$10.

Elementary problems involving space breaking; value of relations; decorative use of material; creative use of symbols.

FIRST SEMESTER

T 8:05 Campus Jones 207A, Lewis

3 Interior Decorating (Experiences in Design 3). 3 credits. \$10, plus laboratory fee \$.50.

Design principles in relation to the home; identification of period furniture; wall treatment; floor coverings; furniture arrangement; color schemes; modern style window treatment; field trips to the Institute of Arts and to furniture stores. No prereq.

FIRST SEMESTER

M 7:00 Campus Jones 207A, Lewis

T 6:20 Campus Jones 207A, Lewis

W 8:05 St. P. Ext. Center 201, Lewis

SECOND SEMESTER

M 6:20 Campus Jones 207A, Lewis

22 Advanced Interior Decorating (Second Year Design). 3 credits. \$10, plus laboratory fee \$.50.

Continuation of Interior Decorating 3, emphasizing color theories in relation to room color schemes, floor coverings, draperies, etc.; classification and use of fabrics, period and present day; decorative arts; room interiors appropriate to types of furniture. Prereq., 3.

SECOND SEMESTER

W 6:20 Campus Jones 207A, Lewis

*Special Interior Decorating Classes, No credit***Interior Decorating I.** No credit. 10 weeks. \$5. Begins September 30, and February 10.

A lecture course of special interest to homemakers offered at a convenient time. Same emphasis as in credit course. Optional field trips.

FIRST SEMESTER

W 2:00 to 3:30 Mpls. Pub. Lib., Lewis

SECOND SEMESTER

W 2:00 to 3:30 Mpls. Pub. Lib., Lewis

4-6-8 Still Life and Pose. (Experiences from). 3 credits each semester. \$10.

Replaces classes formerly listed as Sketch and Still Life. Students may complete work corresponding to old numbers 4-5-6-7-8-9, which carried 1 credit each, and may register for any three in any semester. Drawing from objects and posed figure; emphasis on form, value relations, perspective and composition. Various media. No prereq.

FIRST SEMESTER

M 4:30 Campus Jones 207A, Lewis

SECOND SEMESTER

M 4:30 Campus Jones 207A, Lewis

Orientation in Simple Handicrafts. 3 credits each semester. \$10.

Experience in simple handicrafts selected with reference to their recreational value, for those interested in camps, playgrounds, clubs, and adult education. First semester: pottery (hand building), metal and simple jewelry, bookbinding and portfolio making, basketry; second semester: pottery (pouring and wheel building), weaving (hand and loom), wood-block and linoleum printing, stenciling (fabrics and paper), crayonnex, batik, wood-carving, leather tooling, and pressing and dyeing. Students may enter either semester. No prereq.

FIRST SEMESTER

W 6:20 Campus Jones 10, Ross

SECOND SEMESTER

W 6:20 Campus Jones 10, Ross

61 Portraiture. 3 credits each semester. \$10; model fee \$1, payable to instructor.

Work in all media for both beginning and advanced students. Aim: to show the relationship between plastic form and character. Meets for three hours weekly.

FIRST SEMESTER

Th 7:00 Campus Jones 203, Harmes

SECOND SEMESTER

Th 7:00 Campus Jones 203, Harmes

Cartooning. See S.L.A. Classes, page 17.

Puppetry. See Speech, page 32.

Textiles. See Business Classes, page 46.

EDUCATIONAL PSYCHOLOGY

See S.L.A. Classes for General Psychology, page 27, and Child Psychology, page 17.

55 Elementary Educational Psychology. Now taught as Ed.51 for secondary school curricula, and Ed.61 for elementary. See General Education, below.

60 Introduction to Educational Statistics. 3 credits. \$10.

Statistical methods applied to educational investigations; measures of central tendency, variability, and correlation; for classroom teachers and principals. No higher mathematics required. Prereq., 6 cred. in psy.

SECOND SEMESTER
T 4:00 St. P. Ext. Center 201, Sorenson
Th 4:15 Mpls. N. W. Bank Bldg. 603, Sorenson

111 Educational Measurements in the Elementary School. 3 credits. \$10.

The typical educational problems involving educational scales and standard tests; nature of tests; methods used; analysis of results obtained; remedial educational procedure. Prereq., Ed. 51 or equivalent.

FIRST SEMESTER
Th 5:00 Mpls. N. W. Bank Bldg. 603,
Van Wagenen

134 Mental Tests. 3 credits. \$10.

Laboratory study of group mental tests for all school levels; reliability and validity as instruments for educational guidance. Prereq., Ed. 51 and Ed.Psy. 60.

FIRST SEMESTER
W 6:20 Campus Folwell 109, Van Wagenen

GENERAL EDUCATION

51 (61) Introduction to Teaching—Psychological Foundations. 3 credits. \$10.

A survey of the fundamental facts of human behavior involved in educational activities. Course 51 for secondary school teaching, 61 for elementary. Not open to students who have credit for Ed. Psy. 55, which it replaces. Prereq., 6 credits in psychology.

N.B.—Credit in this course will be granted only when the student has completed Ed. 52 and Ed. 53 (or Ed. 62 and Ed. 63) and passed the Qualifying Examination in Education. (See Bulletin of the College of Education.)

FIRST SEMESTER
T 8:05 Campus Main Eng. 203, Sorenson

HOME ECONOMICS

Interior Decorating, see Art Education, page 34.

Textiles, see Business Classes, page 46.

NURSING EDUCATION

70ex Principles of Teaching and Supervision in Schools of Nursing. Open to graduate nurses. 3 credits. \$10.

Conditions favoring best preparation of the student nurse; sources, selection, and organization of subject-matter; evaluation of nursing; principles and practices, and teaching methods; content and methods of clinical teaching.

SECOND SEMESTER
T 8:05 Campus Millard 129, Petry

60 Ward Administration. Open to graduate nurses. 3 credits. \$10.

Principles of administration, their application to ward management; opportunities for clinical teaching through efficient ward administration.

FIRST SEMESTER
T 8:05 Campus Millard 129, Densford

53ex Research Methods Applied to Nursing. 3 credits. \$10.

Time studies, questionnaires, and other methods of compiling and analyzing data on nursing problems; the graphic method of presentation of the data.

FIRST SEMESTER
M 8:05 Campus Millard 129, Gordon

Public Health Nursing. See page 37.

PHYSICAL EDUCATION

Sex Swimming—for Women. No credit. One hour, weekly. \$5.

Class and individual instruction. Department furnishes regulation suits. Health examination at first meeting.

FIRST SEMESTER			SECOND SEMESTER		
M	6:30	Campus Women's Gym.	M	6:30	Campus Women's Gym.
M	7:30	Campus Women's Gym.	M	7:30	Campus Women's Gym.
W	6:30	Campus Women's Gym.	W	6:30	Campus Women's Gym.
W	7:30	Campus Women's Gym.	W	7:30	Campus Women's Gym.
Th	10:00 a.m.	Univ. Farm Gym., Kaercher	Th	10:00 a.m.	Univ. Farm Gym., Kaercher
Th	7:00	Univ. Farm Gym., Kaercher	Th	7:00	Univ. Farm Gym., Kaercher

Swimming—for Men. No credit. One hour, weekly. \$5.

Class and individual instruction. Woolen bathing suits not permitted. Health examination at first meeting. Other sections arranged on demand.

FIRST SEMESTER		SECOND SEMESTER			
M	8:05	Campus Athletic Bldg., Thorpe	M	8:05	Campus Athletic Bldg., Thorpe

Elementary Golf—for Women. No credit. One hour, weekly. \$5.

Class and individual instruction. Classes limited to 25. Equipment (clubs and soft balls) furnished by members of the class.

FIRST SEMESTER		SECOND SEMESTER			
M	6:30	Campus Women's Gym. 151, Christensen	T	6:30	Campus Women's Gym. 151, Christensen
			T	7:30	Campus Women's Gym. 151, Christensen

Intermediate Golf—for Women. No credit. One hour weekly. \$5.

Class and individual instruction. Equipment (clubs and soft balls) to be supplied by students.

SECOND SEMESTER		
M	6:30	Campus Women's Gym. 151, Snell

Golf—for Men. No credit. One hour weekly. \$5, plus \$1 laboratory fee.

The fundamentals of golf—the clubs, the grips, stance, drive, etc., with some attention to historical and tournament aspects. Motion pictures will show proper form of stroke. First six weeks in class; next five weeks, individual instruction in driving nets, on schedule arranged to suit members of class; last six weeks, weather permitting, at University Golf Course, practice field, where various local professionals will assist. (Outdoor schedule adjusted to light.) Students furnish own clubs.

SECOND SEMESTER		
M	7:00	Campus Athletic Bldg. 215, Smith, Larson, Bolstad

Recreational Activities for Mixed Groups: Badminton, Deck Tennis, Duck Pin Bowling, Archery, Mixers (ice-breakers), Social Dancing, etc. No credit. One hour, weekly. \$5, plus \$1 laboratory fee.

Instruction and practice in games and get-acquainted activities; adaptation for use at picnics, outings, and other informal situations. Open to men and women.

FIRST SEMESTER		SECOND SEMESTER			
M	6:30	Campus Women's Gym. 151, Brogdon	M	6:30	Campus Women's Gym. 151, Zimmerli

Rhythmic Exercises—for Women. No credit. One hour, weekly. \$5, plus \$1 laboratory fee.

Rhythmic exercises for relaxation, reducing, and general conditioning. A variety of work, including fundamental dance movements, modern Danish gymnastics, and tap dancing.

SECOND SEMESTER		
M	7:30	Campus Women's Gym. 153, Isaacs

Elementary Tap Dancing—for Men and Women. No credit. One hour, weekly. \$5, plus \$1 laboratory fee.

Individual and group tap routines. Suitable for the beginner who desires the work for his own pleasure, or for teachers who wish elementary material for junior or senior high school classes.

FIRST SEMESTER		
M	6:30	Campus Women's Gym. 151, Warnock

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Note.—Classes marked with ¶ carry credit in the College of Science, Literature, and the Arts.

53¶ Elements of Preventive Medicine. 3 credits. \$10.

Nutrition, diet, susceptibility, resistance, and immunity to disease; methods of spread and prevention of communicable and degenerative diseases; protection of food, water, and milk; school health work; vital statistics. Prereq., 12 cred. in biological sciences, or consent of instructor.

FIRST SEMESTER

M 6:20 Campus Millard 129, Arranged

60 Tuberculosis and Its Control. See Science, Literature, and the Arts Classes, page 23.**63 Special Fields in Public Health Nursing. 3 credits. \$10.**

Development, scope of program, and analysis of services in various special fields of public health nursing. Prereq., 62 or equivalent.

FIRST SEMESTER

T 6:20 Campus Millard 129, Butzerin

71 Supervision of Public Health Nursing. 3 credits. \$10.

Planned for the experienced public health nurse. The principles and practices of supervision of public health nursing; the problems encountered in both city and rural communities. Prereq., 62 or permission of instructor.

SECOND SEMESTER

T 6:20 Campus Millard 129

80¶ Health of the School Child. 3 credits. \$10.

For teachers and others interested in the health and physical growth; discovery of physical defects; exercise habits; diseases of school children; practical problems of school health. Prereq., 62 or permission of instructor. For prerequisites for degree, see instructor.

M 6

ics in School Children. No

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BUSINESS CLASSES

This department recognizes the professional status of the business executive. Scientific methods in analyzing business data, trained intelligence in handling the human relationships inherent in business, and a well-developed sense of moral responsibility will be the foundations of business effectiveness of the future. The training of prospective executives along these lines is more important than any detailed drill on special processes. At the same time there are those with definite interest in certain special fields who seek improvement and advancement, and to these the opportunity for scientific training and information is invaluable. The classes here offered aim to serve both classes of students; and those whom they serve are able, because of their daily employment in work related to their studies, to make the most advantageous use of their opportunity.

CERTIFICATES

The General Extension Division certificate in business is awarded to students who complete the requirements listed below, as a recognition of their completion of a well-organized program of study. This program contains a basic core requirement which is a general preparation for business life. In addition, it offers a number of elective courses in which the student may concentrate as a specific preparation for his

completed 90 credits, with an average grade of C, in the following subjects:

	Credits
.....	6
..... Business English and Business Correspondence	6
.....	6

entirely satisfactory may be

and development of the school child. Mental
exercises; fatigue; emotional problems; health
of health supervision and health instruction.

SECOND SEMESTER

8:20 Campus Millard 129, Ellis

Clinical Dynamics degree credit. 17 meetings. \$10.

For teachers, school public health nurses, and others responsible for the management of children of school age. Psychobiology of work, with special reference to all factors influencing efficiency; normal defenses against functional disorders; fatigue, nervousness, and other common disorders of school children; the rôle of the school and the school teacher in the prevention and management of these disorders. No prereq.

FIRST SEMESTER

T 8:05 Mpls. N. W. Bank Bldg. 603, Seham

Practical Preventive Medicine. (For physicians. See S.L.A. Classes, page 23.)

broad and general
specialized lines on w
immediate vocation.

1. Each candidate must have completed the following basic requirements including the following basic requirements:

Principles of Economics I-II (6 and 7)	9
English, Either Composition 4-5, or Business English	9
Students whose work in English is not required to take other English classes.	3
Business Law A, B, and C or D	3
Principles of Accounting 20, 25, 26, or 25L, 26L	3
Elements of Money and Banking	3
Elements of Statistics	3
Advanced General Accounting (not required of accounting students)	3
(Same as Interpretation of Financial Statements)	
Corporation Finance	3
Business Cycles	3
Investments	3
Orientation I and II	6
Total	54

2. Each candidate must also have completed 18 credits in one of the following groups, selecting those credits from the classes listed herewith:

- a. *Accounting*: Practice and Procedure A and B; Auditing A and B; Cost Accounting A, B, C, and D; Income Tax Accounting; Accounting Topics.
- b. *Finance*: Advanced Money and Banking; Labor Problems; Securities Market; Economics of Public Utilities; Public Finance; Bank Administration; Finance Management; Advanced General Economics; Cost Accounting; Business Law D.
- c. *General Business*: Business Policy; Geography 41, 51; Market Administration; Cost Accounting; Labor Problems.
- d. *Insurance*: Psychology, 6 or 9 credits; Life Insurance; Fire and Marine Insurance; Casualty Insurance; Fidelity and Surety Bonding; Life Insurance Salesmanship; Mathematics.
- e. *Advertising*: Psychology 1, 2, 56; Journalism 13, Reporting; Journalism 69, Special Articles; Elementary Advertising; Retail Advertising; Advanced Advertising and Typography; Commercial Drawing; Market Administration.

- f. *Merchandising*: Retail Credits; Retail Store Management; Survey of Marketing; Psychology 1 and 56; Elementary and Retail Advertising; Market Administration; Transportation I and II.
- g. *Transportation (Traffic)*: Economics of Public Utilities; Geography 41, 51, 102; Transportation I, II; Insurance—Casualty, Fire, and Marine, General.
- h. *Personnel Administration*: Personnel Administration, Advanced Personnel Administration, Psychology (including General, Personnel, Vocational), Labor Problems, Labor Legislation and Social Insurance, Casualty Insurance, Sociology, Office Organization and Management.

3. The remaining 18 credits, to make a total of 90, may be chosen from any classes offered in business subjects and any classes in Science, Literature, and the Arts or Engineering which may be approved. Classes in the following subjects will be acceptable, unless when offered they bear the indication that they are not acceptable: English Composition and Literature; Geography; History; Interior Decorating; Journalism; Mathematics; Parliamentary Law; Philosophy; Political Science; Psychology; Speech; Textiles; Sciences such as Anthropology, Chemistry, Geology, Zoology, Sociology.

4. Students who have completed 45 credits of the above certificate requirement and have had these credits approved by the Students' Work Committee will be granted a preliminary certificate. These preliminary certificates are for such use as students may find it possible to make of them and are to be issued informally.

5. Students who have already entered upon a program for the completion of the requirements for one of the 45-credit certificates, which are replaced by the above 90-credit certificate will be protected until the completion of their work and the appropriate certificates will be issued informally.

DEGREES

Candidates for Degrees.—With a few exceptions all of the classes offered in business carry credit toward a degree in the School of Business Administration. The classes which do not are specifically indicated in their description. It is necessary, however, for the students who are interested in degrees to secure their credits in two separate units. The first is the prebusiness course, or the first two years, which is administered in the College of Science, Literature, and the Arts. These requirements are modifications of those required for the Junior College certificate offered by the General Extension Division, and embrace a number of subjects other than those specifically concerned with either economics or business administration. Theoretically this pre-business requirement should be completed before the work of the Senior College is done. In practice, however, most extension students do more of the work of the Senior College than of the work of the Junior College in working for their various certificates. Provision is made however, for arranging an approved curriculum for all students, regardless of the order in which some of their work may have been done. A student desiring such a curriculum must apply to the dean of the School of Business Administration at least one year before he expects to be eligible for a degree, and complete at least 45 credit hours of the requirements for a degree under the supervision of the adviser appointed for him. The Students' Work Committee of the General Extension Division will be glad to assist the student in arranging for this advice.

Extension classes are open to registration by any person qualified by maturity and ability to profit by the study. In practically all cases only those who expect to qualify for a university degree will be expected to meet the requirements of prerequisites. **PREREQUISITES ARE STATED FOR INFORMATION, NOT AS OBSTACLES.**

DESCRIPTION AND PROGRAM OF CLASSES

GENERAL BUSINESS INTEREST

In addition to the classes listed under the head of Business there are many other classes mentioned in this program that may be of interest to those engaged in business. Among them are:

- Air Conditioning, page 53.
- Geography, page 20.
- Golf and Swimming, page 36.
- Government, page 26.
- Interior Decorating, page 34.
- Mathematics, pages 23, 52.
- Psychology, page 27.
- Public Speaking, page 31.
- Stamp Collecting, page 32.

ACCOUNTING

N.B.—Attention is called to the alternative sequences in which one may begin the study of accounting. Choice between the two sequences should be made in terms of the objectives for which the student is working. Either will furnish an adequate foundation for further study.

I. **Beginning Accounting—general sequence.** This combination of the following three classes (Ec. 20, 25, 26) is recommended for those who wish primarily to understand the principles of accounting and the interpretation of accounting statements. No laboratory practice is included but accounting problems are prepared outside the classroom. Three semesters are ordinarily required to complete the sequence except when a student, because of previous study or experience, is able to omit Ec. 20 (see note below).

Ec. 20 Elements of Accounting. 3 credits. \$10.

The principles underlying bookkeeping and accounting; sufficient practice in technical processes to serve as a background for more advanced work; specific preparation for Principles of Accounting A-B (Ec. 25-26). No prereq. Credit conditional upon completion of Ec. 25-26.

N.B.—Students who have had preparation in bookkeeping may, upon application to the instructor, be permitted to omit his class and go directly into Principles of Accounting 25.

FIRST SEMESTER	SECOND SEMESTER
M 6:20 Campus Sch. Bus. 302, Alm	M 8:05 Campus Sch. Bus. 302, Alm

Ec. 25-26† Principles of Accounting A-B. 3 credits each semester. Both required for credit. \$10.

The fundamentals of accounting: accounts, statements, valuation, depreciation, sinking funds, surplus, reserve accounts, capital accounts; lectures supplemented by textbook, without laboratory. Prereq., Ec. 20, or exemption from it.

FIRST SEMESTER	SECOND SEMESTER
25 W 6:20 Campus Sch. Bus. 302, Reighard	25 M 6:20 Campus Sch. Bus. 302, Alm
	26 W 6:20 Campus Sch. Bus. 302, Reighard

II. **Beginning Accounting—laboratory sequence.** This, composed of the following two classes (Ec. 25L-26L), is recommended to those whose interest is primarily in preparing themselves to do actual accounting work and who wish to submit themselves to the discipline of working out actual cases under the guidance of an instructor. Full evening sessions are devoted partly to lecture and discussion, and partly to laboratory practice.

Ec. 25L-26L† Principles of Accounting and Accounting Laboratory A-B. 4½ credits each semester. \$15 plus \$1 materials fee. Both required for credit.

Lectures and discussions with working out of selected cases; compilation of accounting data; balance sheets, operating statements, accounting records, adjustment of accounts, accounting work sheets; the principles underlying the computation of profit and loss and the statement thereof. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
25L	M	6:20	Campus Sch. Bus. 301, Smith	26L	M	6:20	Campus Sch. Bus. 301, Smith
	Th	6:20	Mpls. N. W. Bank Bldg. 603, Smith		Th	6:20	Mpls. N. W. Bank Bldg. 603, Smith

N.B.—The N. W. Bank Bldg. class is limited to 30, accepted in the order of registration.

FIRST SEMESTER				SECOND SEMESTER				
Th	6:20	St. P. Ext. Center 202, Blandin	Th	6:20	St. P. Ext. Center 202, Blandin	F	6:20	St. P. Ext. Center 202, LeBorious
F	6:20	St. P. Ext. Center 202, LeBorious	F	6:20	St. P. Ext. Center 202, LeBorious			

N.B.—The following Combined Course offers Accounting 25L the first eight weeks, 26L the second eight weeks. Fee, \$15 each course, plus materials fee. Registration and fees accepted for Combined Course, or for one class at a time, either class.

SECOND SEMESTER			
TF	6:20	St. P. Ext. Center 202(T) 206(F), Blandin	

Survey of Accounting (A.I.B.). 2 credits each semester. Meets for 1½ hours. \$7 plus \$1 materials fee.

A beginning class in accounting, designed primarily for members of the American Institute of Banking, but not restricted to them. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
(Begins September 21)				(Begins January 25)			
M	4:30	St. P. First National Bank, LeBorious	M	4:30	St. P. First National Bank, LeBorious		

Elements and Principles of Accounting (A.I.B.). I and II. 7½ credits for 2 semesters, 14 weeks each; \$12.50 each semester.

A special class, primarily for members of the American Institute of Banking, Minneapolis chapter, covering the essentials of Economics 20, 25, and 26, which see above. Students completing both semesters receive 7½ credits and may continue with advanced classes in accounting. No prereq.

FIRST SEMESTER				SECOND SEMESTER			
(Begins September 21)				(Begins January 25)			
MF	6:30	Mpls. N. W. Bank Bldg. 603, Lund	MF	6:30	Mpls. N. W. Bank Bldg. 603, Lund		

B.A. 131-132† Cost Accounting. 3 credits each semester. Both required for credit. \$10.

Principles used to determine the profitableness of each branch of manufacturing, and basis for judging the relative efficiencies of operation; materials, labor, and burden; continuous process and production order costs; burden distribution methods, standard costs, etc. Prereq., Ec. 26 or 26L, or equivalent.

FIRST SEMESTER				SECOND SEMESTER			
131	M	6:20	St. P. Ext. Center 206, Tuttle	132	M	6:20	St. P. Ext. Center 206, Tuttle
	T	6:20	Campus Sch. Bus. 301, Rotzel		T	6:20	Campus Sch. Bus. 209, Rotzel
	W	4:30	St. P. (A.I.B.) First National Bank, Rotzel		W	4:30	St. P. (A.I.B.) First National Bank, Rotzel

B.A. 134A-134B Income Tax Accounting I-II. 3 credits each semester toward certificate. 134A toward degree, 134B, certificate only. \$10.

Application of income tax laws to various business conditions; possible errors in preparation of income tax reports; state as well as federal problems. Prereq., B.A. 138.

N.B.—Repeated as well as continued in second semester.

FIRST SEMESTER				SECOND SEMESTER			
I	M	8:05	St. P. Ext. Center 208, Connolly	I	T	8:05	St. P. Ext. Center 201, Connolly
	T	8:05	Campus Sch. Bus. 209, Preston		Th	8:05	Campus Sch. Bus. 209, Reighard
				II	M	6:20	St. P. Ext. Center 204, Connolly
					T	8:05	Campus Sch. Bus. 209, Reighard

B.A. 135-136 Auditing A-B. 3 credits each semester. \$10.

N.B.—Students may register for either without the other.

First semester: the conduct of audits and investigations; setting up of accounts based upon audits; audit reports; all with reference to the work of the public accountant in making audits; meeting requirements of the Securities Act. Second semester: the principles of internal check or audit; accounting systems; application of machine accounting; introduction to budgetary control; the work of the controller. Prereq., B.A. 138.

FIRST SEMESTER				SECOND SEMESTER			
135	M	6:20	Campus Sch. Bus. 202, Reighard	136	M	6:20	Campus Sch. Bus. 202, Reighard
	W	6:20	St. P. Ext. Center 202, Rotzel				

B.A. 137-138† Accounting Practice and Procedure A-B. 3 credits each semester.
Both required for credit. \$10 plus \$1 materials fee.

Practice in the peculiar accounting problems of business and the particular skills of the practicing accountant. Prereq., Ec. 26 or 26L, or equivalent.

FIRST SEMESTER			SECOND SEMESTER		
137 M	6:20	St. P. Ext. Center 202, Blandin	138 M	6:20	St. P. Ext. Center 202, LeBorious
M	8:05	St. P. Ext. Center 202, Blandin	M	8:05	St. P. Ext. Center 202, LeBorious
T	6:20	Campus Sch. Bus. 302, Houston	T	6:20	Campus Sch. Bus. 302, Houston

N.B.—Special section for members of the American Institute of Banking, meets for two semesters of 14 weeks each, for sessions of 2½ periods, as follows:

FIRST SEMESTER (Begins September 24)			SECOND SEMESTER (Begins January 28)		
137 Th	6:30	Mpls. N. W. Bank Bldg., Rotzel	138 Th	6:30	Mpls. N. W. Bank Bldg., Rotzel

B.A. 139. Advanced General Accounting (Interpretation of Financial Statements). 3 credits. \$10.

Primarily for the general business student. Interpretation of balance sheets and statements, particularly as found in corporation and investment publications; preparation, analysis, and utilization of statements; use of budgets; accounting methods in different businesses. Prereq., Ec. 26 or 26L.

FIRST SEMESTER			SECOND SEMESTER		
W	8:05	Campus Sch. Bus. 209, Heilman	W	8:05	St. P. Ext. Center 201, Heilman

B.A. 140Aex Constructive Accounting. 3 credits toward certificate only. \$10.

The design and installation of a modern accounting system; the make-up of various forms for use in the system—purchase orders, receiving slips, invoices, requisitions, shop tickets, etc.; design and ruling of books of original entry; ledgers of various kinds.

FIRST SEMESTER		
M	8:05	St. P. Ext. Center 206, Tuttle

B.A. 140Bex Accounting Systems. 3 credits toward certificate only. \$10.

Classification of industry according to types of accounting problems; special features of each; constructive, operative, and interpretative features. Case method used.

SECOND SEMESTER		
M	8:05	St. P. Ext. Center 206, Tuttle

B.A. 182A. Accounting Topics—Audits and Investigations. 3 credits. \$10.

Adjusting journal entries; financial condition; problems in inventory valuation, in property accounting; appraisals; "writing down" of assets, and depreciation; application of funds; balance sheet giving effect of financing; the auditor's "results from operation" statement; material facts; certificates and reports. Prereq., consent of instructor.

SECOND SEMESTER		
W	6:20	St. P. Ext. Center 202, Rotzel

ADVERTISING AND SALESMANSHIP

B.A. 68ex Salesmanship. 3 credits toward certificate only. \$10.

Principles underlying salesmanship—buying motives, pre-approach, approach, the interview, meeting objections, closing the sale; demonstration sales. No prereq.

FIRST SEMESTER			SECOND SEMESTER		
Th	8:05	Campus Sch. Bus. 209, Faragher	W	8:05	St. P. Ext. Center 202, Faragher

N.B.—The following two classes, one each semester, form a continuous sequence covering the basic phases of advertising principles and procedures.

B.A. 88 Advertising (Elementary). 3 credits. \$10.

Covers two important phases of advertising: the place of advertising in business and advertising procedure. Attention to planning an advertising campaign, including market research, appropriation, choice of media, scheduling, preparation of copy, and layout. Prereq. for degree, B.A. 77 and Psy. 56.

FIRST SEMESTER		
W	6:20	St. P. Ext. Center 201, Faragher
Th	6:20	Campus Sch. Bus. 209, Mills

B.A. 194-195-196 Advanced Advertising Procedure. 3 credits. \$10.

Problem or case studies, continuing Elementary Advertising with especial emphasis on typography and layout. One half the work will be done in the typography laboratory of the Department of Journalism, under the direction of Professor Barnhart, when lengthened laboratory hours will provide for setting and making up with type. Prereq. for degree, B.A. 88.

SECOND SEMESTER		
Th	6:20	Campus Sch. Bus. 209, Barnhart, Mills

PREVENTIVE MEDICINE AND PUBLIC HEALTH

N.B.—Classes marked with ¶ carry credit in the College of Science, Literature, and the Arts.

53¶ Elements of Preventive Medicine. 3 credits. \$10.

Nutrition, diet, susceptibility, resistance, and immunity to disease; methods of spread and prevention of communicable and degenerative diseases; protection of food, water, and milk; school health work; vital statistics. Prereq., 12 cred. in biological sciences, or consent of instructor.

FIRST SEMESTER

M 6:20 Campus Millard 129, Arranged

60 Tuberculosis and Its Control. See Science, Literature, and the Arts Classes, page 23.**63 Special Fields in Public Health Nursing. 3 credits. \$10.**

Development, scope of program, and analysis of services in various special fields of public health nursing. Prereq., 62 or equivalent.

FIRST SEMESTER

T 6:20 Campus Millard 129, Butzerin

71 Supervision of Public Health Nursing. 3 credits. \$10.

Planned for the experienced public health nurse. The principles and practices of supervision of public health nursing; the problems encountered in both city and rural communities. Prereq., 61, 63, or permission of instructor.

SECOND SEMESTER

T 6:20 Campus Millard 129, Butzerin

80¶ Health of the School Child. 3 credits. \$10.

For teachers and others interested in the health and development of the school child. Mental and physical growth; discovery of physical defects; exercises; fatigue; emotional problems; health habits; diseases of school children; practical problems of health supervision and health instruction. For prerequisites for degree, see instructor.

SECOND SEMESTER

M 6:20 Campus Millard 129, Ellis

Clinical Dynamics in School Children. No degree credit. 17 meetings. \$10.

For teachers, school and public health nurses, and others responsible for the management of children of school age. Psychobiology of work, with special reference to all factors influencing efficiency; normal defenses against functional disorders; fatigue, nervousness, and other common disorders of school children; the rôle of the school and the school teacher in the prevention and management of these disorders. No prereq.

FIRST SEMESTER

T 8:05 Mpls. N. W. Bank Bldg. 603, Seham

Practical Preventive Medicine. (For physicians. See S.L.A. Classes, page 23.)

BUSINESS CLASSES

This department recognizes the professional status of the business executive. Scientific methods in analyzing business data, trained intelligence in handling the human relationships inherent in business, and a well-developed sense of moral responsibility will be the foundations of business effectiveness of the future. The training of prospective executives along these lines is more important than any detailed drill on special processes. At the same time there are those with definite interest in certain special fields who seek improvement and advancement, and to these the opportunity for scientific training and information is invaluable. The classes here offered aim to serve both classes of students; and those whom they serve are able, because of their daily employment in work related to their studies, to make the most advantageous use of their opportunity.

CERTIFICATES

The General Extension Division certificate in business is awarded to students who have met the requirements listed below, as a recognition of their completion of a well-planned program of study. This program contains a basic core requirement which is a broad and general preparation for business life. In addition, it offers a number of specialized lines on which the student may concentrate as a specific preparation for his immediate vocation.

1. Each candidate must have completed 90 credits, with an average grade of C, including the following basic requirements:

	Credits
Principles of Economics I-II (6 and 7).....	6
English, Either Composition 4-5, or Business English and Business Correspondence	6
Students whose work in English is not entirely satisfactory may be required to take other English classes.	
Business Law A, B, and C or D.....	9
Principles of Accounting 20, 25, 26, or 25L, 26L.....	9
Elements of Money and Banking.....	3
Elements of Statistics.....	3
Advanced General Accounting (not required of accounting students).....	3
(Same as Interpretation of Financial Statements)	
Corporation Finance.....	3
Business Cycles.....	3
Investments.....	3
Orientation I and II.....	6
Total.....	54

2. Each candidate must also have completed 18 credits in one of the following groups, selecting those credits from the classes listed herewith:

- a. *Accounting*: Practice and Procedure A and B; Auditing A and B; Cost Accounting A, B, C, and D; Income Tax Accounting; Accounting Topics.
- b. *Finance*: Advanced Money and Banking; Labor Problems; Securities Market; Economics of Public Utilities; Public Finance; Bank Administration; Finance Management; Advanced General Economics; Cost Accounting; Business Law D.
- c. *General Business*: Business Policy; Geography 41, 51; Market Administration; Cost Accounting; Labor Problems.
- d. *Insurance*: Psychology, 6 or 9 credits; Life Insurance; Fire and Marine Insurance; Casualty Insurance; Fidelity and Surety Bonding; Life Insurance Salesmanship; Mathematics.
- e. *Advertising*: Psychology 1, 2, 56; Journalism 13, Reporting; Journalism 69, Special Articles; Elementary Advertising; Retail Advertising; Advanced Advertising and Typography; Commercial Drawing; Market Administration.

- f. *Merchandising*: Retail Credits; Retail Store Management; Survey of Marketing; Psychology 1 and 56; Elementary and Retail Advertising; Market Administration; Transportation I and II.
- g. *Transportation (Traffic)*: Economics of Public Utilities; Geography 41, 51, 102; Transportation I, II; Insurance—Casualty, Fire, and Marine, General.
- h. *Personnel Administration*: Personnel Administration, Advanced Personnel Administration, Psychology (including General, Personnel, Vocational), Labor Problems, Labor Legislation and Social Insurance, Casualty Insurance, Sociology, Office Organization and Management.

3. The remaining 18 credits, to make a total of 90, may be chosen from any classes offered in business subjects and any classes in Science, Literature, and the Arts or Engineering which may be approved. Classes in the following subjects will be acceptable, unless when offered they bear the indication that they are not acceptable: English Composition and Literature; Geography; History; Interior Decorating; Journalism; Mathematics; Parliamentary Law; Philosophy; Political Science; Psychology; Speech; Textiles; Sciences such as Anthropology, Chemistry, Geology, Zoology, Sociology.

4. Students who have completed 45 credits of the above certificate requirement and have had these credits approved by the Students' Work Committee will be granted a preliminary certificate. These preliminary certificates are for such use as students may find it possible to make of them and are to be issued informally.

5. Students who have already entered upon a program for the completion of the requirements for one of the 45-credit certificates, which are replaced by the above 90-credit certificate will be protected until the completion of their work and the appropriate certificates will be issued informally.

DEGREES

Candidates for Degrees.—With a few exceptions all of the classes offered in business carry credit toward a degree in the School of Business Administration. The classes which do not are specifically indicated in their description. It is necessary, however, for the students who are interested in degrees to secure their credits in two separate units. The first is the prebusiness course, or the first two years, which is administered in the College of Science, Literature, and the Arts. These requirements are modifications of those required for the Junior College certificate offered by the General Extension Division, and embrace a number of subjects other than those specifically concerned with either economics or business administration. Theoretically this prebusiness requirement should be completed before the work of the Senior College is done. In practice, however, most extension students do more of the work of the Senior College than of the work of the Junior College in working for their various certificates. Provision is made however, for arranging an approved curriculum for all students, regardless of the order in which some of their work may have been done. A student desiring such a curriculum must apply to the dean of the School of Business Administration at least one year before he expects to be eligible for a degree, and complete at least 45 credit hours of the requirements for a degree under the supervision of the adviser appointed for him. The Students' Work Committee of the General Extension Division will be glad to assist the student in arranging for this advice.

Extension classes are open to registration by any person qualified by maturity and ability to profit by the study. In practically all cases only those who expect to qualify for a university degree will be expected to meet the requirements of prerequisites. PREREQUISITES ARE STATED FOR INFORMATION, NOT AS OBSTACLES.

DESCRIPTION AND PROGRAM OF CLASSES

GENERAL BUSINESS INTEREST

In addition to the classes listed under the head of Business there are many other classes mentioned in this program that may be of interest to those engaged in business. Among them are:

- Air Conditioning, page 53.
- Geography, page 20.
- Golf and Swimming, page 36.
- Government, page 26.
- Interior Decorating, page 34.
- Mathematics, pages 23, 52.
- Psychology, page 27.
- Public Speaking, page 31.
- Stamp Collecting, page 32.

ACCOUNTING

N.B.—Attention is called to the alternative sequences in which one may begin the study of accounting. Choice between the two sequences should be made in terms of the objectives for which the student is working. Either will furnish an adequate foundation for further study.

I. Beginning Accounting—general sequence. This combination of the following three classes (Ec. 20, 25, 26) is recommended for those who wish primarily to understand the principles of accounting and the interpretation of accounting statements. No laboratory practice is included but accounting problems are prepared outside the classroom. Three semesters are ordinarily required to complete the sequence except when a student, because of previous study or experience, is able to omit Ec. 20 (see note below).

Ec. 20 Elements of Accounting. 3 credits. \$10.

The principles underlying bookkeeping and accounting; sufficient practice in technical processes to serve as a background for more advanced work; specific preparation for Principles of Accounting A-B (Ec. 25-26). No prereq. Credit conditional upon completion of Ec. 25-26.

N.B.—Students who have had preparation in bookkeeping may, upon application to the instructor, be permitted to omit his class and go directly into Principles of Accounting 25.

FIRST SEMESTER
M 6:20 Campus Sch. Bus. 302, Alm

SECOND SEMESTER
M 8:05 Campus Sch. Bus. 302, Alm

Ec. 25-26† Principles of Accounting A-B. 3 credits each semester. Both required for credit. \$10.

The fundamentals of accounting: accounts, statements, valuation, depreciation, sinking funds, surplus, reserve accounts, capital accounts; lectures supplemented by textbook, without laboratory. Prereq., Ec. 20, or exemption from it.

FIRST SEMESTER
25 W 6:20 Campus Sch. Bus. 302, Reighard

SECOND SEMESTER
25 M 6:20 Campus Sch. Bus. 302, Alm
26 W 6:20 Campus Sch. Bus. 302, Reighard

II. Beginning Accounting—laboratory sequence. This, composed of the following two classes (Ec. 25L-26L), is recommended to those whose interest is primarily in preparing themselves to do actual accounting work and who wish to submit themselves to the discipline of working out actual cases under the guidance of an instructor. Full evening sessions are devoted partly to lecture and discussion, and partly to laboratory practice.

Ec. 25L-26L† Principles of Accounting and Accounting Laboratory A-B. 4½ credits each semester. \$15 plus \$1 materials fee. Both required for credit.

Lectures and discussions with working out of selected cases; compilation of accounting data; balance sheets, operating statements, accounting records, adjustment of accounts, accounting work sheets; the principles underlying the computation of profit and loss and the statement thereof. No prereq.

FIRST SEMESTER			SECOND SEMESTER		
25L	M 6:20	Campus Sch. Bus. 301, Smith	26L	M 6:20	Campus Sch. Bus. 301, Smith
	Th 6:20	Mpls. N. W. Bank Bldg. 603, Smith		Th 6:20	Mpls. N. W. Bank Bldg. 603, Smith

N.B.—The N. W. Bank Bldg. class is limited to 30, accepted in the order of registration.

FIRST SEMESTER			SECOND SEMESTER		
Th 6:20	St. P. Ext. Center 202,	Blandin	Th 6:20	St. P. Ext. Center 202,	Blandin
F 6:20	St. P. Ext. Center 202,	LeBorious	F 6:20	St. P. Ext. Center 202,	LeBorious

N.B.—The following Combined Course offers Accounting 25L the first eight weeks, 26L the second eight weeks. Fee, \$15 each course, plus materials fee. Registration and fees accepted for Combined Course, or for one class at a time, either class.

SECOND SEMESTER		
TF 6:20	St. P. Ext. Center 202(T)	206(F), Blandin

Survey of Accounting (A.I.B.). 2 credits each semester. Meets for 1½ hours. \$7 plus \$1 materials fee.

A beginning class in accounting, designed primarily for members of the American Institute of Banking, but not restricted to them. No prereq.

FIRST SEMESTER			SECOND SEMESTER		
(Begins September 21)			(Begins January 25)		
M 4:30	St. P. First National Bank,	LeBorious	M 4:30	St. P. First National Bank,	LeBorious

Elements and Principles of Accounting (A.I.B.). I and II. 7½ credits for 2 semesters, 14 weeks each; \$12.50 each semester.

A special class, primarily for members of the American Institute of Banking, Minneapolis chapter, covering the essentials of Economics 20, 23, and 26, which see above. Students completing both semesters receive 7½ credits and may continue with advanced classes in accounting. No prereq.

FIRST SEMESTER			SECOND SEMESTER		
(Begins September 21)			(Begins January 25)		
MF 6:30	Mpls. N. W. Bank Bldg. 603,	Lund	MF 6:30	Mpls. N. W. Bank Bldg. 603,	Lund

B.A. 131-132† Cost Accounting. 3 credits each semester. Both required for credit. \$10.

Principles used to determine the profitability of each branch of manufacturing, and basis for judging the relative efficiencies of operation; materials, labor, and burden; continuous process and production order costs; burden distribution methods, standard costs, etc. Prereq., Ec. 26 or 26L, or equivalent.

FIRST SEMESTER			SECOND SEMESTER		
131	M 6:20	St. P. Ext. Center 206, Tuttle	132	M 6:20	St. P. Ext. Center 206, Tuttle
	T 6:20	Campus Sch. Bus. 301, Rotzel		T 6:20	Campus Sch. Bus. 209, Rotzel
	W 4:30	St. P. (A.I.B.) First National Bank, Rotzel		W 4:30	St. P. (A.I.B.) First National Bank, Rotzel

B.A. 134A-134B Ex Income Tax Accounting I-II. 3 credits each semester toward certificate. 134A toward degree, 134B, certificate only. \$10.

Application of income tax laws to various business conditions; possible errors in preparation of income tax reports; state as well as federal problems. Prereq., B.A. 138.

N.B.—Repeated as well as continued in second semester.

FIRST SEMESTER			SECOND SEMESTER		
I M 8:05	St. P. Ext. Center 208,	Connolly	I T 8:05	St. P. Ext. Center 201,	Connolly
T 8:05	Campus Sch. Bus. 209,	Preston	Th 8:05	Campus Sch. Bus. 209,	Reighard
			II M 6:20	St. P. Ext. Center 204,	Connolly
			T 8:05	Campus Sch. Bus. 209,	Reighard

B.A. 135-136 Auditing A-B. 3 credits each semester. \$10.

N.B.—Students may register for either without the other.

First semester: the conduct of audits and investigations; setting up of accounts based upon audits; audit reports; all with reference to the work of the public accountant in making audits; meeting requirements of the Securities Act. Second semester: the principles of internal check or audit; accounting systems; application of machine accounting; introduction to budgetary control; the work of the comptroller. Prereq., B.A. 138.

FIRST SEMESTER			SECOND SEMESTER		
135	M 6:20	Campus Sch. Bus. 202, Reighard	136	M 6:20	Campus Sch. Bus. 202, Reighard
	W 6:20	St. P. Ext. Center 202, Rotzel			

B.A. 137-138† Accounting Practice and Procedure A-B. 3 credits each semester. Both required for credit. \$10 plus \$1 materials fee.

Practice in the peculiar accounting problems of business and the particular skills of the practicing accountant. Prereq., Ec. 26 or 26L, or equivalent.

FIRST SEMESTER			SECOND SEMESTER		
137 M	6:20	St. P. Ext. Center 202, Blandin	138 M	6:20	St. P. Ext. Center 202, LeBorious
M	8:05	St. P. Ext. Center 202, Blandin	M	8:05	St. P. Ext. Center 202, LeBorious
T	6:20	Campus Sch. Bus. 302, Houston	T	6:20	Campus Sch. Bus. 302, Houston

N.B.—Special section for members of the American Institute of Banking, meets for two semesters of 14 weeks each, for sessions of 2½ periods, as follows:

FIRST SEMESTER (Begins September 24)			SECOND SEMESTER (Begins January 28)		
137 Th	6:30	Mpls. N. W. Bank Bldg., Rotzel	138 Th	6:30	Mpls. N. W. Bank Bldg., Rotzel

B.A. 139. Advanced General Accounting (Interpretation of Financial Statements). 3 credits. \$10.

Primarily for the general business student. Interpretation of balance sheets and statements, particularly as found in corporation and investment publications; preparation, analysis, and utilization of statements; use of budgets; accounting methods in different businesses. Prereq., Ec. 26 or 26L.

FIRST SEMESTER			SECOND SEMESTER		
W	8:05	Campus Sch. Bus. 209, Heilman	W	8:05	St. P. Ext. Center 201, Heilman

B.A. 140Aex Constructive Accounting. 3 credits toward certificate only. \$10.

The design and installation of a modern accounting system; the make-up of various forms for use in the system—purchase orders, receiving slips, invoices, requisitions, shop tickets, etc.; design and ruling of books of original entry; ledgers of various kinds.

FIRST SEMESTER		
M	8:05	St. P. Ext. Center 206, Tuttle

B.A. 140Bex Accounting Systems. 3 credits toward certificate only. \$10.

Classification of industry according to types of accounting problems; special features of each; constructive, operative, and interpretative features. Case method used.

SECOND SEMESTER		
M	8:05	St. P. Ext. Center 206, Tuttle

B.A. 182A. Accounting Topics—Audits and Investigations. 3 credits. \$10.

Adjusting journal entries; financial condition; problems in inventory valuation, in property accounting; appraisals; "writing down" of assets, and depreciation; application of funds; balance sheet giving effect of financing; the auditor's "results from operation" statement; material facts; certificates and reports. Prereq., consent of instructor.

SECOND SEMESTER		
W	6:20	St. P. Ext. Center 202, Rotzel

ADVERTISING AND SALESMANSHIP

B.A. 68ex Salesmanship. 3 credits toward certificate only. \$10.

Principles underlying salesmanship—buying motives, pre-approach, approach, the interview, meeting objections, closing the sale; demonstration sales. No prereq.

FIRST SEMESTER			SECOND SEMESTER		
Th	8:05	Campus Sch. Bus. 209, Faragher	W	8:05	St. P. Ext. Center 202, Faragher

N.B.—The following two classes, one each semester, form a continuous sequence covering the basic phases of advertising principles and procedures.

B.A. 88 Advertising (Elementary). 3 credits. \$10.

Covers two important phases of advertising: the place of advertising in business and advertising procedure. Attention to planning an advertising campaign, including market research, appropriation, choice of media, scheduling, preparation of copy, and layout. Prereq. for degree, B.A. 77 and Psy. 56.

FIRST SEMESTER		
W	6:20	St. P. Ext. Center 201, Faragher
Th	6:20	Campus Sch. Bus. 209, Mills

B.A. 194-195-196 Advanced Advertising Procedure. 3 credits. \$10.

Problem or case studies, continuing Elementary Advertising with especial emphasis on typography and layout. One half the work will be done in the typography laboratory of the Department of Journalism, under the direction of Professor Barnhart, when lengthened laboratory hours will provide for setting and making up with type. Prereq. for degree, B.A. 88.

SECOND SEMESTER		
Th	6:20	Campus Sch. Bus. 209, Barnhart, Mills

Direct Mail Advertising—Sales Letter Writing. 3 credits each semester for certificate only. \$10.

Personal coaching course covering: the vital points in planning campaigns; selecting papers and processes; "timing" mailings; layout of mailing pieces; getting letters and advertising read; getting low-cost inquiries; how to write letters that pull; how to "follow-up" by mail; how to close sales; the "Check Chart" for increasing results; the 5 "MUST" factors of every mailing; the 12 major mistakes that ruin returns. Students work out own advertising and letters with instructor's guidance. Open to all; no prereq.

FIRST SEMESTER
Th 8:05 Campus Sch. Bus. 202, Brownson

SECOND SEMESTER
Th 8:05 Campus Sch. Bus. 202, Brownson

Radio Script Writing I. No credit. \$10.

A practical class for those who wish to prepare matter for actual radio use. (Not a class in broadcasting.) Through the laboratory method it aims to give an understanding of radio script technique in accordance with current developments. Topics covered: announcements, 25 words, and more; "surrounding commercial" for such "spots," as news, weather, sports; longer scripts employing dialog, special talent, music, and sound effects; radio drama, from 1 minute to 30 minutes; program building for special groups of listeners. Repeated second semester. Prereq., a good command of English composition.

FIRST SEMESTER
M 6:20 Campus Sch. Bus. 102, Weaver
F 6:20 St. P. Ext. Center 201, Weaver

SECOND SEMESTER
M 6:20 Campus Sch. Bus. 102, Weaver

Radio Script Writing II. No credit. \$10.

For those who have successfully completed Radio Script Writing I, and want to continue the work in program building. The basic plan of the class will be the building of a series of 15-minute to 30-minute programs for consecutive presentation in behalf of a product, firm, or organization. Radio showmanship, the advertising and merchandising phases, and entertainment including music, will be considered in the preparation of the script.

SECOND SEMESTER
F 6:20 Campus Sch. Bus. 202, Weaver

B.A. 87ex Retail Advertising. 3 credits toward certificate only. \$10.

Practical training in the fundamentals of modern retail advertising. Organization of the store and the publicity division; analysis of the market; evaluation and selection of media; sales promotion and the advertising plan; determining what and how to promote; types of retail advertising; fundamentals of printing and engraving; writing selling copy and headlines, the layout; forms other than newspaper advertising, including new developments in radio; the importance of institutional advertising; retail advertising research. Prereq., Advertising (Elementary).

SECOND SEMESTER
T 6:20 Campus Sch. Bus. 6, Drevescraft
W 6:20 St. P. Ext. Center 201, Drevescraft

BANKING AND FINANCE

Ec. 3 Elements of Money and Banking. 3 credits. \$10.

This class has formerly been known as Mechanism of Exchange, and as Finance A. The nature and functions of money and credit; the development of our own monetary system to the present time, with a critical examination of the reasons for the various changes; a study of commercial banking and the Federal Reserve system; the form and functions of the other types of financial institutions. No prereq.

FIRST SEMESTER
M 6:20 Campus Sch. Bus. 209, Stehman
W 6:20 St. P. Ext. Center 208, Kozelka

B.A. 58 Elements of Public Finance. 3 credits. \$10.

Public expenditures, revenues, debts, budgets; special attention to tax principles, practices, and burdens. Adapted to citizens generally, but of especial interest to public officials. Required of all candidates for degree in business. Prereq. for degree, Ec. 6-7.

SECOND SEMESTER
W 8:05 Campus Sch. Bus. 102, Borak

B.A. 146A-146B Investments (Finance C-D). 3 credits each toward certificate. 146A toward degree, 146B toward certificate only. \$10.

A general survey of the external and internal factors influencing the price of securities and of the principles of an investment policy for the needs of the average conservative investor. Prereq., Ec. 31 and B.A. 155 (Finance A-B).

FIRST SEMESTER
146A W 6:20 Campus Sch. Bus. 209, Fraine
Th 6:20 St. P. Ext. Center 200, Finger

SECOND SEMESTER
146B W 6:20 Campus Sch. Bus. 209, Fraine
Th 6:20 St. P. Ext. Center 200, Finger

Ec. 149 Business Cycles. 3 credits. \$10.

Analysis of factors involved in business fluctuation; comparison of theories of the cause of prosperity and depression; introduction to the statistical data and the methods of business forecasting. Prereq., Ec 141 or consent of instructor.

SECOND SEMESTER
W 6:20 Campus Sch. Bus. 202, Marget

B.A. 155 Corporation Finance (Finance B). 3 credits. \$10.

Types of corporate securities and their uses; forms of corporate organization; marketing of securities; holding companies, mergers, consolidations, and reorganizations; testing of corporations, statistics and reports. Prereq., Ec. 3, 6, 7.

SECOND SEMESTER
M 6:20 Campus Sch. Bus. 209, Stehman
M 8:05 St. P. Ext. Center 204, Kozeika

BUSINESS ADMINISTRATION**66-67ex Retail Credits and Collections.** 3 credits each semester toward certificate only. \$10.

Economic and legal background of credit; relation of retail credit to other forms; sources of retail credit information; work of credit bureau and credit department; installment credit practice. Second semester devoted to organization and operation of retail collection departments; collection policies; collection methods; planning collection letters; locating "skips"; use of attorneys and collection agencies.

Conducted jointly by the instructors and several experienced retail credit men of the Twin Cities.

FIRST SEMESTER
66ex Th 6:20 Campus Sch. Bus. 202,
Heilman and others

SECOND SEMESTER
67ex Th 6:20 Campus Sch. Bus. 202,
Thrush and others

B.A. 89 Production Management. 3 credits. \$10.

Location and layout of industrial plants; types of operating organization; shop personnel; standards of operation; purchasing and inventory control; routing, scheduling, and dispatching of product; scientific management; practical problems in production control. No prereq. (Same as Mech. Eng. 171.) Included in core group requirements for all candidates for a degree in business.

FIRST SEMESTER
T 6:20 Campus Mech. Eng. 202, Koepke

Production Management—Time and Motion Studies. See Industrial Engineering 174, page 52, for description of this class.

B.A. 167 Personnel Administration. 3 credits. \$10.

Evaluation of managerial policies and devices for the control of personnel; determination of labor needs; methods of contacting workers; selective devices; training and safety programs; compensation. Prereq. for degree, Ec. 161.

SECOND SEMESTER
M 8:05 Campus Sch. Bus. 102, Yoder

BUSINESS ENGLISH**1ex Business English.** 3 credits toward certificate. \$10.

A practical class for business people who recognize the value of good English in business and in general writing and conversation. Various kinds of business writing are studied with some attention to letter types; application of good grammar and correct forms in all business writing. No prereq.

FIRST SEMESTER
M 6:20 Campus Folwell 101, Mallam
W 6:20 St. P. Ext. Center 203, Haga
Th 6:20 Campus Folwell 101, Edmunds

SECOND SEMESTER
M 8:05 Campus Folwell 101, Edmunds

2ex Business Correspondence. 3 credits toward certificate. \$10.

A continuation of Business English, with less emphasis on grammar and form, and more upon the general principles underlying successful letter writing; types of letters—adjustment, acknowledgment, recommendation, application, follow-ups, sales, interdepartmental, etc. No prereq., but students will do well to complete Business English 1ex first.

SECOND SEMESTER
M 6:20 Campus Folwell 101, Mallam
W 6:20 St. P. Ext. Center 203, Haga

N.B.—For classes in English Composition see S.L.A. Classes, page 18.

BUSINESS LAW

B.A. 51,52,53†,54ex Business Law A, B, C, D. 3 credits each semester; 51, 52, and 53 must be completed before credit is granted. \$10 plus \$1 materials fee each class; no textbook.

Comprehensive course in the fundamental principles of law for the business and professional man. Business Law A (B.A.51): Contracts—their formation, interpretation, operation, transfer, and discharge; Agency—the creation, nature, and terms of the relation, rights and liabilities of the parties. Business Law B (B.A.53): Personal property and transactions concerning it; law of sales, bailments, and of the Uniform Negotiable Instruments and Bills of Lading Acts. Business Law C (B.A.52): Organization, management, and responsibility of associations; business trusts; partnerships and corporations; laws relating to partnership and bankruptcy. Business Law D (B.A.54ex): Nature and classification of real estate; deeds and conveyances; landlord and tenant; recording and abstracting; Torrens titles; liens and mortgages; wills, the probating of estates, and duties of executors and administrators. No prerequisite, but Business Law A should precede other classes.

FIRST SEMESTER				SECOND SEMESTER			
A	M	8:05	St. P. Ext. Center 203, Jackman	A	T	8:05	Campus Sch. Bus. 102, Jackman
T		6:20	Campus Sch. Bus. 102, Jackman	Th		6:20	St. P. Ext. Center 206, Jackman
W		6:20	Campus Sch. Bus. 102, Jackman	B	M	6:20	St. P. Ext. Center 203, Jackman
B	T	8:05	Campus Sch. Bus. 102, Jackman	T		6:20	Campus Sch. Bus. 102, Jackman
C	M	6:20	St. P. Ext. Center 203, Jackman	D	M	8:05	St. P. Ext. Center 203, Jackman
T		6:20	Campus Sch. Bus. 6, Chapin	W		6:20	Campus Sch. Bus. 102, Jackman

ECONOMICS AND STATISTICS

Ec. 5 Elements of Statistics. 3 credits. \$10.

The principles of statistical methods applied to business; selection, tabulation, interpretation of statistical data; averages, ratios, errors, index numbers, graphs, and charts. No prereq.

FIRST SEMESTER		
W	6:20	Campus Sch. Bus. 6, Graves
W	8:05	St. P. Ext. Center 208, Kozelka

Ec. 6-7† Principles of Economics 1-2. 3 credits each semester. \$10. Both required for credit.

Fundamental principles underlying the economic activities of society; utility and valuation; prices and the cost of production; the factors of production; division of labor and its relation to the development of industry; wages, rent, interest; capitalization, enterprise, business profits. Fundamental to the study of any business subject. No prereq.

FIRST SEMESTER			SECOND SEMESTER				
6	T	8:05	St. P. Ext. Center 203, Myers	6	T	6:20	St. P. Ext. Center 203, Myers
Th		8:05	Campus Sch. Bus. 102, Graves	W		6:20	Campus Sch. Bus. 6, Graves
				7	T	8:05	St. P. Ext. Center 203, Myers
				Th		8:05	Campus Sch. Bus. 102, Graves

Ec. 84 Comparative Economic Systems. 3 credits. \$10.

An impartial analysis of the basic principles of the opposing systems of economics (modified individualism, state socialism, communism and the Russian experiment, fascism); an examination of the application of each in practice; comparative appraisal of the effect of each upon individuals, economic classes, and institutions. Prereq. for degree, Ec. 6-7.

FIRST SEMESTER		
T	6:20	St. P. Ext. Center 203, Myers

Ec. 103-104† Advanced Economics—Competition, Monopoly, and Inequality of Incomes. 3 credits each semester; both required for credit. \$10.

An advanced course in economic theory, prices, and costs; the value theory; the distribution of wealth—causes and effects of inequality; the distribution of income—inequality, rent, wages, interest, and profits. Prereq., see instructor. May be substituted for B.A. 101-102 in requirements for degree in business.

FIRST SEMESTER			SECOND SEMESTER				
103	Th	6:20	Campus Sch. Bus. 102, Waite	104	Th	6:20	Campus Sch. Bus. 102, Waite

Ec. 161 Labor Problems and Trade Unionism. 3 credits. \$10.

Employment; hours; wages; extent and stronghold of unionism; open and closed shops; collective bargaining; industrial unrest; government regulation of labor disputes. Special emphasis on the current proposals for industrial recovery and the re-employment of labor. Prereq., Ec. 6-7.

FIRST SEMESTER		
M	8:05	Campus Sch. Bus. 102, Yoder

Ec. 164 Labor Legislation and Social Insurance. 3 credits. \$10.

The economic aspects of labor legislation, including minimum wage laws; hours legislation; factory acts; accident, health, old age, and employment insurance; mothers' pensions. Prereq., Ec. 161.

SECOND SEMESTER		
Th	8:05	St. P. Ext. Center 203, Schmidt

Ec. 166 International Economic Problems. 3 credits. \$10.

Practical application of the principles of economics in the study of selected problems of the day; stabilization of prices; Federal Reserve rediscount policy, industrial fluctuations; international trade barriers; distribution of wealth and income. Prereq., Ec. 6-7.

FIRST SEMESTER

W 6:20 Campus Sch. Bus. 202, Marget

INSURANCE**3ex General Insurance. 3 credits toward certificate only. \$10.**

A basic course in the principles and practices involved in underwriting the various forms of insurance coverage, property and casualty in particular. Prerequisite to all other insurance classes. No prereq.

FIRST SEMESTER

T 6:20 Campus Sch. Bus. 202, Ware

B.A. 59 Life Insurance. 3 credits. \$10.

The economic significance of life insurance; types of policy and analysis of the policy contract; principles underlying the determination of premiums and reserves; industrial, fraternal, and group insurance. Prereq., Ec. 6-7.

SECOND SEMESTER

T 6:20 Campus Sch. Bus. 202, Graves

B.A. 60 Fire and Marine Insurance. 3 credits. \$10.

The fire risk and fire prevention; fire insurance and insurance carriers; the standard policy; methods of rate making; state regulation and supervision; marine risks and insurance. Prereq., Ec. 6-7.

FIRST SEMESTER

M 6:20 Campus Sch. Bus. 6, Law

B.A. 61 Casualty Insurance. 3 credits. \$10.

The risks of insurance coverages and policy provisions in the more important lines of casualty insurance—accident and health, employer's liability, workmen's compensation, automobile, robbery and theft, plate glass, and miscellaneous damage types. Prereq., Ec. 6-7.

SECOND SEMESTER

M 6:20 Campus Sch. Bus. 6, McGee

TEXTILES**Textiles. 3 credits. \$10, plus material fee 50 cents.**

A class for consumers, for store operatives, and for those who make fabrics or change them into clothing. Woven and knit fabrics of synthetics, cotton, silk, wool, and linen; manufacturing and finishing processes; qualities, tests, uses, maintenance; explanation of technical terms, and of characteristics determining comparative values. Application will be made to men's and women's apparel and to household items. No prereq.

FIRST SEMESTER

M 6:20 Campus Chem. 115, Caplin

T 8:05 St. P. Ext. Center 200, Caplin

W 7:00 Mpls. N. W. Bank Bldg. 690, Caplin

Interior Decorating. See Art Education Classes, page 34.

TRANSPORTATION (TRAFFIC)**B.A. 71,72 Transportation: Services and Charges I and II. 3 credits each semester. \$10 plus \$1 materials fee.**

The rail, water, and highway transportation facilities, services, rates, and laws, and their relation to business establishments; problems in handling freight, express, and rail shipments; scope, selection, and use of the facilities and services of common carriers; storage of express, freight, and mail; private ownership and transportation facilities. 71 prerequisite to 72. Prereq., Ec. 6-7.

FIRST SEMESTER

71 Th 6:20 Campus Sch. Bus. 6, Nightingale

SECOND SEMESTER

72 Th 6:20 Campus Sch. Bus. 6, Nightingale

B.A. 73-74ex Problems in Traffic and Transportation. 3 credits each semester toward certificate. \$10.

Advanced study of tariffs and rate structure; regulatory laws, state and federal; practice and procedure before rate and classification committees, state commissions, and the Interstate Commerce Commission; preparation of informal, formal, and I. and S. cases before regulatory commissions. Prereq., B.A. 71-72, or equivalent.

FIRST SEMESTER

73ex F 6:20 Campus Sch. Bus. 6, Mann

SECOND SEMESTER

74ex F 6:20 Campus Sch. Bus. 6, Mann

ENGINEERING CLASSES

In this department two kinds of classes are offered for two rather distinct classes of students. Classes of regular college standing are offered for those who wish to accumulate as much of the work of the regular engineer's course of training as they can while regularly employed. For those whose requirements are less exacting and who wish practical rather than theoretical, scientific, or mathematical training some classes of subcollegiate level are offered. The student's own needs or desires are to determine which work is to be followed, and no disparaging distinctions are made between the two kinds.

Classes of the second kind are in the program indicated as without prerequisites and without credit. They are offered freely to all who have the appropriate interest, for such value as they may possess. Each such class is usually complete in itself. A few may carry credit when the student has met requirements set up by the College of Engineering and Architecture. These courses, however, are not offered as equivalents for any of the work in the College of Engineering and Architecture.

The regular collegiate courses offered correspond to those given to full time engineering students, and are based on the same prerequisites. Students taking these classes are those who wish to be thoroly prepared and do the maximum of work in each class. Students who do not meet the prerequisite requirements may be admitted to these classes, but only as auditors, and are not permitted to make extra demands upon the instruction which would tend to retard the progress of the prepared students.

CERTIFICATES

The General Extension Division certificate in engineering is issued as an evidence of the completion of an organized program of study in engineering subjects. While not the equivalent of a degree in engineering, it represents a comprehensive yet concentrated training in several branches of engineering which will be found valuable in many phases of industry and activities which utilize engineering ability. The program embraces a core of fundamental subjects, including all the mathematics required for an engineering degree, and the opportunity for specialization in either of several engineering fields. The requirements are as follows:

1. Each candidate must complete a total of 90 credits with an average grade of C in engineering subjects, of which the following are required:

Mathematics:	Credits
9 Higher Algebra	5
11 College Algebra	5
12 Trigonometry	5
13 Analytical Geometry	5
24 Differential Calculus	5
25 Integral Calculus	5
Mechanical Drawing 1-2	6
Technical Mechanics	5
Strength of Materials	5
Total	46

2. Each candidate will be required to complete additional classes totaling approximately 30 credits in one of the separate fields of Engineering—Aeronautical, Architectural, Chemical, Civil, Electrical, Mechanical.

3. The remaining credits, approximately 14, may be completed either in optional courses within the chosen field, or in approved elective courses in one of the allied fields. Selection of classes in which to earn these credits should be made with the advice and approval of the Students' Work Committee.

4. Upon the completion of an approved 45 credits a preliminary certificate will be informally issued for such purposes as the candidate may wish to use it. The approval of classes which will yield these 45 credits must be had from the Students' Work Committee.

5. Students who have already entered upon a program for the completion of the requirements for one of the 45-credit certificates, which are replaced by the above 90-credit certificate, will be protected until the completion of their work and the appropriate certificates will be issued informally.

DEGREES

Credits earned in classes marked to carry credit in this department may be counted toward a degree in the Institute of Technology only after the successful completion of a comprehensive examination given by the institute in the work of the class. These examinations, given at the time of the student's formal entry into the institute as a candidate for a degree, are without expense. Given at other times they entail a fee of \$5 for each examination. The prerequisites for credit in all classes are stated primarily to show the proper order in which classes should be taken. While it is possible in some cases to disregard these prerequisites it is not recommended, for best results are obtained only when the proper sequence of classes is maintained. Such a strict regard for prerequisites is compulsory in classes in Mathematics and Chemistry, where the work cannot be done except in the proper sequence.

DESCRIPTION AND PROGRAM OF CLASSES

Many of the extension classes in Engineering subjects are open to all, regardless of previous study, who can profit by them. They are designed for those who wish to improve themselves in their industrial positions but who do not expect to become engineers. The descriptions of such classes indicate that there are no prerequisites. Other classes are of such a nature that they cannot be carried through without certain previous study. Descriptions of these classes indicate the necessary prerequisites. **IN ALL CASES THE INSTRUCTOR IS THE JUDGE OF THE ADEQUACY OF PREPARATION AND WILL ACCEPT STUDENTS ACCORDINGLY.**

N.B.—An extension class in Engineering carries credit toward a degree in the Institute of Technology, only when the student has successfully passed a comprehensive examination, given by the college, in the work of the class.

GENERAL ENGINEERING

Consultation Period. No fee.

A session for guidance purposes, open to all students registered in engineering classes; affords opportunity for consultation, discussion, or study, under direction, in all engineering subjects. An instructor will be present.

F 7:00 Campus Main Eng. 136

F 7:00 Campus Main Eng. 136

81 Cost Estimating. See Engineering Drawing Classes, page 51.

AERONAUTICAL ENGINEERING

2a-bex Aircraft Engines 1-2. 3 credits each semester. \$10.

Types of engines and their development; calculation of size and horse power; use of dynamometers and torque stands; aviation gasoline, specifications and tests, octane numbers; principles of ignition,

magnetos, starters, carburetors, combustion; modern operation systems, performance; oils and oil testing; the aviation Diesel. Lectures and laboratory tests. No prereq.

N.B.—Taught jointly with M.E. 50 Internal Combustion Engines. Students may enter either semester.

FIRST SEMESTER		SECOND SEMESTER
2aex W 7:30 Campus Exp. Eng. 209, Robertson		2bex W 7:30 Campus Exp. Eng. 209, Robertson

5a-bex Elementary Aeronautics and Airplane Construction I-II. 3 credits each semester. \$10.

Nomenclature; theory of lift and drag; wind tunnels; air-foil characteristics; types of airplanes; demonstration and inspection of airplane and its parts; materials and their properties; principles in propeller theory; navigation instruments; dead reckoning; maps and charts; laying out and checking course; radio use; magnetic compass and its use; the atmosphere and clouds; reading of weather map; principles of celestial navigation. Prereq., elementary mathematics.

FIRST SEMESTER		SECOND SEMESTER
M 7:30 Campus Exp. Eng. 110, Akerman, Barlow		M 7:30 Campus Exp. Eng. 110, Akerman, Barlow

AIR CONDITIONING

See Mechanical Engineering Classes, page 53.

ARCHITECTURE

Classes in Architectural Design. Not offered 1936-37.

Building Cost Estimating. See Engineering Drawing, G.E. 81.

ART

See also Fine Arts, S.L.A. Classes (p. 20), Art Education (p. 34), and Cartooning (p. 17).

N.B.—All art classes scheduled for a given meeting will be taught simultaneously. Students may enter any unit listed, either semester. The beginning classes in Commercial and Freehand Drawing may, if registration is below minimum, be combined on one night. Class sessions 2½ hours.

1-2ex Commercial Drawing I-II. 3 credits each semester, toward certificate only. \$10.

Elementary and advanced commercial art; design, lettering, layouts, posters, figure drawing, in pen and ink, pencil, color, or any media. Solutions of practical problems stressed. Open to beginners and advanced students either semester. No prereq.

FIRST SEMESTER		SECOND SEMESTER
M 7:30 Campus Main Eng. 417, Doseff		M 7:30 Campus Main Eng. 417, Doseff

Freehand Drawing, Beginning. 1½ credits each semester. \$10.

Drawing from geometric solids, architectural ornaments or figures, and still life, in charcoal, pencil, pen and ink, water color, or other media. Corresponds to Architecture 21, 22, 23, 24, 25, 26. No prereq.

FIRST SEMESTER		SECOND SEMESTER
T 7:30 Campus Main Eng. 417, Doseff		T 7:30 Campus Main Eng. 417, Doseff

Freehand Drawing, Advanced. 1½ credits each semester. \$10.

Life drawing; figure composition; pencil, pen, charcoal, oil, water colors; print making. Corresponds to Architecture 27, 28, 29.

FIRST SEMESTER		SECOND SEMESTER
W 7:30 Campus Main Eng. 417, Burton		W 7:30 Campus Main Eng. 417, Burton

CHEMISTRY

N.B.—All Chemistry classes meet for a minimum of one lecture, one recitation, and three hours laboratory a week. Class periods, 7:30 to 10:00 p.m., both Tuesdays and Thursdays.

9ex‡ General Inorganic—Nonmetals. 5 credits. \$17.

The common nonmetallic elements and their principal compounds; the laws and theories of chemistry. No prereq.

FIRST SEMESTER
TTh 7:30 Campus Chem. 310, 315, Geiger

12ex† Qualitative Analysis. 5 credits. \$17.

The laws and theories involved; systematic qualitative analysis. Prereq., 9ex or its equivalent.

SECOND SEMESTER
TTh 7:30 Campus Chem. 315, 210, Geiger

1ex‡ Quantitative Analysis—Gravimetric. 5 credits. \$17.

Principles and methods of gravimetric analysis; typical problems and proper laboratory practice. Prereq., Qualitative Analysis.

FIRST SEMESTER
TTh 7:30 Campus Chem. 310, 315, Geiger

2ex‡ Quantitative Analysis—Volumetric. 5 credits. \$17.

General principles and methods of volumetric analysis. Prereq., Qualitative Analysis.

SECOND SEMESTER
TTh 7:30 Campus Chem. 310, 315, Geiger

7ex‡ Quantitative Analysis—Premedical. 5 credits. \$17.

Introductory, covering principles and methods of gravimetric and volumetric quantitative analysis; typical problems and proper laboratory practice. (Given in connection with 2ex.) Prereq., Qualitative Analysis.

SECOND SEMESTER
TTh 7:30 Campus Chem. 310, 315, Geiger

123-124-125ex‡ Advanced Quantitative Analysis. 5 credits first semester, \$17; 4 credits second semester, \$13.50.

Those desiring this class meet with class in Quantitative Analysis 1ex, in Room 310, first night. Prereq., for degree, Analytic Chem. 1-2ex, or permission of instructor.

FIRST SEMESTER	SECOND SEMESTER
123-124 TTh 7:30 Campus Chem. 310, Geiger	124-125 TTh 7:30 Campus Chem. 310, Geiger
† All chemistry classes require a deposit of \$5, payable at Chemistry Department, of which \$2 is laboratory fee and the remainder for breakage. The unused portion is to be returned.	

Textiles. See Business Classes, page 46.

CIVIL ENGINEERING**11 Plane Surveying.** 3 credits. \$10.

Lectures and problems relating to the use of steel tape, compass, transit, and level; recording, computing, and plotting of field notes; care, use, and adjustment of instruments. Prereq., trigonometry and drawing.

FIRST SEMESTER
T 7:30 Campus Main Eng. 215, Cutler

21 Curves and Earthwork. 3 credits. \$10.

Problems relating to route surveying; mathematics of simple, compound, and spiral curves; vertical curves; plotting of ground line profiles; cross sections and earthwork volumes; mass diagram; overhaul. Prereq., 11 or equivalent.

SECOND SEMESTER
T 7:30 Campus Main Eng. 215, Cutler

M.&M. 129-130 Hydraulics. 3 credits each semester. \$10.

Elements of hydraulics including flow through tubes and pipes, conduits, and rivers; principles of turbines and pumps; open channel flow. Prereq., Math. 26 or its equivalent.

FIRST SEMESTER	SECOND SEMESTER
129 W 6:20 Campus Main Eng. 107, Teeter	130 W 6:20 Campus Main Eng. 107, Teeter

141-142 Reinforced Concrete and Concrete Design. 3 credits each semester. \$10.

Principles of reinforced concrete; theory of beams, slabs, and columns, with application to ordinary structures; practical features of the design of building, bridges, retaining walls, etc. Prereq., consent of instructor.

FIRST SEMESTER	SECOND SEMESTER
141 W 8:05 Campus Main Eng. 107, Teeter	142 W 8:05 Campus Main Eng. 107, Teeter

ECONOMICS

For a variety of classes including Statistics, Finance, Accounting, Advertising, and Selling, and Economic Theory, See Business Classes, pages 38 to 46.

ELECTRICAL ENGINEERING

Elementary Electricity. 3 credits each semester, toward certificate only. \$10.

The fundamental facts about electricity and its action, as applied in the construction and use of electrical machines, appliances, and transmission equipment. Prepares particularly for the study of electrical engineering in classes of college level; valuable also to those engaged in the electrical trades and to users of electrical appliances. Both semesters necessary. Prereq., elementary algebra.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
Th 8:05 Campus Main Eng. 106, Edwards	Th 8:05 Campus Main Eng. 106, Edwards

11-13-15 Elements of Electrical Engineering. 4½ credits each semester. \$15.

Introduction to the development, principles, materials, safety, and general applications of electrical engineering. Begins the regular sequence, sophomore year, of the College of Engineering and Architecture. Lectures, recitations, and laboratory, distributed according to stage of work. Prereq., mathematics through integral calculus, or concomitant registration in calculus.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
MW 7:30 Campus Elec. Eng. 237, Johnson, Caverley	MW 7:30 Campus Elec. Eng. 237, Johnson, Caverley

ENGLISH

Freshman Composition. Special classes for students of Engineering. See Classes in English, page 18.

ENGINEERING DRAWING

1-2 Engineering Drawing. 3 credits each semester. \$10.

Elements of drafting, representation, geometry, sketching, lettering, working drawings, conventions, tracing. Auxiliary views, multiple projection, detail and assembly drawings. No prereq. Students may enter either class either semester.

N.B.—Three credits given only for completion of entire work of a semester; 1½ credits may be given for satisfactory completion of half a semester's work, with another registration necessary for the completion of the remainder. Class sessions 3 hours.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
W 7:30 St. P. Mechanic Arts High 101, Dow	W 7:30 St. P. Mechanic Arts High 101, Dow
Th 7:30 Campus Main Eng. 201, French	Th 7:30 Campus Main Eng. 201, French

Descriptive Geometry and Alignment Charts. Given on demand.

22 Structural Drafting. 3 credits for one semester; repeated second semester. \$10.

Details of fabrication of beams, girders, columns, trusses, etc.; concrete construction; material bills. Prereq., Drawing 1.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
Th 7:30 Campus Main Eng. 201, French	Th 7:30 Campus Main Eng. 201, French

29 Advanced Mechanical Drawing. 2 credits one semester; repeated second semester. \$7.

Working drawings, gearing, cams, developments, multiple auxiliary views, special projections.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
W 7:30 St. P. Mechanic Arts High 101, Dow	W 7:30 St. P. Mechanic Arts High 101, Dow
Th 7:30 Campus Main Eng. 201, French	Th 7:30 Campus Main Eng. 201, French

G.E. 70 Use of Engineer's Slide Rule. 1 credit. One hour meetings, weekly. \$5.

Theory and computation practice necessary for those who wish to use the slide rule in ordinary office computations. No prereq. Repeated second semester.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
T 7:30 Campus Main Eng. 201, French	T 7:30 Campus Main Eng. 201, French

G.E. 81 Cost Estimating. 3 credits. \$10, plus materials fee, \$2; no textbook required.

Blueprint reading, quantity surveying, mensuration; estimates of concrete, brick, timber, and steel structures. No prereq.

<small>FIRST SEMESTER</small>	<small>SECOND SEMESTER</small>
T 7:30 Campus Main Eng. 201, French	T 7:30 Campus Main Eng. 201, French

INDUSTRIAL ENGINEERING

M.E. 171 Production Control. 3 credits. \$10.

Same a Bus. Adm. 89; for description see page 44.

FIRST SEMESTER
T 6:20 Campus Mech. Eng. 202, Koepke

M.E. 174 Production Management—Time and Motion Studies. 3 credits. \$10.

Lectures and laboratory studies of various operations; the use, time, and photographic means of analysis; charting of micromotion results; study of fatigue; rate setting. Primarily for those in charge of production processes. Open to noncredit students without prerequisites.

SECOND SEMESTER
T 6:20 Campus Mech. Eng. 202, Koepke

MATHEMATICS

The numbers of these courses are those used by the College of Engineering and Architecture.

7-8ex Elementary Algebra. Credit toward entrance only. \$10.

Elements of algebra, to quadratic equations. No prereq. Both semesters necessary.

FIRST SEMESTER
M 8:05 Campus Main Eng. 106, Edwards

SECOND SEMESTER
M 8:05 Campus Main Eng. 106, Edwards

Shop Mathematics I-II. No degree credit. \$10, plus materials fee, \$1.

A beginning course in mathematics using arithmetical processes in connection with practical problems; prepares students to begin the study of algebra and furnishes foundation that makes all subsequent study in mathematics clearer and hence easier. No prereq.

FIRST SEMESTER
Th 6:20 Campus Main Eng. 106, Edwards

SECOND SEMESTER
Th 6:20 Campus Main Eng. 106, Edwards

5 Solid Geometry. Credit toward entrance only. \$10.

Standard theorems and exercises; practice in special proofs and original exercises. Class will finish December 16; extra sessions arranged to make semester's work complete. Prereq., Plane Geometry.

FIRST SEMESTER
M 6:20 Campus Main Eng. 106, Edwards

9 Higher Algebra. 5 credits. \$17.

A review and collegiate treatment of the topics of elementary algebra, which is prerequisite. Not open for credit to those who present higher algebra for entrance to college.

FIRST SEMESTER
W 7:00 Campus Main Eng. 106, Edwards

11 College Algebra. 5 credits. \$17.

Quadratic equations; equations in the quadratic form; simultaneous quadratic equations; graphical representation; progressions; mathematical induction; binomial theorem; permutations; combinations; probability; determinants; theory of equations. Prereq., 9.

SECOND SEMESTER
W 7:00 Campus Main Eng. 106, Edwards

12 Trigonometry. 5 credits. \$17.

Logarithms and plane trigonometry. Prereq., 9.

FIRST SEMESTER
T 7:00 Campus Main Eng. 107, Teeter
F 7:00 St. P. Ext. Center 203, Dow

13 Analytical Geometry, Plane and Solid. 5 credits. \$17.

Elements of plane analytic geometry including conic sections; brief introduction to solid analytic geometry. Prereq., Trigonometry.

SECOND SEMESTER
T 7:00 Campus Main Eng. 107, Teeter
F 7:00 St. P. Ext. Center 203, Dow

24 Differential Calculus. 5 credits. \$17.

Limit; derivative; simple applications of derivative; maxima and minima; differentials; rates; change of variables; radius of curvature; mean value; indeterminate forms; partial differentiation; series. Prereq., 13.

FIRST SEMESTER
T 7:00 Campus Main Eng. 106, Edwards

25 Integral Calculus. 5 credits. \$17.

Expansion of function; Taylor's theorem; standard elementary forms; definite integral; rational fractions; integration by substitution, by parts; reduction formulas; integration of processes of summation; successive and partial integration; elementary ordinary differential equations. Prereq., 24.

FIRST SEMESTER
T 7:00 Campus Main Eng. 106, Edwards

151-152ex Differential Equations. Not offered 1936-37.

Mathematics of Investment. Not offered 1936-37.

MECHANICAL ENGINEERING

Machine Design. Not offered 1936-37.

M.&M. 26,127 Technical Mechanics. 5 credits each semester. \$17.

First semester, statics; characteristics of a force, parallelogram law, moments, resultants, equilibrium, friction, etc. Second semester, dynamics: mass, acceleration, governors, work, power, momentum, etc. Prereq., Math. 25.

FIRST SEMESTER
26 M 7:00 Campus Main Eng. 107, Teeter

SECOND SEMESTER
127 M 7:00 Campus Main Eng. 107, Teeter

M.E. 65-66ex Air Conditioning—Elementary. 3 credits each semester, toward certificate. \$10, plus \$1 materials fee.

Especially designed for those engaged in selling, installing, or recommending the modern types of appliances for heating, cooling, humidifying, or otherwise conditioning the air of houses and other buildings. Deals with the wants of the human body; the laws of temperature, pressure, humidity, etc.; the methods of heating, cooling, cleaning, and distributing air and the peculiarities of each; testing and measuring pressure, humidity, etc., and the instruments used; critical evaluation of the results of processes. Both semesters required to complete the matter outlined, or to receive credit. No prereq. Mimeographed matter and blueprints issued in lieu of a textbook.

FIRST SEMESTER
W 7:30 Campus Exp. Eng. 110, Algren,
Lund

SECOND SEMESTER
W 7:30 Campus Exp. Eng. 110, Algren,
Lund

M.E. 67-68ex Air Conditioning—Advanced. 3 credits each semester, toward certificate. \$10, plus \$1 materials fee.

The application of the principles of air conditioning to practical problems; the design of systems to meet the requirements of occupied spaces and industrial plants. A continuation of Air Conditioning—Elementary (M.E. 65-66) which is to be considered prerequisite. Instructor will decide whether students have equivalent preparation. Mimeographed material in lieu of textbook.

FIRST SEMESTER
Th 7:30 Campus Exp. Eng. 110, Algren

SECOND SEMESTER
Th 7:30 Campus Exp. Eng. 110, Algren

50a-b Internal Combustion Engines. 3 credits each semester. \$10.

A practical course in theory, construction, testing of gasoline, semi-Diesel and Diesel engines; fuels; combustion; lubrication; cooling and electric systems; carburetors; theoretical and practical engine cycles; use of instruments for determining horsepower, mechanical, and thermal losses in engine operation; laboratory tests. No prereq.

N.B.—Taught jointly with Aero. 2, Aircraft Engines. Students may enter either semester.

FIRST SEMESTER
50a W 7:30 Campus Exp. Eng. 209, Robertson

SECOND SEMESTER
50b W 7:30 Campus Exp. Eng. 209, Robertson

Foundry Practice. 3 credits each semester toward certificate. \$10, plus \$1 materials fee.

A lecture course to supplement the practical work of foundry workers and others interested in the production and use of castings. First semester: Elementary Chemistry, Foundry Materials (properties, composition, use), Foundry Products (cast iron, cast steel, malleable and non-ferrous alloys), Molding Problems (gating and heading); second semester: Elementary Metallurgy (properties of alloys), Standard Specifications and Tests Bars, Melting Practice and Furnace Operation, Blueprint Reading and Cost Finding. No prereq.

FIRST SEMESTER
W 7:30 Campus Main Eng. 136, Potter

SECOND SEMESTER
W 7:30 Campus Main Eng. 136, Potter

Diesel Engines (Theory, Construction, and Operation). 3 credits each semester, for certificate. \$10.

Development of the modern Diesel engine, air injection equipment, mechanical injection pumps, fuel spray nozzles, combustion chamber construction, Diesel power generating plants, high speed

Diesels for rail cars, busses, tractors, and aircraft; Diesel fuels and the chemistry of combustion; operating equipment and care. A course for operating engineers and others interested in a broad technical study of the Diesel engine. Two semesters, continuous, both necessary.

FIRST SEMESTER SECOND SEMESTER
Th 7:30 Campus Exp. Eng. 209, Robertson Th 7:30 Campus Exp. Eng. 209, Robertson

METALLOGRAPHY

1-2ex Metallography and Heat Treatment of Iron and Steel. 3 credits each semester, toward certificate only. \$10.

A beginning course suitable for those engaged in practical heat treatment, in writing specifications, purchasing or selling iron or steel; lectures, demonstrations and laboratory work in pyrometry, thermal analysis, preparation of alloys, microscopic examination of metal alloys, preparation of photomicrographs; the theory of heat treating, its relation to practice.

FIRST SEMESTER SECOND SEMESTER
1ex M 7:30 Campus Sch. Mines 306, Forsyth 2ex M 7:30 Campus Sch. Mines 306, Forsyth

PETROLEUM PRODUCTS

106ex Petroleum and Petroleum Products. Open to all without credit. \$10.

A practical course for those interested in petroleum. The topics covered will be the origin of petroleum, its chemistry, refining, including various processes of cracking and various solvent processes for refining lubricating oils; nature and properties of various products and their application; methods of test and their significance.

FIRST SEMESTER
T 7:30 Campus Exp. Eng. 215, Peterson

107ex Testing of Petroleum Products. Open to all without credit. \$10, plus \$5 laboratory deposit, payable at registration.

A laboratory class in testing gasoline, kerosene, gas oil, lubricating oil, road oil, and asphalt. Includes interpretation of all test results. Unused portion of laboratory deposit to be refunded. For best results should be preceded by 106ex above.

SECOND SEMESTER
T 7:30 Campus Exp. Eng. 210, Peterson

GENERAL EXTENSION DIVISION FACULTY

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Wendell White, Ph.D., Assistant Professor of Psychology

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 Alburey Castell, Ph.D., Instructor in Philosophy
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 Grace Christensen, B.S., Instructor in Physical Education
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		Transportation (Traffic)	46
		Tuberculosis	23
		Vocabulary Building	31
		Zoology	32

WHERE EXTENSION CLASSES MEET

MINNEAPOLIS

University of Minnesota Campus:

Anatomy Building	Mines Building
Athletic Building	Music Building
Botany Building	Physics Building
Burton Hall	Pillsbury Hall
Chemistry Building	Psychology Building
Folwell Hall	Wesbrook Hall
Jones Hall	Women's Gymnasium
Law School	Zoology Building
Millard Hall	
Electrical Engineering Building	
Experimental Engineering Building	
Main Engineering Building	
Mechanical Engineering Building	
Northrop Memorial Auditorium	
School of Business Administration	
University of Minnesota Hospitals	

Downtown:

Minneapolis Public Library
Northwestern Bank Building, Rooms 603, 690

ST PAUL

University Extension Center:
500 Robert Street, Foot-Schulz Building
First National Bank Building, 4th and Robert Streets
Mechanic Arts High School, Central and Robert Streets
Public Library, Fourth and Washington Streets
Wilder Dispensary Building, 279 Rice Street

FOR YOUR SERVICE

The Bulletin
of the University of
Minnesota

The Graduate School
Announcement for the Years
1936-1938



Vol. XXXIX No. 41 August 15 1936

*Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota*

*Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918*

UNIVERSITY CALENDAR

1936-37

1936			
September	28-October	12	Registration of graduate students
September	28	Monday	Fall quarter classes begin, 8:30 ¹ a.m.
October	8	Thursday	Examinations in German and French for candidates for advanced degrees
November	5	Thursday	Last day for filing theses of candidates for the Ph.D. degree for the fall quarter
November	14	Saturday	Last day for filing subject title of Master's theses for the spring quarter
November	19	Thursday	Last day for filing theses of candidates for Master's degrees for the fall quarter
December	17	Thursday	Commencement Convocation
December	19	Saturday	Fall quarter ends, 6:00 p.m.
1937			
January	5	Tuesday	Winter quarter classes begin, 8:30 ¹ a.m.
January	14	Thursday	Examinations in German and French for candidates for advanced degrees
February	4	Thursday	Last day for filing theses of candidates for the Ph.D. degree for the winter quarter
February	18	Thursday	Last day for filing theses of candidates for Master's degrees for the winter quarter
March	18	Thursday	Commencement Convocation
March	20	Saturday	Winter quarter ends, 6:00 p.m.
March	30	Tuesday	Spring quarter classes begin, 8:30 ¹ a.m.
April	8	Thursday	Examinations in German and French for candidates for advanced degrees
May	3	Monday	Last day for filing theses of candidates for the Ph.D. degree in June
May	17	Monday	Last day for filing theses of candidates for Master's degrees in June
June	12	Saturday	Spring quarter closes, 6:00 p.m.
June	14	Monday	Sixty-fifth annual commencement
June	16	Wednesday	Summer Session classes begin, 8:00 a.m.
July	2	Thursday	Last day for filing theses of candidates for advanced degrees for first term of Summer Session.
July	22	Thursday	Commencement Convocation
July	26	Monday	Second term classes begin, 8:00 a.m.
August	28	Saturday	Second term closes.

¹ First hour classes begin at 8:15 at University Farm.

THE GRADUATE SCHOOL

ADMISSION

Any graduate holding a Bachelor's degree or its equivalent from a reputable college or university who has made a satisfactory record in his college course will be admitted to the Graduate School, and may register for such graduate work as he may be found prepared to enter upon.

Students graduating from institutions granting the Bachelor's degree for a narrow concentration on technical and professional courses unsupported by some basic training in the subject-matter as represented in a standard or traditional college of arts and sciences will not be matriculated until they meet the requirements for an undergraduate major in one such department or the undergraduate minor in two such departments at the University of Minnesota. Students who must occupy more than one-half their time in any quarter in making up courses to meet the above requirement or who are deficient this proportion at the beginning of any quarter will register as special students in the undergraduate college giving the work. Such additional work of graduate character as they may be able to carry will be transferred on petition after matriculation in the Graduate School if they have secured a B grade in it. Such transfer covers course and not residence credit.

Applicants not fully prepared in the field of their graduate interests and college graduates who simply desire to take additional work of undergraduate grade without a view to ultimate preparation for an advanced degree should register as special students in the college giving the work.

All inquiries concerning admission to the Graduate School should be addressed to the dean. The student should fill out an application for admission at least two weeks before presenting himself for registration and accompany this with two copies of the official transcript of his college record.

Advanced standing, except for the Master's degree, may be granted for work done in other approved graduate schools. Credits for advanced courses earned while the student is registered in an undergraduate college, even if in excess of the credits required for the baccalaureate degree, cannot be transferred to the Graduate School, except as provided on page 6.

No transfer of graduate credits from other institutions will modify the minimum requirements of one academic year in residence as a graduate student in this University for those who are candidates for an advanced degree. This means that no transfers are made in the case of candidates for the Master's degree.

REGISTRATION

Full directions concerning registration are given in a booklet issued by the registrar's office for the information of new students. The essential doc-

ument for a graduate student is an official transcript of the student's college record.

FEES

Tuition fee for residents (except for clinical medicine) per quarter.....	\$20.00
Tuition fee for nonresidents per quarter	30.00
Tuition per credit hour for students carrying less than full work	
Residents	1.75
Nonresidents	2.50
Tuition fee for graduate study <i>in absentia</i> for the professional engineer degrees (to be paid but once for each degree)	60.00
Incidental fee	6.00
Matriculation deposit (first quarter in residence)	3.00
Special deposit for chemistry laboratory.....	5.00
Graduation fee	10.00

Registration in the Graduate School includes the making out of the program which must be approved by a departmental adviser and the dean. The student must also present a certificate of examination by the Students' Health Service of the University of Minnesota.

Fees must be paid not later than one week following the approval of the registration by the dean of the Graduate School in order to avoid a \$2 late fee.

Candidates for advanced degrees must pay not less than the full normal fee for three quarters before receiving the degree.

All the fees above mentioned apply to the regular session. For the summer session fees, see special bulletin.

FELLOWSHIPS AND SCHOLARSHIPS

SHEVLIN FELLOWSHIPS

Four graduate fellowships have been established by the late Thomas H. Shevlin, of Minneapolis. These are awarded one each in the College of Agriculture, Forestry, and Home Economics, the School of Chemistry, the Medical School, and the College of Science, Literature, and the Arts. Each fellowship yields \$500 per annum. They are awarded annually. Candidates for these fellowships should file their applications before March 1 with the dean of the Graduate School.

Shevlin fellows will devote their entire time to the graduate work for which they are registered, and may not engage in private tutoring or be required to render any service to the University.

CALEB DORR RESEARCH FELLOWSHIP IN AGRICULTURE,
FORESTRY, AND HOME ECONOMICS

By request of the late Caleb Dorr, of Minneapolis, the income from twenty thousand dollars is available for graduate fellowships in the Department of Agriculture of the University of Minnesota. Usually three fellowships of \$500 each will be awarded each year. The holders of these fellowships are exempt from tuition. The basis of the award is scholarship and the prospect and promise of productive research.

Caleb Dorr fellows will devote their entire time during the academic year (nine months) to the graduate work for which they are registered and may not engage in private tutoring or be required to render any service to the University.

Candidates for these fellowships should file their applications before March 1 with the dean of the Graduate School. Application blanks may be secured from the dean of the Graduate School or from the dean of the College of Agriculture, Forestry, and Home Economics.

THE ALBERT HOWARD SCHOLARSHIP

This scholarship, founded by Mr. James T. Howard, yields \$240 annually. The holder is expected to do graduate work in liberal arts.

CLARA UELAND FELLOWSHIP

The income from \$11,916.67 is awarded annually to a recent woman graduate of any acceptable college or university for graduate study of problems of government and citizenship. The recipient is exempt from tuition fees.

HONORARY FELLOWSHIPS FOR VISITING SCHOLARS

Professors or other eminent scholars from other institutions, who may desire temporarily the privileges of the library, research facilities, and seminars in the University, and who are not candidates for a degree, may upon recommendation of the dean of the Graduate School and the approval of the president of the University be appointed as honorary fellows without stipend.

Honorary fellows shall not be required to pay any fees except to cover the cost of unusually expensive supplies or equipment.

DEPARTMENTAL ASSISTANTSHIPS

Besides the above stipends there are numerous assistantships with varying stipends assigned to various departments, and exemption from tuition in the Graduate School. The amount of graduate work that can be carried is proportioned to the service burden of the assistantships.

Inquiries and requests for application blanks may be addressed to the dean of the Graduate School, or to the head of the department in question.

GRADUATE WORK IN THE SUMMER SESSION

Work of graduate character done in the Summer Session of the University of Minnesota may be counted for residence credit for advanced degrees. The course work for the Master's degree according to Plan A (see page 10) may be completed in four summer terms of six weeks each. The course requirements for Plan B may be met in three full summer quarters. The class work in summer sessions must be taken within six years following the first registration. In Plan A, the candidate may be permitted to carry *in absentia* thesis work to complete the equivalent of three quarters. Students working for the Master's degree under Plan A in summer terms or quarters must file the subjects of their theses before the completion of the first half of the required work. Theses of summer session students must be completed at least four weeks before the end of the session in which they take the degree.

An increasing amount of graduate work in fields of interest to high school teachers is being offered in the Summer Session. The courses for any session may be found in the Bulletin of the Summer Session.

Students who desire graduate credit for work in the summer must register through the office of the Graduate School.

GRADUATE WORK IN MEDICINE

Graduate work in the laboratory departments and in the clinical branches leading to advanced degrees is offered by the University of Minnesota. This work is under the direction of the Graduate School, and candidates for admission and degrees must meet the requirements of the Graduate School as outlined in the preceding pages. The work is offered by members of the medical faculty in Minneapolis and by members of the graduate faculty on the Mayo Foundation at Rochester, Minnesota, where part or all the residence work may be done. Several teaching fellowships supported by the University and others on the Mayo Foundation are open to qualified students pursuing graduate work in clinical medicine or in the laboratory branches. The basic sciences of medicine which may be pursued as graduate subjects by qualified students who do not hold the M.D. degree are listed in this bulletin. The Graduate School Medical Bulletin should be consulted for graduate work in clinical fields.

GRADUATE WORK BY UNIVERSITY OF MINNESOTA UNDERGRADUATES

1. No graduate credit allowed for any courses taken without previous arrangement by petition with the Graduate School.
2. No residence credit is possible for courses taken by undergraduates who lack more than 6 quarter credits toward the Bachelor's degree.
3. If not more than 9 quarter credits of undergraduate credit are lacking, petition may be filed to carry a limited amount of graduate work (approved courses above 100) for graduate course credit, such courses not to be applied toward an undergraduate degree.
4. With permission of the dean of the undergraduate college concerned, undergraduates lacking not more than 6 quarter credits may be permitted to register also in the Graduate School. This will be permitted in exceptional cases only.

GRADUATE WORK IN LAW

Under certain properly approved conditions graduate students may offer courses in law as a minor for an advanced degree when their major work is in the Department of Political Science or Economics.

A course leading to the degree of master of laws may be taken under the direction of the Graduate School of the University. Candidates must have completed two years of college work, and the work required for the first law degree in a school which is a member of the Association of American Law Schools. No specific course of study is required, but the course elected must be approved by an adviser. Subjects in the curriculum of the

Law School not counted towards the first degree may be elected and additional work in subjects already studied. The candidate may also elect studies in the social sciences in the College of Science, Literature, and the Arts, and in the School of Business Administration. The candidate must complete eight year hours of classroom work and prepare a thesis that will be accepted for publication in the *Minnesota Law Review*. The course may be shaped to secure a more extensive survey of the law and related subjects, or to give a more thoro training in some special branch.

GRADUATE SOCIAL WORK

Education for social work in its various branches is offered in a course of study which requires two years of graduate work leading to a certificate of social work and a master of arts degree. Attention is given to certain specialized fields of social work: social work with families; work for the protection, guidance, and placement of children; medical social work; work with groups; visiting teacher work; rural social work; psychiatric social work; public welfare administration.

Candidates for either certificate or Master's degree must hold a Bachelor's degree from an accredited college or university. Such candidates, if they have not fulfilled the preliminary course requirements (see p. 150) may be admitted to the graduate course in social work upon approval of the dean of the Graduate School and on recommendation of the major advisers in social work, but will be required to complete such prerequisites before they are qualified for certificate or Master's degree.

Students who prepare for graduate social work by finishing the pre-social-work sequence of this University, or its equivalent elsewhere, may expect to complete the graduate requirements for a certificate of social work in five quarters and for the degree of master of arts in a minimum of six quarters.

For the certificate of social work 60 quarter credits are required, as follows: 36 credits in technical social work courses in class, 15 credits (450 clock hours) of supervised field work, 9 credits in a minor subject.

The M.A. degree may be secured in either of two ways:

a. By adding to the requirements for the certificate 6 credits in class and/or field work as approved by the student's adviser in social work and the presentation of a thesis acceptable to the Graduate School.

Students desiring to qualify for Master's degree with thesis shall file at the office of the Graduate School the subject of the thesis before completing half of the credits required in social work subjects. This is an extension of Plan A for the M.A. degree of the Graduate School.

b. By completing the following program of work without thesis:

Work	Credits
Technical social work	36
Field work	20
Minor	9
Research	9
Additional credit in class courses or field work as approved by social work adviser	10
	84

This is the extension of Plan B of the Graduate School as applied in social work as a major. Knowledge of a foreign language is not required but is strongly recommended.

A Master's degree in social work and a certificate. Students will meet all of the requirements above and write a thesis on a social work subject acceptable to the Graduate School.

The program of study, both graduate and undergraduate, must be approved by a major adviser in social work. The major advisers are glad to consult with students interested in social work as early in their college course as possible.

MASTER OF SCIENCE IN PSYCHOMETRICS

The degree of master of science in psychometrics is awarded to candidates who complete a special curriculum in the technique of psychological examining. This curriculum, while conforming to the general requirements for the Master's degree, provides for the distribution of work, with certain options, among courses in the Departments of Psychology, Educational Psychology, Sociology, and Child Welfare. One or more advisers will be designated in each of these departments to direct the work of candidates for this degree. These advisers should be consulted with reference to the details of the curriculum and the opportunities it offers to the student who proposes to become a psychological examiner in schools, personnel work, courts, welfare work, etc. This degree will be granted under Plan A only.

INTERNATIONAL RELATIONS

For the degrees of master of arts and doctor of philosophy in international relations a program drawn from several departments is provided. This program is not rigid, but may be varied to some extent in accordance with the special interests of candidates. There is no requirement of major and minor, candidates being expected to plan, in consultation with an adviser, a co-ordinated program in the general field of international relations.

The work is envisaged as comprehending the following five fields: (1) international law and relations, (2) international economic relations, (3) foreign and colonial governments, (4) diplomatic history, (5) political and economic theory. Normally one regional field of diplomatic history may be selected from among the following: the United States, the British Empire, Modern Europe, the Far East, and Latin America, but a candidate who is especially interested in diplomatic history may substitute an additional regional field for one of the general fields. Suggested courses in these fields are: (1) Political Science 180-181-182, 183, 184, 251-252-253, Geography 251, 252, 253, Journalism 111; (2) Economics 117, 124, 125, 126, 141, 145, 163, 166, 176, 191-192, 243-244, History 180-181-182, 221-222-223, Geography 102, 251, 252, 253; (3) Political Science 145, 146, 148, 149-150, 151, 153, 195-196, 197, 221-222-223; (4) History 156-157-158, 170-171-172, 176-177-178, 190-191-192, 208-209-210, 224-225-226, Political Science 191-192, 193,

254-255-256; (5) Political Science 161-162, 163, 164-165, 166, 167-168, 169, 171, 231-232-233, Economics 103-104, 203-204. §

Prerequisites for entering upon these programs are admissibility to the Graduate School and possession of the prerequisites for graduate work in political science, economics, history, and geography.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

1. The general requirements for the Master's degree.
2. Reading knowledge of French or German.
3. The passing of final written and oral examinations in courses carrying a total of 27 credits, these courses to be selected from two fields: (1) international law and relations, and (2) either international economic relations, or diplomatic history.
4. Completion of a satisfactory thesis in one of the selected fields; or the passing of examinations in additional courses from either of the selected fields or from a third field, and carrying a total of 18 credits.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

1. The general requirements for the Doctor's degree.
2. Reading knowledge of French and German.
3. The passing of written and oral examinations in the five fields, the emphasis and selection of courses in each field to be determined in consultation with the major adviser and the Committee on International Relations. Candidates already well prepared in one field will be free to concentrate in the others.
4. Satisfactory knowledge of political and economic geography, particularly with reference to regional fields of diplomatic history.
5. Presentation of an acceptable thesis in one of the fields numbered 1, 2, 3, or 4.

The work of candidates for these degrees is under the supervision of a Committee on International Relations consisting of Alvin H. Hansen, professor of economics, Lawrence D. Steefel, associate professor of history, and Harold S. Quigley (chairman), professor of political science. The members of this committee are advisers for such candidates.

REQUIREMENTS FOR THE MASTER'S DEGREE

The degree of master of arts is, in general, conferred for advanced non-technical study; the degree of master of science for advanced technical study, such as agriculture, industrial chemistry, engineering, etc. It is the field of graduate work and not the Bachelor's degree that determines whether the degree is master of arts or master of science. In the sciences usually called basic or fundamental such as physics, geology, zoology, etc. the student may elect the form he prefers.

From and after the beginning of the Summer Session in 1936 qualified matriculants in the Graduate School may earn the Master's degree in

§ For description of courses see departmental announcements.

certain departments (see statement preceding departmental announcements of courses) by one of two plans called hereafter Plan A and Plan B.

The student will indicate at the time of matriculation his intention to be a candidate for a Master's degree and indicate the plan he proposes to follow. This choice must be approved by an adviser or departmental committee acting for the major department and will be confirmed by the group committee in which the major department falls. Before making up and approving the student's choice and his program, the adviser or departmental committee must be supplied by the student with a statement of his undergraduate record and any additional work done with credit. The duplicate transcript is required as a guide to the advisers.

THE THREE ROADS TO THE MASTER'S DEGREE

Preliminary statement.—It is assumed in all the plans outlined below that the student who is adequately prepared and giving full time to study will, if he meets the requirements for quality in class, thesis, and final general examinations, be able to meet the requirements for the Master's degree in one academic year or its equivalent in summer sessions. Those who lack adequate preparation, hold assistantships involving considerable services to the University, or who must do other things for self-support will find the necessary period in residence proportionately lengthened. It is not usual even for the ablest, sturdiest, and best prepared students to absolve the requirements satisfactorily even when the departmental service is at the minimum of three hours weekly in conducting quiz and discussion divisions of large elementary courses or 10 hours weekly in laboratory supervision or its equivalent in reading quiz papers. Assistants doing more than this must modify their program or expect the completion of the thesis and examinations to extend beyond the minimum one-year period. The same limitations apply to those who lack a satisfactory command of spoken and written English or a reading knowledge of those modern languages which are the necessary tools in so many fields of graduate work.

In all courses *open to graduates only*, the student must secure a mark of "pass." This will be interpreted as the instructor's approval upon the quality of the student's work viewed from the level upon which real graduate work is supposed to be carried on. In the courses open to both graduates and undergraduates the system of marking by letters may be continued for the present. A grade of not less than B must be obtained in any course of this character offered as fulfilling the requirements in the major. A grade of not less than C must be obtained in minor courses.

PLAN A: THE MASTER'S DEGREE WITH THESIS

Major and minor work.—In choosing any field for major or minor work, the candidate must present the minimum undergraduate preparation prescribed in the departmental statements. He must complete in the Graduate School a minimum of 18 quarter credits in the major department and 9 in the minor.

The choice of the minor must be in a department whose work can be

logically related to that of the department in which the student is doing his major work. The dean and the group committee may in exceptional cases allow the minor subject to be taken in the same department as that of the major.

Language requirement.—A reading knowledge of a foreign language, modern or ancient, the language to be determined by the major department, is required of candidates for the Master's degree, unless exemption is made in individual cases with the approval of the Executive Committee of the Graduate School. When no other statement is made in the departmental announcement in this bulletin, a knowledge of either French or German is expected. The candidate shall present to the dean of the Graduate School, not later than the close of the second quarter of residence, a certificate of proficiency in the designated language, signed by the professor in charge of the corresponding language department or his representative.

All examinations to meet the language requirement of the Graduate School, unless otherwise arranged with the language departments, shall be held on the second Thursday of each quarter.

A candidate who fails in a language examination for an advanced degree shall not be given a second examination until the following quarter.

Master's thesis.—Before the middle of the first quarter in residence the candidate shall file at the office of the Graduate School the subject of his thesis. This subject must be approved by his adviser and by the corresponding group committee. It should be on a topic falling within the field of the major. The candidate will ordinarily devote approximately one-half his time to the preparation of the thesis, including courses on which the thesis is based. The thesis must be written in acceptable English and show ability to work independently, and give evidence of power of independent thought both in perceiving problems and making satisfactory progress toward their solution. Familiarity with the bibliography of the special field and correct citation of authorities are expected.

The thesis is required to be in quadruplicate in order to facilitate its consideration. Two copies are retained for the University Library (as noted below), the third copy being finally returned to the candidate. Since one copy is usually desired by the adviser or department concerned, a fourth copy should be provided for this purpose. One copy must be upon the specially required red-ruled twenty-pound linen stock of 60 or 70 per cent rag content and the others may be carbon copies on bond paper. The original and first copy must contain all illustrative material. Ample margin should be left for binding purposes. Samples in the dean's office of both the linen stock and carbon paper should be examined before the thesis is type-written. The body of the thesis should be double spaced, but footnotes may be single spaced.

The thesis must be finished and four copies deposited in the office of the dean of the Graduate School at least four weeks before the candidate presents himself for his degree.

The thesis will be examined by a committee of three, appointed by the dean on the recommendation of the group committee. The student's adviser will, as a rule, be the chairman of this committee. Unanimous approval by this committee will be necessary for the acceptance of the thesis.

If the thesis is accepted, the candidate must deposit with the registrar, at least one week before commencement, one dollar and fifty cents for binding the two copies of this thesis, which will be cataloged and deposited in the University Library, one copy for reserve and one for loan purposes.

Examinations.—All candidates for the Master's degree will meet the regular requirements as to examinations, topics, reports, etc., of the classes in which they are registered. A special examination in the field of the minor is not required, but this does not excuse the candidate from the regular course examinations. Besides the usual course examinations, where such are given, the candidate for the Master's degree must pass a final written examination in the major and after acceptance of the thesis, a final oral examination.

The final written examination will be held not later than two weeks before the end of the quarter in which he takes his degree. It will cover the work of the candidate in the field of the major, and may include any work fundamental thereto. This examination will be held by his instructors in the major department, the adviser acting as chairman.

The candidate is not eligible for the above examinations until the thesis is accepted and any language requirement absolved.

If the final written examination is satisfactory, and the thesis accepted, the final oral examination of the candidate will be held, not later than two weeks before the end of the quarter in which he takes his degree. The adviser will act as chairman of the examining committee, which will include all the instructors with whom the candidate has taken work, the thesis committee, and, ex-officio, the head or chairman of the department in which the major work is done. Any member of the graduate faculty may attend as a visitor. The final oral examination will cover all the work offered for the degree, and may include other work fundamental thereto. At the close of the examination, the committee will vote upon the candidate, taking into account all of his work. A majority vote is required for approval.

TABULAR SUMMARY OF REQUIREMENTS FOR
THE MASTER'S DEGREE WITH THESIS

WORK	UNDER THE DIRECTION OF	DATE
Program, major and minor	Adviser and dean of the Graduate School	On entrance
Approval of thesis subject	Adviser and group committee	Middle of first quarter in residence
Language requirement	Adviser and language department	Before close of second quarter
Approval of candidacy	Executive committee	Beginning of third quarter
Filing of thesis	Dean of the Graduate School	At least four weeks before graduation
Examination of thesis	Thesis committee	Before admission to final oral examination
Final written examination in major	Major department members of the graduate faculty	Not later than two weeks before commencement and before final oral examination
Final oral examination on all work	Thesis committee; all candidate's instructors; head of major department	Not later than two weeks before commencement
Fee for binding thesis	Registrar	One week before commencement

(Course examinations as required at the usual times)

Candidates who are eligible for the "preliminary examination" for the Doctor's degree may substitute this examination for the final oral examination for the Master's degree, provided that all other requirements for the preliminary examination (see p. 19) have been met.

Reports.—Special blanks are provided for signed reports concerning the thesis and the final oral examinations. All reports must be filed in the office of the dean of the Graduate School at least one week before the end of the last quarter.

Candidates meeting the requirements as above outlined will be reported by the dean to the executive committee of the graduate faculty, who will by vote recommend to the Board of Regents those approved for degrees.

PLAN B: THE MASTER'S DEGREE WITHOUT THESIS

The requirements under this plan in matters of admission, residence, transfer of credits from other institutions, and final examinations follow Plan A. It differs in substituting for the thesis a heavier course requirement which if met in summer sessions means more than the minimum four sessions under Plan A. While it does not permit an indiscriminate scattering of courses over unrelated departments, it does not stress so definitely the concentration of one major and one minor field. In so far as it has a professional aspect, it is less a test of research interests and presumably more adapted to those who as teachers or secondary school administrators will profit by a broader range of knowledge in the fields they teach or supervise. Whether taken for professional or cultural purposes, the requirements under Plan B are meant to test interests and intellectual abilities for a different purpose and not on a different level from those required for Plan A. The transfer from one plan to the other may be made with the approval of the adviser or the major department committee supervising the student's work.

Under Plan B candidates for the Master's degree must complete, with an average of B, 45 quarter credits in graduate courses listed in this bulletin. At least 21, and not more than 27, credit hours should be in a single major field. At least 9 quarter credits must be in advanced courses, seminars, or independent work under faculty supervision and requiring the preparation of written reports representing the quality but not the range of the Master's thesis. Courses which offer an opportunity to meet this 9-hour requirement are marked in this bulletin with an asterisk (*).

The student's program shall have the approval of a major adviser or of a departmental committee acting for the major department and is subject to the review of the group committee. The intelligent planning of the student's program requires that he shall present to his adviser or the department committee a statement of all college work completed with credit.

For students electing Plan B, it is doubly important to file applications for admission and transcript in duplicate before the registration date. Otherwise delays and possible fines for late registration are almost unavoidable.

PLAN C

Under the departmental offerings in Education and Forestry will be found special programs leading to the Master's degree. The provisions of the Forestry Division are for the special professional degree of master of science of forest administration. Under Economics will be found an adaptation of Plan B, leading to the degree master of business administration.

ATTENDANCE AT COMMENCEMENT

Candidates upon whom degrees are to be conferred are required to be present at commencement unless especially excused by the dean of the Graduate School and the president of the University.

MASTER OF SCIENCE IN ENGINEERING OR ARCHITECTURE

The requirements and procedure for the degree of master of science in aeronautical, agricultural, architectural, chemical, civil, electrical, mechanical, mining, or petroleum engineering or architecture will correspond to those outlined for this degree in other subjects. The major subject and thesis will lie in the field represented by the degree. The thesis will be filed and final written examination taken at least four weeks before graduation. The language requirement will be waived in all of these cases except chemical engineering, in which German is required.

REQUIREMENTS FOR THE ENGINEER DEGREES

The advanced professional degrees, aeronautical engineer, agricultural engineer, architectural engineer, chemical engineer, civil engineer, electrical engineer, and mechanical engineer will be conferred upon the recommendation of the Graduate School faculty as a result of the satisfactory completion of the following requirements:

- a. Bachelor's degree, from an approved school in the corresponding branch of engineering.
- b. One full academic year of graduate engineering study (three quarters) in residence at this University. Graduates of this University may be permitted to carry on this study *in absentia* under the direction of the faculty. Work done *in absentia* may not be substituted for the residence work required for the master of science degree.
- c. Four years in engineering experience in positions of responsibility, subsequent to receiving the Bachelor's degree. (If the graduate study is done *in absentia*, five years of experience are required.)
- d. A thesis of professional grade.

Candidates for the degree of chemical engineer must have a reading knowledge of German.

For graduates of this University, a Master's degree in the corresponding branch of engineering will be accepted as fulfilling the requirements of the year of graduate study.

The Engineer degree will not be granted in less than five years after the Bachelor's degree was received.

If the Bachelor's degree is in another branch of engineering than that in which the professional degree is sought, the student must complete the equivalent of the subjects required for the Bachelor's degree in the new field before admission to candidacy for the desired degree.

THE MASTER'S DEGREE WITH THE ENGINEER DEGREE

It is recommended that the student who is entering upon the graduate year's study in residence for the Engineer degrees register for and obtain the Master's degree for this year's work, that is, the degree of master of science in the corresponding branch of engineering. The essential difference lies in the requirement of a thesis if the Master's degree is sought. However, the aggregate amount of work is intended to be the same in both cases, namely, from 15 to 18 credit hours per week for the three quarters. If the graduate study does not lead to the Master's degree, the student is not required to prepare a thesis as a part of the year's work. The Master's thesis, however, will not satisfy the requirement for the professional thesis which is intended to be related to the practical experience after the Bachelor's degree was received.

PROGRAM OF STUDY

Upon entrance to the Graduate School, the candidate, with the approval of the dean, will select his adviser in the field represented by the desired degree, in which field the major work and the thesis will lie. With the approval of his adviser and the dean, he will also select a minor, and will outline a study program for the year.

If the student registers for the Master's degree in engineering or architecture, he will conform to the requirements for that degree as regards major and minor work, thesis, examinations, etc.

If the graduate study during the year of residence or *in absentia* is towards the Engineer's degree only, it will be divided into major and minor work, of which the major will usually constitute about two thirds and the minor one third of the total of 12 to 15 credit hours which will be carried each quarter.

STUDY IN ABSENTIA

Only graduates of this University will be permitted to undertake the graduate study *in absentia* towards one of the Engineer degrees. This permission must be obtained from the head of the department represented by the degree, who will usually act as the adviser, and from the dean of the Graduate School. It is not necessary that this study be coincident with the academic year; it may be undertaken at any time.

The proposed plan of study should be arranged with the approval of the adviser. A flat fee of \$60 must be paid in advance. The study may, and generally will, extend over more than nine months. There is also the usual graduation fee of \$10. At least 1,500 actual hours of work should be performed as the equivalent of a year's study in residence.

The detailed requirements of reports and examinations will be established by the adviser. A separate written report must be submitted at the

end of each quarter's work. A written examination covering the study, both major and minor, will be held at the close of the year's work. Under favorable circumstances this examination may be held in the place where the candidate resides.

Upon the satisfactory completion of the year's work, the proper credits will be recorded toward the Engineer degree.

FEES

A fee of \$60 is required for the year of graduate study towards the professional Engineer degrees if taken *in absentia*. This is in addition to the regular graduation fee of \$10 paid at the time of qualifying for the degree.

STUDY IN RESIDENCE

The work will consist of regular courses offered in this bulletin and may include research if desired by the student, even tho the Master's degree is not sought.

ENGINEER'S THESIS

At least six months before the graduate degree is expected, the thesis subject must be approved by the adviser and the group committee. The thesis itself must be filed with the dean at least four weeks before the commencement at which the degree is to be obtained together with a deposit of one dollar and fifty cents to cover cost of binding the thesis.

STATEMENT OF EXPERIENCE

With the thesis, the candidate must file a detailed statement of his professional experience since receiving his Bachelor's degree. This should amount to at least four years, if the graduate study was in residence, or five, if *in absentia*.

TABULAR SUMMARY OF REQUIREMENTS FOR THE ENGINEER'S DEGREE

WORK	UNDER THE DIRECTION OF	DATE
Program, major and minor	Adviser and dean of the Graduate School.....	On registration
Quarterly reports if <i>in absentia</i>	Adviser	
Written examination.....	Adviser and major and minor staff.....	At end of year's study or later, as arranged
Thesis subject	Adviser and group committee	Six months before graduation
Experience statement.....	Adviser and major staff.....	Four weeks before graduation
Filing thesis.....	Dean of Graduate School	Four weeks before graduation
Fee for binding thesis.....	Registrar	One week before graduation

ATTENDANCE AT COMMENCEMENT

Unless specifically excused for an important reason, the candidate will be present in person to receive the degree.

REQUIREMENTS FOR THE DOCTOR'S DEGREE

In the Graduate School, one Doctor's degree, doctor of philosophy (Ph.D), is conferred by the University of Minnesota. This degree is granted, not on the basis of successful completion of a definite amount of prescribed work but chiefly in recognition of the candidate's high attainments and ability in his special field, to be shown, first, by the preparation of a thesis, and second, by successfully passing the required examinations covering both the general and the special fields of the candidate's subjects as detailed later.

Candidates for the Doctor's degree must devote at least three years‡ of graduate study in approved subjects. The first two years or the last year must be spent in residence at the University of Minnesota.

A member of the staff of instruction above the rank of instructor will not be permitted to enroll for a Doctor's degree at this University. There is no objection, however, to his registering for graduate work at this University and credit so obtained may be presented elsewhere.

PROGRAM OF STUDY

First year.—Upon entrance to the Graduate School, the student shall select his adviser with the approval of the dean. With the approval of his adviser he shall submit to the dean a program covering his first year's work.

Second and third years.—Before beginning the work of the second year, the student shall secure from the Graduate School office the Three-Year Program Blank and submit to his adviser and the group committee for approval a tentative outline of his work for the second and third years, including both the major and minor subjects. This program is then to be submitted to the dean for final approval. During the second quarter of the second year he shall file with his adviser's approval the subject of his Doctor's dissertation.

LANGUAGE REQUIREMENTS

Before admission to the preliminary examination, the student must present to the dean of the Graduate School statements from the French and German departments, certifying that the applicant has a reading knowledge of those languages.§ In addition, a knowledge of other languages may be required in certain cases, as the candidate's major department may prescribe. The student's adviser or his representative at his option shall attend the language examinations and provide literature in the major field from which the test passages are selected. For the dates of these language examinations consult the calendar at the beginning of this bulletin.

‡ This time requirement will be met in three years only by those students who devote all their time to graduate study. Students who merely devote the intervals of professional or other regular employment to graduate study will need to extend their total period of work over a longer period of time. Credit for such work will be given in proportion to the amount of time actually spent in the pursuit of graduate work.

§ The substitution of other foreign languages of greater service in the major field may be permitted by the executive committee on recommendation of the group committee.

THE MAJOR WORK

The major work must be in a department in which the candidate has had, in his undergraduate study, at least the equivalent of three years of work: (18 semester or 27 quarter credits) if it be a department open to freshmen, or two years of work (12 semesters or 18 quarter credits) if it be a department not open to freshmen. Part or all of this preliminary work may consist of designated prerequisite courses in the same or allied departments.

During the period of work for the Doctor's degree a student shall spend not less than two thirds of his time§ on the major subject, including the work on the thesis. During the last two years, he shall carry an average of at least one course per quarter in his major in addition to the work from which his thesis is developed.

At the close of the second year's work, and before admission to the preliminary examination, the student must obtain the written recommendation of the major department members of the graduate faculty. Such written recommendation should state that in view of the work already done by the applicant, the department is convinced of his probable capacity and ability to meet all the requirements for the degree, including the thesis, the subject of which must be stated. No preliminary examinations will be given during the month of May.

In the case of a student who comes for the last year of residence only, provision for the examination will be made by the dean and the major department.

THE MINOR WORK

The minor work must be selected in a department in which the student is prepared to pursue courses advanced enough in character to be included in the group designated "For Undergraduates and Graduate Students," and numbered 100 or above.

The choice of the minor must be in a department the work of which can be logically related to that of the department in which the student is doing his major work.

In exceptional cases, the dean and the group committee may allow the minor subject to be taken in the same department as that of the major or in two related departments.

Not less than one sixth of the total work of the three years shall be devoted to the minor subjects and all of this work shall be completed and certified to by the department in which the minor is taken before admission to the preliminary examination.

DOCTOR'S THESIS

The thesis, for which the accumulation of material may well be started not later than the middle of the second year, must give evidence of originality, and power of independent investigation, and embody results of research, which form a real contribution to knowledge as well as exhibit mastery of the literature of the subject and familiarity with the sources of knowledge. The matter must be presented with a fair degree of literary skill.

§ In estimating the distribution of time, a week of 15 credit hours may be assumed.

Not later than six weeks before the commencement at which he expects to take the degree, the student shall deposit at the dean's office his thesis, typewritten, in quadruplicate copy to facilitate reading by the thesis committee. After the final oral examination has been passed, the candidate should file in the office of the Graduate School one bound carbon copy of the thesis.

The dean will appoint a thesis committee, of which the student's adviser will usually be the chairman. The duty of this committee will be to read the thesis and vote upon its acceptance. Unanimous approval by this committee will be necessary to such acceptance.

REQUIRED SUMMARY FOR PRINTING

Each candidate for the Doctor's degree shall submit with his completed thesis a summary of about ten pages, acceptable to his adviser, embodying the principal findings of the research, and pay to the Graduate School a sum of money not exceeding \$2.50 per printed page, before the candidate be finally recommended for the degree. Such summaries will be published in appropriate volumes.

EXAMINATIONS

Preliminary.—After the language examinations (see p. 17) and at least seven months before the degree is conferred, a preliminary examination of the student shall be given by a committee appointed by the dean and including the student's adviser as chairman, a representative of the group committee other than his adviser, the chairman or head of the major department, a representative of the minor department, and such other members as the dean may consider advisable. This committee must not be fewer than six, of whom five shall constitute a quorum. Certificates of proficiency in French and German and completion of the minor and the recommendation of the major department shall be required before admission to this examination. The examination shall cover the graduate work taken by the student, and *may include any work fundamental thereto*, except the thesis and the field of definite specialization. This examination shall be in addition to the usual course examinations. It may be written or oral, or both, at the discretion of the committee. Only after the successful completion of this examination may the student be enrolled as a candidate for the Doctor's degree. Students failing to pass this preliminary examination may be excluded from the candidacy for the degree and in any case shall not be re-examined until at least one quarter has passed.

Final written.—After the thesis is presented, and at least four weeks before examination, there shall be a written examination in the major subject, to be given by the members of the graduate faculty in the major department. This examination shall cover all the work done in the major, and *may include any work fundamental thereto*.

Final oral.—After successful completion of the written examination and acceptance of the thesis and not less than two weeks before graduation, the final oral examination shall be given. This examination shall be conducted by a committee consisting of the adviser as chairman, the members of the thesis committee, and at least two other members of the grad-

uate faculty appointed by the dean. At least one member of this committee shall be from a group other than the one in which the major department is included. This examination has special reference to the thesis and the field of the candidate's special studies and shall not exceed three hours.

The date of the final oral examination shall be publicly announced and the examination shall be open to any member of the graduate faculty. Upon completion of the examination, a formal vote of the committee shall be taken, and a unanimous affirmative vote of the members shall be necessary for recommendation of the candidate for the degree.

Reports.—Special blanks are provided for signed reports concerning the thesis and the final oral examinations. All reports must be filed in the office of the dean of the Graduate School at least one week before graduation.

Candidates meeting the requirements as above outlined will be reported by the dean to the executive committee of the graduate faculty, who will by vote recommend to the Board of Regents those approved for degrees.

ATTENDANCE AT COMMENCEMENT

Candidates upon whom degrees are to be conferred are required to be present at commencement, unless especially excused by the dean of the Graduate School and the president of the University.

TABULAR SUMMARY OF REQUIREMENTS FOR THE DOCTOR'S DEGREE

WORK	UNDER THE DIRECTION OF	DATE
FIRST YEAR		
Major	Adviser and dean of the Graduate School.....	On registration
Minor		
SECOND YEAR		
Tentative program of entire second and third year's work	Adviser, group committee, and dean of Graduate School	Before beginning work of second year
Major, including thesis	As for tentative program.....	Before admission to preliminary examination
Minor	Adviser and minor department	
Language	Adviser and language department	
Recommendation	By major department	
Preliminary examination.....	Special committee.....	Seven months before degree is to be conferred
THIRD YEAR		
Major, including thesis	Advisers, group committee, and dean of Graduate School	
Filing of thesis.....	Dean	Six weeks before taking the degree
Examination of thesis.....	Thesis committee	Before admission to final oral examination
Final written examination	Major department members of the graduate faculty	Four weeks before taking degree and before final oral examination
Final oral examination.....	Special committee	Not later than two weeks before taking the degree
Bond for publication of thesis	Registrar	Not later than one week before taking the degree

DESCRIPTION OF COURSES

An asterisk () indicates courses that may be taken for independent work under Plan B, see pages 13-14.*

A dagger (†) indicates that all quarters of a course must be completed before credit is received for any quarter.

AERONAUTICAL ENGINEERING

Professor John D. Akerman; Associate Professors Burton J. Robertson, Joseph A. Wise; Assistant Professor Charles Boehnlein.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100f-101w-102s. Aerodynamics. Atmospheric properties. Fluid mechanics. Stream functions and velocity potential. Motion of body in liquids in three dimensions. Prandtl's wing theory. Dynamic loads, stability, maneuverability, controllability. Prerequisites: Course 3 and M.&M. 25. 3 credits. Mr. Boehnlein.
- 115f. Airplane Stresses. Deflection of structures. Theory of statically indeterminate structures. Analysis of fuselage trusses, landing gear, wing beams. Structural details and connections. Prerequisite: Course 83. 3 credits. Mr. Wise.
- 116w. Advanced Airplane Stresses. Theory and design of monocoque fuselages. Multispar and unit construction wings. Vibrations. Wing and control-surface flutter. Analysis and design of seaplane hulls and floats. Prerequisite: Course 115. 3 credits. Mr. Wise.
- 120f-121w-122s. Airplane Design. Stress analysis of wings, fuselages, chassis, control surfaces, etc. Specifications. Performance and design calculations. Propellers. Prerequisites: Courses 83, 102, M.&M. 128. 120f, 2 credits; 121w, 4 credits; 122s, 3 credits. Mr. Akerman, Mr. Barlow, Mr. Salisbury.
- 123f,w,s-124f,w,s-125f,w,s.* Advanced Airplane Design. Problems in airplane design or development. Prerequisite: Course 121. 2 to 5 credits per quarter. Mr. Akerman, Mr. Barlow, Mr. Salisbury.
- 126f,w,s-127f,w,s-128f,w,s.* Advanced Problems in Airscrew Design. Graphical and analytical methods of investigation. Prerequisite: Course 122. 2 to 5 credits per quarter. Mr. Akerman, Mr. Barlow, Mr. Salisbury.
- 140f. Aeronautical Laboratory. Study of airplane parts and their construction. Fittings. Rigging. Inspections and accessories. Prerequisite: Course 102. 2 credits. Mr. Akerman, Mr. Barlow, Mr. Salisbury.
- 141w. Aerodynamics Laboratory. Measurement of air flow. Calibration of Pitot tubes and anemometers. Distribution of air pressure on surfaces. Wind tunnel tests of wing, propeller, and airplane models. Prerequisite: Course 101. 2 credits. Mr. Boehnlein, Mr. Salisbury.
- 160s. Airships. Theory and design. Rigid and nonrigid types. Stresses. Performance. Prerequisites: Courses 83, 102, M.&M. 128. 3 credits. Mr. Akerman, Mr. Salisbury.

- 164s. Problems Relating to the Stratosphere. 3 credits. Mr. Piccard.
- 165f,w,s. Advanced Aeronautical Laboratory. Advanced research problems in aeronautical engineering requiring laboratory or field research facilities. 2 to 4 credits. Prerequisite 140 or 141. Mr. Akerman, Mr. Piccard.
- 170s. Air Transport Economics. Airports and airways and their equipment. Air commerce rules and regulations. Communication. 2 credits. Mr. Salisbury.
- 173f,w,s-174f,w,s-175f,w,s. Airway Meteorology. Organization of airways meteorology service, decoding of teletype weather reports, progressive study of consecutive synoptic charts, ceiling and pilot balloon observations, applications of air mass analysis and polar front theory to the construction and interpretation of airway synoptic charts, high altitude sounding with aero meteorographs, special applications of meteorology to airline operations. Mr. Barlow.
- 190f-191w-192s. Seminar. Readings, reports, conferences, and discussions. Prerequisites: Course 102. 1 credit. Mr. Akerman.
- 193f,w,s-194f,w,s-195f,w,s. Advanced Problems in Aeronautical Engineering. 2 to 5 credits. Mr. Akerman, Mr. Robertson, Mr. Wise, Mr. Barlow, Mr. Boehnlein, Mr. Piccard, Mr. Salisbury.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s. Advanced Problems in Theoretical Aerodynamics. Prerequisite: Course 102 or special permission. 3 credits per quarter. Mr. Boehnlein.
- 260s. Advanced Problems in Airship Stresses. Coplanar and space rigid frameworks. Secondary stresses. Buckling and elastic instability. Framework of dirigibles, gondolas, and cabins. Prerequisite: Course 115. 3 credits. Mr. Wise.
- 272f-273w-274s. Research in Aeronautical Engineering. 2 credits per quarter. Mr. Akerman, Mr. Robertson, Mr. Boehnlein, Mr. Barlow.

AGRICULTURAL BIOCHEMISTRY

Professors Ross Aiken Gortner, Clyde H. Bailey, Leroy S. Palmer; Associate Professors David R. Briggs, Cornelia Kennedy; Assistant Professor W. Martin Sandstrom.

Prerequisites.—For major work, credit in general chemistry and qualitative analysis, in organic chemistry, in quantitative analysis, and at least 10 quarter credits in biological science. The instructor with whom the student wishes to work may require additional prerequisites.

For minor work, credit in general chemistry and qualitative analysis, in organic chemistry, and 10 quarter credits in biological science. Minors should be arranged only after consultation with the instructors concerned.

All students majoring in this division must include Course 224 in their study programs. With the approval of the adviser, courses in bacteriology, botany, dairy husbandry, genetics, plant pathology, physiology, physiological

chemistry, zoology, etc., and courses in the School of Chemistry may be accepted as major work.

Language requirement.—Candidates for the Master's degree must have a reading knowledge of German or French. (In special cases, where other languages are needed for the development of the thesis, Russian, Italian, or the Scandinavian languages may be substituted.)

Master's degree.—Offered in general under Plan A. In exceptional cases Plan B may be offered by petition approved by a special committee composed of the major advisers of the division. In no instance will the language requirement be waived.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-102w. Agricultural Quantitative Analysis. Includes estimation of inorganic and organic constituents of biological products, proximate analysis of foods and feeding stuffs, and the use of special apparatus. Prerequisite: quantitative analysis. 3 credits each quarter. Mr. Briggs.
- 103s. Dairy Chemistry. Lectures and laboratory work on the physical, colloidal, and chemical properties of milk and dairy products, and of the processes involved in the manufacture of dairy products. Prerequisite: Course 106 or equivalent. Lect. 3 credits, lect. and lab. 5 credits. Mr. Palmer.
- 105s. Plant Biochemistry. An introduction to the chemistry, metabolism, and nutrition of plants based on the organic and inorganic compounds which are characteristic of plants and plant products, and their reactions and interactions. Prerequisite: organic chemistry. 3 credits. Mr. Gortner, Mr. Bailey.
- 106f. Animal Biochemistry. An introduction to the chemistry, metabolism, and nutrition of animals based on the organic and inorganic compounds which are characteristic of animals and animal products and their reactions and interactions. Prerequisite: organic chemistry. 3 credits. Mr. Palmer.
- 108s. Chemistry of Wheat and Wheat Products. A lecture course, with collateral library reference work, on the chemical technology of the production and milling of wheat and its conversion into food. Prerequisite: organic chemistry. 3 credits. Mr. Bailey.
- 110s. Flour Laboratory Methods. A laboratory course. Analysis of wheat and its products. Designed to train students for research in the cereal industry. Prerequisite: Course 101-102 or food analysis. 3, 4, or 5 credits depending on the amount of work completed. Mr. Bailey.
- 111-112 (summers only). Biochemistry. An advanced course dealing with the colloidal state, and the chemistry of proteins, carbohydrates, glucosides, tannins, fats, plant acids, enzymes and pigments, and their physico-chemical relations to vital processes. Prerequisites: organic chemistry, biology, 1 year. 3 credits each term. Mr. Sandstrom.
- 113su-114w,su-115s. Biochemical Laboratory Methods. A laboratory course paralleling the lectures in 111-112, or 119 to 123. Prerequisite: quantitative analysis, parallel 111-112. 2 credits each quarter. Mr. Sandstrom.

- 116w. Advanced Animal Nutrition. Recent developments in animal nutrition, covering the field of proteins, mineral metabolism, and vitamins. Prerequisite: Course 106 or 120 or physiologic chemistry. 3 credits. Mr. Palmer, Miss Kennedy.
- 117s. Laboratory in Animal Nutrition. A laboratory course on methods used in nutrition studies. (Because of limited laboratory facilities permission must be obtained from the instructor before registration.) Prerequisite: Course 116. 3 credits. Miss Kennedy.
- 118f,w,s,su. Laboratory Problems in Biochemistry. Special laboratory work in the preparation and isolation of pure compounds, and in special methods of identification or determination of biochemical products. Prerequisites: Course 113-114 or 103 or 110. 3 to 5 credits. Mr. Gortner, Mr. Bailey, Mr. Palmer, Mr. Briggs, Miss Kennedy, Mr. Sandstrom.
- 119f. Colloids. Lectures and assigned readings dealing with the colloidal state of matter, the preparation and properties of colloidal systems, and the relation of these to biochemical processes. Prerequisites: Org. Chem. 53 and one year in either zoology or botany. 3 credits. Mr. Gortner.
- 120w. Proteins. Lectures and assigned readings on composition structure, chemical and physical properties, and the functions of proteins and amino acids. Prerequisite: Course 119. 3 credits. Mr. Gortner.
- 121w. Carbohydrates. Lectures and assigned readings on the composition, structure, chemical and physical properties, and the functions of the carbohydrates. Prerequisite: Course 119. 3 credits. Mr. Bailey.
- 122s. The Lipids and Fats. Lectures and assigned readings on the composition, structure, chemical and physical properties, and the functions of the fats and fat-like compounds. Prerequisite: Course 119. 3 credits. Mr. Briggs.
- 123s. Enzymes. Lectures and assigned readings on enzyme action, including the methods of preparation and investigation of enzymes and their function in biological and industrial processes. Prerequisite: Course 119. 3 credits. Mr. Sandstrom.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 203f,w,s,su.* Research Problems. Special work on particular research problems other than the student's major thesis. Facilities are provided for biochemical investigations and for advanced studies in plant or animal nutrition. 2 to 5 credits. Mr. Gortner, Mr. Bailey, Mr. Palmer, Mr. Briggs, Miss Kennedy, Mr. Sandstrom.
- 205f,w,s,su.* Special Topics in Biochemical Literature. Library work followed by the preparation of written reports upon either the historical development or the current literature of special biochemical problems. A reading knowledge of German is necessary and of French desirable. Prerequisites: Courses 119, 120, 121, 122, or 123. 3 credits. Mr. Gortner, Mr. Bailey.
- 212f,w,s.* Special Topics in Nutritional Chemistry. A special library course with written reports on assigned readings in protein, mineral, and vita-

- min nutrition, primarily to train the student as a critic in this field. Prerequisites: Course 116 and reading knowledge of German. 3 credits. Mr. Palmer.
- 213f,w.* Seminar in Dairy Chemistry. Permission of instructor. 1 credit. Mr. Palmer.
- 216f,w.* Seminar in Nutrition. Permission of instructor. 1 credit. Mr. Palmer, Miss Kennedy.
- 219f,w.* Seminar in Colloid Chemistry. Prerequisites: Course 111-112 or 119 and permission of instructor. 1 credit. Mr. Gortner, Mr. Briggs.
- 220f,w.* Seminar in Protein Chemistry. Prerequisites: Course 111-112 or 120 and permission of instructor. 1 credit. Mr. Gortner, Mr. Sandstrom.
- 221f,w. Seminar in Carbohydrate Chemistry. Prerequisites: Course 111-112 or 121 and permission of instructor. 1 credit. Mr. Bailey.
- 222f,w.* Seminar in the Chemistry of the Lipids. Permission of instructor. 1 credit. Mr. Briggs.
- 223f,w.* Seminar in Enzymes. Prerequisites: Course 111-112 or 123 and permission of instructor. 1 credit. Mr. Sandstrom.
- 224s.* General Seminar. Reports of research work of the division. Required of all students majoring in the department. 1 credit. Mr. Gortner, Mr. Bailey, Mr. Palmer.

AGRICULTURAL ENGINEERING

Professor Harry B. Roe, Assistant Professor Hall B. White.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-102w-103s.* Advanced Drainage Problems. Special drainage problems including surface run-off, soil permeability, relation of soil and crop type to drainage, shape and regulation of water table in relation to root growth, etc. Prerequisite: Course 68. 3 to 6 credits per quarter. Mr. Roe, Mr. Neal.
- 111f-112w-113s.* Farm Building Problems. Investigations in building materials, methods of construction, cost and efficiency of farm buildings. Prerequisite: Course 67. 3 to 6 credits per quarter. Mr. White, Mr. Neubauer.
- 121f-122w-123s.* Farm Power and Machinery Problems. Special studies of farm machinery and mechanical power for the farm, including tests, design and adaptability to various farm conditions. Prerequisite: Course 126. 3 to 6 credits per quarter. Mr. Schwantes, Mr. Romness.
- 126w. Selection and Management of Agricultural Machinery. Special problems in economical power and machine combinations and their application to the farm. Prerequisites: Courses 14 and 71 and Agr. Econ. 103. 3 credits. Mr. Schwantes.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Reclamation Research. Studies of design and functioning of reclamation works with especial reference to soil types and soil water conditions. Prerequisites: Course 101 and one quarter's work in mathematical theory of statistics. 3 to 6 credits per quarter. Mr. Roe.
- 211f-212w-213s.* Farm Structures Research. Studies in farm structures as related to other factors in the farm business. Prerequisite: Course 111. 3 to 6 credits per quarter. Mr. White.
- 221f-222w-223s.* Farm Power and Machinery Research. Studies involving the design or utilization of power and machinery used in connection with farm operations. Prerequisite: Course 121. 3 to 6 credits per quarter. Mr. Schwantes.

AGRONOMY AND PLANT GENETICS

Professor Herbert K. Hayes; Associate Professors Albert C. Army, Forrest R. Immer, Harold K. Wilson.

Prerequisites.—In agronomy, sufficient work in plant science to satisfy the adviser that advanced work may be pursued profitably. Further courses may be required without credit if in the opinion of the adviser this is necessary. With the approval of the adviser, courses in agricultural biochemistry, botany, plant pathology, plant genetics, plant physiology, and soils may be accepted as part of the major work.

In plant genetics, for major or minor work, sufficient credits in plant sciences must be presented to satisfy the adviser. With the approval of the adviser, courses in agricultural biochemistry, agronomy, botany, horticulture, plant physiology, and plant pathology may be accepted as major work. Students majoring in plant genetics are required to continue study during at least one summer. Exemption is made if similar training has been obtained at some other institution.

Master's degree.—Offered under both Plan A and Plan B.

COURSES IN AGRONOMY

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 121w. Grain Crops. Structure, function, culture, improvement, and uses of corn, wheat, oats, barley, rye, flax, and buckwheat. Prerequisite: 9 credits in botany. 3 credits. Mr. Wilson.
- 122s. Grain and Hay Grading. History and methods of grain grading. Problems involved and applications of work. Judging crops on basis of quality for seed. Prerequisite: Agron. 121 or equiv. 3 credits. Mr. Wilson.
- 123f. Forage Crops. A study of the structure, function, culture, improvement, and uses of forage crops including meadow and pasture management. Prerequisite: 9 credits in botany. 3 credits. Mr. Army.
- 124s. Problems in Farm Crops. Correlation of theory and practice of crop production and management by the problem method. Prerequisites:

- Agron. 1, 131, and at least two courses from groups 121, 123, 132, 134. 3 credits. Mr. Wilson.
- 126f. Advanced Crop Judging. Advanced work in the commercial grading and judging of grain and forage crops. Prerequisite: Agron, 122. 3 credits. Mr. Wilson.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f,w,s.* Research in Farm Crops. Special problems in crop physiology, production, and classification of crop plants. Prerequisites: Agron. 121, 123. 3 to 9 credits. Mr. Arny, Mr. Wilson.
- 202f,w.* Farm Crops Seminar. Reviews and discussions of research articles and thesis problems. Prerequisite: 9 credits in farm crops. 1½ credits per quarter. Mr. Arny.
- 203s. Crop Research Results and Methods. Studies of the results of investigation with crop plants and applications to agronomic problems. Practice in formulating research plans and in carrying out laboratory technique. Prerequisites: Agron. 121, 123. 3 credits. Mr. Arny, Mr. Wilson.
- 204s. History and Classification of Crop Plants. Assignments, discussions, and laboratory work dealing with (a) the botany of crop plants and their evolution; (b) use of plant characters in the identification and systematic classification of species and varieties. Prerequisites: Bot. 113 or 114 or 115; Agron. 121 and 123. 3 credits. Mr. Wilson.

COURSES IN PLANT GENETICS

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 131f,w. Principles of Genetics. Fundamental principles of breeding, heredity, variation, biometry, and evolution. Prerequisite: 9 credits in botany or zoology. 3 credits. Mr. Immer, Mr. Myers.
- 132w. Farm Crops Plant Breeding. Applied genetics. Methods of breeding each of the important agricultural crops. Prerequisite: Course 131 or its equiv. 3 credits. Mr. Johnson.
- 134w. Laboratory Problems in Genetics. Methods of taking and arranging genetics data. Special inheritance problems with *Drosophila*. Construction of chromosome map. May parallel Course 131. Mr. Doxtator.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 241f,w,s.* Research in Plant Genetics. Special problems in plant genetics, inheritance of plant characters, and cytological studies in relation to plant genetics. May be taken as major or minor work. Mr. Hayes.
- 242f,s.* Plant Breeding Seminar. Plant genetics in relation to plant breeding, a discussion of research problems. 1 credit per quarter. Mr. Hayes, Mr. Immer, Mr. Currence, Mr. Krantz, Mr. Wilcox.
- 243f. Methods in Plant Breeding. The application of biometrical methods to field plot technique, the results of inbreeding and outbreeding, and the results of selection and crossing as a means of improving crop plants.

- Practice in outlining the correct mode of attack for special plant breeding problems. 3 credits. Mr. Hayes.
- 244su,f. Laboratory Methods in Plant Breeding. Supplementing 243f. Practice in plant breeding technique, methods of controlling pollination, and handling of plant cultures. 3 credits. Mr. Myers.
- 245w. Advanced Genetics. The establishment of a genetic factor hypothesis, linkage, gene mutations, chromosomal aberrations, and the goodness of fit of Mendelian ratios will be emphasized. 3 credits. Mr. Hayes.
- 246w.* Genetics Seminar. Important contributions to genetic theory and practice. 2 credits. Mr. Hayes, Mr. Immer, Mr. Currence, Mr. Krantz, Mr. Wilcox, Mr. Winter.
- 247s. Cytogenetics. A laboratory course in technique with special reference to the study of chromosome behavior. Supplementary lectures on recent advances in cytogenetics. Prerequisite: Bot. 118. 3 credits. Mr. Myers.
- 248s. Applied Statistics. The application of statistical methods to the analysis of biological data, particularly with small samples. "Analysis of Variance," X^2 test, correlation, and regression will be emphasized. Prerequisite: Bot. 101. 3 credits. Mr. Immer.

ANATOMY

A. Courses Offered at the Medical School

Professors Clarence M. Jackson, Edward A. Boyden, Hal Downey, Andrew T. Rasmussen, Richard E. Scammon; Assistant Professor Edith Boyd.

The Department of Anatomy offers excellent facilities to students who wish to take advanced work or to pursue investigations in anatomy.

Prerequisites.—The prerequisite work for all students who desire a major or minor in the Department of Anatomy includes general zoology, 6 semester hours, and advanced zoology or elementary courses in anatomy (including histology, embryology, and neurology), 6 semester hours. In addition, each student who desires a major in anatomy must have had the elementary courses in that branch of anatomy in which he desires to specialize—gross anatomy, histology, embryology, or neurology. Students majoring in clinical subjects who desire a minor in anatomy must have had the courses in anatomy usually required of medical students (including Courses 103, 107, and 111). A reading knowledge of either French or German is required of students who desire a major in anatomy for the Master's degree, and a reading knowledge of both French and German is required of those who are candidates for the Doctor's degree.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 103s,su. Human Histology. A microscopic study of the various tissues and organs. Prerequisite: Anatomy 6-7, or equivalent. 9 credits. Mr. Downey.

- 107s. Human Embryology. The development of the human body. Prerequisite: Anatomy 6-7, or equivalent. 6 credits. Mr. Boyden.
- 111s,su. Human Neurology. A study of the gross and microscopic structure of the central nervous system and sense organs of man. Prerequisites: Anatomy 103 and 107, or Zoology 148-149-150. 6 credits. Mr. Rasmussen.
- 115f,w,s. History of Anatomy. Prerequisite: Anatomy 6-7. 2 credits each quarter. Mr. Miller.
- 129f-130w. Topographic Anatomy. Based upon a study of cross sections of the human body. Lectures and laboratory work. Prerequisite: Anatomy 6-7. 2 credits (or more) each quarter. Dr. Jackson.
- 134f,w. Anatomy of the Newborn. A detailed laboratory study of the anatomy of the newborn. Fourth, fifth, or sixth year medical or graduate students. Prerequisite: Anatomy 6-7, or equivalent. 3 credits each quarter. Mr. Boyden.
- 149w. Experimental Neurology. A study of the morphology of the central nervous system by experimental methods. Prerequisite: Anatomy 111. 3 credits (or more). Mr. Rasmussen.
- 150f,w. Seminar in Neurology. Largely conferences upon assigned reading. Prerequisite: Anatomy 111. Hours and credits arranged. Mr. Rasmussen.
- 153f-154w-155s-156su. Advanced Anatomy. Individual topics for advanced work in gross anatomy, histology, embryology, or neurology will be assigned to students who have completed the elementary courses in the corresponding subjects. Special courses are arranged for clinical graduate students. Dr. Jackson, Mr. Boyden, Mr. Downey, Mr. Rasmussen, Mr. Blount.
- 157s. Developmental Anatomy of the Head. Prerequisite: Anatomy 107. 3 credits. Mr. Boyden. (Offered in odd-numbered years only.)
- 158s. Special Histology and Neurology of the Head Region. Prerequisites: Anatomy 103 and 111. 3 credits. Mr. Rasmussen. (Offered in the even-numbered years only.)
- 160w. Physical Growth. Lectures on the prenatal and postnatal growth of the external dimensions and organs of the human body. Same as Course 260 in Child Welfare. 2 credits. Dr. Boyd.
- 161f-162w-163s. Statistical Work. Instruction given in methods of analyzing quantitatively the data collected by the student. Same as Course 261f-262w-263s in Child Welfare. Hours and credits arranged. Dr. Boyd.
- 165f-166w. Hematology. Normal and pathologic morphology of the blood and blood-forming organs, with special emphasis on the study of the blood from the standpoint of diagnosis and prognosis. 4 credits each quarter. Mr. Downey, Mr. O. P. Jones.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s-204su. Research in Anatomy. Qualified students may undertake the investigation of problems in anatomy, including histology,

embryology, and neurology. Special facilities are offered to graduate students in the clinical departments for work upon problems in applied anatomy. Dr. Jackson, Mr. Boyden, Mr. Downey, Mr. Rasmussen, Mr. Scammon, Mr. Blount.

205f-206w-207s. Anatomical Seminar. Reviews of the current literature and discussion of research work being carried on in the department. Reading knowledge of French and German required. 1 credit. Dr. Jackson.

See also History of Science, page 103.

ANIMAL HUSBANDRY

Professors Walter H. Peters, Evan F. Ferrin, Laurence M. Winters;
Assistant Professors Alfred L. Harvey, Donald W. Johnson

Prerequisite.—For major work 18 quarter credits in animal husbandry or closely allied subjects, for minor work 12 quarter credits.

Major and minor.—Upon approval of the graduate faculty, candidates doing their major work for the Master's degree in animal husbandry may take their minor in animal genetics or in meats. Candidates doing their major work for the Doctor's degree may major in general animal husbandry or in animal genetics but must take a minor in some other department. With the approval of the adviser, courses in agricultural biochemistry, genetics, botany, economics, dairy husbandry, veterinary medicine, and zoology may be accepted as major work.

Language requirement.—Students majoring in animal husbandry may be exempted from the language requirement for the Master's degree.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f. Advanced Stock Judging. Comparative judging and valuation of market and breed types of beef cattle, hogs, sheep, and draft horses, supplemented by visits to near-by stock farms. 3 credits. Mr. Harvey.
- 107s.* Meat Problems. The wholesale cuts and grades of meat, the packing industry, and utilization of by-products, special problems and visits to meat packing establishments. 3 credits. Mr. Anderson.
- 108.* Seminar. Special problems and research assignments on investigations pertaining to the livestock industry. 3 credits. Mr. Winters.
- 112w. Animal Breeding. The application of the principles of the physiology of reproduction and genetics to the breeding of livestock; methods of the master-breeders' and consideration of the practical breeders' problems. 3 credits. Mr. Winters.
- 113s* Livestock Management. Fitting the different types of livestock production into farm management systems. Management problems involved in beef cattle, sheep, swine, and horse production. 3 credits. Mr. Peters.
- 115f. The Marketing of Livestock. A study of the methods used in the principal livestock markets; visits to the South St. Paul market; selling purebred livestock. 3 credits. Mr. Peters.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f.* Physiology of Reproduction. Assigned readings and discussions of the more recent literature concerning the physiology of reproduction in mammals and birds. 3 credits. Mr. Winters.
- 202w.* Animal Genetics. Assigned readings and lectures dealing with the genetics of farm and laboratory animals. 3 credits. Mr. Clark.
- 203w. Animal Genetics. A survey of the genetics of domestic birds. 3 credits. Mr. Clark.
- 204s.* Embryology of Farm Animals. Textbooks, lectures, and laboratory dealing with prenatal development in farm animals. 3 credits. Mr. Winters.
- 205s.* Seminar in Animal Genetics. Review of current literature and discussion of topics having special emphasis on constructive livestock breeding. 2 credits. Mr. Winters.
- 206w.* Advanced Livestock Feeding. A study of experimental results bearing on feeding problems and review of scientific literature applicable to them. 3 credits. Mr. Ferrin.
- 207s.* Advanced Livestock Feeding. Continuation of 205. 3 credits. Mr. Ferrin.
- 208f.* Seminar. Special assignments and review of research problems pertaining to the livestock industry. 1 credit. Mr. Peters.
- 209w.* Seminar. Continuation of 208. 1 credit. Mr. Peters.
- 210s.* Seminar. Continuation of 209. 1 credit. Mr. Peters.
- 211f.* Experimental Methods. Theory, plan, and conduct of experimental work in animal husbandry. Factors affecting results, sources of error, interpretation of data. 3 credits. Mr. Johnson.
- 212f,w,s.* Research in Meats. Special problems assigned to fit the needs of each student. 3 to 9 credits. Mr. Anderson.
- 213f,w,s.* Research in Animal Husbandry. Special problems assigned to fit the needs of each student. 3 to 9 credits. Mr. Peters, Mr. Ferrin, Mr. Winters, Mr. Anderson, Mr. Harvey, Mr. Johnson.
- See also History of Science, page 103.

ANTHROPOLOGY

Professors Albert Ernest Jenks, Wilson D. Wallis.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENT

- 106f. Types of Prehistoric Men and Cultures. Problems of chronology and distribution. Mr. Jenks.
- 107s.* American Archeology. Prehistoric man and cultures in America. Mr. Jenks.
- 108s. Philippine Peoples. Brief history of the islands. Their natural resources. The distinctive types of native peoples—each given in distinguishing details. (Not offered in 1936-37).

- 110f.* Physical Anthropology. The physical types of man, prehistoric and contemporary. Mr. Wallis.
- 112s. The American Negro. The physical types. Problems and methods of interracial adjustments. Mr. Jenks. (Not offered in 1936-37.)
- 113s. Peoples of Europe. Racial and cultural characteristics. Mr. Jenks.
- 114w. The American People. The physical, psychic, and cultural characteristics of the peoples in America. Mr. Jenks.
- 115w-116s*† The American Indian. Physical and cultural traits. Topical and ethnographical. Mr. Wallis.
- 117f. Culture and Culture Areas. Characteristics of culture areas. Development and diffusion of culture traits. Parallelism and independent origins. Mr. Wallis.
- 121w.* Advanced Physical Anthropology. A critical study of problems in physical anthropology. Based on Course 110. Credits arranged. Mr. Wallis.
- 122f-123w-124s.* Problems in Anthropology. Advanced work with individual guidance. Also honors course, anthropological backgrounds of the social sciences, on recommendation of their advisers. Credits arranged. Mr. Jenks, Mr. Wallis.
- 150.*‡ Field Trip in Archeology. Summer. 1 to 8 credits. Mr. Jenks.
- 161s.* Primitive Religion. The religious concepts and practices of primitive peoples. Mr. Wallis.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 204f-205w-206s.* Seminar in Anthropology. Individually directed research. Credits arranged. Mr. Jenks, Mr. Wallis.

ARCHITECTURE

Professors Frederick M. Mann, Leon E. Arnal, S. Chatwood Burton, Robert T. Jones, Roy C. Jones.

Prerequisites.—The graduate major in architecture in every case is architectural design; the prerequisite for which is a course in undergraduate design equal in extent and quality to that of the University of Minnesota. Courses numbered 100 or 200 are courses that may be used by graduate students as graduate minor courses, provided the candidate satisfies the equivalent of the prerequisite specified.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 121f,w,s-122f,w,s-123f,w,s. Freehand Drawing. Advanced life drawing. Prerequisite: Course 29. 2 credits per quarter. Mr. Burton.
- 131f,w,s-132f,w,s-133f,w,s.§ Architectural Design, Grade IV. Long, short,

‡ This course may be taken for credit only once.

§ Work in all design courses is carried on simultaneously and students pass from one grade to the next in sequence in varying lengths of time according to their accomplishment and irrespective of university time units. Advancement is based upon design "points" earned.

- and sketch problems under individual criticism, dealing with complex compositions, and with subjects involving special character and a decorative and imaginative interest. Prerequisite: Course 39. 8 credits per quarter. Mr. Arnal, Mr. R. C. Jones.
- 134f,w,s-135f,w,s-136f,w,s,§ Interior Architectural Design. Problems done under individual criticism dealing with the decorative treatment, furniture, and accessories of interiors, for students in interior decoration. Prerequisite: Course 36. 7 credits per quarter. Mr. Arnal, Miss Carter.
- 141f-142w-143s. Building Construction. An advanced study of the technology of building materials, soils, foundations. Prerequisite: C.E. 41 or M.&M. 26. 2 credits per quarter. Mr. R. T. Jones.
- 144f-145w-146s. Construction Design. Problems in design involving the structural and economic phases of buildings. Prerequisites: Courses 39, 43, C.E. 39, 41. 6 credits per quarter. Mr. R. T. Jones.
- 152w. Estimating. Principles of the quantity survey; cost analysis. Prerequisite: senior standing. 2 credits. Mr. Sault.
- 153s. Business Relations. Relations of the architect, owner, and builder; professional ethics and practice; office administration. Prerequisite: senior standing. 2 credits.
- 154w. Acoustics of Buildings. Theory and applications in practice. Prerequisite: senior or graduate standing. 2 credits.
- 161w. Decoration and Applied Arts. Historical and technical study of decoration, furniture, etc., together with discussion of the use of color. Prerequisites: Courses 16, 26. 2 credits. Miss Carter.
- 164f. Housing. The social, economic, political, and technical phases of modern housing. A survey course designed for mature students in the College of Science, Literature, and the Arts and the Institute of Technology. 3 credits. Prerequisite: senior standing. Mr. R. T. Jones and staffs of Sociology, Economics, and Political Science.
- 165s. Housing. Social, economic, and city planning phases of modern group housing with especial reference to the technology of housing. 3 credits. Prerequisite: senior and graduate standing. Mr. R. T. Jones.
- 182f-183w. Furniture and Decoration. Historical and technical study of ornament, decoration, furniture, textiles, etc. Prerequisites: Courses 16, 23. 3 credits per quarter. Miss Carter.
- 184s. Interior Perspective and Color Theory. Principles and methods as applied to interior architecture. Prerequisite: Courses 35, 63. 3 credits. Miss Carter.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 219f,w,s. Special Researches in Architectural History. Prerequisite: completion of undergraduate architectural history. 5 credits or less per quarter.

§ Work in all design courses is carried on simultaneously and students pass from one grade to the next in sequence in varying lengths of time according to their accomplishment and irrespective of university time units. Advancement is based upon design "points" earned.

- 221f,w,s-222f,w,s-223f,w,s. Life Drawing and Figure Composition. Prerequisite: Course 123. 2 credits per quarter. Mr. Burton.
- 239f,w,s. Advanced Architectural Design. Prerequisite: completion of undergraduate design. Ten credits or less per quarter. Mr. Arnal.
- 240f,w,s. Technology of Building Materials. Prerequisite: Course 143. 3 credits per quarter. Mr. R. T. Jones.

ASTRONOMY

Associate Professor Willem J. Luyten.

The Astronomical Observatory contains a ten and one-half inch refracting telescope furnished with a third lens for converting it into a photographic telescope; a five-inch star camera; a filar micrometer; a spectroscope by Brashear; a meridian circle and zenith telescope; a Repsold photographic measuring machine; a chronograph; and astronomical clocks.

Prerequisites.—For major work, Course 51-52-53 and Mathematics 50; for minor work, Mathematics 50 and 3 credits in astronomy.

Language requirement.—Exemption from the language requirement for the Master's degree may be made in individual cases.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f. Celestial Mechanics. A course dealing with Newton's Laws of Motion, and their application to gravitational astronomy. Attention is directed toward the theory of planetary motion and perturbations. Prerequisite: Mathematics 51. 3 credits. Mr. Luyten.
- 121f-122w-123s.* Astrophysics and Stellar Statistics. An introductory course, with particular reference in measurement of photographic plates, and discussions of the motion of the stars. 3 credits. Mr. Luyten.
- 140w. Method of Least Squares. Applied especially to engineering, physics, and astronomy. Prerequisite: Mathematics 51. 3 credits. Mr. Luyten.

COURSE PRIMARILY FOR GRADUATE STUDENTS

- 211f-212w-213s.* Seminar. For students who are prepared for advanced work along particular lines. 1, 2, or 3 credits. Mr. Luyten.

BACTERIOLOGY AND IMMUNOLOGY

A. Courses Offered at the Medical School

Professors Winford P. Larson, Robert G. Green, Arthur T. Henrici; Associate Professor H. Orin Halvorson; Assistant Professor Charles E. Skinner.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 102s. Medical Bacteriology. See Bulletin of the Medical School. Prerequisite: Bacteriology 101. 4 credits. Dr. Larson, Dr. Green, Dr. Henrici.

- 103w. Soil Microbiology. Studies of the microscopic inhabitants of the soil. Prerequisites: Bacteriology 41 and 15 credits in chemistry. Mr. Skinner.
- 114s. Molds, Yeasts, and Actinomycetes. Prerequisite: Bacteriology 41 or 101. 4 credits. Dr. Henrici.
- 116w. Immunity. Laws of hemolysis. Quantitative relationship between antigen and antibody. Wasserman reaction. Opsonins. Vaccines. Toxin. Antitoxin. Precipitin reactions. Blood grouping. Atopy. Anaphylaxis. Prerequisite: Bacteriology 102. 3 credits. Dr. Larson.
- 117s. Pathogenic Protozoa. Prerequisite: Bacteriology 102. 3 credits. Mrs. Green.
- 120s. Diseases of Animals Transmissible to Man. Detailed studies of plague, tularemia, undulant fever, typhus fever, spotted fever, and other human diseases obtained from animal reservoirs. Prerequisite: Bacteriology 102. 2 credits. Dr. Green.
- 121f-122w.* Physiology of Bacteria. Effect of environment on growth. Enzymes. Food requirements. Carbohydrate, protein, and fat metabolism. Products of growth. Dormancy. Death. Prerequisites: Bacteriology 41 and 8 credits in organic chemistry or biochemistry. 6 credits. Dr. Green, Mr. Halvorson.
- 123s. Applied Bacteriology. Industrial fermentations. Bacteriology of water and sewage. Interpretations of bacteriological data. Prerequisite: Bacteriology 121-122. 3 credits. Mr. Halvorson.
- 124f. Filterable Viruses. Characters of filterable viruses. Nature of virus infections. Transmission of viruses by insects. Important virus diseases of man and animals. Prerequisite: Bacteriology 102. 4 credits. Dr. Green.
- 150f-151w.† Advanced Bacteriology. Prerequisites: Bacteriology 102 or 41, 103, 114. 6 credits. Dr. Henrici, Mr. Halvorson.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f,w,s. Research in Bacteriology. Graduate students of the necessary preliminary training may elect research, either as majors or minors, in bacteriology. Hours and credits arranged. Dr. Larson, Dr. Green, Dr. Henrici, Mr. Halvorson, Mr. Skinner.
- 203f,w,s. Seminar in Bacteriology. 1 credit. Staff.

B. Courses Offered in the Mayo Foundation

Professors Edward C. Rosenow, Arthur H. Sanford; Associate Professor Thomas B. Magath; Assistant Professor Luther Thompson.

Prerequisites.—Opportunities for the graduate study of bacteriology and immunology are in connection with routine clinical examinations and in special research. They are open to graduates in medicine or holders of Master's degrees who have had work both in bacteriology and pathology equivalent to that given in the medical course in the University.

M251f,w,s,su. Clinical Bacteriology and Parasitology. Making and examination of cultures. Preparation and administration of autogenous vac-

cines. Wasserman tests; special laboratory methods in clinical bacteriology or parasitology. Research in bacteriology and parasitology. Dr. Sanford, Dr. Magath, Dr. Thompson.

M252f,w,s,su. Experimental Bacteriology. Research in the bacteriology of normal and diseased tissues, the blood, secretions, and exudates. Experimental inoculation of animals and immunological studies. So far as possible work limited to study of pathogenesis and to development of specific methods of prevention and treatment of various diseases presumably of infective origin. Dr. Rosenow.

In addition to the above, students majoring in bacteriology and immunology may take work in experimental physiology or physiologic chemistry. For details, see these departments.

See also History of Science, page 103.

BIOMETRY AND MEDICAL STATISTICS

Assistant Professor Alan E. Treloar.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f,s,‡ Biometric Principles. An introduction to statistical analysis with special emphasis on the basic principles of statistical reasoning as applied to the description of univariate distributions, normal correlations, goodness of fit, and simple tests of significance. Training in techniques of application with calculating machines given in the laboratory. Lecture, 3 credits; laboratory, 2 credits; to be taken concurrently. Mr. Treloar.
- 102w. Medical Statistics. Topics: sources of quantitative material; tabulation of data; graphic methods for presentation and analysis of data; vital statistics; medical problems. Prerequisite: Course 101, 3 credits. (Not offered in 1936-37.)
- 145w,‡ Correlational Analysis. Topics: total, partial, and multiple correlation and regression; correlation ratio; contingency; biserial methods; tetrachoric correlation; rank-order; the symmetrical table and intra-class correlation. Prerequisite: Course 101. 5 (or 3) credits. Mr. Treloar.
- 146f,w,s,* Topics in Biometry. Reference reading and laboratory work in special subjects as advanced students may require them. Prerequisite: Permission of instructor. Credits as arranged. Mr. Treloar.
- 153s,‡ Statistical Interpretation. A discussion of the sampling distributions of the more familiar statistics, together with analysis of the problems of interpretation of differences. Special attention is given to small samples and the "analysis of variance." Prerequisite: Course 101 (3 or 5) credits. Mr. Treloar.

‡ A fee of \$1 is charged for this course. No fee is charged for Botany 101, 145, or 153, 3 credits, lectures only.

COURSES PRIMARILY FOR GRADUATE STUDENTS

237f-238w-239s.* Research Problems in Biometry. Credits as arranged. Mr. Treloar.

247f-248w-249s.* Seminar in Biometry. Discussions of literature and research projects. 1 credit per quarter. Mr. Treloar.

See also History of Science, page 103.

BIOPHYSICS

A. Courses Offered at the Medical School and in the Department of Physics

Professors Henry A. Erikson, Karl W. Stenstrom; Associate Professor Joseph Valasek.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

108f-110w-112s. Modern Experimental Physics. Mr. Erikson.

148w. Radioactivity. Mr. Williams.

152s. X Rays. Mr. Valasek.

Other courses listed under Physics may be considered for credit in biophysics.

- * 104w. Roentgen and Radium Therapy. (See Radiology 104.)
- 105f. Roentgen Rays, Light, and Radium. (See Physiology 105.)
- 106s. Physical Therapy. (See Radiology 106.)
- 170f,w,s,su. Problems in Biophysics. Investigations of the effects of Roentgen, radium, visible, and ultraviolet radiation may be undertaken. Instruments are available for spectrophotometric work in the visible and ultraviolet regions for temperature measurements by means of thermocouples, and to a certain extent for electrical measurements. Hours and credits arranged. Mr. Stenstrom.

COURSE PRIMARILY FOR GRADUATE STUDENTS

204f,w,s,su. Research in Biophysics. Students who want to carry out more extensive and independent investigations should register for this course instead of for Course 170. Mr. Stenstrom.

B. Courses Offered in the Mayo Foundation

Professor Charles Sheard; Associate Professor Edward J. Baldes.

Graduate work of a research character in biophysics in the Mayo Foundation. These researches have to do chiefly with physical and physico-chemical measurements on the structure and function of cells and tissues.

Prerequisites.—Research work suitable for theses for the degree of doctor of philosophy is offered to a limited number of well-prepared fellows majoring in biophysics. In general, the Master's degree or its equivalent is a prerequisite for admission to these advanced research courses.

Minor.—There are numerous problems suitable for a minor for fellows majoring in other departments of surgical, clinical, and experimental work.

M253f,w,s,su. Special Researches in Biophysics. Dr. Sheard, Dr. Baldes, Dr. Pratt.

In addition to the above, students in biophysics may do research work in physiology in the foundation and at the Medical School, and in biology in the University at Minneapolis. For details, see these departments.

See also History of Science, page 103.

BOTANY

Professors C. Otto Rosendahl, George O. Burr, Frederic K. Butters, William S. Cooper, Josephine E. Tilden; Assistant Professor Alan E. Treloar.

NOTE.—For courses in plant pathology and mycology, see Department of Plant Pathology.

Prerequisites.—For major work, 36 credits in botany; with permission of the major adviser credits in cognate subjects may be substituted. For minor work, 20 credits.

Language requirement.—Candidates for the Master's degree must have a reading knowledge of German or French; for the Doctor's degree both are required.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

101f,s,‡ Biometric Principles. For description see page 36. Mr. Treloar.
108w. Morphology and Taxonomy of the Pteridophytes. An intensive study of lycopods, ferns, and their allies, their structure and history, with special attention to the classification of living forms. Lectures, reference reading, and laboratory work. Prerequisites: Courses 7 and 62. 5 credits. Mr. Butters. (Not offered in 1936-37.)

110w. Morphology and Taxonomy of the Gymnosperms. An intensive study of cycads, conifers, and their allies, their structure and history, with special attention to the classification of living forms. Lectures, reference reading, and laboratory work. Prerequisites: Courses 7 and 63. 5 credits. Mr. Butters.

113f-114w-115s Advanced Taxonomy of the Flowering Plants. An advanced course in which special attention is given to the taxonomy of difficult natural groups, involving systematic principles and practice, rules of nomenclature, systems of classification, etc. Prerequisite: 15 credits, including Course 7. 9 credits. Mr. Rosendahl.

118w.‡Cytology. A survey of cell structure and the various phenomena of division, fusion, and metamorphosis, together with a review of the

‡ A fee of \$1 per quarter is charged for this course. No fee is charged for Bot. 101, 3 credits, lectures only.

- history of cytological investigations. Methods of cytological research indicated in the laboratory. Prerequisite: 18 credits. 5 credits. Mr. Abbe.
- 123w,124s,125su,126f.§ Morphology and Taxonomy of Algae; Algal Types. Advanced studies in selected groups. Prerequisite: 15 credits including Course 12, or consent of instructor. 3 to 5 credits. Miss Tilden.
- 127f. Anatomy of Vascular Plants. The microscopic structure of vascular plants with particular attention to the development of evolution of the vascular system in the root, stem, and leaf. Prerequisite: 18 credits. 5 credits. Mr. Butters.
- 131f. Field Ecology. A survey of the local plant communities and successions, and a study of the general principles of plant association and succession. Prerequisite: 10 credits including Course 21. 5 credits. Mr. Cooper.
- 132w.‡ Ecological Anatomy. The individual plant and its parts as related to environment; special plant forms and structures, their causes and significance. Prerequisite: 10 credits including Course 21. 5 credits. Mr. Cooper.
- 133s. Plant Geography of North America. Preliminary discussion of the principles of plant distribution followed by a detailed study of the vegetation regions of North America. Prerequisite: 10 credits including Course 21. 5 credits. Mr. Cooper.
- 134s.‡ Research Methods in Ecology. Theory and practice of instrumental study of the habitat and of precise investigation of community and succession. Prerequisite: 18 credits including Course 21. 5 credits. Mr. Cooper. (Not offered in 1936-37.)
- 140w. General Plant Physiology. Advanced survey of the whole field of plant physiology. Prerequisites: Course 22 or its equivalent and elementary inorganic chemistry. 3 credits. Mr. Burr.
- 141f.‡ Physicochemical Principles in Plant Physiology. Properties of solution, buffers, membranes, osmosis, transpiration, electrometric measurements. Prerequisites: 20 credits in chemistry or biochemistry. 3 or 5 credits. Mr. Burr.
- 142w. Photosynthesis and the Effects of Radiant Energy. A detailed discussion of conditions, theories, and energy relations in the assimilation of carbon. Other effects of radiant energy on organisms included. Prerequisites: 20 credits in chemistry or biochemistry. 3 or 5 credits. Mr. Burr.
- 143s.‡ Plant Metabolism. Nitrogen assimilation and protein synthesis, metabolism of carbohydrates, fats and proteins, biological oxidation, respiration, hormones, growth curves. Prerequisites: 20 credits in chemistry or biochemistry. 3 or 5 credits. Mr. Burr.
- 144f. Applied Spectroscopy in Biology. Critical examination of the methods used in spectroscopic identification and quantitative spectroscopic

‡ A fee of \$1 per quarter is charged for this course. No fee is charged for Bot. 141, 142, 143, 145, or 153, 3 credits, lectures only.

§ Any of the above courses may be taken separately.

analyses of soils, pigments, vitamins, hormones, and sterols. Lectures and laboratory demonstrations. Prerequisites: 20 credits in chemistry or biochemistry. 3 credits. Mr. Miller.

145w.‡ Correlational Analysis. For description see page 36. Mr. Treloar.

146s. Topics in Biometry. For description see page 36. Mr. Treloar.

149s,150su,151f.,152w.§ Advanced Phycology. A general survey based on studies in the field and laboratory. Designed for teachers and research workers who wish to acquire practical knowledge of the algae. Problems assigned and reports required. Prerequisites: Courses 124, 125, or 126, or consent of instructor. 3 to 10 credits. Miss Tilden.

153w.‡ Statistical Interpretation. For description see page 36. Mr. Treloar.

COURSES PRIMARILY FOR GRADUATE STUDENTS

201f-202w-203s.* Research Problems in the Morphology of Vascular Plants. Mr. Butters.

205f-206w-207s.* Research Problems in the Taxonomy of Angiosperms. Mr. Rosendahl.

209s-210su-211f.* Research Problems in Algae. Miss Tilden.

213f-214w-215s.* Research Problems in Embryology. Mr. Butters.

217s-218su-219f.* Special Research Problems in the Taxonomy and Distribution of Algae. Directed work in special areas approved by the instructor. Miss Tilden.

221f-222w-223s.* Research Problems in Ecology. Mr. Cooper.

225f-226w-227s.* Research Problems in Plant Physiology. Mr. Burr.

229f-230w-231s.* Research Problems in Cytology. Mr. Abbe.

233f-234w-235s.* Seminar. Students may register for one-hour seminar credit per quarter in any of the research subjects.

241s-242su-243f.* Review of Phycological Literature with Reference to Selected Problems. Miss Tilden.

247f-248w-249s.* Seminar in Biometry. Discussion of literature and research projects for advanced students. 1 credit per quarter. Mr. Treloar.

See also History of Science, page 103.

CHEMICAL ENGINEERING

Professors Charles A. Mann, George H. Montillon, Ralph E. Montonna; Assistant Professor Arthur E. Stoppel.

Prerequisites.—Before being admitted to major work in chemical engineering, the student should have received the Bachelor's degree in chemical engineering or its equivalent. If he has not met this requirement, it will be necessary for him to pursue such additional preparatory studies as may be prescribed by the adviser.

The student selecting chemical engineering as a minor must present as prerequisites mathematics including integral calculus, physics, analytical, organic, and physical chemistry, and mechanical drawing.

‡ A fee of \$1 per quarter is charged for this course.

§ Any of the above courses may be taken separately.

Requirements.—For the Master's degree in chemical engineering, the major subject, including an experimental thesis must be taken in chemical engineering.

Students majoring in chemical engineering may not take any branch of chemistry as minor except with the approval of the group committee.

The candidate for the Master's or the Doctor's degree with chemical engineering as a major must have completed, as undergraduate or graduate, a year's work in physical chemistry, such as, for example, Phys. Chem. 101f-102w-103s or its equivalent.

For the requirements for the professional degree of chemical engineer, see pages 14, 15, and 16.

Language requirement.—Candidates for the Master's degree in chemical engineering must have a reading knowledge of German or French; German is preferable in this field. For the Doctor's degree, both are required.

Examinations.—The written and oral preliminary examinations in chemical engineering for the Doctor's degree will be given at only four periods during each year. Normally, these will be during the first two weeks of each regular quarter and of the first term of the Summer Session. The exact schedule will be announced at the beginning of each quarter.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f,su. Unit Operations. Principles and methods of operation, and uses of the unit operation equipment. Prerequisites: Completion of two years' work in the Institute of Technology or equivalent. 3 credits. Mr. Mann.
- 102s,su. Unit Operations. Industrials stoichiometry. Problems in combustion of fuels, heat balances. Manufacture of producer gas, industrial gases, and burning limestone. Prerequisite: Course 101. 3 credits. Mr. Montillon, Mr. Grove, Mr. Ruth.
- 103f. Unit Operations. Problems in heat transfer, the use and design of heat exchangers, the applications of the laws of fluid flow, filtration, filter presses and centrifugals. Prerequisite: Course 101. 3 credits. Mr. Montillon, Mr. Grove, Mr. Ruth.
- 104w. Unit Operations. Problems in leaching and dissolving, counter-current extraction, gas absorption, and distillation. Drying by air, steam, and direct heat dryers, single and multiple effect evaporators. Prerequisite: Course 101. 3 credits. Mr. Montillon, Mr. Grove, Mr. Ruth.
- 105f,su. Gas and Fuel Analysis. The chemical analysis of solid and gaseous fuels with a determination of their calorific value and methods of testing industrial gases. Prerequisites: Anal. Chem. 1, 2. 3 credits. Mr. Stoppel.
- 106w. Petroleum and Petroleum Products. Technology and testing of petroleum products, principally gasoline, illuminating, fuel, and lubricating oils. Prerequisite: Org. Chem. 51. 3 credits. Mr. Stoppel.
- 108s. Unit Operations Problems. Problems in adsorption, extraction, crystallization, crushing and grinding, and size separation, and discussion of the equipment used. Prerequisite: Course 104. 3 credits. Mr. Ruth.

- 110s. Special Analytical Apparatus. The use of special apparatus for chemical and physical testing of chemical products including gas apparatus, calorimeters for gases, liquids and solids, optical apparatus, viscosimeters for gases, turbidimeters, etc. Prerequisites: Anal. Chem. 1, 2. 3 credits. Mr. Stoppel.
- 111f-112w-113s. Chemical Engineering Plant Design. Design of equipment and layout of plants based on collected data. Classroom and laboratory work. Prerequisites: Courses 102, 103, 104. 2 credits per quarter. Mr. Montillon.
- 117s. Chemical Engineering Equipment Design. Fundamental principles in the design of simple chemical engineering equipment. Laboratory work. Prerequisite: Course 104. 3 credits. Mr. Montonna, Mr. Grove.
- 121w. Chemical Engineering Economics. The economic and business considerations controlling chemical engineering industries. Statistical analysis of the characteristics of those industries. Raw and finished products. Principles of plant location, layout, and design. Unit operation cost, principles of management, operation, and control. Lectures and recitations. Prerequisite: Course 132. 3 credits. Mr. Montonna.
- 131w. Industrial Inorganic Chemistry. Applications of unit operations common to chemical industries, chemistry involved, equipment used, marketing of products, utilization of by-products, use of trade journals. Topics: industrial waters, acids and alkalies, salts, chlorine, ammonia, glass, pigments, etc. Lectures and recitations. Prerequisites: (for chem. engrs.) Course 101; (for chem.) Anal. Chem 1, 2. 4 credits. Mr. Mann.
- 132s. Industrial Organic Chemistry. Similar to 131 but covering organic field. Destructive distillation of coal and wood, petroleum oils, paper unit organic processes, synthetic products, vegetable and animal oils, fats, waxes, soap, sugar, starch, etc. Lectures and recitations. Prerequisites: (for chem. engrs.) Course 101; (for chem.) Org. Chem 52 and Anal. Chem. 1, 2. 4 credits. Mr. Mann.
- 133f. Chemistry of Explosives. The history and development of modern explosives, their manufacture and uses, and war gases. Lectures, required reading, and reports. Prerequisite: Course 132. 3 credits. Mr. Montonna.
- 134f. Intermediates and Dyestuffs. Their technical chemistry and manufacture. Processes, purification, uses, etc. Lectures and recitations. Prerequisites: Course 132 or equiv. 3 credits. (May be accompanied by laboratory work in 160.) Mr. Montonna.
- 136w. Chemistry and Technology of Cellulose. Discussion on processes and industries based on the use of cellulosic materials including the chemical and technological considerations. Pulp and paper, plastics, esters, rayon, etc. Lectures and recitations. Prerequisite: Org. Chem. 52 or equiv. 3 credits. Mr. Montonna.
- 140w. Sanitary Chemistry. Discussion of the chemistry of sewage and potable waters. Purification of water supplies and the treatment of municipal and industrial wastes. Lectures and recitations. Prerequisite: Bact. 41 or by permission. 3 credits. Mr. Stoppel.

- 141s. Gas Manufacture and Distribution. Fundamental principles of manufacture of coal gas, carbureted water gas, and other industrial fuel gases, and the equipment for manufacture and distribution. Open to chemists and chemical engineers. Prerequisite: Org. Chem. 52. 3 credits. Mr. Montillon.
- 150s. Unit Operations Laboratory. Operation and testing of chemical engineering equipment. Laboratory work and reports. Prerequisite: Course 101. 1 credit. Mr. Ruth.
- 151f,su.* Chemical Manufacture (Inorganic). Manufacture of technical products on a scale large enough to afford data for the determination of operating conditions and cost of manufacture. Use of semi-plant scale equipment. Technical trade journals used. Laboratory. Prerequisite: Course 101. 3 or more credits. Mr. Mann, Mr. Montillon, Mr. Montonna.
- 152w,su.* Chemical Manufacture (Organic). Similar to 151 but covering the organic unit processes. Laboratory. Prerequisite: Course 101. 3 or more credits. Mr. Mann, Mr. Montillon, Mr. Montonna.
- 153f-154w-155s-156su.* Special Laboratory Problems. Investigations on chemical engineering equipment and its use in the manufacture of special chemical products on a semi-works scale. Prerequisites: Courses 151, 152. 3 or more credits. Mr. Mann, Mr. Montillon, Mr. Montonna, Mr. Ruth.
- 160f. Intermediates and Dyestuffs Laboratory. Manufacture of intermediates and dyestuffs using semi-works equipment. Operations on sulphonation, hydroxylation, nitration, reduction, alkylation, diazotization, coupling, etc. Laboratory. Prerequisites: Courses 132, 152, and preceded or accompanied by 134. 3 or more credits. Mr. Montonna.
- 168w. Petroleum and Petroleum Products. Technology and testing of petroleum and petroleum products. Prerequisite: Anal. Chem. 9. 3 credits. Mr. Stoppel.
- 176f-177w. Applied Electrochemistry. Application of the electric current to chemical processes. Laws and phenomena of electrochemistry, batteries, electroplating, electric furnace construction and operation, and electrochemical products. Class and laboratory work. Prerequisite: Phys. Chem. 103. 4 credits per quarter. Mr. Montillon.
- 179s.* Applied Electro-organic Chemistry. The more recent development in the manufacture of inorganic and organic products. Lectures and recitations. Laboratory optional. Prerequisite: Course 176-177. 3 credits. Mr. Mann.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Seminar. Presentation and discussion of papers concerning the newer developments in chemical engineering. 1 credit per quarter. Mr. Mann.
- 205f-206w-207s. Advanced Process Problems. An extended study of the principles of chemical engineering and their application to industrial problems, together with a survey of the literature. Open to graduate

- students only. Prerequisites: Courses 102, 103, 104. 2 credits per quarter.
- 208f-209w-210s. Advanced Chemical Engineering. An extended study of the principles of chemical engineering and their applications to industrial problems, together with surveys of the literature. Prerequisite: Course 104. 2 credits per quarter. Mr. Montillon.
- 301f-302w-303s.* Research in Chemical Engineering. Unit operations, applied electrochemistry and electric furnace work, and chemical manufacture. Library thesis. Credits arranged. Mr. Mann, Mr. Montillon, Mr. Montonna, Mr. Stoppel, Mr. Ruth.

CHEMISTRY

Professor and Dean Samuel C. Lind, Professor and Administrative Assistant Lee I. Smith.

The work in the School of Chemistry is organized in five divisions or branches, namely, Inorganic, Analytical, Organic, and Physical Chemistry, and Chemical Engineering.

In addition to the completion of the prescribed work, the candidate for a higher degree is expected to show a maturity acquired by intensive personal study of the literature and of the methods of chemistry.

Prerequisites.—(a) A branch of chemistry as a *major* subject: All candidates who choose chemistry as a major subject for an advanced degree must offer the following courses or their equivalent as prerequisites: at least 12 quarter credits in general inorganic chemistry and qualitative analysis, at least 10 credits in quantitative analysis, and at least one year of organic chemistry. All candidates must present at least one year of college physics and one year of college mathematics. (b) Chemistry or a branch of chemistry as a *minor* subject. Students may not select two branches of chemistry as major and minor subject except with the approval of the graduate faculty in the School of Chemistry.

Majors.—Students whose major work lies in another field and who desire to minor in chemistry must present as preparation prerequisite at least 12 credits of general inorganic chemistry and qualitative analysis, and 5 credits of quantitative analysis or 5 credits of organic chemistry.

Minors.—The choice of the particular courses to be presented in fulfillment of a minor in graduate work will be made after consultation with the student's adviser.

Language requirement.—Candidates for the Master's degree must have a reading knowledge of German or French; German is preferred. For the Doctor's degree, both are required.

Examinations.—The written and oral preliminary examinations in chemistry for the Doctor's degree will be given at only four periods during each year. Normally, these will be during the first two weeks of each regular quarter and of the first term of the Summer Session. The exact schedule will be announced at the beginning of each quarter.

Master's degree.—Offered under both Plan A and Plan B.

CHEMISTRY, ANALYTICAL

Professor Izaak M. Kolthoff; Associate Professor I. William Geiger; Assistant Professor Landon A. Sarver.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101w-102s. Quantitative Analysis. Discussion of the general principles, methods, and procedure of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice. Prerequisite: Inorg. Chem. 13. 5 credits per quarter. Mr. Geiger.
- 103w. Exact Gas Analysis. Prerequisites: Courses 1, 2. 1 or 2 credits. Mr. Sandell.
- 104s. Microchemistry. The properties and identification of crystals under the microscope, qualitative and quantitative microchemistry, inorganic, organic, and applied fields. Prerequisites: Courses 1, 2. 3 credits. Mr. Sandell.
- 105w. Polarizing Microscope. Its use and application to chemistry. Identification of substances. Prerequisite: Phys. Chem. 101. 3 credits. Mr. Sandell.
- 106f-107w-108s. General Technical Analysis. Includes any one of several of such topics as textiles and paper, paint and varnishes, asphalt and tars, boiler waters, soaps, edible oils and fats, and various other food materials and food products depending on the number of credits. Mr. Sandell.
- 109f,w,s. Rock Analysis. Laboratory course covering the technique of rock analysis. Eight laboratory hours per week. Prerequisites: Courses 1, 2. 3 credits. Mr. Ellestad, Mr. Willman.
- 110f-111w-112s. Food Analysis. Course including the chemical analysis of the various food materials and food products and the detection of food adulterations. Course in methods of analysis. Prerequisites: Courses 1, 2. 3 credits per quarter. Mr. Sandell.
- 123f,su-124w,su-125s. Advanced Analytical Chemistry. Systematic survey by general lectures with typical procedures selected for laboratory practice. Drill in application of modern chemical theory to analytical problems. Prerequisites: Courses 1, 2, or by permission. 3 credits. Mr. Sarver.
- 130f. Chemistry of Foods. Course in the origin, composition and manufacture of foods. Systems of food inspection, legal food standards, and adulterations. 3 credits. Mr. Sandell.
- 131f. Applications of Indicators in Neutralization Reactions and p_h Determinations. Prerequisites: Courses 1, 2, and Phys. Chem. 103. 3 credits. Mr. Kolthoff.
- 132w. Electrometric Measurements and Titrations. Applications of potentiometric and conductometric methods in analytical work. Prerequisites: Courses 1, 2, and Phys. Chem. 103. 3 credits. Mr. Kolthoff.
- 134f-135w-136s.* Seminar: Modern Problems in Analytical Chemistry. Prerequisites: Courses 1, 2, and Phys. Chem. 103. 1 credit per quarter. Mr. Kolthoff.

- 137s. Advanced Volumetric Analysis. Prerequisite: Course 131. 3 credits. Mr. Kolthoff.
- 138s. Advanced Gravimetric Analysis. Course in the formation, properties of and coprecipitation with ionic lattices. Prerequisite: Phys. Chem. 103. 2 to 3 credits. Mr. Kolthoff.
- 140w. Water Analysis. Analysis of potable water with interpretation of results. Prerequisites: Courses 1, 2. 2 credits. Mr. Sandell.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Selected Topics in Analytical Chemistry. Credits arranged. Lect. and lab. Mr. Kolthoff.
- 204s. Modern Theories on Acidity and Basicity. Prerequisite: Phys. Chem. 103. 2 credits. Mr. Kolthoff.
- 301f-302w-303s.* Research in Quantitative Analysis. Credits arranged. Mr. Kolthoff, Mr. Geiger, Mr. Sarver, Mr. Sandell.

CHEMISTRY, INORGANIC

Professors M. Cannon Sneed, George Glockler, Lloyd H. Reyerson; Associate Professor Lillian Cohen; Assistant Professors Hervey H. Barber, Gladstone B. Heisig, Norville C. Pervier, Henry N. Stephens.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101s.* History of Chemistry. The theories of chemistry from the period of the ancients, with particular emphasis on modern theories and laws. Prerequisite: Org. Chem. 52 or permission of instructor. 2 credits. Miss Cohen.
- 102w,su. Advanced Qualitative Analysis. Includes an analysis of minerals, alloys, paints, and the methods of detecting some of the rarer elements. Prerequisites: Anal. Chem. 1, 2. 2 or 3 credits. Mr. Sneed.
- 103f-104w-105s.* Advanced Inorganic Chemistry. A discussion of the periodic system and the chemistry of the elements and their compounds and of special subjects of inorganic chemistry such as valency, oxidation and reduction, complex ions, etc. Prerequisites: Anal. Chem. 1, 2, Org. Chem. 52. 3 credits per quarter. Mr. Sneed.
- 106f-107w-108s.* Theories of Inorganic Chemistry. Theory of valency, electron conception and octet theory of G. N. Lewis, geometrical aspects, co-ordination theory, and modern theories of chemical combination. Prerequisite: Phys. Chem. 103 or by permission. 3 credits per quarter. Mr. Glockler.
- 109w-110s.* Synthetic Inorganic Chemistry. Methods of preparation and purification of inorganic compounds of special interest. Current literature. Prerequisite: Course 13. 3 to 5 credits per quarter. Mr. Heisig.
- 115su. Commercial Products and Their Analysis. Study of current commercial products, their composition and methods of analysis. Prerequisites: Anal. Chem. 1, 2. Mr. Barber.
- 134f-135w-136s. Seminar: Modern Problems in Inorganic Chemistry. Prerequisites: Anal. Chem. 1, 2, and Phys. Chem. 103. 1 credit. Mr. Sneed.

COURSE PRIMARILY FOR GRADUATE STUDENTS

301f,su-302w-303s. Research in Inorganic Chemistry. Credits arranged. Mr. Sneed, Mr. Reyerson, Mr. Heisig.

CHEMISTRY, ORGANIC

Professor Lee I. Smith; Associate Professor Walter M. Lauer; Assistant Professors C. Frederick Koelsch, Henry N. Stephens.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 105f-106w-107s. Advanced Organic Chemistry. An advanced descriptive course covering the field of organic chemistry, together with an introduction to the literature of organic chemistry. Prerequisite: Course 153 or equiv. 3 credits per quarter. Mr. Smith.
- 110f.‡ Organic Qualitative Analysis. Reactions of typical functional groups, identification of pure organic compounds, separation and identification of constituents of mixture. Prerequisite: Course 153 or equiv. 5 credits. Mr. Koelsch.
- 130s. Organic Quantitative Analysis. Methods of proximate and ultimate analysis of organic compounds, with special attention to semi-micro methods. Prerequisites: Course 153, and Anal. Chem. 1, 2. 2 or 3 credits. Mr. Lauer.
- 139f,w,s. Advanced Organic Chemistry Laboratory Work. Selected laboratory problems of an advanced nature, including some original work. Students are urged to take this course during the winter quarter; permission of the instructor is required to take it at any other time. Prerequisite: Course 153. 2 to 5 credits. Mr. Thompson.
- 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. Prerequisite: Course 153. 3 credits. Mr. Koelsch. (Not offered in 1936-37.)
- 142w-143s.* The Chemistry of Natural Products. Discussion of the organic chemistry of important classes of natural products. Prerequisite: Course 153. 3 credits. Mr. Lauer, Mr. Thompson. (Not offered in 1936-37.)
- 153s. Elementary Organic Chemistry. Discussion of the important classes of organic compounds, both aliphatic and aromatic, together with some heterocyclic compounds. Prerequisites: Courses 51, 52. 5 credits. Mr. Smith, Mr. Lauer.
- 156s. Elementary Organic Chemistry. Discussion of the important classes of organic compounds, both aliphatic and aromatic, together with some heterocyclic compounds. Prerequisites: Courses 54, 55. 3 credits. Mr. Smith, Mr. Lauer.

COURSES PRIMARILY FOR GRADUATE STUDENTS

201f-202w-203s.* Organic Chemistry Seminar. One hour per week. One credit. Required of all students taking major work in organic chemistry. Mr. Smith, Mr. Lauer, Mr. Koelsch, Mr. Thompson.

‡ A charge of \$10 is made to cover special chemicals in this course.

- 205f-206w.* Theoretical Organic Chemistry. Structure, reaction mechanisms, relation of physical properties to constitution, and other topics of a theoretical nature. Prerequisite: Course 107. 3 credits per quarter.
- 212s.* Physico-Organic Chemistry. Contributions made to organic chemistry by kinetic and equilibrium studies of organic reactions, including mechanisms and catalytic and ionotropic reactions; and an introduction to the current electronic formations of organic reactions. Prerequisites: Course 107, Phys. Chem. 103, and calculus, or by permission of the instructor. 4 credits.
- 301f-302w-303s. Research in Organic Chemistry. Credits arranged. Mr. Smith, Mr. Lauer, Mr. Koelsch, Mr. Stephens, Mr. Thompson.

CHEMISTRY, PHYSICAL

Professors Frank H. MacDougall, Samuel C. Lind, George Glockler, Izaak M. Koltthoff, Lloyd H. Reyerson; Assistant Professor Robert S. Livingston.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-102w-103s.* Physical Chemistry. A general survey of the subject. Three lectures and one recitation. Laboratory work three or six hours per week. Prerequisites: two years college chemistry, one year college physics. 3, 4, or 5 credits, depending on the amount of laboratory work. Mr. MacDougall, Mr. Livingston.
- 110su. Survey of Physical Chemistry. A general discussion of physical chemistry from the kinetic theory viewpoint, placing special emphasis on the gas laws, chemical equilibria, and the chemistry of solutions. Recent developments in theories of atomic structure. Prerequisites: 1 year of inorganic chemistry and qualitative analysis, 1 quarter of quantitative analysis, 1 year of physics, plane analytical geometry. 3 credits. Mr. Livingston.
- 113f. Fundamentals of Reaction Kinetics. Order of reaction, collision theory, activation, chain reactions especially in gaseous systems. Prerequisite: Course 101-102-103. 3 credits. Mr. Livingston.
- 114w. Kinetics of Reactions in Liquid Solutions and in Heterogenous Systems. Effect of solvents and electrolytes on reaction velocity. Homogeneous and heterogeneous catalysis. Prerequisites: Courses 101-102-103 and 113. 3 credits. Mr. Livingston.
- 116f. Advanced Physical Chemistry. The modern theory of the atom and the molecule on the principles of wave mechanics with an introduction based on Bohr theory. Prerequisites: Course 103 and calculus. 3 credits. Mr. Glockler.
- 117w. Advanced Physical Chemistry. Application of thermodynamics to chemical problems, free energy calculations by classical methods and by the use of spectroscopic data. Prerequisites: Course 103 and calculus. 3 credits. Mr. Glockler.

- 118s. Advanced Physical Chemistry. The physical chemistry of the solid state on the basis of modern concepts. Prerequisites: Course 103 and calculus. 3 credits. Mr. Glockler.
- 128f-129w-130s.* Colloid Chemistry. Prerequisite: Course 103. 2 credits per quarter. Mr. Reyerson.
- 131f-132w-133s.* Colloid Chemistry Laboratory. Credits and hours arranged. Must be preceded or accompanied by Course 128, 129, or 130. Mr. Reyerson.
- 161f-162w.* Radioactivity. Discovery; theory of atomic disintegration; properties, transformations, and preparation of radioactive elements; properties and effects of alpha, beta, and gamma rays; radioactive and non-radioactive isotopes. Prerequisite: Course 103. 2 credits per quarter. Mr. Hull.
- 175s. Photochemistry. A general survey, including a discussion of spectroscopy, with particular reference to the visible and ultraviolet absorption spectra of molecular gases. Prerequisites: Course 101-102-103 and optics. 3 credits. Mr. Livingston.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Thermodynamics and Chemistry. A detailed study of the principles of thermodynamics and their application to physical and chemical phenomena. Prerequisites: Course 103 and calculus. 4 credits per quarter. Mr. MacDougall. (Not offered in 1936-37.)
- 204f-205w-206s.* Kinetic Theory and Atomistics. Kinetic theory of gases and liquids, crystal structure, structure of atom, quantum theory. Prerequisites: Course 103 and calculus. 4 credits per quarter. Mr. MacDougall.
- 211f-212w-213s.* Advanced Physical Chemistry Laboratory. To accompany or follow any of the advanced courses in physical chemistry. Prerequisite: Course 103. Credits arranged. Mr. MacDougall.
- 221f-222w-223s.* Colloid Seminar. 1 credit per quarter. Mr. Reyerson.
- 251f-252w-253s.* Physical Chemistry Seminar. For students taking advanced courses in physical chemistry. 1 credit. Mr. MacDougall.
- 264f,w,s. Radioactivity Laboratory. Use and standardization of electroscopes, radioactive measurements, and quantitative determination of radium in ores, minerals, waters, and plant products. 1 or 2 credits. Must be preceded or accompanied by Radioactivity 161. Mr. Hull.
- 271f-272w-273s. Chemical Activation. (Seminar 1 hour per week for graduate students.) Current theories of chemical activation, including photochemical excitation, gaseous ionization, and kinetics of cluster and of chain reactions. Prerequisites: physics and physical chemistry. 1 credit per quarter. Mr. Lind.
- 301f-302w-303s. Research in Physical Chemistry. Including work in electrochemistry, photo and radio chemistry, and colloids. Credits arranged. Mr. Lind, Mr. MacDougall, Mr. Glockler, Mr. Kolthoff, Mr. Reyerson, Mr. Livingston.

CHILD WELFARE

Professors John E. Anderson, Josephine C. Foster, Florence L. Goodenough, Esther McGinnis; Assistant Professor Edith Boyd.

Prerequisites.—For graduate work in the Institute of Child Welfare, students are normally expected to have had the equivalent of an undergraduate major in either psychology, sociology, education, or home economics. Aside from or including the major, the student normally is expected to have had at least 10 hours in psychology, 8 hours in sociology, and 3 hours in statistics. In special cases or where the background lies in other fields, such as nursing or medicine, adjustments may be made.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 130f-131w. Child Development. Fall—Motor, linguistic, and intellectual skills. Winter—Emotion, personality, social reactions, interests, and abilities. Lectures, readings and reports. Prerequisite: 12 credits in psychology, or educational psychology. 2 or 4 credits. Mr. Anderson.
- 133f-134w. Observational and Experimental Methods. The various methods such as growth records, mental tests, ratings, controlled observations, etc., used in the experimental study of children. Practical exercises on institute records and data. Prerequisites: 10 credits in psychology or educational psychology, including statistics and permission of instructor. 4 credits. Miss Goodenough.
- 140f. Behavior Problems. Nature and origin of behavior difficulties in children and the relation between early behavior trends and later maladjustment. Prerequisite: 10 credits in psychology, educational psychology, or sociology. 2 credits. Miss Goodenough, Miss McGinnis.
- 141w-142s. Practicum in Behavior Problems. Clinic and field work in the study and treatment of behavior problems. Prerequisite: Course 140. Credits arranged. Miss Goodenough, Miss McGinnis.
- 170f. Parent Education. History and survey of programs in parent and adult education. Analysis of child development and training literature in relation to the preparation of materials for study groups. Lectures, discussions, and reports. Prerequisite: 15 credits in child welfare, psychology, education, or sociology. 3 credits. Miss McGinnis.
- 171w. Technique of Parent Education. Methods of teaching adults. Organization and administration of study groups. Demonstration lessons and observations. Prerequisite: Course 170. 2 credits. Miss McGinnis.
- 172s. Field Work in Parent Education. Lesson plans, observations, and field work. Prerequisites: Courses 170, 171, and permission of instructor. Credits arranged. Miss McGinnis.
- 190w-191s. Mental Examination of Preschool Children. A study of the methods used in testing young children together with practice in such testing. Prerequisite: Ed. Psy. 143-144-145 or 134-135-136, or equivalent, and permission of instructor. 3 or 6 credits. Miss Goodenough.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 230f-231w-232s. Seminar in Recent Literature. Reviews of current literature, and reports on research. Meetings in alternate weeks. Attendance of graduate students who are candidates for degrees is required. 1 credit each quarter. Mr. Anderson.
- 233f-234w-235s. Research in Child Development. Credits arranged. Mr. Anderson, Miss Goodenough.
- 236f-237w-238s.* Seminar in Human Development: (Fall) Prenatal and Infant Development; (Winter) Early and Middle Childhood; (Spring) Adolescence. Surveys and discussion of research findings. 2 credits each quarter. Mr. Anderson, Miss Goodenough.
- 240w-241s. Seminar in Behavior Problems. Discussion of case records, causative factors, treatment. Meetings in alternate weeks. 1 credit each quarter. Miss Goodenough, Miss McGinnis.
- 250w. Nursery School Education. Discussion of historical background and current practices, fundamental problems and theory, problems of administration and organization. Mrs. Foster.
- 260w.* Seminar on Physical Growth. Survey of the growth of the human body and its systems from early fetal life to maturity. Same as Anat. 160. Credit cannot be received for both Anat. 160 and C.W. 260. 2 credits. Dr. Boyd.
- 261f-262w-263s.* Statistical and Laboratory Work on Physical Growth. Prerequisite: C. W. 260. Same as Anat. 161-162-163. Credit cannot be received for both Anat. 161-162-163, and C. W. 261-262-263. Credits arranged. Dr. Boyd.
- 270f-271w-272s.* Readings in Child Development. Independent readings and reports in any field such as physical growth, health, mental development, social behavior, nursery school theory, parent education, etc., approved by the listed instructors. Credits arranged. Mr. Anderson, Mrs. Foster, Miss Goodenough, Miss McGinnis, Dr. Boyd.
- 275.* Seminar in Parent Child Relationships. Surveys and discussion of research findings. 2 credits. Miss McGinnis.

CIVIL ENGINEERING

Professors Frederic H. Bass, Alvin S. Cutler, Fred C. Lang, Frederick M. Mann, John I. Parcel; Associate Professors Chester A. Hughes, John V. Martenis, Joseph A. Wise; Assistant Professor Leonard F. Boon.

Master's degree.—Offered only under Plan A.

SURVEYING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 109f,w,s. Cadastral Surveying. Study of the newer methods of accurate surveys of property with geodetic control and with co-ordinates of property monuments. Prerequisite: Course 16. 2 credits. Mr. Boon.

- 110f,w,s. Errors in Surveying. Study of the sources, importance, and reduction of errors in surveying. Prerequisite: Course 23. 2 credits. Mr. Boon.
- 111f,w,s. Methods of Computation. Study of the methods used in various problems in precise and geodetic surveys and distribution of errors. Prerequisite: Course 110. 2 credits. Mr. Boon.

RAILWAY ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 121f. Railway Engineering. Train resistance, ruling and momentum grades, curvature, distance, rise and fall as factors in location and operation of railroads. Train loading, acceleration, retardation; locomotives and equipment. Operating costs governing grade revision. Prerequisite: Course 22. 3 credits. Mr. Cutler.
- 122w. Railway Engineering. Lectures, office work, and field inspection. Design and operation of various types of yards and terminals, and terminal facilities, including the hump, engine house, coal and water station. Signaling and interlocking. Prerequisite: Course 22. 3 credits. Mr. Cutler.
- 123s. Railway Engineering. Design and construction of railroad buildings and structures; culverts, wooden trestles, switches, cross-overs, crossing frogs, etc. Earthwork computation, estimates and reports. Distribution of material by mass diagram. Prerequisite: Course 22. 3 credits. Mr. Cutler.
- 124w. Transportation. Development of railway and inland waterway transport, railway regulation and control with special reference to the 1920 Railway Transportation Act, geographical, financial, and rate grouping of railways, Interstate Commerce Commission method of accounting, cost and value of service, present systems, and organization. Prerequisite: Course 22. 3 credits. Mr. Cutler.
- 125s. Transportation. Specific illustrative problems: Twin City and Mississippi Valley traffic situation, Mississippi River experiment, New York Barge Canal, Great Lakes traffic, Panama Canal status. Prerequisite: Course 121. 3 credits. Mr. Cutler.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 221f-222w-223s. Railway Administration. Analysis of railway organization and methods of management and operation. Special problems. Prerequisite: Course 122. 3 credits per quarter. Mr. Cutler.
- 224f. Railway Terminals and Yards. Continuation of Course 123. 3 credits. Mr. Cutler.

STRUCTURAL ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 131w-132s. Bridge Analysis and Design. Stresses in cantilevers, arches, and continuous bridges. Design and detail of typical bridge structure. Prerequisite: Course 134. 2 credits per quarter. Mr. Parcel.

- 134f. Statically Intermediate Structures. Theory of deflections and statically indeterminate stresses and their application to continuous girders, frames, swing bridges, and redundant members. Prerequisites: Course 33, M.&M. 128. 3 credits. Mr. Parcel.
- 135s. Advanced Reinforced Concrete Design. Analysis of structures as rigid frames. Application to reinforced concrete buildings. Effect of temperature and shrinkage. Effect of settlement of foundations. Rigid frame bridges. Prerequisite: Course 142. 4 credits. Mr. Wise.
- 137f,w,s. Structural Laboratory. Theoretical and experimental analysis of structural members and models. Prerequisites: Courses 134, 141. 2 credits. Mr. C. A. Hughes.
- 141f. Reinforced Concrete. Principles of reinforced concrete. Theory of beams, slabs, and columns and the application to ordinary structures. Prerequisite: Course M.&M. 128. 3 credits. Mr. Wise.
- 142w. Reinforced Concrete Design. Continuation of 141 with especial emphasis on the practical features of the design of buildings, bridges, retaining walls, etc. Prerequisite: Course 141. 3 credits. Mr. Wise.
- 143s. Reinforced Concrete Arches. Analysis and design of reinforced concrete arches. Prerequisites: Courses 134, 142. 3 credits. Mr. Wise.
- 146f,w,s. Plain Concrete. Theory of design and control of concrete mixtures. Practice in control tests of concrete and concrete materials. Lectures and laboratory work. Prerequisite: M.&M. 141. 3 credits. Mr. C. A. Hughes.
- 147w. Foundations. Design and construction of footings, cofferdams, and caissons for bridges and buildings. Piers and abutments. Underpinning of buildings. Exploration and testing of foundation sites. Excavation and removal of materials from foundation site. Prerequisites: Course 33, M.&M. 128. 2 credits. Mr. Wise.
- 148f-149w-150s. Advanced Concrete. Short research problems in concrete. Prerequisite: Course 146. 2 credits per quarter. Mr. C. A. Hughes.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 234f-235w-236s. Advanced Theory of Structures. Applications of the theory of indeterminate stresses to the more complex problems of structural analysis. Continuous and swing bridges, simple and multiple arch and suspension systems, wind stresses in tall building frames, secondary stresses. Prerequisites: Courses 132, 142. 3 and 5 credits per quarter. Mr. Wise.
- 237f-238w-239s. Advanced Structural Laboratory. Special problems. Prerequisite: Course 137. 3 to 5 credits per quarter. Mr. C. A. Hughes.
- 245f-246w-247s. Seminar. Special topics in the higher theory of structures. Prerequisites: Courses 134, 142. 3 to 6 credits per quarter. Mr. Parcel.

HIGHWAY ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 151s. Highway Laboratory. Investigations in co-operation with State Highway Department. Prerequisite: Course 52. 3 to 5 credits. Mr. Lang.

- 152s. Highway Design. Preparing of a plan and specifications for short sections of highway and city streets, also making estimates of materials and cost. Prerequisite: Course 52. 3 to 5 credits. Mr. Lang.
- 154w. Soils Laboratory. Laboratory study of properties of soils which pertain to their stability. 1 credit. Mr. Lang.
- 156w. Highway Transport. Development, economic field, relation to other forms of transportation. Highway transport surveys, economics of location, economics of selection of type of surface, effect of vehicle on road and road on vehicle. Prerequisite: Course 52. 3 credits. Mr. Lang.
- 157s. Highway Transport. Motor vehicle as a common carrier, analysis of road legislation, taxation. Principles of successful operation. Selling motor transportation. Prerequisite: Course 156. 3 credits. Mr. Lang.

HYDRAULIC, MUNICIPAL, AND SANITARY ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 161f. Hydrology. Rainfall, evaporation, transpiration, percolation, run-off. Flood and low water of streams. Storage for use in water supply, water power, irrigation, and navigation. Mass curves and frequency curves. 3 credits. Mr. Bass.
- 162w-163s. Water Supply and Sewerage. Sources of water supply; quality of water. Methods of testing, collection, distribution, and purification of water. Selection of pumping machinery and motive power. Sewer system and sewage disposal works. Prerequisite: M.&M. 129. 3 credits per quarter. Mr. Bass.
- 164f,s. Water Power. Types of low, medium, and high-head developments. Details of developments. Dams. Turbine settings and characteristics. Prerequisite: M.&M. 129. 3 credits. Mr. Bass.
- 171w. Building Sanitation. Location and orientation of buildings, lighting, ventilation, water supply, plumbing, sewage, and refuse disposal. Prerequisite: sr. arch. and grads. only. 2 credits. Mr. Bass, Mr. Martenis.
- 172s. City Planning. Physical elements of the city; topography, drainage, geology. Public works and structures. Internal and external transportation. Zoning. Subsurface structures. Esthetic features of the city. Prerequisite: Course 52. 3 to 5 credits. Mr. Bass, Mr. Mann.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 261f-262w. Water and Sewage Purification. Design of water purification and sewage disposal works. Prerequisite: Course 163. 3 to 5 credits per quarter. Mr. Bass.
- 263s. Hydraulic Engineering Problems. Special hydraulic problems in laboratory, drafting room, and field. Prerequisite: Course 164. 3 to 5 credits.
- 280f-281w-282s. Civil Engineering Research. Original work in concrete, structural steel, hydraulics, municipal or transportation problems. Investigations, reports, tests, designs. Prerequisite: by permission. 5 credits per quarter. Mr. Bass, Mr. Cutler, Mr. Lang, Mr. Parcel.

CLASSICAL LANGUAGES

Professor Marbury B. Ogle, Assistant Professors Robert V. Cram, Edward F. D'Arms.

Master's degree.—Offered under both Plan A and Plan B.

GREEK

Prerequisites.—Any three courses numbered 54 to 73 and in addition two courses in the 100 series.

The degree of master of arts for a major in Greek, a nine-credit sequence in the 200 series and either one course each quarter from the 100 series or a nine-credit sequence in the 200 series. For a minor in Greek, either the Seminar in Greek Literary Bibliography or one course each quarter from the 100 series.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f. Philosophy: Plato. Dialogs representing Plato's contributions to literature and philosophy will be read. Prerequisites: any two courses numbered 71 to 73 or consent of instructor. 3 credits. Mr. D'Arms.
- 102w. Philosophy: Aristotle's *Ethics*. A study of the *Nicomachean Ethics* in relation to earlier and contemporary Greek moral theory. Prerequisite: Course 101 or consent of instructor. 3 credits. Mr. D'Arms.
- 103s. Lyric Poetry. Selections from the elegiac, iambic, lyric, and bucolic poets. Prerequisites: any two courses numbered 71 to 73. 3 credits. Mr. D'Arms.
- 111f. History: Herodotus. Herodotus as a source for early Greek history. Prerequisites: any two courses numbered 71 to 73 or consent of instructor. 3 credits. Mr. D'Arms.
- 112w. History: Thucydides. A study of the causes and events of the Peloponnesian War. Prerequisite: Course 111 or consent of instructor. 3 credits. Mr. D'Arms.
- 113s. New Testament. Selections. Prerequisite: any one course numbered 71 to 73 or consent of instructor. 3 credits. Mr. D'Arms.
- 121f-122w-123s. Advanced Composition. (Not offered in 1936-37.)

FOR GRADUATE STUDENTS ONLY

- 201f-202w-203s. Graduate Seminar: Greek Literary Bibliography and Criticism.
- 211f-212w-213s. Graduate Seminar: Greek Epic. (Not offered in 1936-37.)
- 221f-222w-223s. Graduate Seminar: Greek Drama and Lyric.
- 231f-232w-233s. Graduate Seminar: Greek Philosophy. (Not offered in 1936-37.)

LATIN

Prerequisites.—Any four of Courses 51 to 83, and 6 credits in addition selected from the 100 series. A reading knowledge of French, German or Greek is required of candidates for the Master's degree.

The degree of master of arts: For a major in Latin, any nine-credit sequence in the 200 series, and in addition one course each quarter selected from Courses 111 to 173 or 241-242-243; ordinarily this latter will be required in addition to the other 200 sequence. The student will be expected to choose for his thesis some problem connected with one of these courses. Besides, a minor is to be carried throughout the year in one of the following departments: Comparative Philology, English, German, Greek, History, Romance Languages, Education, or Scandinavian. For a minor in Latin, any nine-credit sequence in the 200 series or one course each quarter selected from Courses 111 to 173.

The degree of doctor of philosophy: Candidates in Latin will be expected to spend at least three years in preparation and will carry each quarter in addition to one seminar course and one of the courses listed below, one course in advanced Greek (i.e., in advance of three years of preparatory Greek). A knowledge of Greek and Roman history, Greek and Roman literature, and a special knowledge of a particular Latin author, or group of authors, will be required. In addition to the particular author or authors assigned the candidate will be expected to have read in the original the following list of Latin authors:

Caesar: A considerable portion of the Gallic War and the Civil War.

Catullus: All except LXIII-LXVIII.

Cicero: Fourteen orations (e.g., Roscius Amerinus, Verres Actio Prima, Manilian Law, Cantilinaris I-IV, Murena, Archias, Milo, Marcellus, Ligarius, Deiotarus, Philippics II; Cato Maior, Laelius, Tusculan Disputations, Book I).

Horace: All.

Juvenal: Satires I, III, IV, V, VII, VIII, X, XI.

Livy: Books I, II, XXI, XXII.

Lucretius: Books I-V.

Martial: At least one half.

Ovid: About four thousand verses of the *Metamorphoses*.

Plautus: *Amphitruo*, *Aulularia*, *Captivi*, *Menaechmi*, *Miles Gloriosus*, *Moscellaria*, *Rudens*, *Trinummus*.

Pliny the Younger: At least one half.

Quintilian: Book X, Ch. I.

Suetonius: Iulius, Augustus, Tiberius, Nero, Domitian.

Tacitus: *Annals* I-VI or XI-XVI.

Terence: *Adelphoe*, *Andria*, *Hautontimorumenus*, *Phormio*.

Vergil: All except the minor poems.

A preliminary written examination upon these authors and upon the history of Roman literature will be given in addition to the general written preliminary upon the graduate courses in the major completed at that time.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

111f-112w-113s. Advanced Prose Composition. Prerequisite: Course 73-74-75 or equivalent. 3 credits. Mr. Ogle.

121f. Advanced Vergil. *Eclogues*, *Georgics*, and *Aeneid*. Prerequisites:

- any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 131f. Jenal. Selected Satires. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 131s. Vulgar Latin. Development of Latin into Romance. Prerequisites: for advanced students of either Latin or Romance, consent of the instructor. 3 credits. Mr. Ogle.
- 142w. Tacitus. Readings in the *Annales and Historiae*. Prerequisites: any two of the courses numbered between 50 and 100. 3 credits. Mr. Ogle.
- 151f. Advanced Cicero. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. Mr. Ogle.
- 152w. Lucretius. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 153su. Classical Literary Tradition. Prerequisites: consent of the instructor. 3 credits.
- 171f,172w,173s.* Independent Reading Course. Prerequisite: open to students of exceptional ability with the consent of the department. 9 credits.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Graduate Seminar: Cicero. 9 credits. (Not offered in 1936-37.)
- 211f-212w-213s.* Graduate Seminar: The Latin Epic. 9 credits. (Not offered in 1936-37.)
- 221f-222w-223s.* Graduate Seminar: Lyric Poetry. 9 credits. (Not offered in 1936-37.)
- 231f-232w-233s.* Graduate Seminar: Lyric Historiography. 9 credits. Mr. Ogle.
- 241f-242w-243s.* Graduate Seminar: Introduction to Classical Philology. 9 credits. Mr. Cram.

DAIRY HUSBANDRY

Professors James B. Fitch, Willes B. Combs, Harold Macy; Assistant Professor William E. Petersen.

Students taking major work in dairy husbandry for a degree may be exempted from the language requirement.

Students desiring major work in dairy production should consult the Department of Dairy Husbandry with the Division of Dairy Husbandry previously mentioned.

Prerequisites.—For a major in *production* the student must have had sufficient preparation in animal physiology; for a major in *dairy production* in animal physiology, physics, and economics; for a major in *dairy products* in animal physiology, and dairy products.

Minor.—For a minor in dairy husbandry the student may be satisfied as to the student's progress.

Majors.—Will require that

the approval of the adviser, certain courses in agricultural biochemistry, bacteriology, genetics, and animal husbandry may be accepted as part of a major.

Master's degree.—Offered under both Plan A and Plan B.

Due to the limitation of available animals and the cost of animal experiments, students desiring a major in dairy production are expected to make arrangements previous to enrolment.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f. Milk Production. Problems of the dairy farmer. Three credits. Mr. Fitch.
- 102w. Dairy Bacteriology. Lectures, assignments, laboratory work. Types of milk organisms, relation of bacteria of milk to dairy manufacturers and to public health, the bacteriology of dairy products. 3 credits. Mr. Macy.
- 103w. Dairy Stock Feeding. Application of the principles of nutrition to special problems of feeding the dairy cow and growing the young animals. 3 credits. Mr. Fitch.
- 104s. Dairy Stock Selection. Practice in comparative judging; selection and valuation; visits to purebred herds. 3 credits. Mr. Petersen.
- 105f-106w. Seminar. Special investigations and study of selected topics. Reports on assigned subjects and reviews of recent scientific investigations. 1 credit each quarter. Mr. Macy, Mr. Fitch.
- 107w. Dairy Products III. Similar to Course 111f with special application to ice cream. 3 credits. Mr. Combs.
- 108f. Dairy Products I. The chemical, bacteriological, and economic problems in the manufacture and marketing of butter. 3 credits. Mr. Combs, Mr. Coulter.
- 109w. Dairy Products II. Similar to Course 111f with special application to cheese, condensed and powdered milk. 3 credits. Mr. Combs, Mr. Coulter.
- 110w. Dairy Products. Chemical and bacteriological laboratory methods and technical control of milk and its products. Prerequisites: Course 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, or 112. 3 credits. Mr. Macy, Mr. Coulter.
- 111w. Dairy Bacteriology. Investigations of specific problems in the bacteriology of milk and dairy products. Prerequisites: Course 201, 101, or 112. 3 credits. Mr. Macy.
- 112w. Dairy Physiology. Lecture assignments covering the anatomy and physiology of the dairy animal and factors influencing the quality and quantity of milk. Prerequisites: Physiol. 9 cred. and Agr. Biochem. 103. 3 credits.
- 113w. Application of the principles of genetics to the selection and evaluation of breeding animals and plants. Prerequisites: Courses 101, 104, Agron.

- of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 133s. Juvenal. Selected Satires. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 133s. Vulgar Latin. Development of Latin into Romance. Prerequisites: for advanced students of either Latin or Romance, consent of the instructor. 3 credits. Mr. Ogle.
- 142w. Tacitus. Readings in the *Annales and Historiae*. Prerequisites: any two of the courses numbered between 50 and 100. 3 credits. Mr. Ogle.
- 151f. Advanced Cicero. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. Mr. Ogle.
- 152w. Lucretius. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 153su. Classical Literary Tradition. Prerequisites: consent of the instructor. 3 credits.
- 171f,172w,173s.* Independent Reading Course. Prerequisite: open to students of exceptional ability with the consent of the department. 9 credits.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Graduate Seminar: Cicero. 9 credits. (Not offered in 1936-37.)
- 211f-212w-213s.* Graduate Seminar: The Latin Epic. 9 credits. (Not offered in 1936-37.)
- 221f-222w-223s.* Graduate Seminar: Lyric Poetry. 9 credits. (Not offered in 1936-37.)
- 231f-232w-233s.* Graduate Seminar: Lyric Historiography. 9 credits. Mr. Ogle.
- 241f-242w-243s.* Graduate Seminar: Introduction to Classical Philology. 9 credits. Mr. Cram.

DAIRY HUSBANDRY

Professors James B. Fitch, Willes B. Combs, Harold Macy; Associate Professor William E. Petersen.

Students taking major work in dairy husbandry for a Master's degree may be exempted from the language requirement.

Students desiring major work in dairy production should make arrangements with the Division of Dairy Husbandry previous to registration.

Prerequisites.—For a major in *production* the adviser must be satisfied that the student has had sufficient preparation in chemistry, genetics, and animal physiology; for a major in *dairy products*, bacteriology, chemistry, physics, and economics; for a major in *dairy bacteriology*, chemistry, bacteriology, and dairy products.

Minor.—For a minor in dairy husbandry, the chief of the division must be satisfied as to the student's preparation.

Majors.—When the preparation appears inadequate the adviser may require that additional courses be taken to make up the deficiencies. With

the approval of the adviser, certain courses in agricultural teriology, genetics, and animal husbandry may be accept major.

Master's degree.—Offered under both Plan A and Plan.

Due to the limitation of available animals and the cost periments, students desiring a major in dairy production are make arrangements previous to enrolment.

COURSES FOR UNDERGRADUATE AND GRADUATE STU

- 101f. Milk Production. Problems of the dairy farmer. Three .r.
Fitch.
- 102w. Dairy Bacteriology. Lectures, assignments, laboratory wo. Types
of milk organisms, relation of bacteria of milk to dairy man. acturers
and to public health, the bacteriology of dairy products. 3 credits. Mr.
Macy.
- 103w. Dairy Stock Feeding. Application of the principles of nutrition to
special problems of feeding the dairy cow and growing the young ani-
mals. 3 credits. Mr. Fitch.
- 104s. Dairy Stock Selection. Practice in comparative judging; selection
and valuation; visits to purebred herds. 3 credits. Mr. Petersen.
- 105f-106w. Seminar. Special investigations and study of selected topics.
Reports on assigned subjects and reviews of recent scientific investiga-
tions. 1 credit each quarter. Mr. Macy, Mr. Fitch.
- 110w. Dairy Products III. Similar to Course 111f with special application
to ice cream. 3 credits. Mr. Combs.
- 111f. Dairy Products I. The chemical, bacteriological, and economic prob-
lems in the manufacture and marketing of butter. 3 credits. Mr.
Combs, Mr. Coulter.
- 112s. Dairy Products II. Similar to Course 111f with special application
to cheese, condensed and powdered milk. 3 credits. Mr. Combs, Mr.
Coulter.
- 113s. Technical Control. Chemical and bacteriological laboratory methods
used in technical control of milk and its products. Prerequisites: Course
2 or equiv., Course 110, 111, or 112. 3 credits. Mr. Macy, Mr. Coulter.
- 115s. Advanced Dairy Bacteriology. Investigations of specific problems in
the bacteriology of milk and dairy products. Prerequisites: Course 2
or equiv., Course 111 or 112. 3 credits. Mr. Macy.
- 116s. Milk Secretion. Lecture assignments covering the anatomy and physi-
ology of milk secretion and factors influencing the quality and quantity
of milk. Prerequisites: Physiol. 9 cred. and Agr. Biochem. 103. 3
credits. Mr. Petersen.
- 117s. Dairy Cattle Breeding. Application of the principles of genetics to
the improvement of dairy cattle. Evaluation of breeding animals and
formulation of breeding plans. Prerequisites: Courses 101, 104, Agron.
31. 3 credits. Mr. Petersen.

- any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 131f. Juvenal. Selected Satires. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 133s. Vulgar Latin. Development of Latin into Romance. Prerequisites: for advanced students of either Latin or Romance, consent of the instructor. 3 credits. Mr. Ogle.
- 142w. Tacitus. Readings in the *Annales and Historiae*. Prerequisite: any two of the courses numbered between 50 and 100. 3 credits. Mr. Ogle.
- 151f. Advanced Cicero. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. Mr. Ogle.
- 152w. Lucretius. Prerequisites: any two of the courses with numbers between 50 and 100. 3 credits. (Not offered in 1936-37.)
- 153su. Classical Literary Tradition. Prerequisites: consent of the instructor. 3 credits.
- 171f,172w,173s.* Independent Reading Course. Prerequisite: open to students of exceptional ability with the consent of the department. 9 credits.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Graduate Seminar: Cicero. 9 credits. (Not offered in 1936-37.)
- 211f-212w-213s.* Graduate Seminar: The Latin Epic. 9 credits. (Not offered in 1936-37.)
- 221f-222w-223s.* Graduate Seminar: Lyric Poetry. 9 credits. (Not offered in 1936-37.)
- 231f-232w-233s.* Graduate Seminar: Lyric Historiography. 9 credits. Mr. Ogle.
- 241f-242w-243s.* Graduate Seminar: Introduction to Classical Philology. 9 credits. Mr. Cram.

DAIRY HUSBANDRY

Professors James B. Fitch, Willes B. Combs, Harold Macy; Associate Professor William E. Petersen.

Students taking major work in dairy husbandry for a Master's degree may be exempted from the language requirement.

Students desiring major work in dairy production should make arrangements with the Division of Dairy Husbandry previous to registration.

Prerequisites.—For a major in *production* the adviser must be satisfied that the student has had sufficient preparation in chemistry, genetics, and animal physiology; for a major in *dairy products*, bacteriology, chemistry, physics, and economics; for a major in *dairy bacteriology*, chemistry, bacteriology, and dairy products.

Minor.—For a minor in dairy husbandry, the chief of the division must be satisfied as to the student's preparation.

Majors.—When the preparation appears inadequate the adviser may require that additional courses be taken to make up the deficiencies. With

the approval of the adviser, certain courses in agricultural biochemistry, bacteriology, genetics, and animal husbandry may be accepted as part of the major.

Master's degree.—Offered under both Plan A and Plan B.

Due to the limitation of available animals and the cost of animal experiments, students desiring a major in dairy production are expected to make arrangements previous to enrolment.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f. Milk Production. Problems of the dairy farmer. Three credits. Mr. Fitch.
- 102w. Dairy Bacteriology. Lectures, assignments, laboratory work. Types of milk organisms, relation of bacteria of milk to dairy manufacturers and to public health, the bacteriology of dairy products. 3 credits. Mr. Macy.
- 103w. Dairy Stock Feeding. Application of the principles of nutrition to special problems of feeding the dairy cow and growing the young animals. 3 credits. Mr. Fitch.
- 104s. Dairy Stock Selection. Practice in comparative judging; selection and valuation; visits to purebred herds. 3 credits. Mr. Petersen.
- 105f-106w. Seminar. Special investigations and study of selected topics. Reports on assigned subjects and reviews of recent scientific investigations. 1 credit each quarter. Mr. Macy, Mr. Fitch.
- 110w. Dairy Products III. Similar to Course 111f with special application to ice cream. 3 credits. Mr. Combs.
- 111f. Dairy Products I. The chemical, bacteriological, and economic problems in the manufacture and marketing of butter. 3 credits. Mr. Combs, Mr. Coulter.
- 112s. Dairy Products II. Similar to Course 111f with special application to cheese, condensed and powdered milk. 3 credits. Mr. Combs, Mr. Coulter.
- 113s. Technical Control. Chemical and bacteriological laboratory methods used in technical control of milk and its products. Prerequisites: Course 2 or equiv., Course 110, 111, or 112. 3 credits. Mr. Macy, Mr. Coulter.
- 115s. Advanced Dairy Bacteriology. Investigations of specific problems in the bacteriology of milk and dairy products. Prerequisites: Course 2 or equiv., Course 111 or 112. 3 credits. Mr. Macy.
- 116s. Milk Secretion. Lecture assignments covering the anatomy and physiology of milk secretion and factors influencing the quality and quantity of milk. Prerequisites: Physiol. 9 cred. and Agr. Biochem. 103. 3 credits. Mr. Petersen.
- 117s. Dairy Cattle Breeding. Application of the principles of genetics to the improvement of dairy cattle. Evaluation of breeding animals and formulation of breeding plans. Prerequisites: Courses 101, 104, Agron. 31. 3 credits. Mr. Petersen.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 202f,203w,204s,208su,210su.* Research in Dairy Husbandry. Facilities offered for study and investigation of subjects pertaining to dairy cattle. Students are allowed to assist at times with investigations under way in the experiment station. Arranged to meet the needs of the individual student. Open in the summer quarter only to those who have had preliminary graduate work. Mr. Fitch, Mr. Petersen, Mr. Gullickson.
- 205f,206w,207s,209su,211su.* Research in Dairy Manufacturing. Opportunity and facilities are offered for study and investigation of problems concerning dairy products. The work is arranged to meet the needs of the individual student. Open in the summer quarter only to those who have had preliminary graduate work. Mr. Combs, Mr. Coulter.
- 212f,213w,214s,215su,216su.* Research in Dairy Bacteriology. Opportunity and facilities are offered for investigation and advanced study of problems involving the bacteriology and mycology of milk and dairy products. Open in the summer quarter only to those who have had preliminary graduate work. Mr. Macy.

ECONOMICS

Professors Russell A. Stevenson, Roy G. Blakey, George Filipetti, Fred-eric B. Garver, Alvin H. Hansen, Arthur W. Marget, Bruce D. Mudgett, J. Warren Stehman, Roland S. Vaile, Dale Yoder; Associate Professors Ernest A. Heilman, John J. Reighard, Clare L. Rotzel; Assistant Professors Arthur M. Borak, Ralph Cassady, Ernestine C. Donaldson, Richard L. Kozelka, Walter R. Myers, Harry J. Ostlund, Emerson P. Schmidt.

GENERAL ECONOMICS

Prerequisites.—Candidates for the master of arts or doctor of philosophy degree majoring in economics must present a minimum of 18 quarter credits of undergraduate economics which include courses in money and banking, principles of economics, accounting, and statistics. Where Economics 1 (Business Organization: Production), Economics 2 (Business Organization: Marketing), and Economics 4 (Principles of Economics) have been included in the undergraduate program a minimum of 27 quarter credits of undergraduate economics is required for a major in economics. Candidates for a postgraduate degree must present evidence of satisfactory undergraduate scholarship in economics before final acceptance as candidates for the degree.

Minors.—For the M.A. degree, where a minor is taken in economics, 9 quarter credits are usually considered the minimum requirement subject to approval of the candidate's major department. Subject to approval of the Executive Committee of the Graduate School, a major and minor for the M.A. degree may both be taken in economics if the candidate presents a program of courses properly complementing each other and not too closely related.

Majors.—Candidates majoring in economics must have their programs approved by the Graduate Committee of the department before they may be considered as candidates for an advanced degree. All candidates for an advanced degree must include Economics 103-104, or Economics 203-204, or the equivalent. For the M.A. degree a minimum of 18 quarter credits is required for the major in economics provided such minimum is acceptable in the program as approved. Ordinarily a seminar course should also be included in the student's major program. For the Doctor's degree the Graduate Committee may specify particular courses in the candidate's three-year program and therefore the specific requirements of credit hours are determined in each individual case. Candidates for the Doctor's degree are urged to complete the requirements for the Master's degree before being considered as candidates for the doctorate and should include two seminar courses in economic theory in their programs.

Language requirement.—Candidates for the M.A. degree in economics are required to have a reading knowledge of a foreign language only when the thesis is written in the following fields: money and banking, public finance, economic theory, economic history, statistics, and labor.

Master's degree.—Offered under both Plan A and Plan B.

BUSINESS ADMINISTRATION

Master of Business Administration

Students who are interested in professional business training following the obtaining of the Bachelor's degree may become candidates for the degree, master of business administration. Those who hold the degree of B.B.A. may normally expect to complete the work in one year, while those who hold a B.A. or B.S. degree would normally require longer, but usually not to exceed two years.

Prerequisites.—Candidates must meet the prebusiness requirements of the School of Business Administration in principles of economics, accounting, and statistics. In addition, psychology is required for specialization in advertising, foreign trade, merchandising, and personnel administration; and commerce algebra is required for specialization in accounting, finance, and statistics. Preparation in these prebusiness fields may have been completed in the undergraduate work, or it may be accomplished after entrance on the advanced program by taking the appropriate courses.

Candidates who have not taken the core-group courses required for the degree of B.B.A. must do so in preparation for the degree of M.B.A. These include the following courses: business law, advanced money and banking, advanced general accounting, corporation finance, survey in marketing, transportation services and charges, business statistics, production management, advanced general economics, labor problems, elements of public finance, and public utilities.

Course requirements.—Candidates for the M.B.A. degree must meet the

general regulations of the Graduate School. The specific requirements may be met in one of two ways:

Plan A.—By completion of 27 quarter credits in courses numbered above one hundred together with a Master's degree thesis; or

Plan B.—By the completion of 45 credits including no fewer than 9 credits in seminars or in independent work under the direction of an instructor, in courses giving graduate credit. Under this plan a thesis is not required. Each candidate will be expected, however, to carry on especially intensive work in some one field of business administration. He will be referred to an adviser to guide his specialization.

Comprehensive examination.—All candidates will be required to pass written and oral examinations in the fields covered by the core-group course and the field of specialization.

ECONOMICS

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

NOTE.—The following courses in other departments carry credit also in Economics: History: 180-181-182, Topics in Economic History; 221-222-223, Graduate Seminar in Economic History.

- 103f-104w. Advanced Economics: Competition, Monopoly, and Inequality of Incomes. 6 credits. Mr. Schmidt.
- 105s. History of Economic Ideas: The Classical Economists. 3 credits. Mr. Garver.
- 106s. History of Economic Ideas: The Critics of the Classical Economists. 3 credits. Mr. Hansen.
- 113w-114s. Theory of Statistics. 6 credits. Mr. Mudgett.
- 115f. Probability and Statistics. 3 credits. Mr. Altschul.
- 117w. Modern European Economic Problems. 3 credits. Mr. Altschul.
- 124w. Comparative Banking—British Systems. 3 credits. Mr. Myers.
- 125s. Comparative Banking—European Systems. 3 credits. Mr. Myers.
- 127s. Comparative Banking—South American Systems. 3 credits. Mr. Myers.
- 128s. Business Cycle Theory in German Literature. 3 credits. Mr. Altschul.
- 131f. Introduction to Mathematical Analysis in Economics. 3 credits. Mr. Altschul.
- 141f,w,s. Monetary and Banking Policy. 3 credits. Mr. Marget, Mr. Myers.
- 149f,w,s. Business Cycles. 3 credits. Mr. Marget, Mr. Hansen.
- 154s. Public Utilities. 3 credits. Mr. Schmidt.
- 160w. The Modern Corporation. 3 credits. Mr. Stehman.
- 161f,w,s. Labor Problems and Trade Unionism. 3 credits. Mr. Yoder.
- 162w. Labor Movements. 3 credits. Mr. Hansen.
- 163w. Economic Aspects of Population and Immigration. 3 credits. Mr. Hansen.
- 164s. Labor Legislation and Social Insurance. 3 credits. Mr. Schmidt.
- 166f. International Economic Problems. 3 credits. Mr. Hansen.
- 172f. Economics of Transportation. 3 credits. Mr. Schmidt.

- 176f,s. International Commercial Policies. 3 credits. Mr. Blakey.
 191f-192w. Public Finance. 6 credits. Mr. Blakey.
 193s. State and Local Taxation. 3 credits. Mr. Blakey.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 203f-204w. Seminar in Economic Theory. 6 credits. Mr. Garver.
 206s. Seminar in Market Prices. 3 credits. Mr. Vaile.
 215s. Mathematical Economics. 3 credits. Mr. Mudgett.
 243f-244w. Seminar in Money and Banking. 6 credits. Mr. Marget.
 248f-249w. Seminar in Unemployment and Business Cycles. 6 credits. Mr. Hansen.

BUSINESS ADMINISTRATION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100f,w,s. Report Writing. 1 credit. Mr. Heilman.
 101f-102w. Advanced General Economics. 6 credits. Mr. Garver, Mr. Mudgett.
 101w-102s. Advanced General Economics. 6 credits. Mr. Garver.
 109w,s. Business Policy. 3 credits. Mr. Reighard.
 112f,w,s. Business Statistics. 3 credits. Mr. Mudgett, Mr. Kozelka.
 130f,s. Cost Accounting. General survey. 3 credits. Mr. Ostlund.
 132w. Cost Accounting. 3 credits. Mr. Ostlund.
 133s. Cost Accounting Methods. 3 credits. Mr. Ostlund.
 134f. Income Tax Accounting. 3 credits. Mr. Reighard.
 135f. Auditing and Public Accounting. 3 credits. Mr. Reighard.
 136s. Internal Auditing and Accounting Control. 3 credits. Mr. Reighard.
 138f. Accounting Practice and Procedure. 5 credits. Mr. Heilman.
 139f,w,s. Advanced General Accounting. 3 credits. Mr. Heilman.
 142f,w,s. Money and Banking—Advanced Course. 3 credits. Mr. Marget, Mr. Myers.
 145s. Foreign Exchange. 3 credits. Mr. Myers.
 146f. Investments. 3 credits.
 147f. Bank Administration. 3 credits. Mr. Myers.
 148w. The Securities Market. 3 credits.
 155f,w,s. Corporation Finance. 3 credits. Mr. Stehman.
 156f. Finance Management. 3 credits. Mr. Stehman.
 165f,w,s. The Economics of Public Utilities. 3 credits. Mr. Garver, Mr. Schmidt.
 167w. Personnel Administration. 3 credits. Mr. Yoder.
 168s. Advanced Personnel Administration. 3 credits. Mr. Yoder.
 177w. Foreign Trade. 3 credits. Mr. Blakey.
 180f-181w-182s. Seminars for Seniors and Graduates. § Intensive study of problems in respective fields of specialization.

§ For list of subjects, see page 63.

No.	Title	Credits	Instructor
A.	Accounting§	6	Mr. Reighard, winter; Mr. Stevenson, spring.
B.	Business Finance§	6	Mr. Myers, winter; Mr. Marget, spring
C.	Marketing	9	Mr. Vaile, fall and winter; Mr. Cassady, spring
D.	Personnel Management	9	Mr. Yoder
E.	Statistics	9	Mr. Mudgett
F.	Production Management	9	Mr. Filipetti
G.	Insurance|| .....	3	
H.	Traffic and Transportation§	6	Mr. Schmidt
I.	Office Management|| .....	3	

§ Winter and spring only.

|| Fall and winter only.

|| Spring only.

183f,w,s. Senior Practice Course. Credits arranged. Members of the staff.

184s. Scientific Management in Industry. 3 credits. Mr. Filipetti.

194f-195w-196s. Advanced Advertising Procedure. 3 credits. Mr. Vaile.

AGRICULTURAL ECONOMICS¶

Professors O. B. Jesness, Warren C. Waite; Associate Professors Edwin C. Johnson, George A. Pond; Assistant Professors Rex W. Cox, Lewis F. Garey.

Prerequisites.—For major work 18 quarter credits consisting of courses acceptable to the student's adviser. Further courses may be required if in the opinion of the adviser this is necessary. For minor work 9 quarter credits.

Majors and minors.—The thesis may be in any field of agricultural economics (marketing, farm management, economics of agricultural production, agricultural prices, farm finance, land economics). Candidates will be expected to take work in the different fields, the program depending upon the field of specialization. With the approval of the adviser, certain courses in general economics and business administration may be accepted as major work. The minor may be in general economics.

Language requirement.—Candidates for the Master's degree in agricultural economics may be exempted from the requirement of a reading knowledge of a foreign language.

Master's degree.—Offered in general under Plan A. In exceptional cases Plan B may be offered by petition upon approval of the graduate faculty members in agricultural economics.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

102w. Farm Management: Organization. The business side of farming with emphasis on farm organization and equipment. 3 credits. Mr. Pond.

103s. Farm Management: Operation. A continuation of 102 with special attention to farm operation. Prerequisite: Course 102. 3 credits. Mr. Pond.

¶ For courses in General Economics and Business Administration, see Economics.

- 104s. Types of Farming. A study of types of farming and of prevailing farm practices in the principal agricultural production areas. Prerequisites: Courses 102, 103, or equiv. 3 credits.
- 110f-111w. Economics of Agricultural Production. The principles of production economics elaborated in terms of the production of the major farm products and producing areas. Economic geography and agriculture. National production policies. 6 credits. Mr. Johnson.
- 126f,s. Economics of Consumption. Formulation of the economic principles relating to choice between different uses of income and time and energy to individuals and family organizations. 3 credits. Mr. Waite.
- 131w. Market Prices. Analysis of the price making process as it works out in the market places where the major farm products are sold. Market quotations and price quoting. 3 credits. Mr. Waite.
- 135s. Methods of Price Analysis. Statistical technique involved in analyzing seasonal and year-to-year movements in prices of farm products. Interpretation of results. 3 credits. Mr. Waite.
- 140f. Marketing Organization: Staples. Principles of production economics applied to the organization of markets and marketing organization for the grains, tobacco, cotton, and wool. Especial attention to co-operative organization. 3 credits. Mr. Cox.
- 141w. Marketing Organization: Dairy and Poultry Products. 3 credits. Mr. Jesness.
- 142s. Marketing Organization: Fruits and Vegetables. 2 credits. Mr. Cox.
- 143w. Marketing Organization: Livestock and Meats. 3 credits. Mr. Johnson.
- 144f. Co-operative Organization. 3 credits. Mr. Jesness.
- 150s. Advanced Farm Finance. 3 credits. Mr. Johnson.
- 170s. Land Economics. 3 credits. Mr. Johnson.
- 190f. Agricultural Statistics. Intended for beginning graduate students who have had no course in the elements of statistical method. 3 credits. Mr. Cox.
- 191w. Advanced Agricultural Statistics. 3 credits. Mr. Waite.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 200f-201w-202s.* General Seminar in Agricultural Economics. § Credits as Mr. Jesness and staff.
- 203f-204w. Current Problems and Literature. No credits. Required of all majors in agricultural economics. Mr. Jesness.
- 206s.* Seminar in Agricultural Policy. A study of economic problems of agriculture and policies adopted by governmental, agricultural, and individual agencies toward such problems. 3 credits. Mr. Jesness.
- 220s.* Farm Surveys. An intensive study of the factors entering into farm organization. Special emphasis on selection, assembling, validity, and analysis of data. Attention given to studies in local production areas. 3 credits. Mr. Garey.

§ Under this head are arranged special seminars on subjects suited to the needs of particular groups of graduate students, or on subjects upon which members of the staff are doing work at the time.

- 221f.* Farm Organization Studies. A seminar study of the principles involved in the analysis of farm organization data and the computation of farm costs. Attention will be given to methods used in collecting and compiling these data with special emphasis on farm records and accounts as a basis for farm organization study. 3 credits. Mr. Pond.
- 223f-224w.* Systems of Farming. A seminar course, including an intensive study of the factors determining the various systems of farming, and production areas, with emphasis on specific types of farming. 3 to 6 credits. Mr. Garey.
- 225w-226s.* Advanced Farm Organization. Analysis of farm organization and the application of survey factors and cost factors in organizing the business of farming. 3 to 6 credits. Mr. Pond.
- 230f,w,s.* Research Problems in Farm Organization and Operation. A study of methods of conducting research work and analyzing problems in farm organization and operation. Students will be assigned to individual research problems or to special phases of research work being conducted by members of the staff. Reports covering progress of work and analysis of findings required as a basis for credit. 3 to 9 credits. Mr. Pond.
- 237w.* Seminar in Research Methods in Price Analysis. A survey and analysis of the various types of research projects being worked upon in the field of prices of farm products. 3 credits. Mr. Waite.
- 240s.* Seminar in the Marketing of Cereals. 3 credits. Mr. Jesness, Mr. Cox.
- 241f.* Seminar in the Marketing of Livestock and Livestock Products. 3 credits. Mr. Jesness, Mr. Johnson.
- 244w.* Seminar in Co-operative Marketing. 3 credits. Mr. Jesness.
- 246f.* Seminar in Economics of Consumption. 3 credits. Mr. Waite.
- 247f.* Seminar in Research Methods in Marketing. 3 credits. Mr. Jesness and staff.
- 265f.* Seminar in Agricultural Taxation. 3 credits.

EDUCATION

Professors Harold Benjamin, Charles W. Boardman, Leo J. Brueckner, Harl R. Douglass, Fred Engelhardt, Melvin E. Haggerty, August C. Krey, Wylie B. McNeal, Wilford S. Miller, Wesley E. Peik, Homer J. Smith; Associate Professors Clara M. Brown, Alvin C. Eurich, Albert M. Field, Palmer O. Johnson, Dora V. Smith, Edgar B. Wesley; Assistant Professors Herbert A. Carroll, Marcia Edwards, Marvin J. Van Wagenen.

Prerequisites.—For major work at least 6 quarter credits in psychology and in addition to this a total of not less than 18 quarter credits of undergraduate work in education which shall include Ed. 51A-B-C, or the equivalent. For minor work at least 6 quarter credits in psychology and in addition to this, a total of not less than 18 credits of undergraduate work in education.

Language requirement.—Candidates for the Master's degree majoring in any of the fields of education are exempted from the foreign language requirement without petition.

Seminars.—Seminars in education are conducted primarily for students preparing theses for the Doctor's degree or the Master's degree under Plan A. Credit for the seminars is therefore not allowed under the graduate rule forbidding both course and thesis credit for the same work.

MAJORS AND MINORS

Major and minor work for advanced degrees may be arranged from courses listed below under the following groupings:

Doctor's Degree

Major.—Major work will be chosen in the field of education in the following manner:

With the approval of his adviser the student will select a group of courses, excluding the field of his minor, centering about his special interest in education. The center of interest may be determined in either of three ways:

1. By reference to problems of general education.
 2. By a more limited grouping as determined by special subject-matter content.
 3. By the type of educational institution to which courses relate.
- Under the second grouping the following are acceptable as typical centers of interest:

Curriculum of instruction
Educational administration
Educational psychology
History of education
Home economics education

Under the third method of grouping courses typical centers of interest will be as follows:

Elementary education
Secondary education
Higher education

Minor.—Minors may be designated as follows:

1. Any other field of study offered in the University of Minnesota in which satisfactory courses of graduate character are available and which is obviously related to the field of major interest.
2. Students majoring in fields other than education may choose education or any of its subdivisions enumerated above as a minor when it appears that such a minor is appropriately related to a major field.

Master's Degree—Plan A

Major.—Majors may be chosen as follows:

Education: Under this designation the student, with the approval of his adviser, may select a group of courses from among those listed below, ex-

cluding the field of his minor, centering about his special interest in education. The center of interest may be determined by subject-matter content or by the type of educational institution to which courses are related. Typical centers of interest are the same as those listed under Doctor's Degree above with the addition of agricultural and industrial education.

Minor.—Minors may be chosen from any of the groupings of courses enumerated above when such grouping is not included in the major.

Any other field of study offered at the University of Minnesota in which satisfactory courses of graduate character are available and which is obviously related to the major field.

Students majoring in fields other than education may choose education or any of its subdivisions enumerated above as a minor when it appears that such a minor is appropriately related to the major field.

Master's Degree—Plan B

Field of concentration.—Under Plan B, which encourages a wider selection of courses, the student will be expected to select a field of concentration in which he will attain the required number of course credits. The field of concentration differs from the major in that it encourages the choice of a somewhat wider range of courses related to the student's interest. As in the case of the major, however, the student will be expected to indicate his field of concentration according to the general arrangement of courses that prevails for the requirement of a major. This arrangement is as listed under Doctor's Degree above.

Additional courses.—The student may elect the additional courses required to complete the total of 45 credits from an area of education not included in the field of concentration or from any other field of study offered at the University of Minnesota in which satisfactory courses of graduate character are available and which is obviously related to the student's interest.

Colloquium in Education, Education 200.—Candidates for the Master's degree under Plan B are expected to earn 9 credits in courses involving papers prepared in independent study. This requirement may be satisfied by earning 9 credits in Education 200, Colloquium in Education.

Field study.—Education courses in the following pages are grouped with a view of bringing together those of related content. It is not intended, however, that this grouping shall be followed explicitly in the determination of majors, minors, or fields of concentration. The student will be free to determine, within limits approved by his adviser, the arrangement of courses that he wishes to offer for satisfying major, minor, or field of concentration requirements.

Program of classes.—For the schedule of classes for the year, including hours and place see Combined Class Schedule, Education section. For descriptions of prerequisite courses see the College of Education Bulletin.

GENERAL COURSES

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ed.101f. Historical Foundations of Modern Education. Historical analysis and interpretation of the more important elements in modern education derived from the Greeks, Romans, the Middle Ages, and the Renaissance. Prerequisite: 6 credits in psychology. 3 credits. Miss Alexander.
- Ed.102w. History of Modern Secondary and Higher Education. A historical study of the origin, aims, growth and existing types of European and American secondary schools. Prerequisite: 6 credits in psychology. 3 credits. Miss Alexander.
- Ed.103s. History of Modern Elementary Education. The institutions, theories, and problems of modern elementary education in the light of their history. Emphasis upon the rise of state systems and upon the history of modern educational reform. Not open to students who have had H. Ed. 71. Prerequisite: 6 credits in psychology. 3 credits. Miss Alexander.
- Ed.104s. Adult Education. An examination of the main lines of development in the field of adult education, with special attention to principles of adult learning, methods of teaching adults, and the organization of adult education programs. 2 credits. Mr. Benjamin.
- Ed.131w. Comparative School Systems. A survey of existing school systems in foreign countries. Prerequisite: 9 credits in education. 2 credits.
- Ed.140f-141w-142s. Problems in the History of Education. Historical investigation of education problems. Prerequisite: permission of instructor. Mr. Wesley.
- Ed.167w. The Junior High School. Sources of the movement; purposes, functions, and limitations; types of reorganization; fundamental problems of reorganization; reorganization of subject-matter. Prerequisite: 10 hrs. in education, including Ed. 51. 2 credits. Mr. Douglass.
- Ed.185f. The Professional Education of Teachers. A study of the present status of teacher education and of the problems that relate to the institutional training of teachers for public schools and higher education. Prerequisite: 15 hrs. in education. 2 credits. Mr. Peik.
- Ed.186f,w,s. Individual Problems in Teacher Training. Planned for those who have a special interest in this field. An intensive study of specific problems. Consult instructor before enrolling. Prerequisite: Ed. 185 or consent of instructor. 2 credits. Mr. Peik.
- Ed.187s. Instruction and Administration in Teachers Colleges. In this course emphasis is placed on the historical development, the present status, and the prospects of future development. An intensive study is made of curricula, departmental organization, and practice teaching. Emphasis is placed also on the supervision of instruction. Prerequisite: 15 hrs. in education. 2 credits. Mr. Peik.
- Ed.188w. Special Problems in Educational Sociology. The sociological foun-

dations of educational theory. Lectures, readings, and problems. Prerequisite: permission of instructor. 2 credits. Miss Elliott.

- Ed.199su. Organization and Supervision of Vocational Education. A general course to consider objectives, methods, operation, and supervision of vocational education in the public schools, with special emphasis on agricultural education. Especially for superintendents, principals, and supervisors of vocational education. Prerequisite: Ed.51B or equiv. 3 credits. Mr. Field.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.200f,w,s. Colloquium in Education. The colloquium is intended to combine independent study with group conferences. Each student will pursue his work under the guidance of an adviser and will be required to submit a written report showing the results of independent work required of all candidates for the Master's degree under Plan B or Plan C. Nine credits earned in this colloquium must be presented for the degree. Meetings will be conducted for the colloquium as a whole, but there will be additional meetings for groups having special related interests. Credits in the colloquium will be conditioned upon the satisfactory passing of such examinations as the staff may deem desirable. All advisers of graduate students will participate in the conduct of the colloquium.
- Ed.205f,w,s. Problems in Adult Education. 2 credits. Mr. Benjamin.
- Ed.208w. Methods in Educational Research. A study of the methods employed in the investigation and report of educational problems. Designed to aid students in the preparation of theses. Suggested for all candidates for degrees. 2 credits. Mr. Johnson.
- Ed.224f-225w-226s. Seminar in Elementary School Problems. Mr. Brueckner, Mr. Peik.
- Ed.227s. Current Readjustments in Higher Education. A consideration of the major administrative and curricular readjustments in higher education. Studies making apparent the need for the adjustments will be critically reviewed. Methods for evaluating a college will be studied in detail. 2 credits. Mr. Eurich.
- Ed.228f-229w-230s. Problems of College Education. Problems of student personnel, of college curricula and instruction, of organization and administration. 6 credits. Mr. Haggerty.
- Ed.231f,w,s. Problems in Comparative Education. 2 credits a quarter. Mr. Benjamin.

AGRICULTURAL EDUCATION

Prerequisites.—For major or minor work, 18 credits in agricultural education and preparation in agricultural subjects satisfactory to the Department of Agricultural Education.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Agr.Ed.121su. Enterprise Analysis. Experience in analyzing enterprises in agriculture as a basis for identifying problems and distributing them in the horizontal set-up for the course of study in agriculture. Prerequisite: Agr. Ed. 51. 2 credits. Mr. Field, Mr. Nylin.

- Agr.Ed.135f. The Curriculum in Vocational Agriculture. A study of curriculum organization, determination of subject-matter, organization of subject-matter, job analysis, course construction, texts, and references. Prerequisite: Course 11. 3 credits. Mr. Field.
- Agr.Ed.141w. Supervised Practice in Vocational Agriculture. A special methods course dealing with the selection, planning, supervising, and summarizing of the practical work in agriculture. Special emphasis on the problem method of teaching and the use of the farm and community for teaching purposes. Prerequisite: 10 credits in education. 3 credits. Mr. Field.
- Agr.Ed.145su. The Integrated Course of Study in Agriculture. A presentation of the problems of organization, administration, and teaching in departments of agriculture in the secondary schools. Special emphasis on planning programs for individual students. Prerequisite: Agr. Ed. 51. 3 credits. Mr. Field.
- Agr.Ed.154f,w. Rural Education and Community Leadership. The rural school as a community center, and ways and means of organizing educational and recreational activities, such as clubs, festivals, fairs, and other desirable features of rural community life. Prerequisite: Course 51. 2 credits. Mr. Field.
- Agr.Ed.161s. Vocational Education in Agriculture. A study of the principles developed and established in agricultural education. The principles developed in other vocational education and their relation to agricultural education. Prerequisites: Courses 51, 81, 82, 83. 3 credits.
- Agr.Ed.171f,w,s. Problems in Procedure. For agriculture teachers. Emphasizes working out problems in detail in order that the processes as formulated can be used in teaching the following year by those enrolled. Discussions, readings, papers, laboratory. Prerequisites: 42, 182, or equivalent teaching experience. 3 credits. Mr. Field.
- Agr.Ed.181f. Teaching Agriculture. Observations of class work, apprentice teaching, curriculum organization, farm practice, and the use of farm and community for teaching purposes. Prerequisite: Course 51. 5 credits. Mr. Field.
- Agr.Ed.182w. Teaching Agriculture. Special methods course dealing with conducting a high school agriculture department. Fundamentals of method of teaching as related to teaching agriculture in the high school. Organizing subject-matter. Selection and manipulation of devices. Prerequisite: same as for 181. 5 credits. Mr. Field.
- Agr.Ed. 183s. Teaching Agriculture. Organization and administration of agriculture in secondary schools including all-day, part-time, and evening school instruction. Special emphasis on equipment, text and reference books, extension work, and organizations. Prerequisite: same as for 181. 5 credits. Mr. Field.
- Agr.Ed.184su. Special Methods in Teaching Agriculture. Designed especially for teachers in service. Emphasis on advanced problems in directing the learning activities of all-day, part-time, and evening school students. 3 credits. Mr. Field.

- Agr.Ed.186su. Special Problems in Agricultural Education. Analysis and discussion of special problems of individual teachers. Opportunity for intensive study of specific problems related to local school programs. 3 credits. Mr. Field.
- Agr.Ed.191f-192w-193s. Seminar in Agricultural Education. Critical studies of important problems in agricultural education; opportunity for individual investigation and research; review and interpretation of current educational literature. 6 credits. Mr. Field.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Agr.Ed.221f-222w-223s-224su. Graduate Problems. Making investigations, gathering data, and formulating plans regarding agricultural education. 3 credits per quarter. Mr. Field.
- Agr.Ed.232su. Research in Agricultural Education. Introduction to investigational work in problems of teaching agriculture in high schools. Experience in selecting problems, preparation of bibliographies, analyzing and interpreting data, and preparing manuscripts. 3 credits. Mr. Field.
- Agr.Ed.241f. Operation of Vocational Agriculture. Problems involved in the state and local activities in conducting vocational agriculture. It includes a study of federal and state laws and regulations, courses of study, duties of the state supervisor, reports, records, and conferences. 2 credits. Mr. Field.
- Agr.Ed.242w,s. Organization and Administration of Teacher Training for Vocational Agriculture. Development of teacher training institutions, agricultural college curricula, professional needs of high school teachers, professional courses and their content, equipment, itinerant teacher training, practice teaching, teacher evaluation. 2 credits. Mr. Field.

ART EDUCATION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- ArtEd.153s. Design for the Consumer. Problems of house planning and decoration, and furnishing. Subject-matter appropriate for art teaching in high schools and colleges. Emphasis on art principles; art history; original research problems and applications. Prerequisites: ArtEd. 1-2-3, 20, 21, 22, or 50, 51, and 7, 8, 9 and one course in Fine Arts prerequisite or parallel or permission of the instructor. Mr. Hilpert.
- ArtEd.154. Design for the Consumer. Problems of costume selection, and designing; settings and costumes in stage design. Prerequisites: same as for 153. (Not offered in 1936-37.)
- ArtEd.189. Application of Esthetic Theories in Public School Art Education. Prerequisites: 9 cred. in drawing, 9 cred. in design. 3 credits. (Not offered in 1936-37.)

CURRICULUM AND INSTRUCTION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

NOTE.—Courses in this department were formerly listed under Administration and Supervision (Ed.Ad.) and Theory and Practice of Education (Ed.T.). In most cases the numbers remain the same.

- Ed.C.I.113w. The High School Curriculum. A study of principles and of methods for the selection and organization of subject-matter for courses; the organization of curricula; contemporary viewpoints and curriculum issues; reorganization trends; typical research findings by subjects. Prerequisites: 10 hrs. in education including Ed. 51A. 2 credits. Mr. Peik.
- Ed.C.I.119f. The Elementary School Curriculum. A study of the principles underlying the selection and organization of subject-matter for courses in the elementary school; survey of the methods, problems, and the findings of research by subjects. Prerequisites: 9 hrs. in education. 3 credits. Mr. Peik.
- Ed.C.I.119T-120T. Elementary School Curriculum. (Same as above for teachers.) 4 credits. (Not offered in 1936-37.)
- Ed.C.I.121w. Educational Advising of Women and Girls. A course designed to acquaint students with the problems of educational advising of young women and girls, particularly those of high school age. Students admitted to the course through conference with instructor. Prerequisite: 15 cred. in education and psychology. 3 credits. Miss Blitz.
- Ed.C.I.122s. Literature for Adolescents. A background for pupil guidance in extensive reading in junior and senior high schools; analysis of studies of adolescent choices in literature; principles of selection; critical reading in broad field of literary, biographical, historical, scientific, and vocational interests of boys and girls. Prerequisite: Ed. 51C or jr.-sr. high school teaching experience. 2 credits. Miss Smith.
- Ed.C.I.123w. Supervision of High School Instruction. The present status of high school supervision; its proper scope and function. A course combining consideration of principles and their application to improving high school instruction in the academic and special subjects. Prerequisite: 10 hrs. in education. 3 credits. Mr. Boardman.
- Ed.C.I.133f. Guidance in Secondary Schools. Basic principles and current practices in educational and vocational guidance in junior and senior high schools. Application of principles through case discussions. 2 credits. Miss Edwards.
- Ed.C.I.135w. Teaching of Occupations. Discussion of the content of the secondary school course in occupations, stressing sources of material and vocational trends. 2 credits. Miss Edwards.
- Ed.C.I.143-144.†† The Teaching of Reading. A study of the objectives, the materials, and teaching procedures in lower, intermediate, and upper grades in the light of the contributions of research; survey of current practices and curricula; class and individual projects; observation of

† A fee of \$1 per credit is charged for this course.

- reading techniques and materials in the demonstration school. Prerequisites: 9 hrs. in education including Ed. 51A. 4 credits. Mr. Carroll. (Not offered in 1936-37. See Ed.C.I. 159.)
- Ed.C.I.146s. Clinical Remedial Reading. Prerequisites: C.I. 143 or 159. 2 credits. Miss Gibbons.
- Ed.C.I.148w. The Teaching of Arithmetic in the Primary Grades. Functions of arithmetic; curriculum studies; preparation of informational units; tests of arithmetic readiness; organization of materials; teaching methods. Prerequisite: Ed. 61C or equivalent. Not open to students who have had Ed.T. 54B. 2 credits. Mr. Brueckner.
- Ed.C.I.149s. The Teaching of Arithmetic in the Intermediate Grades. Functions of arithmetic instruction; curriculum studies; development of socialized units; measurement and diagnosis; experimental research on methods of arithmetic instruction; literature on arithmetic. Prerequisite: Ed. 61C or equivalent. Not open to students who have had Ed.C.I.54B. 2 credits. Mr. Brueckner.
- Ed.C.I.150f.‡ Supervision and Improvement of Instruction. An analysis of the functions and duties of a supervisor as related to the improvement of instruction; specific supervisory technique, objective analysis of classroom activity; concrete applications to present-day problems; case studies. Prerequisite: Ed. 61C or equiv. 3 credits. Mr. Brueckner.
- Ed.C.I.151w.‡ Diagnosis and Remedial Instruction in the Elementary School. Objective evaluation of the results of teaching; diagnosis of pupil difficulty; remedial work; tests as aids to teaching; following up a testing program. Prerequisite: Ed.C.I. 150 or equiv. 3 credits. Mr. Brueckner.
- Ed.C.I.152w. Supervision—The Adjustment of Schools to Individual Differences. The adaptation of the school, the curriculum, and classroom procedures to the abilities and interests of pupils. Prerequisite: 15 hrs. in education. 2 credits. (Not offered in 1936-37.)
- Ed.C.I.153. Supervision of English in the Elementary Schools. Improvement of instruction in language, grammar, spelling, and handwriting; the results of scientific investigation; use of standardized and informal tests; remedial work. Prerequisite: Ed. 61C or equivalent. 2 credits. (Not offered in 1936-37.)
- Ed.C.I.154s. Supervision of Social Sciences in the Elementary Schools. The scientific work being done on the course of study in geography, history, science, and related fields; improvement of instruction in social sciences in the elementary schools. Prerequisite: Ed. 61C or equiv. 2 credits.
- Ed.C.I.155. Supervision of Arithmetic in the Elementary Schools. Locating supervisory needs; enrichment of instruction; selection, organization, gradation of the curriculum; diagnostic and remedial teaching; recent trends and research. Prerequisite: Ed. 61C or equiv. 2 credits. (Not offered in 1936-37. See C.I. 148 and 149.)
- Ed.C.I.156s.‡ Practice Supervision—Group Problems and Field Work. Instructional and supervisory problems studied with the help of direct classroom visitation in university demonstration schools and schools in

‡ A fee of \$1 per credit is charged for this course.

- the Twin Cities, followed by conferences with teachers and supplemented with research in the literature. Prerequisite: 15 hrs. in education, and permission of instructor. 3 credits. Mr. Peik, Mr. Cooper.
- Ed.C.I.157f,w,s,‡ Practice in Supervision. Individual research on special supervisory problems, especially intended for supervisors in service. Prerequisite: consent of instructor. 3 credits a quarter. Mr. Brueckner, Mr. Cooper.
- Ed.C.I.159w. Supervision and Teaching of Reading. The improvement of supervision and instruction in reading; by supervisors, principals, and faculties. Prerequisite: 15 hrs. in education. Mr. Peik.
- Ed.C.I.160s.‡ Supervision of Elementary Subjects. An overview course for giving supervisor and superintendent information as to recent trends in elementary education. Prerequisite: Ed.C.I. 150. 2 credits. Mr. Brueckner.
- Ed.C.I.161f,w,s. Special Problems in School Supervision. Intended primarily for graduate students majoring in supervision and others qualified to make intensive studies of specific problems related to school supervision. (fall) Surveys of Instruction; (winter) The Construction of Tests for Measuring the Extent to Which Objectives Are Achieved; (spring) Problems in the Evaluation of Teaching. Prerequisite: 10 credits in education. 2 credits. Mr. Brueckner.
- Ed.C.I.162f. The Significance of Progressive Education. A survey of the progressive education movement and its effects on curriculum, methods, organization, and supervision. 2 credits.
- Ed.C.I. 163. Recent Research in Arithmetic Instruction. A study of recent research in curriculum, gradation of subject-matter, methods, materials, and supervision of arithmetic. Prerequisite: Ed.C.I. 156 or 148 or 149 or equivalent. (Not offered in 1936-37.)
- Ed.C.I.164s. Recent Research in Educational Diagnosis. A study of recent research in the methods of diagnosis in education, and the techniques of preventive and remedial teaching. Prerequisite: Ed.C.I. 151 or equivalent. 2 credits. Mr. Brueckner.
- Ed.C.I.165. Recent Literature in Supervision. A study of recent research on problems of elementary school supervision. 2 credits. (Not offered in 1936-37.)
- Ed.C.I.168f. Current Developments in the Social Studies. A survey of contemporary literature, curricular trends, the commission report, and recent developments in integration. 2 credits. Mr. Wesley.
- Ed.C.I.169f. Extra-curricular Activities. Types of activities in junior and senior high schools; aims and values; practices in organizing, administering, and supervising; methods of evaluation. Prerequisite: 10 hrs. in education, including Ed. 51A. 3 credits.
- Ed.C.I.172s. Curriculum and Course of Study Construction. A practicum course. A study of, and practice in, the techniques employed at elementary, secondary, and higher education levels. Class projects and individual projects according to needs, interests, level, and specialization.

‡ A fee of \$1 per credit is charged for this course.

- Thoro exploration of one field by each student. Prerequisite: 15 hrs. in education. 2 credits. Mr. Peik.
- Ed.C.I.173s. Recent Research and Literature in Reading. A survey of recent problems, issues, studies, and findings. Intended for those who have had previous training in reading, who have a special problem, or who wish to survey the most recent literature. Prerequisite: Ed.C.I.159 or equivalent. 2 credits. Mr. Peik.
- Ed.C.I.174f-175w-176s.‡ Clinical Methods and Practice in Speech Pathology. Prerequisite: Ed. Psy. 143-144, Speech 1, 2, 3, 61, 67, 162, and permission of instructor. 9 credits. Mr. Bryngelson.
- Ed.C.I.181w.‡ Foundation of Elementary School Methods. A survey of the current philosophy and research which form the bases for improvement of elementary school instruction. Observation in the demonstration school. Prerequisite: 9 credits in education. 3 credits. Mr. Peik. (Not offered in 1936-37.)
- Ed.C.I.181T-182T.‡ Foundations of Elementary School Methods. (Same as Ed.C.I. 181 above for teachers.) 3 credits. (Not offered in 1936-37.)
- Ed.C.I.184f. Supervision of Practice Teaching. A course primarily for teachers engaged in the direction of practice teachers in secondary education. 2 credits. Mr. Boardman.
- Ed.C.I.188s.‡ Advanced Course in Methods of Teaching Modern Languages. An advanced course of the seminar type in methods of teaching modern foreign languages. Designed primarily for experienced teachers and graduate students. Lectures, readings, discussions. Prerequisite: Ed.C.I. 72A,B,C or equiv. 2 credits.
- Ed.C.I.191s.‡ Advanced Course in the Teaching and Supervision of Secondary School Mathematics. Evaluation of present practices in methods, content, and administration of junior and senior high school mathematics. Prerequisite: Ed. 51C or permission of instructor. 2 credits. Mr. Kinney.
- Ed.C.I.193s. Foundations of Secondary School Methods. A study of the investigations which form the bases of the technique of high school instruction and the application of their results to subject-matter and to classroom procedure. Each member will work primarily in the field of his teaching choice, with a final synthesis by the class as a whole. Prerequisite: Ed. 51C. 3 credits. Mr. Johnson.
- Ed.C.I.194f.‡ Advanced Course in Methods of Teaching English. Evaluation of present practices in methods and content of junior and senior high school English courses in the light of the known results of scientific investigations in that field. Prerequisite: Ed.C.I. 66A,B,C or equiv. 2 credits. Miss Smith.
- Ed.C.I.196w-197s.† Special Problems in Techniques of Secondary School Instruction. Opportunity is given in the course to work upon special research problems in the field of the student's individual choice under personal guidance of instructors in the given field. Individual con-

‡ A fee of \$1 per credit is charged for this course.

§ Passing the qualifying examination is prerequisite to this course.

ferences will replace class meetings throughout the course. Prerequisites: Ed. 53, Ed.Psy. 60 or equiv. 2 credits a quarter. Mr. Johnson, Miss Smith, Mr. Wesley, Mr. Kinney.

COURSES PRIMARILY FOR GRADUATE STUDENTS

Ed.C.I.201f-202w-203s.‡ Advanced Course in Methods of Teaching History and Social Studies. Consent of the instructor is necessary. 2 credits a quarter. Mr. Krey.

Ed.C.I.222f-223w-224s. Seminar in the Technique of High School Instruction. No credit. Required of students working on theses. Miss Smith, Mr. Johnson, Mr. Wesley.

See also Ed. 228-229-230 under General Courses, page 69.

Ed.C.I.225f,w,s. Special Problems in the Supervision of Secondary Schools. 2 credits a quarter. Mr. Boardman.

For graduate courses in the theory and practice of teaching in special subjects see the respective departmental course descriptions.

EDUCATIONAL ADMINISTRATION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

NOTE.—For courses formerly listed in this department see Curriculum and Instruction (Ed.C.I.).

Ed.Ad.115w. Organization of the Elementary School. Problems relating to the organization for instruction and classification of pupils in elementary schools with critical examination of current practices. Prerequisite: 10 credits in education. 2 credits. Mr. Engelhardt.

Ed.Ad.124f. Public School Administration. The organization, administration, and general support of public schools in state and local school districts. Prerequisite: 10 hrs. in education. 3 credits. Mr. Engelhardt.

Ed.Ad.125w. Techniques in Administration. Standard practices regarding child accounting problems, records and reports; procedures having to do with personnel and school board relations and rules and regulations; standard office practices, including textbook and supply management. Prerequisite: Ed.Ad.124. 3 credits.

Ed.Ad.126s. School Plant Management. Plant program planning and financing, including operation and maintenance of public school buildings. Prerequisite: Ed.Ad. 124. 3 credits. Mr. Engelhardt.

Ed.Ad.128w,s. Special Problems in Educational Administration. This course is designed primarily for superintendents and principals qualified to make intensive studies of specific problems related to the administration of a school system. Prerequisite: Ed.Ad. 124, 125, 126 or equiv. 1 or 2 credits. Mr. Engelhardt.

Ed.Ad.158. Organization for Supervision. The organization and administration of a public school system for supervision, treating specifically

‡ A fee of \$1 per credit is charged for this course.

the delegation and co-ordination of the supervisory responsibilities of all staff members associated in these activities. (Not offered in 1936-37.)

- Ed.Ad.175s. Financial Aspects of Public School Business Administration. Financial program planning, budgeting, accounting, cost finding, income and expenditure control; and the preparation and analysis of financial reports. Prerequisites: Ed.Ad. 124, 125. 3 credits. Mr. Engelhardt.
- Ed.Ad.178f. School Surveys. A study of the literature and methods of school surveys, as a basis for the investigation of practical problems in school administration and supervision. 3 credits. Mr. Engelhardt.
- Ed.Ad.180f,w,s,‡ Practice in High School Administration. Practical experience in problems of administration, pupil personnel, curriculum administration, extra-curricular activities, staff problems, program and schedule making, etc. Consult instructor before registering. Prerequisite: 10 hrs. in education including Ed. 51C. 2 credits a quarter. Mr. Boardman.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.Ad.205f-206w-207s. Seminar in Educational Administration. No credit. Mr. Engelhardt.
- Ed.Ad.218f-219w-220s. Seminar in Secondary School Problems. No credit. Mr. Douglass, Mr. Boardman.
- Ed.Ad.264f-265s. High School Administration. Organization of secondary school units; housing; selection and assigning of the staff; schedule making; public relations and publicity; organization of guidance and of extra-curricular activities; pupil, equipment, and internal fund accounting and related problems of administration; government; problems related to instruction. Prerequisite: 10 hrs. in education including Ed. 51A. 2 credits a quarter. Mr. Douglass.
- Ed.Ad.270f,w,s. Special Problems in Secondary Education. Primarily for those at work in high schools who are qualified to make intensive studies. Consult instructor before registering. Prerequisite: 10 hrs. in education including Ed. 51A. 2 credits. Mr. Douglass.

EDUCATIONAL PSYCHOLOGY AND MEASUREMENT

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ed.Psy.113f-114w-115s. Psychology of Elementary School Subjects. A discussion of the research studies in the field of the psychology of elementary school subjects. Prerequisite: 10 hrs. in education and psychology. 2 credits a quarter. Mr. Van Wagenen.
- Ed.Psy.116f-117w-118s. Statistical Methods in Education. A course designed to lay the foundations of statistical theory and to develop craftsmanship to put theory to application with special reference to educational and psychological problems. 3 credits a quarter. Mr. Johnson.
- Ed.Psy.116w-117s. Statistical Methods in Education. See above. 4 credits. Mr. Van Wagenen.

‡ A fee of \$1 per credit is charged for this course.

- Ed.Psy.120f. Basic Principles of Measurement. Principles applied to the construction and use of tests and to the interpretation and evaluation of scores. Illustrations from mental and other aptitude tests, education, personality, and character tests. Prerequisite: Ed. 51A or equivalent. 3 credits. Mr. Eurich.
- Ed.Psy.135w-136s. Problems in Mental Testing. A study of the practical problems in administration and use of group mental tests. Prerequisites: Ed. 51A and 60 or equiv. 4 credits. Mr. Eurich.
- Ed.Psy.138f-139w.† Experimental Educational Psychology. A laboratory course designed to train students in the use of experimental methods in the study of educational problems, particularly in the field of the psychology of learning. It is suggested that this course supplement either 133 or 190, 191, 192, 193-194. Prerequisite: Ed.51A or equivalent. 4 credits.
- Ed.Psy.140w. Construction and Use of Educational Tests and Examinations. A study of tests for elementary and secondary school pupils and for graduate students. Each student will have opportunity to construct examinations and evaluate published tests in the field of his major interest. Prerequisite: Ed.Psy. 120 or equivalent. 3 credits. Mr. Eurich.
- Ed.Psy.141w. Construction and Use of Group Aptitude Tests. A study of group aptitude tests for all school levels with special emphasis on reliability and validity as instruments for educational and vocational guidance. Prerequisite: Ed.Psy. 120 or equivalent. 3 credits. Mr. Carroll.
- Ed.Psy.142s. Construction and Use of Individual Aptitude Tests. Application of basic principles of measurement to individual diagnosis. Demonstration and practice. Stanford-Binet, Kuhlmann-Binet, and performance tests. Consideration of other clinical methods. Prerequisite: Ed.Psy. 120 or equivalent. 3 credits. Mr. Sorenson.
- Ed.Psy.145s. Special Problems in the Field of Individual Mental Testing. Prerequisites: Ed.Psy. 120, 141, 142. 2 credits.
- Ed.Psy.146w-147s.† Child Guidance. The understanding and treatment of all forms of behavior problems in children of school age. Didactic lectures, reading, and presentation of clinical case records. Prerequisite: 15 credits in psychology and education. 4 credits. Mr. Chamberlain.
- Ed.Psy.149f-150w†-151s. Psychoeducational Clinic. Conducted in co-operation with existing clinics and agencies in the Twin Cities. Students will receive practice in giving psychological examinations, in case study, and in scientific interpretation of data. Prerequisites: Ed.Psy. 120, 135-136, 141, 142, permission of instructor. 2 to 6 credits. Mr. Eurich.
- Ed.Psy.153f-154w-155s. Research Problems. Intended for properly prepared students who desire to pursue special investigation in the field of educational psychology. Mr. Haggerty, Mr. Miller, Mr. Eurich, Mr. Carroll, Mr. Van Wagenen.
- Ed.Psy.157s. Psychology of Child Development. The physical, mental, social, and emotional development of children from birth to adolescence. Prerequisite: 6 credits in psychology. 2 credits. Mr. Carroll.
- Ed.Psy.158s. Psychology of Adolescence. A study of the physical and men-

- tal changes that characterize the transition from childhood to adult life. Implications for educational guidance during the period of secondary education. Prerequisite: Ed. 51A or equiv. 2 credits. Miss Edwards.
- Ed.Psy.159. Psychology of Personality. Theoretical basis. Survey of methods for the measurement and study of character and the emotions. Relation to school success and other factors in the school situation. Genetic development of personality traits in childhood and adolescence. Prerequisite: Ed.Psy. 51A or equiv. 2 credits. (Not offered in 1936-37.)
- Ed.Psy.180w. Esthetics in Education. An objective approach to the existence, causes, and methods of dealing with individual difference in esthetic abilities. Prerequisites: 15 credits in education and psychology. 2 credits. Mr. Carroll.
- Ed.Psy.181f,w,s. Practice in Personnel Work. Course designed to give properly qualified students practical experience in the use of psychological and related methods in dealing with school children. Prerequisites: satisfactory preparation in psychology and education and approval of adviser. Mr. Haggerty, Miss Edwards.
- Ed.Psy.183f. Psychology of Gifted Children. A study of the abilities and characteristics of intellectually gifted children and adults. Prerequisite: Ed. 51A or equiv. 2 credits. Mr. Carroll.
- Ed.Psy.184s. Mental Deficiency. Survey of physical and mental traits of intellectually subnormal children and adults; social problems of feeble-mindedness. Prerequisite: Ed. 51A or equiv. 2 credits.
- Ed.Psy.189f. The Human Organism. The development of the human organism in relation to educational practice. Prerequisite: permission of instructor. 3 credits.
- Ed.Psy.190f. Original Nature of Man. Advanced work in genetic psychology, man's unlearned behavior, and inherited capacities. Prerequisites: Ed. 51A and 60 or equiv. and permission of instructor. 3 credits. Mr. Miller.
- Ed.Psy.191w. Individual Differences. A study of group and individual differences and their relations to educational practice. Prerequisites: Ed. 51A and 60 and permission of instructor. 3 credits. Mr. Miller.
- Ed.Psy.192s. Recent Literature in Educational Psychology. Readings and reports on problems in educational psychology. Prerequisites: Ed. 51A and 60 and permission of instructor. 3 credits. Mr. Miller.
- Ed.Psy.193w-194s. Psychology of Learning. A study of the experiments in learning: a survey of the points of view on learning of the several schools of psychology. Prerequisite: 12 credits in psychology and educational psychology. 4 credits. Mr. Carroll.
- Ed.Psy.193T. Psychology of Learning. Same as Ed.Psy.193-194. For teachers and administrators. 2 credits. (Not offered in 1936-37.)
- Ed.Psy.197-198-199. Problems in Subnormality. Phases of subnormality studied intensively. Review of important literature and original investigation. Students required to make reports on assigned topics and submit a paper on some problem at the close of the quarter. 6 credits. (Not offered in 1936-37.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.Psy.201f-202w-203s. Seminar in Educational Psychology. A research course for graduate students. Required of all students writing theses in educational psychology. Does not carry credit as course work. Mr. Haggerty, Mr. Miller, Mr. Eurich, Mr. Carroll, Mr. Van Wagenen.
- Ed.Psy.240f,w,s. Problems in Measurement. Intensive study and individual research in problems of educational and psychological measurement. Prerequisites: Ed.Psy. 120, and 140 or 141 or 142. 2 credits a quarter.

HISTORY AND PHILOSOPHY OF EDUCATION

NOTE.—For courses formerly listed in this department see General Courses in Education.

HOME ECONOMICS EDUCATION

See Home Economics, page 106.

INDUSTRIAL EDUCATION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ind.101f. Tests in Industrial Subjects. Acquaintance with such available tests of aptitude and achievements as are useful in industrial education; application of known techniques in remedial teaching to the work of shop and drawing teachers. Critical evaluation and planning. Prerequisite: Ed. 51A. 2 credits. Mr. Smith.
- Ind.103w. Instructional Aids. Analysis of various instructional aids; preparation of instruction sheets; work plans for their use. Prerequisites: Ind. 40, 42. 2 credits. Mr. Smith.
- Ind.105w. Industrial Education. For superintendents, principals, and teachers not specializing in the field named; general and vocational phases considered; objectives, administration, and supervision; programs and practices; laws, rulings, and standards for aid; significant literature; how to judge teachers, courses, and methods in the special field. 3 credits. Mr. Smith.
- Ind.110f. Guidance in the Schools. The history of the educational and vocational guidance movement; typical public school means and methods; collection and use of occupational information; duties of the counselor; organization and relationships. Prerequisite: Ed. 51A. 2 credits. Mr. Smith.
- Ind.115s. Supervision of Industrial Education. Principles of creative supervision applied in industrial teaching; analysis of duties, organization for supervision; functional analysis of modern concepts of industrial education. 2 credits. Mr. Smith.
- Ind.150f-151w-152s. Problems in Vocational Education. Survey of printed reports and theses; critical analysis; selection of thesis problems; formulation of work plans; reports of progress; organization and presentation. Full year assumed. Graduates only. 6 credits. Mr. Smith.

- Ind.170f. Day Industrial Schools. National, state, and local organization and types; buildings and equipment; promotion and advertising; co-operative relationships; teaching staff; pupil guidance, training, and placement. Prerequisite: Ind. 60, 61. 2 credits. Mr. Craig.
- Ind.171w. Evening Industrial School. Development of the after-training of adults; agencies and scope of the movement; national and state legislation; qualification of instructors; problems and difficulties; records and certification, fees and charges; building, equipment and instruction facilities. Prerequisite: Ind. 170. 2 credits. Mr. Bass.
- Ind.172s. Part Time Education. A study of the new movement for part time education; social and economic background; organization of classes, study of special student groups, courses of study; typical schools; comparative state legislation and plans. Prerequisites: Ind. 170, 171. 2 credits. Mr. Smith.

MUSIC EDUCATION

COURSE FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Mu.Ed.101s. Tests and Measurements in Music. Valuation and application of the various ability and achievement tests in music with methods of use, analysis, and prognosis. A survey and evaluation of studies in the field of music testing. Prerequisite: permission of instructor. 2 credits.

THEORY AND PRACTICE OF TEACHING

NOTE.—For courses formerly listed in this department see Curriculum and Instruction and General Courses in Education.

ELECTRICAL ENGINEERING

Professors John M. Bryant, William T. Ryan; Associate Professors Henry E. Hartig, Elmer W. Johnson, John H. Kuhlmann, James S. Webb; Assistant Professor Milo E. Todd.

Prerequisites.—For major work, E.E. 121 to 126 or their equivalent; for minor work, 6 credits in physics, integral calculus, and one of the following: E.E. 38, 45, 48, or 125.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 111f-113w-115s. Junior Electrical Engineering. Alternating current circuits and machinery. Prerequisites: Courses 11, 13, 15. 5 credits per quarter. Mr. Johnson, Mr. Caverley.
- 112f-114w-116s. Junior Electrical Engineering Laboratory. Experimental study of alternating current circuits and machinery. To be taken with Course 111-113-115. 2 credits per quarter.
- 121f-123w-125s. Senior Electrical Engineering. Theory of alternating and direct current machinery. Prerequisites: Courses 115, 116. 3 credits per quarter. Mr. Bryant, Mr. Johnson. Mr. Caverley.

- 122f-124w-126s. Senior Electrical Engineering Laboratory. Operating characteristics of alternating and direct current machinery. To be taken with Course 121-123-125. 2 credits per quarter.
- 127f-128w-129s. Transient Electrical Phenomena. Mathematical study of electric circuits during sudden changes of conditions. Classical and operational methods of analysis applied to electric circuits and machines, and use of the oscillograph in the analysis of these problems. Prerequisites: Courses 121, 123, 125, or reg. in 121, 123, 125. 3 credits per quarter. Mr. Bryant, Mr. Johnson.
- 132f-134w-136s. Electrical Design. The design of direct current generators and motors, alternating current transformers, generators and synchronous motors. Prerequisite: for 132, registration in E.E. 121; for 134, registration in E.E. 123; for 136, registration in E.E. 125. 2 credits per quarter. Mr. Kuhlmann.
- 138f-139w-140s. Slow Transients. Short-circuit currents in power networks, unbalanced loads in polyphase circuits, transformers and motors, harmonics, stability of power systems under steady state conditions. Application of relay, oil circuit breakers, and lightning arresters to power systems for protection of apparatus and service. Prerequisite: registration in Courses 121, 123, or 125. 3 credits per quarter. Mr. Bryant, Mr. Johnson, Mr. Caverley.
- 156s. Vacuum Tube and Control Devices. Two, three, four and five electrode vacuum tubes. Thyration, kenetron, grid glow, photoelectric tubes, etc. Theoretical study of apparatus and circuits with demonstrations. 2 credits. Mr. Hartig, Mr. Webb.
- 158w-159s. Engineering Electronics. A course covering the fundamental theory and operation of multi-electrode vacuum tubes, thyratrons, covering the fundamental grid glow tubes, photoelectric cells, cathode ray tubes, and other electronic devices. Class and laboratory. Prerequisite: Course 111. 3 credits per quarter.
- 167f-168w-169s. Electrical Design. Special problems. Prerequisites: Courses 132, 134, 136. Credits as arranged. Mr. Kuhlmann.
- 171w-172s. Undergraduate Thesis. Investigation of some approved problem in electrical engineering. Prerequisite: Course 121. 3 to 6 credits per quarter.
- 173f-174w-175s. High Voltage Engineering. Study of insulation and generating equipment for high voltage; measurements of electrical quantities at high voltage; surges, and surge proof equipment. Prerequisite: senior or graduate standing. 2 or 3 credits. Mr. Caverley.
- 183f-184w-185s. Special Electrical Laboratory. Efficiency tests and special problems. Prerequisite: Course 116. Credits arranged.
- 191f-192w-193s. Seminar. Weekly discussion of current electrical periodicals. Prerequisite: Course 111. 1 or 2 credits per quarter.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 211f-212w-213s. Advanced Circuit Analysis. Circuit analysis using Heaviside's *Operational Calculus*. Prerequisite: M.&M. 151. 2 credits per quarter.

- 227f-228w-229s. Transients in Electrical Machinery and Transmission Lines. Theoretical and laboratory study of transients in electric power machinery and of lightning surges and lightning protection. Prerequisites: Courses 127, 128, 129. 3 credits per quarter. Mr. Bryant.
- 275f-276w-277s.* Electrical Engineering Research. Investigation of special problems in laboratory or library. Prerequisite: graduate standing. 2 to 6 credits per quarter. Mr. Bryant, Mr. Ryan, Mr. Hartig, Mr. Johnson, Mr. Kuhlmann, Mr. Webb, Mr. Todd.
- 284f-285w-286s. Precise Electrical Engineering Measurements. Measurements of resistance, voltage, current, self-induction, and capacity; standardization of measuring instruments. Prerequisite: Course 122. 2 credits per quarter. Mr. Todd.
- 291f-292w-293s.* Graduate Seminar. Discussions of problems and results of research work. 1 credit per quarter.

ELECTRIC POWER

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 141f. Central Stations. Electric power generating stations and distributing systems. Load diagrams. Selection of prime movers and units. Cost of electrical energy. Methods of charging. Maintenance of plants. Prerequisite: registration in Course 121. 3 credits. Mr. Ryan.
- 142w. Electrical Transmission. Consideration involved in the designing and building of transmission lines. Kelvin's law and its limitations. Transmission line as a mechanical structure. Lightning arresters. Prerequisite: registration in Course 123. 3 credits. Mr. Ryan.
- 144w. Railway Electrical Engineering. Principles of mechanics applied to electric train movement. Prerequisite: Course 42, 45, 48, or 115. 2 credits. Mr. Johnson.
- 145s. Railroad Electrification. Reasons of electrification. Study of European and American systems. Results of electrification. Prerequisite: Course 144. 2 credits. Mr. Johnson.
- 151f. Illuminating Engineering. Nature of light. Laws of vision, principles of illumination, photometry, sources of light, and their characteristics. Lighting equipment. Illumination requirements and calculation for various fields of use. Prerequisite: Physics 43. 2 credits. Mr. Johnson.
- 152f. Photometric Laboratory. Photometric practice. Distribution curves of lamps and reflectors. Measurement of lighting installations. To be taken with Course 151. 1 credit. Mr. Johnson.
- 153w-154s. Illumination Problems. Illumination design and specifications applied to problems in street, residence, industrial, commercial, and other kinds of lighting. Prerequisite: Course 151. 2 credits per quarter. Mr. Johnson.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 237s. Power Transmission Line Design. Preparation of detailed plans and specifications for the construction of high voltage transmission lines

and distributing systems. Prerequisites: Courses 134, 142. 3 credits.
Mr. Ryan.

251w-253s.* Illuminating Engineering. Lectures and laboratory work. Methods of determining location, kind, and quality of lights for obtaining desired illumination. Prerequisite: Course 151. 2 credits per quarter.
Mr. Johnson.

ELECTRIC COMMUNICATION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 161f-162w-163s. Radio Communication. Theoretical and laboratory study of radio transmitting and receiving circuits and apparatus. Amplifiers, detectors, oscillators. Electromagnetic waves in free space and on antenna systems. Prerequisite: registration in Courses 121, 123, 125. 3 credits per quarter. Mr. Webb.
- 164f-165w-166s. Electric Communication. Telephone circuits at audio and carrier frequencies. Theoretical and laboratory study of circuits having distributed constants. Use of hyperbolic functions. Wave filters, balancing networks, equalizers, repeaters. Prerequisite: Course 66. 3 credits per quarter. Mr. Hartig.
- 167f. Radio Transmission. Design and operation of modern transmitting equipment, with special emphasis on broadcast transmission. Permission of instructor. 2 or 3 credits. Mr. Webb.
- 168w,169s. Radio Receiver Design. Detailed study of the problems arising in broadcast receiver design. Permission of instructor. 2 or 3 credits. Mr. Webb.
- 176f-177w-178s. Electronics. Theoretical and laboratory study of the following subjects with aspects of their engineering applications. Electron emission from hot bodies. Richardson's equation, Langmuir-Childs equation, secondary electron emission, ionization and resonance potentials, external and internal photoelectric effect, positive ion emission, shot effect, discharge of electricity through gases, "getter" action. Barkhausen-Kurtz effect, ionization due to radioactivities, etc., Heaviside layer as a reflecting and refracting medium, long period echo effect, electron waves, vacuum gauges, vacuum technique, etc. Registration by permission of instructor. 2 credits per quarter. Mr. Webb.
- 181s. Communication Frequency Measurements. Vector treatment of network. Bridge circuits for measuring of resistance, inductance, and capacity at audio and carrier frequencies. Prerequisite: Course 126. 2 credits. Mr. Hartig.
- 187f-188w-189s. Special Communication Laboratory. Special problems in electrical communication. Open by permission to qualified students. Includes weekly seminar meeting. 1 to 3 credits per quarter. Mr. Hartig.
- 194f-195w-196s. Vacuum Tube Applications. A study of commercial thermionic vacuum, vapor, and gas discharge tubes including an extensive survey and detailed study of their scientific and industrial applications. Registration open to graduates and seniors in electrical engineering by permission. 3 credits per quarter.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 261f-263w-265s.* Advanced Radio Communication. Theoretical study of the transmission of electromagnetic waves. Design and testing of radio transmitting and receiving apparatus. Theory of electron tubes and their use in radio circuits. High frequency measurements. Taken with Course 262-264-266. 2 credits per quarter; registration by permission. Mr. Webb.
- 262f-264w-266s. Advanced Radio Laboratory. Special problems in radio laboratory and station, usually taken in connection with Course 261-263-265. For students specializing in electrical communication. 1 or more credits per quarter; registration by permission. Mr. Webb.
- 267f-268w-269s. Telephone Transmission. Advanced transmission theory at communication frequencies. Class and laboratory. 2 or 3 credits; registration by permission. Mr. Hartig.
- 272f-273w-274s. Electromechanical Vibrating Systems and Engineering Acoustics. Theoretical discussion of the production of sound by electrically driven vibrating systems, sound transmission, reflection, absorption. Laboratory study of vibrating systems, pipes, horns, absorbing materials, sound pressure, articulation, reverberation, resonance, sound filters. Prerequisite: M.&M. 151. 3 credits. Mr. Hartig.
- 281w-283s.* Advanced High Frequency Measurements. Vector treatment of circuit networks. Bridge circuits for the measurement of resistance, inductance and capacity at audio and radio frequencies. Prerequisite: Course 126. 2 credits per quarter. Mr. Webb.
- 287f-288w-289s.* Advanced Communication Laboratory and Seminar. Special problems in communication. Study and discussion of current articles on communication. 2 or 3 credits; registration by permission. Mr. Hartig.
- 294f-295w-296s. Theory of Vacuum Tube Circuits. Prerequisite: completion of Course 194-195-196 or equivalent. 3 credits per quarter. Mr. Hartig.

ENGINEERING

Professors John M. Bryant, William T. Ryan.

See also Aeronautical, Agricultural, Chemical, Civil, Electrical, Mechanical, and Mining and Petroleum Engineering, and Architecture.

GENERAL

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 111s. Valuation of Public Utility Properties. Factors affecting value, depreciation, taxation, and regulation of public utility properties. Elements of engineering economics; cost analysis, economic investigations, rate making. 3 credits. Mr. Ryan.
- 112f-113w-114s.* Rates for Public Utility Properties. Determination of the rate base and depreciation amount for transportation, gas, water, electric power and telephone utilities operating expenses, the rate struc-

ture for particular utilities, service and discrimination. Open only to senior and graduate students in engineering and to properly qualified students in economics and business administration. 3 credits per quarter. Mr. Bryant.

ENGLISH

Professors Cecil A. Moore, Joseph W. Beach, Martin B. Ruud, Elmer E. Stoll, Joseph M. Thomas; Associate Professor G. Tremaine McDowell; Assistant Professors Muriel B. Carr, William P. Dunn, James T. Hillhouse, Elizabeth Jackson, Charles W. Nichols, Anna H. Phelan.

Before registering for graduate courses, students should consult with the director of graduate work for the department, Mr. Ruud.

Before the acceptance of his subject for a thesis, a candidate for the degree of M.A. or Ph.D. must have given evidence to the department that he speaks and writes English with propriety.

Master's degree.—Offered under both Plan A and Plan B.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

Plan A

1. *Prerequisite.*—(1) For major work, not less than 27 credit hours in English literature, 12 of which must be of Senior College grade, including satisfactory courses in Chaucer and Shakespeare; for minor work, not less than 27 credit hours in English literature, including courses in Shakespeare. (2) Unless special exception is made upon petition to the department, the candidate is required to have a reading knowledge of one of the following languages: French, German, Latin, Greek.

2. The minimum requirement of 18 credits in the major is interpreted to mean 18 credits in subjects listed below as "Courses in English." If the candidate has not previously had an elementary course in Old English, this subject must be included in his program of graduate study.

3. Before taking the oral examination, the candidate is given a written examination on the history of English literature.

In addition to the option of electing work in some other related field for a minor for the Master's degree, the candidate may select courses from one of the following groups as a minor:

a. *Philology*, including English 100 (Old English), 102 (Old English Poetry), 103 (Beowulf), 141-142-143 (Historical Grammar), 160 (History of the English Language), 165 (Historical Study of Modern English), and any other philological courses in other language departments which may be approved by the Department of English.

b. *Comparative Literature*, including Dante in English, Arthurian Romances, Metrical Romances, Pre-Elizabethan Drama, Medieval Drama (seminar), Modern Drama, and courses in foreign literature in other departments.

c. *American Literature*, including all graduate courses in that subject.

Plan B

Prerequisites: For the M.A. under Plan B, no thesis is required; undergraduate prerequisites and the requirements in Old English and a foreign language remain. The major comprises 30 credits, of which 9 must be in a seminar (all courses numbered above 200, and 123-124-125). The minor comprises 15 credits, in any field provided for under Plan A. Plan B includes the comprehensive qualifying examination in English literature.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

1. *Delimitation of the field.*—The general field of English is divided into two periods (1) Early English and (2) Modern English. The boundary line between these periods may be drawn anywhere between 1500 and 1550 according to the requirements of the candidate's program. A candidate may select as his major subject either the Early English or the Modern English period.

2. The candidate will be examined as to his knowledge of the whole field of English literature, but much more thoroly in that portion of the field covered by his major. Special emphasis will be laid, in the examination, on one particular period or one particular type (such as drama, lyric, or essay) with which he is presumed to be especially familiar. This particular period or type would naturally be that connected with his thesis.

3. The candidate must have completed, before examination, advanced courses in Chaucer and Shakespeare.

4. The candidate is required to have a reading knowledge of *two* of the following foreign languages: French, German, Latin, Greek.

5. A good reading knowledge of Latin is in all cases desirable, and in some cases may be indicated by the candidate's adviser as indispensable.

6. Candidates who have not already taken the comprehensive written examination given to M.A. candidates must take it before coming up for the preliminary oral examination.

COURSES IN ENGLISH

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100f. Old English. Old English prose and poetry. The relation to modern English is particularly emphasized. Prerequisite: 6 credits above 50. 4 credits. Mr. Ruud.
- 101f. Middle English. An outline of Middle English grammar, including the interpretation of selected texts. Prerequisites: Courses 75 and 100. 2 credits. Mr. Ruud. (Not offered in 1936-37.)
- 102w. Old English Poetry. Critical reading of poems. Prerequisites: Course 100 and 2 additional credits above 50. 3 credits. Mr. Ruud.
- 103s. Beowulf. An introduction to the Old English poem, with reading of considerable portion of the text. Prerequisite: Course 100 and 2 additional credits above 50. 3 credits. Mr. Ruud.

- 105w-106s.† Eighteenth-Century Poetry. From Pope to Burns, with special reference to the rise and growth of romanticism. Prerequisite: 6 credits above 50. 6 credits. Mr. Moore. (Not offered in 1936-37.)
- 107w-108s.† Eighteenth-Century Prose. Special study of fiction and the essay. Prerequisite: 6 credits above 50. 6 credits. Mr. Moore.
- 109f-110w.† The Romantic Poets of the Nineteenth Century. From Wordsworth to Keats. Prerequisite: 6 credits above 50. 6 credits. Mr. Beach.
- 111f-112w.† Seventeenth-Century Prose. General survey of the prose of the century to 1660. Prerequisite: 6 credits above 50. 6 credits. (Not offered in 1936-37.)
- 123f-124w-125s.† The Technique of the Novel. Special studies in novels of the late nineteenth and twentieth centuries, with particular regard to structure. Prerequisite: 6 credits above 50 and permission of the instructor. 9 credits. Mr. Beach.
- 126w-127s. Drama, 1660-1880. Prerequisite: 6 credits above 50. 6 credits. Mr. Hillhouse, Mr. Nichols.
- 129s. Modern Drama. Contemporary drama from 1870 to the present. Prerequisite: Course 55-56. 4 credits. Mr. Stoll.
- 133f. Ballads. A study of a large number of traditional ballads, English and foreign, and of ballad style and origins. Prerequisite: 6 credits above 50. 3 credits. Mr. Ruud.
- 135w. Spenser. A study of his poems. Prerequisite: 6 credits above 50. 3 credits. Mr. Stoll.
- 136s. Advanced Shakespeare. Shakespeare's development traced to the end. A careful analysis of four plays. Problems in the interpretation of Shakespeare's dramatic methods. Prerequisite: Course 55-56. 4 credits. Mr. Stoll.
- 140s. Advanced Chaucer. The more important poems (except those read in Course 75). The treatment will be primarily literary and historical, linguistic proficiency being presumed. Prerequisite: 6 credits above 50, including Course 75. 4 credits. Mr. Ruud.
- 141-142-143. Historical Grammar of the English Language. This course is identical with Comparative Philology 141-142-143. Prerequisite: 6 credits above 50, including Course 75 or 81-82. 6 credits. (Not offered in 1936-37.)
- 146f-147w. The Metrical Romances. The more important Middle English romances of the non-Arthurian cycles. Prerequisites: 6 credits above 50, including Course 75 or 81-82. 6 credits. Miss Carr. (Not offered in 1936-37.)
- 148f-149w. Arthurian Romances. An introduction to great stories of love and chivalry connected with King Arthur and the Round Table. Prerequisite: 6 credits above 50. 6 credits. Miss Carr. (Not offered in 1936-37.)
150. Victorian Poetry. The poetry of the Victorian era, aside from Browning's and Tennyson's. The principal names are: Matthew Arnold, the Rossettis, Fitzgerald, Morris, Swinburne, and Meredith. Prerequisite: 6 credits above 50. 4 credits. Mr. Stoll. (Not offered in 1936-37.)

- 151s. Recent Poetry. Poetry in England and America since the death of Queen Victoria. The main tradition and tendencies now prevailing. Prerequisite: 6 credits above 50. 4 credits. Mr. Beach.
- 152s. Pre-Elizabethan Drama. The late medieval and the Renaissance drama, moralities, interludes, and farces up through the earlier years of the Elizabethan period. Prerequisite: Course 55-56. 3 credits. Ar.
- 153f. Seventeenth-Century Lyrists. Prerequisite: 6 credits above 50. 4 credits. Mr. Moore. (Not offered in 1936-37.)
- 154f-155w. The American Novel. The history of the American novel from the beginning to the present. Prerequisite: Course 73-74; or 31-32 and 6 credits above 50. 6 credits. Mr. McDowell.
- 156f. The American Drama. Survey of American drama in the eighteenth and nineteenth centuries. Prerequisite: Course 73-74. 3 credits. Mr. Nichols.
- 157f-158w. Elizabethan Non-Dramatic Literature. A survey of prose and poetry, 1558-1603. Prerequisite: 6 credits above 50, including Course 55-56 or 135 or 170. 6 credits. Ar.
- 159s. Colonial Literature in America. Covers the periods from 1608 to 1783. Prerequisite: Course 73-74. 3 credits. Mr. Nichols. (Not offered in 1936-37.)
160. History of the English Language. Prerequisite: 6 credits above 50 including Course 100. 2 credits. (Not offered in 1936-37.)
- 162f. Restoration Literature. Prerequisite: 6 credits above 50. 3 credits. Mr. Moore.
- 164s. Dante in English. See Italian 164s. 3 credits.
- 165w. The Historical Study of Modern English. Prerequisite: 6 credits above 50. 3 credits. Mr. Ruud.
- 168s. English Literary Criticism. A historical sketch, with special reference to Aristotle, Sir Philip Sidney, Dryden, Dr. Johnson, Coleridge, Arnold, T. S. Eliot. Prerequisite: 6 credits above 50. 3 credits.
- 169f. Browning and Tennyson. Most of the time will be spent on Browning. Prerequisite: 6 credits above 50. 4 credits. Mr. Stoll.
- 170w. Elizabethan Drama. Elizabethan dramatic art aside from Shakespeare's. Special attention to the art of the chief writers—Marlowe, Jonson, Beaumont and Fletcher, Webster, and Massinger. Prerequisite: Course 55-56. 4 credits. Mr. Stoll. (Not offered in 1936-37.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 217f-218w-219s. Restoration Drama. 9 credits. Mr. Stoll. (Not offered in 1936-37.)
- 220f-221w-222s. Medieval Drama. A study of the beginnings of the modern drama in the liturgy of the church and its development to the great vernacular cycles. 9 credits. Mr. Ruud. (Not offered in 1936-37.)
- 225-226-227. Elizabethan Drama. Elizabethan and Jacobean dramatists, from Lyly to Shirley. Problems assigned may involve Shakespeare, and in general his contemporaries will be studied less for their own sakes than for the light they shed upon him. 9 credits. Mr. Stoll.

- 228f-229w-230s. Eighteenth-Century Novel. The rise and development of the novel as a form of literature; the use made of the novel as a medium of religious, social, and political theory. 9 credits. Mr. Moore.
- 231f-232w-233s. Shakespeare's Tragic and Comic Art. 9 credits. Mr. Stoll. (Not offered in 1936-37.)
- 234f-235w-236s. Middle English Alliterative Poetry. A literary and linguistic study of selected Middle English alliterative poems. 9 credits. Mr. Ruud. (Not offered in 1936-37.)
- 237f-238w-239s. Chaucer. A study of some of the important problems in the Chaucer canon and in the works of Chaucer. 9 credits. Mr. Ruud.
- 240f-241w-242s. The Canterbury Tales. 9 credits. Mr. Ruud. (Not offered in 1936-37.)
- 243f-244w-245s. Non-Dramatic Literature of the Sixteenth Century. The Renaissance in England; prose and poetry, with special attention to Spenser and his contemporaries. 9 credits. Ar.
- 246f-247w-248s. American Literature from 1783 to 1832. 9 credits. (Not offered in 1936-37.)
- 250f-251w-252s. Classical Backgrounds of Nineteenth-Century Literature. Classical influences upon poetry from Wordsworth to the present: the prose of Landor, Arnold, and others. 9 credits. (Not offered in 1936-37.)
- 253f-254w-255s. American Romanticism I: New England. 9 credits. Mr. McDowell.
- 256f-257w-258s. Spenser and Milton. Reading of the poetry in full and a good deal of Milton's prose. The two poets will be studied as the great English exponents of Renaissance ideas and ideals. 9 credits.
- 259f-260w-261s. The Romantic Period of the English Novel. The Gothic romances and the Revolutionary novel, the realistic novel of national manners, and Jane Austen. Sir Walter Scott and the more important later romancers. (Not offered in 1936-37.)
- 262f-263w-264s. Studies in Nineteenth-Century Novel. The chief novelists of the period, Dickens, Thackeray, and George Eliot as well as several of the minor novelists. Emphasis on social theories in the novels and reflections of the life of the times. 9 credits. Mr. Hillhouse.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

Professors William A. Riley, Arthur G. Ruggles, Maurice C. Tanquary; Associate Professors Alexander A. Granovsky, Julian G. Leach, Clarence E. Mickel; Assistant Professors Samuel Eddy, Harold H. Shepard.

Prerequisites.—27 credits in zoology and entomology. Depending on the proposed field of specialization within the division there may be accepted in partial fulfillment of this requirement such courses as bacteriology, plant pathology, or biochemistry.

Master's degree.—Offered in general under Plan A. In exceptional cases Plan B may be offered by petition.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 117f-118w-119s. General Ecology. General animal ecology. Frequent field trips. Lectures, laboratory, and field work. Mr. Eddy.
- 120s. General Ecology of Insects. General ecology with special emphasis on its application in insect control. 3 credits. Mr. Hodson.
- 124su. Advanced Ecology. Similar to Course 120 with special field work. 3 or more credits. Mr. Hodson.
- 125f-126w-127s. Advanced General Entomology. Morphology and classification of insects with lectures on the history of entomology. Lectures and laboratory. 9 credits. Mr. Mickel.
- 139f-140w. Histology and Development of Insects. Lectures and laboratory work on the histology, embryonic and postembryonic development of insects. Individual work along these lines is available to properly qualified students under Course 197. 6 credits. Mr. Riley.
- 141f-142w. Insects in Relation to Plant Diseases. A study of the principal insect vectors and their habits; types of insect injuries affecting health of plants; modes of insect transmission and dissemination of plant diseases; the methods of rearing and handling the carriers. Of interest to students in entomology, plant pathology, horticulture, forestry, and agronomy. Prerequisites: entomology or plant pathology. 8 credits or consent of instructor. 6 credits. Mr. Granovsky, Mr. Leach.
- 144w-145s-146s. Animal Parasites and Parasitism. Lectures and laboratory work. Second term devoted primarily to the relation of insects to diseases of man and animals. 9 credits. Mr. Riley.
160. General Forest Entomology. Lectures, laboratory, and library work treating of the life history, habits, and ecological relationships of insects that affect trees and forest products. Mr. Hodson.
- 175f. Insecticides and Their Action. Special studies of insecticides. Lectures and laboratory. 4 credits. Mr. Shepard.
- 176w-177s. Advanced Economic Entomology. A study of the principles of insect control and the history of economic entomology. Lectures. 3 credits per quarter. Mr. Ruggles.
- 197f,w,s,su. Introduction to Research. Preparation for investigational work in lines of entomology, parasitology, insect and plant diseases, or economic zoology. Summer work should be planned when possible. Mr. Granovsky, ecology; Mr. Riley, parasitology, insect morphology; Mr. Ruggles, general economic entomology; Mr. Tanquary, apiculture; Mr. King, economic vertebrate zoology; Mr. Mickel, systematic entomology; Mr. Shepard, insecticides.

COURSES PRIMARILY FOR GRADUATE STUDENTS

200. Seminar. Assigned topics, each term dealing with some special field of work of the division. Mr. Riley and staff members.
- 201-204. Research in Entomology. Mr. Riley, Mr. Granovsky, Mr. Mickel.
- 205-208. Research in Economic Entomology. Mr. Ruggles.
- 209-212. Research in Economic Vertebrate Zoology. Mr. King.
- 261-264. Research in Parasitology and Medical Entomology. Mr. Riley.

- 265-268. Research in Insecticides. Mr. Shepard.
 269-272. Research in Apiculture. Mr. Tanquary.

FARM MANAGEMENT AND AGRICULTURAL ECONOMICS

For courses and staff see Agricultural Economics, page 63.

FINE ARTS

Assistant Professor David M. Robb.

201f-202w-203s. A limited number of graduate students will be accepted for advanced study and reading under personal guidance. This work will be concerned with the history of art during historical periods, in various countries including the United States and with the genesis and development of art types, tendencies, and schools in architecture and the fine arts. Prerequisites: 18 quarter credits in Senior College in history of art or permission of the instructor. 3 credits per quarter. Mr. Robb.

FORESTRY

Professors Henry Schmitz, John H. Allison, Edward G. Cheyney, Raphael Zon; Associate Professor Thorwald S. Hansen; Assistant Professors Randolph M. Brown, Louis W. Rees.

Prerequisites.—For major work, 27 credits in forestry, three quarters of botany or equivalent. For minor work, 9 credits in the department.

The choice in subject must be made by the candidate and approved by the chief of the division and the instructor. The facilities of the forest experiment stations at Cloquet and Itasca are available to students taking this work.

Language requirement.—Exemptions from the language requirement for the Master's degree may be made in individual cases.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101w. Advanced Dendrology. A continuation of Course 3-4 with special studies in classification and distribution of the timber species of the world. Prerequisites: 10 credits in botany and 8 credits in dendrology. 3 credits. Mr. Rees.
- 111f-112w. Advanced Forest Mensuration. Continuation of Course 111 with special emphasis on the application of alinement charts and correlation in forest mensuration. Consent of instructor necessary. Mr. Brown.
- 113f. Wood Pulps and Papers. A detailed study of production of wood pulp and paper products. Lectures, reading, reports. Prerequisites: Courses 33-34, Chem. 3 or 10. 3 credits. Mr. Allison.
- 114f-115w. Mechanical and Physical Properties of Wood. Derivation and application of the formulas used in determining stresses in wood. Lab-

- oratory methods in timber physics. Lectures, reading, laboratory, and reports. Prerequisites: Course 33-34. 6 credits. Mr. Rees.
- 116s. Mechanical and Physical Properties of Wood. Study of the physical properties of wood. Shrinkage, relation of strength to moisture content, etc., and their bearing on wood utilization. Laboratory, reading, and reports. Prerequisite: Course 33-34. 3 credits. Mr. Rees.
- 119w. Advanced Wood Structure I. The microtechnique of woody tissues. Lectures, reading, and laboratory work. Prerequisite: Course 33-34. 3 credits. Mr. Rees.
- 120s. Advanced Wood Structure II. Advanced study of the anatomy of woody plants. Reading, laboratory, and reports. Prerequisite: Course 33-34. 3 credits. Mr. Rees.
- 125s. Wood Preservation. Lectures and collateral reading upon the history, development, and methods of wood preservation. Different systems now in use and preservatives used. 3 credits. Mr. Schmitz.
- 126f. Silvics. The fundamentals forming the basis of silviculture with special attention to the silvics of the important tree species. Lectures, readings, and required papers. 3 credits. Mr. Cheyney.
- 127w. Silviculture. A study of the general principles underlying the art of silviculture, and a brief study of the European methods as applied to American conditions. 3 credits. Mr. Cheyney.
- 128s. Silvicultural Laboratory. Nursery practice and field planting. Field investigations and planting plans. Seed collecting, extracting, and storing. Dairy nursery and field work. Cloquet Forest Experiment Station. Mr. Cheyney.
- 129f. American Silvicultural Practice. A study of the silvicultural methods now being employed in the United States and the probable results of the application of other European methods. Lectures, references, and discussion. 3 credits. Mr. Cheyney.
- 130f. Forest Valuation. The business of forest management. A study of the different factors entering into the valuation of forest property. 5 credits. Mr. Allison.
- 131w. Forest Policy and Administration. The policy of the United States and the states toward the utilization of the public forest resources. Policy of other owners toward forest resources controlled by them. Administration of the national and state forests. 5 credits. Mr. Allison.
- 132s. Forest Regulation Laboratory. Field work. The collection of the data necessary to work up a forest working plan. Includes the making of the timber estimates, growth studies, and maps, necessary to a forest working plan. Cloquet Forest Experiment Station. 6 credits. Mr. Allison.
- 136f. Forest Economics. The place of the forest in the productive utilization of land; past and present markets and source of supply of timber and timber products, particularly with reference to the present situation in North America. 3 credits. Mr. Allison.

- 137w. Seeding and Planting. A study of the principles of seeding and planting and the various methods of nursery practice in the different regions of the United States. 3 credits. Mr. Cheyney.
- 140f. Forest Working Plans. A study of methods of regulating and allotting the cut from a forest under management. Preparation of a working plan. Lectures and reports. 3 credits. Mr. Allison.
- 141f. Principles of Silvics. A study of the principles underlying the silvical characteristics of trees and the reactions of trees to their environments. 3 credits. Mr. Cheyney.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201-202.* Research Problems in the Science and Practice of Silviculture. Mr. Cheyney.
- 203-204.* Research Problems in Forest Management and Working Plans. Mr. Allison.
- 205-206.* Research Problems in Forest Economics. Mr. Allison.
- 207f-208w-209s.* Research Problems in Wood Technology. Mr. Rees.
- 210f-211w-212s.* Special Problems in Forest Research and Research Methods. Mr. Zon.
- 213f-214w-215s.* Special Problems in Forest Utilization. Mr. Schmitz, Mr. Rees.
- 216f-217w.* Forestry Seminar. Mr. Schmitz.
- 218f-219w.* Research Problems in Forest Mensuration. Mr. Brown.

GEOGRAPHY

Professors Darrell H. Davis; Assistant Professors Ralph H. Brown, Richard Hartshorne.

Prerequisites.—For major work, Courses 11, 41, and 5 additional credits in geography, Economics 6-7, and Geology 1 or 8. For minor work, 10 credits in the department.

Language requirement.—Exemptions from the language requirement for the Master's degree may be made in individual cases.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101w. Geography of Europe. A study of the various European countries and their economic development. Prerequisite: 20 credits in social science, to include 10 credits in geography. 3 credits. Mr. Hartshorne.
- 102f. Trade Routes and Trade Centers. A study of the major land and ocean routes, ports and interior trade centers, and the nature and significance of the traffic. Prerequisite: Course 41. 3 credits. Mr. Hartshorne.
- 110f. Geography of South America. A study of the major geographic regions of South America, with emphasis upon the economic activities and their geographic basis. Prerequisite: 20 credits in social science, to include Course 11 or 41. 3 credits. Mr. Brown.

- 111w. Cartography and Graphic Representation. The construction and use of maps and graphs. Prerequisite: 10 credits in Senior College work in geography, geology, history, or other subjects in which the use of maps is necessary. 3 credits. Mr. Dicken.
- 120s. Geography of Asia. Areal differentiation in the major geographic regions of Asia. Special consideration of China, Japan, and India. Prerequisite: 20 credits in social science, to include Course 11 or 41. 3 credits. Mr. Davis.
- 133w. Climatology. Weather and climate in their relation to man and his activities. Prerequisite: Course 11. 3 credits. Mr. Brown.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 241f,s.* Field Course in Geography. A consideration of the problems of field work, illustrated by field trips. Prerequisite: 18 credits in geography. 3 credits. Mr. Davis.
- 251f-252w-253s.* Seminar in Geography. A survey of current literature with reports and discussion on assigned topics. Prerequisite: 20 credits in geography or permission of instructor. 3 credits. Mr. Davis and staff.
- 301f,w,s.* Research Problems in Geography. Credits arranged. Mr. Davis, Mr. Brown, Mr. Hartshorne.

GEOLOGY AND MINERALOGY

Professors William H. Emmons, Frank F. Grout, Clinton R. Stauffer; Associate Professors John W. Gruner, George M. Schwartz, George A. Thiel.

Prerequisites.—For major work in geology: Elementary courses in geology, such as Courses 1 and 2, or the equivalent; Mineralogy 23 and 24; General Chemistry, such as Courses 1, 2 and 3, or equivalent. In addition, for the specializing in mineralogy, petrography, and economic geology, elementary physics, such as as Courses 3 and 4, or equivalent, is required; and for those specializing in paleontology or stratigraphy, Index Fossils (Course 91-92-93) and Elementary Zoology, such as Courses 1-2-3, or their equivalent, are required. Students who have not had the necessary prerequisites may take them without credit along with other work for which they are prepared.

Major and minor.—Whatever field of special interest is pursued, it is expected that the student registering for the doctorate in this department will take some courses in each of the major divisions of geology, if he has not already had them, and those conducting the preliminary examination will assume that this has been done.

A student selecting some branch of geology as a major will not be allowed to select general geology as a minor. It is always preferable that the minor be taken outside of the major department.

Language requirement.—Exemptions from the language requirement for the Master's degree may be made in individual cases. Students who are

deficient in modern languages are advised to take a language along with their graduate work. Examinations in French or German are required of candidates for service on the United States Geological Survey.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f. Sedimentation. The origin of sedimentary rocks and their primary structures; interpretation of sediments in relation to paleogeography. Lectures and assigned readings. 3 credits. Mr. Thiel.
- 102w-103s. Micropaleontology. The study and classification of Foraminifera, diatoms, and other small fossil organisms and their use for purposes of correlation in oil fields. 3 credit hours of laboratory work. Open to students who have had Geology 11 or 91, and 105. Mr. Stauffer.
- 105f. Elements of Rock Study. The occurrence and genesis of rocks; their mineral and chemical composition and classification; their structure, texture, and alteration. Prerequisite: Course 24. Mr. Grout.
- 106w. Petrography. The identification and study of minerals and rocks by optical methods; the study of igneous rocks, crystalline schists, and metamorphic rocks. The origin and classification of rocks. Prerequisite: Course 105. 3 credits. Mr. Grout.
- 107f-108w-109s. Paleontologic Practice. The collection, preparation, and study of materials, with a view to gaining a working knowledge of groups of fossils, and the use of literature. Prerequisite: Course 91-92-93. 9 credits. Mr. Stauffer.
- 110f. Economic Geology. A study of non-metallic minerals of economic value and discussion of geologic guides to prospecting for these deposits. 3 credits. Mr. Schwartz.
- 111f. Ore Deposits. The nature, distribution, and genesis of ore deposits of the United States; relations of ore deposits to geologic structure; the deformation and superficial alteration of ore deposits. Prerequisites: Courses 11, 105. 3 credits. Mr. Emmons.
- 112w. Geology of Petroleum. The first part treats of deposits of metals, giving special attention to those outside of the United States. The second half deals with the nature, origin, and distribution of petroleum and with the various oil fields of the world. Prerequisite: Course 111. 3 credits. Mr. Emmons.
- 113s. Problems in Ore Deposits. Field excursions, map work, lectures on field and laboratory methods. Prerequisite: Course 112. 3 credits. Mr. Emmons.
- 119f. Physiography of the United States. The development of the surface features of the United States as affected by the rock structure and geologic history. Description and genetic analysis. Prerequisites: Course 2 or 3. 3 credits. Mr. Dutton.
- 120f. Glacial Geology. The nature and process of glacial action; land forms resulting from mountain and continental glaciers; distribution and character of Pleistocene glacial deposits. Prerequisite: Course 2. 3 credits. Mr. Dutton.

- 121f. Crystallography. The symmetry relations in the thirty-two crystal classes. Crystal drawings and measurements. Projections and mathematical calculations. Prerequisites: Mathematics 7 and Inorg. Chem. 6-7-8 or 9-10. 3 credits. Mr. Gruner.
- 124w-125s. Structural and Metamorphic Geology. The conditions, processes, and results of metamorphism; structural features resulting from deformation under varying conditions of load. Prerequisites: Courses 2, 3, or 11 and 105. 6 credits. Mr. Schwartz.
- 131f-132w-133s. Advanced Petrology. Advanced optical methods. Criteria for rapid identification of the common rock classes. Regional and genetic studies. Petrographic reports. Prerequisite: Course 106. 9 credits. Mr. Grout.
- 137f. Testing Economic Minerals. Laboratory tests of coal, clay, oil, building stone, and metallic ores. Prerequisites: Courses 2, 3, or 11 and 105. 3 credits. Mr. Gruner.
- 140w-141s. Applied Petrography. Determination of ore and gangue minerals, microscopic studies of paragenesis of ores and other mineral associations. Practical problems in mining and geology. Prerequisite: Course 131. 6 credits. Mr. Grout.
- 144w-145s. Interpretation of Geologic Maps. Methods of geological examination; study and problems in construction and interpretation of geologic maps. Prerequisites: Courses 2, 3 or 11 and 124. 6 credits. Mr. Dutton.
- 149s. Methods of Field Geology. General methods of field work necessary for Course 150. Mr. Schwartz.
- 150s. § Field Geology. Detailed, systematic work, conforming to official surveys. Reports to be written week before college opens. For prerequisites see members of the department. Credits arranged. Mr. Emmons, Mr. Gruner, Mr. Schwartz, Mr. Dutton.
- 151f-152w-153s. Advanced General Geology. Geologic processes and their results; development of the North American continent. Prerequisite: Course 2, 3, or 11. 9 credits. Mr. Stauffer.
- 161w. Crystal Structure. Study of point groups and space groups. Diffraction of X rays by crystals. Interpretation of powder and Laue diagrams. Prerequisites: Course 121, elementary physics, and analytical geometry. 3 credits. Mr. Gruner.
- 166f-167w. Mineralography. Methods of studying opaque minerals and application of the methods to problems in ore genesis and history. Prerequisites: Courses 111, 131. 6 credits. Mr. Schwartz.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 211f-212w-213s.* Advanced Paleontology. Selected groups of fossils. Class work supplemented by reference reading and thesis. 9 credits. Mr. Stauffer.
- 214.* Seminar in Ore Deposits. 3 credits. Mr. Emmons.

§ A maximum of 8 credits will be granted after field report is completed.

- 215s.* Geology and Ore Deposits of the Western Hemisphere. Open to graduate students and to those undergraduates who have had Course 11. 3 credits. Mr. Emmons.
- 216s.* Geology and Ore Deposits of the Western Hemisphere. Open to same as for Course 215. 3 credits. Mr. Emmons.
- 241.* Field Course in Geology. To be arranged with individual students upon application to the department. Credit will be given for field work done satisfactorily as prescribed in the joint announcement of various universities.
- 243-244.* Research Course in Geology. Advanced work in geology; chiefly individual work on selected subjects. Data and collections of material gathered in the course of field work studied under instructor. Methods follow standards of federal and state surveys. Mr. Emmons, Mr. Grout, Mr. Stauffer, Mr. Gruner, Mr. Schwartz, Mr. Thiel.
- 251-252.* Original Problems. Morphology and physical measurements of minerals. 3 credits each. Mr. Gruner.
- 253-254.* Research Course in Ore Deposits. Methods of Course 243-244 applied to ore deposits. 3 credits each. Mr. Emmons, Mr. Grout, Mr. Gruner, Mr. Schwartz.
- 263-264.* Research Course in Petrology. Methods of Course 243-244 applied to petrology. 3 credits each. Mr. Emmons, Mr. Grout.

GERMAN

Professors Samuel Kroesch, Oscar C. Burkhard; Associate Professor George F. Lussy; Assistant Professors James Davies, Frederick L. Pfeiffer.

Prerequisites.—For major work, 27 Senior College quarter credits or equivalent. For minor work, 18 Senior College quarter credits or equivalent.

Language requirement.—A survey knowledge of German literature, the equivalent of Courses 120-121-122, is required of all candidates for degrees.

Ph.D. candidates whose major is German literature must offer at least 18 credits in Germanic linguistics. A minor in comparative philology will require at least 27 credits in linguistic courses.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 107su. Historical German Grammar. Phonology, inflection, word formation, syntax. Intended primarily for prospective teachers of German. 3 credits. Mr. Kroesch.
- 108s. Phonetics. A study of speech sounds and the nature of their production, with special reference to English, French, and German. Open to students in the modern languages. 3 credits. Mr. Kroesch.

- 115f-116w-117s.* Middle High German Literature. "Heldenepos, Ritterepos, Minnesang." 9 credits. Mr. Kroesch.
- 120f-121w-122s.† Proseminar: History of German Literature. This course provides the necessary background for graduate work in German literature, and serves as an introduction to bibliography, methodology, and literary criticism. Required of all graduate majors in German. 9 credits.
- 120f. German Literature through the Reformation Period. Mr. Kroesch.
- 121w. The Seventeenth and Eighteenth Centuries. Mr. Lussky.
- 122s. The Nineteenth Century. Mr. Pfeiffer.
- 140f-141w-142s.* Early High German Literature, 1500-1700. 9 credits. Mr. Lussky.
- 143f-144w-145s.* The Classical Period. I. Schiller; II. Goethe. 9 credits. Mr. Lussky.
- 150f-151w-152s.* Die Novelle. A study of the technique and development. Assigned readings and reports. 9 credits. Mr. Burkhard.
- 153f-154w-155s.* Studies in German Literature of the Nineteenth Century. I. Dorfgeschichte; II. Austrian Drama; III. Realism. 9 credits. Mr. Burkhard.
- 160f-161w-162s* Lyric Poetry of the Eighteenth and Nineteenth Centuries. 9 credits. Mr. Davies.
- 163f-164w-165s.* German and English Literary Relations in the Sixteenth, Seventeenth, and Eighteenth Centuries. 9 credits. Mr. Davies.
- 173f-174w-175s.* The Modern Novel: Impressionism, Expressionism, and "Neue Sachlichkeit." 9 credits. Mr. Pfeiffer.
- 180f-181w-182s.* The Romantic School in Germany. 9 credits. Mr. Pfeiffer.
- 183f-184w-185s.* Gottfried Keller and Conrad Ferdinand Meyer. 9 credits. Mr. Pfeiffer.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 202f-203w.* Gothic. The course is designed as an introduction to Germanic linguistics and to a comparative study of the Indo-European language. 6 credits. Mr. Kroesch.
- 204s.* Old Saxon. The Heliand. Three credits. Mr. Kroesch.
- 209f-210w-211s.* Old High German. Alternates with Course 215-216-217. The older High German dialects serve as a basis for a study of historical German grammar. 9 credits. Mr. Kroesch.
- 215f-216w-217s.* Middle High German. Phonology, morphology, and syntax. 9 credits. Mr. Kroesch.
- 218f-219w-220s.* Seminar. Prerequisite: A good knowledge of at least two Germanic dialects. Comparative grammar of the Indo-European languages with special reference to the principal German dialects. Investigations in the comparative phonology, syntax, and semantics of these dialects. 6 or 9 credits. Mr. Kroesch.
- 253f-254w-255s.* Nineteenth Century Drama. Kleist, Grillparzer, Hebbel. 9 credits. Mr. Burkhard.

GREEK

For courses and staff see Classical Languages, page 55.

HISTORY

Professors Lester Burrell Shippee, Guy Stanton Ford, Alfred L. Burt, Herbert Heaton, August Charles Krey, Albert Beebe White; Associate Professors Theodore C. Blegen, Lawrence D. Steefel, George M. Stephenson; Assistant Professors Harold Deutsch, Ernest Osgood, Faith Thompson, Alice F. Tyler, David H. Willson.

Prerequisites.—Of the four fields in which general survey courses in history are usually given, namely, ancient, American, English, and European, students entering upon graduate work in history will usually be expected to have covered two or three courses. In addition they will be expected to have taken advanced or Senior College courses in two of these fields and at least one course in which intensive work with the beginnings of investigation is done.

Minor.—A student who makes history a minor will be expected to have done approximately the same amount of work with the possible exception of the course involving intensive work.

Language requirement.—The department attaches much importance to adequate preparation in the foreign languages, which may be used by the student in the course of advanced and research work. Except in very unusual cases, where the nature of the field studied calls for another language, French and German are the best tools; adequate reading knowledge of one of these must be demonstrated not later than the close of the second term in which the student is registered for an advanced degree.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

Master's degree.—Offered under both Plan A and Plan B.

Plan A (with thesis).—Before entering upon the work for this degree the candidate shall satisfy his adviser, by examination or otherwise, that he is sufficiently prepared to carry on graduate work in the fields of his selection; he shall also, by the end of his second term of residence, demonstrate his ability to read French or German. The candidate shall select from the appended list two fields in which to do his work; for example, Group C 3 and Group D 3, or Group B 1 and Group C 3. While course work may be expected to cover some portion of the selected fields, and perhaps material outside of them, the candidate is expected to prepare himself to stand examination on fields rather than on courses. The thesis shall fall within one of the selected fields which shall be chosen in consultation with an adviser of the department. Generally a minimum of 18 credits in the major fields and 9 in the minor will be expected; the thesis accounts for the remainder of the credits. Upon completion of the work the candidate will be given a written examination upon the two fields, and an oral examination upon the history fields, the minor field, and the thesis.

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| <p style="text-align: center;"><i>Group A</i></p> <ol style="list-style-type: none"> 1. The Old Orient 2. Greece 3. Rome <p style="text-align: center;"><i>Group B</i></p> <ol style="list-style-type: none"> 1. Europe, 395-1300 2. England to 1485 3. Renaissance and Reformation 4. Economic History, 1300-1700 <p style="text-align: center;"><i>Group C</i></p> <ol style="list-style-type: none"> 1. England since 1485 2. Europe, 1559-1789 3. Europe, 1789 to present 4. Economic History, 1700 to present | <p style="text-align: center;"><i>Group D</i></p> <ol style="list-style-type: none"> 1. American History to 1789 2. The United States, 1789-1865 3. The United States since 1865 4. Economic History of the United States, 1790-1860 5. Economic History of the United States since 1860 <p style="text-align: center;"><i>Group E</i></p> <ol style="list-style-type: none"> 1. Asia since 476 2. European Colonies and Dependencies 3. Latin America 4. Canadian History |
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Plan B (without thesis).—Candidates for the Master's degree will meet the general requirements of the Graduate School for this degree (see p. 13 of this bulletin), and by the end of the second quarter of residence demonstrate ability to read French or German. The program of the candidate shall be made out in consultation with an adviser of the department who will see to it that the candidate registers for courses which will give a balanced training in the general field of history together with some attention to the supporting fields in the social studies (political science, economics, sociology, geography). One of the courses in history, carrying at least 9 credits, shall be a seminar, or there may be an equivalent amount of work done by independent reading with written reports under direction of an adviser; the reports must show familiarity with source material in some selected field. As in the case of candidates for the degree under Plan A, the candidate under Plan B must present evidence that he is prepared to pursue courses giving graduate credit (deficiencies must be made up by carrying without credit undergraduate courses which will be sufficient in scope and number to supply the necessary background). On completion of the courses presented for the degree the candidate will be given an oral examination covering the work.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

Candidates will be expected to fulfill the general requirements as given in this bulletin, pp. 17-20.

Preliminary Examination

For a major in history, the candidate shall choose five fields from those listed above. At least one period or field shall be chosen from groups A or B and at least one from groups C or D. Three of these fields including that containing the subject of the proposed thesis must be related. The selection of these fields must be made in consultation with, and subject to the approval of, the chairman of the candidate's examination committee. These selections shall be reported by the adviser to the chairman of the

History Department. In exceptional cases, the department may approve fields not included in the list.

The preliminary examination will cover the minor and four of the periods or fields chosen for the major. That field in which the candidate intends to do special work shall be reserved for the final examination. The scope of this reserved field shall be indicated to the department and approved by it at the time when the candidate is certified for the preliminary examination includes the usual defense of the thesis, its methods, results, five fields selected from the above list.

Final Examination

In this examination, taken after the successful completion of the preliminary examination and the acceptance of the candidate's thesis, the emphasis shall be placed upon testing the highly detailed knowledge of the student in his special subject. It shall cover that subject reserved in the preliminary examination, and, under the rules of the Graduate School, is given by the same committee that sat in the preliminary examination. This examination includes the usual defense of the thesis, its methods, results, and contribution to the field investigated.

GENERAL REQUIREMENT

201f-202w-203s. Historical Bibliography and Criticism. Required of candidates for advanced degrees in history who do not present evidence of similar training elsewhere. (S I; 339 Lib.) Mr. Ford, Mr. White, and others.

Courses numbered 150 to 200 are open to seniors and graduates; prerequisites are the appropriate survey courses (see courses numbered 50 to 100 in Bulletin of the Combined Class Schedule). Graduate students who do not present the appropriate survey courses or their equivalent are required to carry such courses without credit; in cases where such procedure is feasible the student may register for the courses numbered above 149 and also attend the meetings of the appropriate survey course, being therein held responsible for class exercises and examinations if the instructor and major adviser consider it advisable.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

150f-151w-152s.† Selected Readings in Ancient European History. 9 credits. Mr. Jones.

153f-154w-155s.† Selected Readings in Medieval European History. 9 credits. Mr. Krey, Miss Thompson.

156f-157w-158s.† Selected Readings in Modern European History. 9 credits. Mr. Steefel, Mr. Deutsch, Mr. Willson.

170f-171w-172s.† Selected Readings in English History. 9 credits. Mr. White, Miss Thompson, Mr. Willson.

176f-177w-178s.† Selected Readings in Canadian History. 9 credits. Mr. Burt.

180f-181w-182s.† Selected Readings in Economic History. 9 credits. Mr. Heaton.

190f-191w-192s.† Selected Readings in American History. 9 credits. Mr. Shippee, Mr. Blegen, Mr. Stephenson, Mr. Osgood, Mrs. Tyler.

(See Combined Class Schedule for description, meetings, etc. of Courses 150 to 190.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

204f-205w-206s.*† Seminar in Medieval History. 9 credits. Mr. Heaton, Mr. Krey, Mr. White.

208f-209w-210s.*† Seminar in American History. 9 credits. Mr. Shippee, Mr. Blegen, Mr. Stephenson.

221f-222w-223s.*† Seminar in Economic History. 9 credits. Mr. Heaton.

224f-225w-226s.*† Seminar in Modern European History. 9 credits. Mr. Steefel, Mr. Deutsch.

HISTORY OF SCIENCE

Richard E. Scammon, Distinguished Professor in the Graduate School.

190f-191w-192s. History of Science. Professor Scammon will give a course in the social history of science. Open to qualified graduate and Senior College students in any field of scientific or historical specialization. Conferences, readings, and occasional lectures. Consult Professor Scammon before registering. This course may count as major or minor on approval of the students' adviser in the Graduate School. Credits arranged. Mr. Scammon.

HOME ECONOMICS

Professor Wylle B. McNeal; Associate Professors Alice Biester, Clara M. Brown, Alice M. Child, Harriet Goldstein, Jane Leichsenring, Marion Weller; Assistant Professor Ethel Phelps.

Prerequisites.—Students desiring to major in home economics must present undergraduate subject-matter credits in certain of the following: social sciences, physical sciences, biological sciences, art and education—which shall be satisfactory to the adviser under whose direction the major work is to be done. In addition the student must have adequate undergraduate training in that field of home economics in which she wishes to specialize.

Major and minor.—Students majoring in home economics for a Master's or a Doctor's degree and those minoring in this division for the Doctor's degree must include either Course 209, 249, 279, or 299 in the study program.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 102f,s. Advanced Textiles. An intensive study of textile materials with special reference to the following: nature of the raw materials; economic, chemical, and physical applications involved in their manufacture and use; methods and significance of physical testing. Prerequisites: H.E. 50, Agr. Biochem. 4, Agr. Econ. 3 or parallel. 3 credits. Miss Phelps.
- 107w. Textile Analysis. Problems and applications of quantitative methods in textile analysis with special reference to establishing standards for fabrics. Prerequisites: Course 102, Agr. Biochem. 2. 3 credits. Miss Phelps.
- 115w. Clothing Economics. A study of those aspects of clothing which directly or indirectly affect the consumer. Prerequisites: H.E. 5, Agr. Econ. 3. 2 credits. Miss Weller.
- 120f,w,s. Art History and Appreciation. The historical development of painting, sculpture, architecture, decoration, furniture, and costumes, studied with special emphasis on design and influence upon modern styles. Prerequisite: Course 22 or permission of instructor. 3 credits. Miss H. Goldstein, Miss V. Goldstein.
- 122w. Advanced Interior Design. Special problems of small house decoration, involving execution of elevation drawings. Studies and reports on topics of historical and practical interest. Actual materials used as far as possible. Prerequisites: Courses 55, 120, 180, or permission of instructor. 3 credits. Miss H. Goldstein.
- 125s. Advanced Costume Design. Study of figure construction. Relation of color and texture to dress design. Studies and reports on assigned topics. Laboratory work with fabrics. Designs in pencil and water colors. Prerequisites: Courses 4, 26, 35 recommended. 3 credits. Mrs. Mathieson.
- 142f,w,s. Experimental Cookery. An intensive study of problems in foods and food preparation with individual laboratory problems. Prerequisite: Course 40. 3 credits. Miss Child.
- 143f,w. Experimental Cookery. An intensive study of problems in foods and food preparation with individual laboratory problems. Prerequisite: Course 40. 5 credits.
- 146s. Special Food Problems. Individual problems in foods and food preparation. Prerequisite: Course 142. 3 credits. Miss Child.
- 163s. Institution Management Problems. Problems affecting the efficient administration of the institution; departmental organization, operation, maintenance; employment problems; business policies. Field trips to various types of institutions. Prerequisites: Courses 61, 63. 3 credits. Miss Dunning.
- 170f,w. Nutrition of the Family. The fundamental principles of human nutrition as applied to the feeding of individuals and groups under conditions of health. Prerequisites: Courses 30, 40, Agr. Biochem. 4, Physiol. 4. 3 credits. Miss Biester, Miss Donelson, Miss Hunt.
- 171f,w,s. Child Nutrition. Lectures, discussions, and field work dealing with the principles of child nutrition and with the formation of desired

- food habits. Prerequisites: Course 170, H.E.Ed. 90. 3 credits. Miss Leichsenring, Miss Donelson.
- 173s. Nutrition in Disease. A study of the fundamental principles involved in using diet in the treatment of certain diseases. Prerequisites: Courses 170, 175. 3 credits. Miss Hunt.
- 175w. Nutrition II. A study of tissues and tissue metabolism, as well as work on blood, milk, and urine. Prerequisite: Course 33. 4 credits. Miss Donelson, Miss Hunt.
- 176w. Advanced Nutrition. Selected quantitative methods applicable to investigations relating to digestion and metabolism. Prerequisites: Course 33, Agr. Biochem. 2. 4 credits. Miss Biester.
- 177s. Digestion and Metabolism. An intensive study of problems relating to digestion and metabolism involving lectures, reading, demonstrations, and laboratory work. Prerequisite: Course 175. 3 credits. Miss Leichsenring.
- 178f,w,s. Clinical Problems in Nutrition. The application of nutrition information to problems in health and disease involving assigned readings, discussions, and experience in a clinic or with case work. Prerequisites: 75 or parallel, 170 or parallel, 175. 2 credits. Limited to 8. Miss Hunt.
- 179w,s. Readings in Nutrition. A course designed to give intensive experience in the use of nutrition books and periodicals, involving assigned readings, oral and written reports. Prerequisite: Course 170. 2 credits. Miss Donelson, Miss Hunt.
- 180f,w,s. Home Planning and Furnishing. Study of the small house which aims at more intelligent planning in building and furnishing. House plans, kitchen arrangements, and equipment of house studied from homemaker's point of view, economy, convenience, and beauty. Prerequisite: Course 55. 5 credits. Miss H. Goldstein, Miss V. Goldstein.
- 185f,w,s. Family Relationships. A consideration of the factors that promote security, stability, and satisfaction in the immediate family group; and the responsibilities of the family in its relationship to community life. Prerequisites: 85 or parallel; H.E.Ed. 90. 2 credits. Miss Studley.
- 186s. Problems in Income Management. An intensive study of problems relating to individual and family budgets. Readings, discussions, and field work. Prerequisites: H.E. 85 or parallel, 86, 170, Agr. Econ. 126 or parallel. 3 credits. Miss Studley.
- 195s. Development of Home Economics. A discussion of the development of home economics with emphasis upon current problems. 2 credits. Miss McNeal.

COURSES PRIMARILY FOR GRADUATE STUDENTS

202. Animal Fibers. An advanced course dealing with the structure, composition, chemical and physical properties, and special problems of manufacture of wool and silk in relation to their use. Prerequisites: Quant. Chem. 5 cred., Org. Chem. 5 or 6 cred., Adv. Textiles 3 cred. 2 credits. Miss Phelps.

204. Plant and Manufactured Fibers. Study of the structure, composition, physical and chemical properties, and special problems of manufacture of cotton, flax, artificial silk, and certain minor fibers in relation to their use. Prerequisites: Bot. 5 cred., Quant. Chem. 5 cred., Org. Chem. 5 or 6 cred., Adv. Textiles 3 cred. 2 credits. Miss Phelps.
208. Microanalysis of Textile Fibers. Laboratory applications of histological and microchemical methods in the study of textile materials. Prerequisites: Bot. 5 cred., Biol. Sci. 10 cred., Org. Chem. 5 or 6 cred., Textile Analysis 3 cred. 2 or 3 credits. Miss Phelps.
- 209f,w,s.* Seminar in Textiles and Clothing. Reviews and interpretations of the literature of this field, emphasizing recent advances and involving individual assignments and oral and written reports. Registration with permission of the instructor. 1 credit. Miss Phelps.
- 247s.* Special Food Problems. Individual problems with special emphasis on the application of scientific techniques to the solving of food preparation problems. Prerequisite: Course 142, Agr. Biochem. 2. 3 or 5 credits. Miss Child.
- 249w.* Seminar in Foods. Reviews and interpretations of the literature in the field of foods and experimental food preparation involving individual assignments and oral or written reports. Permission of the instructor. 1 or 2 credits. Miss Child.
- 270-271. Principles of Human Nutrition. An advanced course dealing with certain aspects of digestion, metabolism, excretion, and food requirements under various conditions. Prerequisites: Courses 170, 175. 3 credits each quarter. Miss Donelson, Miss Hunt.
- 279f,w,s.* Seminar in Nutrition. Reviews and interpretations of the literature of this field, emphasizing recent advances and involving individual assignments and oral and written reports. Permission of the instructor. 1 credit. Miss Biester, Miss Leichsenring.
- 295-296.* Home Economics Problems. Opportunity is offered for the investigation of selected problems in home economics in fields such as foods, nutrition, textiles, home management, and related art. Independent study and written reports. Permission of instructor. 1 to 5 credits. Miss Biester, Miss Clara Brown, Miss Child, Miss H. Goldstein, Miss Leichsenring, Miss Phelps, Miss Studley, Miss Brew, Miss Donelson, Miss Hunt.
- 299f,w,s.* Home Economics Problems. A critical study of recent advances in the field of home economics, involving independent study, reading and oral or written reports. Permission of instructor. 1 credit. Miss McNeal, Miss H. Goldstein, Miss Studley.

HOME ECONOMICS EDUCATION

Professor Wylle B. McNeal, Associate Professor Clara M. Brown.

Prerequisites.—For a major or minor adequate preparation in psychology, educational psychology, education, and home economics must be presented. The prerequisites must be satisfactory to the major adviser.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 192f,w,s. Educational Measurement in Home Economics. Problems of measurement in home economics; home economics tests and scales; construction and evaluation of objective tests. Prerequisites: Courses 91, 93. 2 credits. Miss Clara Brown, Miss Rose.
- 193w,s. Home Economics Curricula. The objectives of home economics in junior and senior high schools; recent surveys and other investigations used in determining curriculum content; home economics courses of study. Prerequisite: Course 92. 2 credits. Miss Clara Brown, Miss Rose.
- 194af.§ Adult Education Problems. Development of unit outlines in the various fields of home economics. Discussion of teaching methods. This course is planned for high school and extension teachers and supervisors of home economics classes. Prerequisites: Courses 91, 93. 3 credits.
- 194bs.§ Adult Education Problems. Development of unit outlines, illustrative material, and bibliography for use in adult classes. This course is planned for teachers and supervisors of local leader groups or adult classes. Prerequisites: Courses 91, 93. 3 credits.
- 197s. Organization and Methods for Related Art Teaching. Organization of a related art course and methods of teaching art principles as applied to familiar objects and processes. Prerequisites: Courses 55, 180, or parallel. 3 credits. Miss H. Goldstein.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 292w.* Educational Measurement in Home Economics. A continuation of Course 192, dealing with methods and interpretation and utilization of test data. Prerequisite: Course 192. 2 credits. Miss Clara Brown.
- 293f,w,s.* Special Problems in Home Economics Education. A course designed to meet the needs of advanced students for opportunity to do independent study. Readings, oral and written reports are required. Graduates only. Permission of instructor. 1 to 3 credits. Miss McNeal, Miss Clara Brown, Miss Rose.
- 294f,w,s.* Research Problems. A study of the methods used in collection, treatment, and interpretation of data in the field of home economics. Permission of instructor. 3 to 5 credits. Miss Clara Brown.
- 295f,w,s.* Problems in Home Economics Education. Current Problems in home economics education will be studied. Reading, written reports. Graduates only. 1 to 3 credits. Miss McNeal, Miss Brown, Miss Rose.

HORTICULTURE

Professors William H. Alderman, Wilfrid G. Brierley, Rodney B. Harvey; Associate Professor Fred A. Krantz; Assistant Professors Troy M. Currence, Lewis E. Longley, Arthur N. Wilcox.

§ These are not new courses but have not been in the Bulletin of the Graduate School.

Prerequisites.—For a major in horticulture a student must have completed a sufficient amount of work in plant sciences to satisfy the advisers and the Division of Horticulture Graduate Committee that graduate study in this field may be satisfactorily undertaken. In certain cases further foundation courses may be required without credit.

Language requirement.—Master degree candidates will be accepted under either Plan A (with thesis) or Plan B (without thesis). The foreign language requirement may be waived for Master's degree under Plan B, but will be required under Plan A.

Major.—With the approval of the advisers courses in closely allied fields of science may be accepted as part of the major work.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 107f. Orchard Management. A detailed study of the various operations in orchards and berry fields. Operating costs and profits. Lectures, laboratory, and individual problems. Prerequisite: Course 6. 3 credits. Mr. Brierly. (Offered only in even numbered years.)
- 110f. Horticultural Crop Breeding. Applied genetics is emphasized. Methods of breeding each of the important horticultural crops with special attention to experiment station investigations and to the methods used by plant breeders. Prerequisite: Agron. 31. 3 credits. Mr. Wilcox.
- 111f. Systematic Pomology. A study of fruit varieties. Lectures, laboratory, and a survey of the literature. Prerequisites: Course 6 and Bot. 10 credits. Mr. Brierley. (Offered only in odd numbered years.)
- 121w. Small Fruit Culture. Cultural practices for each of the small fruits; botanic relationship; history of commercial development. Lectures, problems, and survey of literature. Prerequisites: Course 6 and Bot. 10 credits. 3 credits. Mr. Brierley.
- 135f. Potatoes. Culture, handling, storage, seed maintenance, varieties, improvement and physiology of the potato plant. Prerequisites: Hort. 32, 10 credits in botany. 3 credits. Mr. Krantz.
- 137w. Vegetable Crops. Lectures and survey of literature relating to vegetable crop production. Assigned readings include the classification, culture, improvement, and physiology of leading vegetable crops. Prerequisite: Hort. 32, 10 credits in botany. Mr. Currence.
- 153w. Conservatory Plants and Florists' Flowers. A systematic study of the plants adapted to growing in conservatories and homes, and also of florists' cut flowers and potted plants. Lectures, laboratory, and field trips to greenhouses. 3 credits. Mr. Longley.
- 175f,w,s. Landscape Problems. The planning and planting of home properties for the city and country. Lectures, field trips, and reports. 3 credits per quarter. Mr. Longley.
- 176s. Landscape Construction. Construction and maintenance of turf for lawns, golf courses, and other play areas; garden architecture, grading, planting and care, costs of construction. Lectures, field trips, and reports. 3 credits. Mr. Longley.
- 190f-191w-192s. Special Problems. A study of problems based upon the

work given in the preceding courses. 2 to 4 credits per quarter. Horticultural staff.

193f-194w. Horticultural Seminar. Reports and discussions of problems and investigational work. Required of graduate students. Prerequisite: 9 credits in horticulture. 1 credit per quarter. Horticultural staff.

COURSES PRIMARILY FOR GRADUATE STUDENTS

242w. Horticultural Crop Breeding Topics. A survey of the recent researches in the breeding of horticultural crops. 2 credits. Mr. Krantz, Mr. Wilcox.

243f-244w. Advanced Topics in Horticulture. A critical analysis of recent research on horticultural crops. 3 credits per quarter. Mr. Alderman, Mr. Brierley, Mr. Harvey, Mr. Currence, Mr. Longley.

245f-246w. Growth Factors in Crop Production. An analysis of growth and environmental factors as applied to crop plants. 2 credits per quarter. Mr. Harvey.

247f,w,s,su.* Report on Special Horticultural Topics. A review of the literature dealing with a selected topic or problem in horticulture and the preparation of a written report. Designed for students, taking the Master's degree without thesis. 9 credits. Final approval by graduate committee in horticulture. Mr. Alderman, Mr. Brierley, Mr. Harvey, Mr. Krantz, Mr. Currence, Mr. Longley, Mr. Wilcox.

JOURNALISM

Professor Ralph D. Casey.

Prerequisite.—A total of 27 credits in journalism and English or the social sciences, distributed as follows:

In journalism, a minimum of 15 credits including reporting, news editing and special feature articles. Additional credits to make up the 27 credits should include either courses in English, including a sophomore English composition course, or 12 credits in either political science, economics, history, or sociology. Freshman composition will not satisfy the requirement in the English option. A reading knowledge of at least one foreign language.

Minor.—For minor work, 12 credits, or their equivalent, in journalism. A candidate offering a graduate minor in journalism is advised that he may best satisfy this requirement by electing courses from among the following: Journalism 103, 109-110, 111, 112, 114, 130-131-132.

Fees.—A typewriter fee of \$1 is charged each quarter to all students registered for one or more journalism courses other than Journalism 5.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

101w. Reporting of Public Affairs. Instruction and practice in methods of reporting the courts; local, state, and federal administrative departments, and political and social organizations. Prerequisites: Course 51-52 and 10 credits in political science. 3 credits. Mr. Nafziger.

- 103s. *Literary Aspects of Journalism.* A study of the best journalistic work of such writers as Daniel Defoe, Benjamin Franklin, Philip Freneau, Mark Twain, Lafcadio Hearn, Stephen Crane, Rudyard Kipling, Ambrose Bierce, etc. Lectures, outside reading, and some practice in writing. Prerequisite: English 27-28. 3 credits. Mr. Ford.
- 109w-110s. *History of Journalism.* A study of the evolution of the newspaper in Europe and the United States with special reference to the problems of present-day journalism. Prerequisite: Course 15. 6 credits. Mr. Ford.
- 111f. *Foreign News Sources.* An examination of foreign news and the methods by which it is obtained and prepared for American readers. The importance of foreign news, the methods of correspondents in various countries, the newspapers in those countries, and some of the factors affecting the news from these countries are considered. This is not a course for training foreign correspondents but is intended to help the reader understand the background of foreign news. Prerequisites: Course 41 or 51 and one history or political science course in international relations, or permission of instructor. Mr. Nafziger.
- 112w. *Current Newspaper Problems.* Present-day standards of editorial practice and questions of editorial policy. The civic and social responsibility of the press. The handling by various metropolitan papers of news of politics, public affairs, labor, crime, sports, literature and the arts, organized women's affairs, etc. Various influences that bear upon the press, including propoganda and the demands of organized groups. The socio-economic nature of the press and the problems arising out of this dualism. Prerequisite: Course 100 or 111. 3 credits. Mr. Ford.
- 114w. *The Influence of the Newspaper.* Influences of the newspaper upon the attitudes, opinions, moral standards, taste, written and spoken English, and standards of living of readers. Prerequisite: Course 15 or 41. 3 credits. Mr. Ford.
- 130f-131w-132s.* *The Press and Public Opinion.* Research dealing with the various ways in which newspapers and magazines attempt to influence public opinion. A study of the technique and effectiveness of these methods. General problems of propoganda and censorship. Prerequisite: 20 credits in sociology, psychology, or political science. 9 credits. Mr. Casey.
- 140f-141w-142s. *Contemporary Affairs.* A study of important state, national, and world problems about which the newspaper man must be informed and concerning which he must serve as interpreter. The course will aim to unify the separate social studies which students have had in other departments of the University with a view to the focusing of these studies on contemporary questions. Prerequisites: Course 109-110 and 20 credits in social science. 9 credits. Mr. Casey, Mr. Charnley, Mr. Nafziger.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 205f,w,s.* *Topics in International News Communications.* Advanced study of the controls imposed on news-gathering agencies in the world, and

research problems in the rise and development of news communications. Prerequisite: consent of the chairman of the department. 3 credits. Mr. Casey, Mr. Nafziger.

210f,w,s.* Research in Newspaper Problems. Individual research in either historical or contemporary phases of newspaper, magazine, or advertising fields. Prerequisite: consent of department. 2-3 credits. Mr. Casey, Mr. Nafziger.

LATIN

For courses and staff see Classical Languages—Latin, page 55.

LIBRARY METHODS

Professor Frank K. Walter.

Major and minor.—With the approval of the departmental adviser the following course may be counted toward any major or minor:

126s.‡ Subject Bibliography. National and subject bibliographies of important countries. Special emphasis on works of research value and on research methods. Prerequisites: senior or graduate standing, reading knowledge of French or German, and some experience in research or bibliographic study or projects. 3 credits. Mr. Walter.

MATHEMATICS AND MECHANICS

Professors Raymond W. Brink, William E. Brooke, William H. Bussey, Hans H. Dalaker, William L. Hart, Dunham Jackson, William H. Kirchner, George C. Priester, Royal R. Shumway, Lorenz G. Straub; Associate Professors Willem J. Luyten, Anthony L. Underhill, Hugh B. Wilcox; Assistant Professors Elizabeth Carlson, Gladys E. C. Gibbens, Edward L. Hill.

Professor Dalaker is chairman and Professor Underhill is secretary of the group. Students majoring in mathematics and mechanics should consult one or the other.

Prerequisites. For major work 10 credits in calculus and 14 other credits in non-Junior College courses.

Minor.—For minor work, those courses specified as prerequisite to the chosen specific graduate courses.

Students may also consult the Bulletin of the Institute of Technology and the Combined Class Schedule.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

102w-103s. Advanced Analytic Geometry. 3 credits per quarter. Mr. Bussey.

106f. Differential Equations. 3 credits. Mr. Underhill.

‡ Library tuition of \$3 per credit is charged for this course.

- 107w-108s. Advanced Calculus. 3 credits per quarter. Mr. Underhill.
- 121f-122w-123s. Mathematical Theory of Statistics. 3 credits per quarter.
Mr. Jackson.
- 127f,w,s. Technical Mechanics. 5 credits. Mr. Wilcox.
- 128f,w,s. Strength of Materials. 5 credits. Mr. Priester.
- 129f,w,s. Hydraulics. Prerequisite: Course 26. 4 credits. Mr. Straub, Mr.
Doeringsfeld, Mr. Barker.
- 130f. Hydraulics of Open Channel Flow. Prerequisites: Courses 129 and
143. 3 credits. Mr. Straub.
- 132f-133w-134s. Advanced Hydraulic Problems. Prerequisite: Course 130
or registration in 130 or by special permission. 2 credits per quarter.
Mr. Straub.
- 144f-145w-146s. Topics in Mathematical Analysis. 3 credits per quarter.
Mr. Jackson.
- 151f. Differential Equations. Prerequisite: Course 25. 3 credits.
- 152w-153s. Advanced Calculus with Applications. Prerequisite: Course 25.
3 credits per quarter. Mr. Dalaker.
- 154f-155w-156s. Vector Analysis with Applications. Prerequisite: Course
26. 3 credits per quarter. Mr. Brooke.
- 161f-162w-163s. Advanced Technical Mechanics. Prerequisite: Course 127.
3 credits per quarter. Mr. Wilcox.
- 164f-165w-166s. Operational Methods and Operation Calculus. Prerequisite:
Course 151 or permission of instructor. 3 credits per quarter. Mr.
Scherberg.
- 180f-181w-182s. Advanced Strength of Materials. Prerequisite: Course
128. 3 credits per quarter. Mr. Priester.
- 184f-185w-186s. Advanced Testing Materials Laboratory. Prerequisite:
Course 141. 2 credits per quarter. Mr. Priester.
- 190w. Mechanics of Similitude. Prerequisites: Courses 127, 128, 129. 3
credits. Mr. Straub
- 191w. Hydraulic Motors and Pumps. Prerequisite: Courses 129. 3 credits.
Mr. Straub.
- 192s. Natural and Artificial Waterways. Prerequisites: Course 129 and
preferably 130. 3 credits. Mr. Straub.
- 193w. Hydraulic Measurements. Prerequisite: Course 192. 3 credits. Mr.
Straub.
- 194f-195w-196s. Advanced Hydraulics Laboratory. Prerequisites: Courses
129 and 143. 2 credits per quarter. Mr. Straub.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 206f-207w-208s. Theory of Functions of Real and Complex Variables. 3
credits per quarter. Mr. Hart.
- 221f. Calculus of Variations. 3 credits. Mr. Underhill.
- 248f-249w-250s.* Reading and Research. Competent students will be assist-
ed in independent reading and reports by members of the department.
1 to 3 credits per quarter.

271f-272w-273s. Theory of Linear Differential and Integral Equation. 3 credits per quarter. Mr. Brink.

The following courses have been offered from time to time in the past, and similar courses or other courses of corresponding grade, will be provided at any time there is sufficient demand for them.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 104. Synthetic Geometry.
- 109. Theory of Numbers.
- 114. The Mathematics of Small Vibrations.
- 115. Differential Geometry.
- 118-119-120. Vectors and Matrics.
- 131. Advanced Algebraic Theory.
- 135. Introduction to the Theory of Small Samples.
- 140. Projective Geometry.
- 142. Theory of Invariants.
- 149. Introduction to Group Theory.
- 157-158-159. Determinants and Solid Analytic Geometry.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 245-246-247. Advanced Function Theory.
- 251. Theory of Functions of Infinitely Many Variables.
- 254-255-256. Modern Analysis (based on Whittaker and Watson's text).
- 261-262-263. Functions of a Complex Variable.
- 264-265-266. Advanced Topics in Functions of a Complex Variable.
- 267-268-269. Advanced Dynamics (Vol. I, Routh's Rigid Dynamics.)
- 274-275-276. Dynamics of a Particle.
- 277-278-279. Advanced Statics.
- 281-282-283. Hydrodynamics.
- 284-285-286. Advanced Hydrodynamics.
- 294-295-296. Theory of Elasticity.
- 297-298. Vibration Problems.
 - The Galois Theory of Equations.
 - Higher Plane Curves.
 - The Calculus of Finite Difference.
 - Modern Theories of Integration.
 - Advanced Descriptive Geometry.
 - Perspective.
 - Fourier's Series and Spherical Harmonics.
 - Advanced Analytical Geometry of Space.
 - Elliptic Functions and Integrals with Applications.
 - Limits and Series.

The following courses given in the Department of Physics and the Department of Astronomy may count for credit in this department.
 Physics 201-203-205, 207-209-211, 221-223-225.

DRAWING AND DESCRIPTIVE GEOMETRY

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 111f,w,s-112f,w,s-113,f,w,s. Advanced Descriptive Geometry. 3 credits per quarter. Mr. Kirchner.
- 114f,w,s. Perspective. 3 credits. Mr. Kirchner.
- 115f-116w-117s. Curve Fittings. 3 credits per quarter. Mr. Eggers.
- 152f,w,s-153w-154s. Nomography. 3 credits per quarter. Mr. Levens.
- 157f-158w-159s. Graphical Methods. 2 credits per quarter. Mr. Levens.

MECHANICAL ENGINEERING

Professors John R. DuPriest, Frank B. Rowley, Charles F. Shoop; Associate Professors Charles A. Koepke, John V. Martenis, Burton J. Robertson.

Master's degree.—Offered only under Plan A.

MECHANICAL ENGINEERING DESIGN

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 121f. Machine Design. Spur, bevel, and worm gears, flywheels and pulleys; rotating discs; belt and rope transmission; force and shrink fits; critical speeds; lubrication. Prerequisite: Course 24. 2 credits. Mr. J. J. Ryan.
- 122w-123s. Mechanical Engineering Design. Machine elements as applied to complete machines. Mathematical theory of lubrication; vibration analysis; stress analysis by photo-elastic methods. Study of materials for special purposes, high temperatures, etc. Prerequisite: Course 121. 2 credits per quarter. Mr. J. J. Ryan.
- 125w. Machine Design Laboratory. Experimental studies of critical speeds, vibration, balancing, and noise in high speed machinery; complex stresses in machine parts; the use of vibrograph, oscillograph, stroboscope, photoelastic polariscope, and noise meter. Prerequisite: M.E. 121. 2 credits. Mr. Ryan.
- 197w. Mechanical Equipment of Buildings. Investigation of heating, ventilating, refrigerating, power, elevator, fire protection, and special equipment for large buildings. Disposal of wastes, light distribution, communication, and plumbing. Lectures, inspection trips, reports with equipment layout. Prerequisites: Course 160, Phys. 43. 3 credits. Mr. Martenis.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 221f-222w-223s. Advanced Mechanical Engineering Design. Prerequisite: Course 121. 3 credits per quarter. Mr. DuPriest, Mr. Martenis, Mr. J. J. Ryan.

STEAM ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 141f,w. Power Plant Engineering. Theory, practice, and economics relating to prime movers and steam generating equipment of the modern power plant, including auxiliary units such as condensers, heaters, purifiers, pumps, fans, piping, etc. Prerequisite: Course 32. 3 credits. Mr. Shoop.
- 144w. Steam Turbines. Theory and practice applied to various types. Thermodynamics and mechanical analysis of problems involved in the design of nozzles, blades, rotors, etc. Condition of operation; systems of transmission; lubrication; economy; field of service. Laboratory investigation. Prerequisite: Course 32. 3 credits. Mr. Shoop.
- 145w. Applied Thermodynamics. Laws of heat transmission, mean temperature difference, in condensers, boilers, brine coils, feed water heaters. Treatment of cooling towers, accumulators, multiple stills, stage evaporators, vapor refrigeration; air compressors, multi staging, intercooling, etc. Prerequisites: Courses 32, 35. 3 credits. Mr. Shoop.
- 146s. Fuels and Combustion. Fuels: classification and analysis. Hand and stoker treatment; regulation. Pulverized and liquid fuels. Types of burners, controls. Combustion: generation of heat; furnace gases; stratification; flame way; smoke prevention. Furnaces. Prerequisite: Course 141. 3 credits. Mr. Shoop.
- 147w. Design of Steam Machinery. Piping systems, furnaces and gas passage dimensions, stokers, oil, gas, and pulverized fuel burners, superheaters, feed water heaters and pumps, air pre-heaters, automatic controls, chimneys, etc. Prerequisite: Course 141 or reg. in 141. 2 credits. Mr. Shoop.
- 148s. Design of Power Plant Units. Treatment of condensers, air pumps, cooling towers, stage evaporators, reheaters, etc. Prerequisite: Course 147. 2 credits. Mr. Shoop.
- 149f,w,s. Advanced Steam Laboratory. Tests of steam turbines, uniflow and compound steam engines, condensers, evaporators, and vacuum pumps. Tests of compound steam pump. Air compressor, boiler, superheater and power plant. Studies of fluid flow meters and air conditioning apparatus. Prerequisites: Courses 32, 35, and 141 or registration in 141. 2 credits. Mr. Shoop.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 241s. Advanced Thermodynamics. Reversible changes of state and efflux of wet and superheated vapors. Flow of compressible fluids in mains, moving channels, into receivers, and communicating vessels. Gas mixtures, critical points, liquefaction. Power plant cycles: regenerative, reheating, and bleeding. Prerequisite: Course 145. 3 credits. Mr. Shoop.
- 242f-243w. Power Plant Design. Problems, designs, and estimates for power plants and central stations. Selections of motive powers, relative ad-

vantages of steam, producers, and gas plants. Choice of engines and boilers; pumps, piping, and accessories. Prerequisite: Course 148. 2 credits per quarter. Mr. Shoop.

- 244s. Power Plant Management. Operation and maintenance of boilers, engines, steam turbines, and accessory apparatus. Smoke prevention, lubricants and lubrication. Power plant finance. Daily logs and power costs. Study of recent power researches. Prerequisite: Course 141. 3 credits. Mr. Shoop.

INTERNAL COMBUSTION ENGINES

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 150f,w. Internal Combustion Engines. Study of real gas cycles, combustion fuels. Construction and performance. Characteristics of Otto, Diesel, and compression-ignition engines. Carburetion, fuel injection, cooling, lubrication. Auxiliary systems. Prerequisite: Course 31. 3 credits. Mr. Robertson.
- 151w. Advanced Internal Combustion Engines. Special reference to automobile, truck, and airplane engines. Theoretical consideration of fuels, combustion, detonation, lubrication, etc. Prerequisite: Course 150. 3 credits. Mr. Robertson.
- 152f,s. Diesel Engines. An advanced course in the theory, design, operation, and economics of the Diesel engine. Lectures and assigned readings. Prerequisite: Course 150. 3 credits. Mr. Robertson.
- 153s. Automobile Fleet Maintenance. Study of available types of motor coaches and trucks, their design features from a maintenance viewpoint, a survey of service depot requirements with a study of fleet service methods and maintenance practice. Prerequisite: Course 150. 3 credits. Mr. Robertson.
- 154w. Design of Airplane Engines. Study of the designs of radial and in-line aircraft engines. Drawing room problems, including graphical and analytical calculations of stresses in moving parts. Combined polar diagrams of bearing loads, etc. Prerequisite: Courses 27, 150. 2 credits. Mr. Robertson, Mr. Ford.
- 155s. High Speed Engine Testing. Use of modern research instruments and methods of testing. Experiments showing effect of fuel mixture, distribution, spark timing, etc., upon general engine performance. Prerequisite: Course 159. 2 credits. Mr. Robertson.
- 156w,s-157s. Design of Internal Combustion Engines. Detailed study of design of automotive and stationary engines. Problems, including calculation of cylinders, bearing loads, stresses in moving parts, and valve mechanisms. Prerequisites: Courses 121, 150 for 156, 154 or 156 for 157. 2 credits. Mr. Robertson, Mr. Ford.
- 158s. Aero Engine Testing. The use of modern instruments for testing gasoline and Diesel aircraft engines. The use of dynamometers and torque stands in determining engine performance. Prerequisite: Course 150. 2 credits. Mr. Robertson.

- 159f,w,s. Internal Combustion Engine Laboratory. Test of gasoline, semi-Diesel, and Diesel engines. Power plant units and automotive engines. Prerequisite: Course 150 or registration in 150. 2 credits. Mr. Robertson, Mr. Ford.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 250f,w,s. Dynamics of High Speed Engines. Advanced study of inertia forces; balancing high speed multi-cylinder engines; engine torque analysis; torsional vibration, etc. Conferences, assigned readings, and problems. Prerequisites: Courses 121, 150. 3 credits. Mr. Robertson, Mr. Ford.
- 251f-252w-253s. Automobile and Motor Truck Design. Theory and design of the automobile, motor truck engine and chassis, complete design of engine, transmission, and chassis. 2 credits per quarter. Mr. Robertson.
- 254w,s. Engine Service Management. Instruments and methods used in servicing or reconditioning automobile and airplane engines. Causes of mechanical failure and wear. Permissible tolerance in worn parts. Lubrication and ignition service. Prerequisite: Course 151. 3 credits. Mr. Robertson, Mr. Ford.
- 255f-256w-257s. Automobile Testing Research. Dynamometer and road tests including over-all efficiency of cars at various speeds, fuel consumption, effect of road surface on traction, efficiencies, and general performances. Special research problems. Prerequisites: Courses 55 or 159. 2 credits per quarter. Mr. Robertson.
- 258s. Motor Truck and Bus Transportation. Problems involving motor truck transportation, capacity of trucks, trailers, drawbar pull. Efficiencies. Effect of road surface. Freight handling. Analysis of cost of truck operation and maintenance. Relative costs of transportation. Prerequisite: Course 152. 3 credits. Mr. Robertson.

HEATING, VENTILATION, AND REFRIGERATION

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 160f. Heating and Ventilation. Principles of heating, ventilation, and air conditioning. Warm air, steam, hot water, vapor, vacuum, and fan systems of heating; pipe systems; heat regulation. Ventilation and air conditioning, synthetic air chart, central station heating. Prerequisites: Courses 31 and M.&M. 127, 129. 3 credits. Mr. Rowley.
- 161w-162s. Heating and Ventilation Design. Design, selection, and arrangement of equipment for various types of heating and ventilating systems. Prerequisite: Course 160. 2 credits per quarter. Mr. Algren.
- 164s. Heating and Ventilation. (Arch.) Principles of heating, ventilation, and air conditioning. Heating systems; furnaces, steam, hot water, vapor, vacuum, and fan blast. Piping systems. Ventilation and air conditioning and methods of control. Prerequisite: Course M.&M. 92. 2 credits. Mr. Rowley.

- 165w. Advanced Heating, Ventilation, and Air Conditioning. Requirements for comfort and health and industrial processes. Thermodynamics of air vapor mixtures. Heating, cooling, humidification, dehumidification. Atmospheric impurities, sources, classifications, methods of elimination. Air supply and distribution. Methods of control and application. Prerequisite: Course 160. 3 credits. Mr. Rowley.
- 166s. Refrigeration. Principles of refrigeration. Various types of refrigerating machines, refrigerants, applications to ice making, cold storage, and air conditioning. Prerequisite: Course 32. 3 credits. Mr. Rowley, Mr. Algren.
- 167s. Advanced Heating, Ventilation, and Air Conditioning. Special problems including air conditioning, heat transfer, heating and cooling loads, solar radiation, etc. Equipment and test methods. Prerequisite: Course 160. 3 credits. Mr. Rowley.
- 169f,w,s. Heating and Ventilation Laboratory. Tests of heating, ventilating, and air conditioning equipment. The determination of air qualities as required for comfort and for specific industries. Tests and studies of complete installation. Prerequisites: Courses 35, 160 or reg. in 160. 2 credits. Mr. Algren.

COURSE PRIMARILY FOR GRADUATE STUDENTS

- 265f,w,s. Advanced Heating, Ventilation, and Air Conditioning. Taken in connection with research work in the laboratory. Prerequisite: Course 160. Credits arranged. Mr. Rowley.

INDUSTRIAL ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 170s. Tool Design and Construction. Tools, jigs, dies, and fixtures for manufacturing interchangeable parts. Prerequisites: Courses 71, 171. 3 credits. Mr. Koepke.
- 171f,w. Production Control. Principles and practice involved in economical production. Standardization. Requirements for uniformity and interchangeability. Jigs, fixtures, and special equipment; gauges and inspection systems. Divisions of labor. Conveying, handling, and stores control. Fatigue elimination. Prerequisite: Course 71. 3 credits. Mr. Koepke.
- 172w. Industrial Plants. Factory organization and construction for economical manufacture. Organization of the industry. Location and type of buildings, power development. Layout of plant. Routing systems and machine layout. Heating and ventilating requirements. Lighting. Sanitation. Distribution of power. Welfare features. Lectures, recitations, and laboratory. Prerequisite: Course 171. 3 credits. Mr. Koepke.
- 173s. Industrial Management. General principles. Taylor system; wage, bonus, and profit sharing systems. Maintenance and depreciation. Purchasing. Allocation of cost, overhead, and machine burden. Graphical representation. Prerequisite: Course 172. 3 credits. Mr. Koepke.

- 174f,w,s. Industrial Management Laboratory. Planning department. Time and motion studies; rate setting. Instruction cards. Production control. Shop practice with investigations in local factories. Lectures, assigned reading, practice, and reports. Prerequisites: Courses 71, 171 or reg. in 171. 2 credits. Mr. Koepke.
- 175w. Materials Handling. Equipment and facilities necessary for economical transportation and storage of materials and parts during the process of manufacture; factors affecting capital invested in inventory, hand and power trucks, conveyors, elevators, hoists, cranes, arrangement of stores, checking and issuing materials. Prerequisite: Course 172 or reg. in 172. 2 credits. Mr. Koepke.
- 179s. Industrial Relations. Labor administration. Foreman training. Training the worker; job analysis. Employment and turnover; the human element, service departments. Stabilization of labor. Lectures, reading, shop visits, and reports. Prerequisite: Course 171. 3 credits. Mr. Koepke.

COURSE PRIMARILY FOR GRADUATE STUDENTS

- 277f-278w-279s. Industrial Engineering Problems. Special Investigations of practical problems and suggested methods of procedure. Lectures, assigned reading, shop visits, and reports. Prerequisites: Courses 173, 174. Credits ar. Mr. Koepke.

GENERAL

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 181f. Railway Technology. Systematic course of visits to the various railroad shops in the vicinity to study locomotive details and classifications. Locomotive practice. Prerequisites: Courses M.&M. 127, 128, 129. 1 credit. Mr. Martenis.
- 189s. Hydraulic Machinery. Theory of operation, design, construction, and regulation of water turbines. Turbine testing; characteristics, selection of type. Cost of turbines and water power. Prerequisite: Course M.&M. 129. 3 credits.
- 190f-191w-192s. Seminar. Reading of assigned articles in current technical press. Classroom presentation of principal features of assigned articles. 1 credit per quarter. Mr. DuPriest.
- 194w,s. Advanced Engineering Problems. Opportunity will be offered for carrying on special investigations in the various fields of mechanical engineering. 2 credits. Registration by permission of the division chief in charge of work.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 282f-283w-284s. Locomotive Design and Construction. Locomotive details. Design of boiler, cylinders, frame, springs, trucks, axles, wheels, running gear, equalizing arrangements, valve gears, lubrication. Lectures, assigned reading, and drafting. Prerequisite: Course 281. 3 credits. Mr. Martenis.

290f-291w-292s. Mechanical Engineering Research. Investigations in connection with lubrication, fuels, furnaces, boilers, steam engines, turbines, gas engines, heating and ventilation, industrial and other engineering problems. Credits arranged. Mr. DuPriest, Mr. Rowley, Mr. Shoop, Mr. Koepke, Mr. Martenis, Mr. Robertson.

MEDICAL SOCIAL WORK

For statement of prerequisites and of graduate courses and staff, see Sociology, page 150.

See also History of Science, page 103.

MEDICINE

(Including Divisions of General Medicine, Dermatology and Syphilology, Nervous and Mental Diseases, and Neurology)

The graduate work in the Department of Medicine is designed to offer opportunities for gifted men and women to prepare themselves for the practice of internal medicine or any of its subdivisions as a specialty. It also aims to guide its fellows in research in these fields and to give them a start in university teaching. Prospective fellows who have had no special work in addition to that of the ordinary undergraduate courses will profit greatly from some special work. While work in any one of the fundamental subjects might be of value, physiology, biochemistry, bacteriology and pathology at the present are of the greatest importance. Work in any of these subjects might be further continued during the work in medicine to meet the requirements for a minor subject. Such work may also be done in pharmacology. For fellows specializing in nervous and mental diseases work in anatomy and psychology might be of special value as a minor. Work can also be arranged in the Department of Ophthalmology and Otolaryngology for fellows working in nervous and mental diseases, thus giving special opportunity to study lesions of the eye occurring in systemic disorders.

For staff and courses of study offered, see Graduate Medical School Bulletin.

See also History of Science, page 103.

METALLOGRAPHY

Professor Ralph L. Dowdell.

Prerequisites.—For major work, adequate preparation in the sciences fundamental to metallography (chemistry, physics, geology, technical subjects), the general requirements being fulfilled. For minor work, the prerequisites to the courses to be pursued.

Language requirement.—Exemption from the language requirements for the Master's degree may be made in individual cases.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 150f. Metallography for Electrical Engineers. Principles of metallography, including pyrometry, thermal analysis, constitution diagrams, microscopic and photomicrographic technique; study of typical alloys with special reference to electrical resistance, conductivity, magnets, etc. Laboratory work and demonstrations. Two lectures, three laboratory hours per week. 3 credits. Mr. Forsyth.
- 151w. Advanced Metallography for Electrical Engineers. Continuation of 150. Two lectures, three laboratory hours per week. Prerequisite: Course 150. 3 credits. Mr. Forsyth.
- 152f. Metallography for Aeronautical Engineers. Principles of metallography; metallography of iron and steel with special reference to alloy steels, and light alloys used in airplane construction. Laboratory work and demonstrations. Open to senior aeronautical engineers. 3 credits. Mr. Dowdell, Mr. Jerabek.
- 153f-154w-155s. Metallography. (Long course for metallurgical engineers.) Theory of metallic alloys. Metallographic technique. Properties of metals and alloys. Metallography of iron and steel and commercial alloys. Technical metallography. Three lectures, four laboratory hours per week each quarter. Prerequisites: Chem. 9, Phys. 43 or Mech. 53. 5 credits per quarter. Mr. Forsyth.
- 156w. Metallography for Mechanical Engineers. Similar to 150 but specially arranged for students in mechanical engineering. Two lectures, three laboratory hours per week. 3 credits. Mr. Dowdell.
- 157s. Advanced Metallography for Mechanical Engineers. Continuation of 156. Two lectures, three laboratory hours per week. Prerequisite: Course 156. 3 credits. Mr. Dowdell.
- 160f. Metallography for Chemical Students. Metallography, including constitution diagrams, preparation and standardization of thermocouples, preparation and thermal analysis of alloys, their microscopic examination and photomicroscopy; typical alloy systems such as iron-carbon (steel and cast iron); some nonferrous alloys. Prerequisite: Anal. Chem. 1, 2. Two lectures and three laboratory hours per week. 3 credits. Mr. Jerabek.
- 161w. Advanced Metallography for Chemical Students. Metallography and heat treatment of iron and steel, including alloy steels, commercial uses of various steels, and engineering specifications. Prerequisite: Course 160. Two lectures and three laboratory hours per week. 3 credits. Mr. Jerabek.
- 162s. Advanced Metallography for Chemical Students. Metallography of the nonferrous metals with a study of the constitution diagrams, properties, and uses of important commercial alloys. Prerequisite: Course 160. Two lectures and three laboratory hours per week. 3 credits. Mr. Jerabek.
- 163f. Advanced Metallography. Seminar work on recent advances in metallography. Lectures and recitations, with outside reading and special

- reports. May be accompanied by laboratory work. Prerequisite: 6 credits in metallography. Credits arranged. Mr. Dowdell.
- 164w. Advanced Metallography. Advanced consideration of the structures, properties, and uses of metals and alloys. May be accompanied by laboratory work. Prerequisite: 6 credits in metallography. Credits arranged. Mr. Dowdell.
- 165s. Advanced Metallography. Technical metallography as applied to the automotive industry. Lectures and special reports. May be accompanied by laboratory work. Prerequisite: 6 credits in metallography. Credits arranged. Mr. Dowdell.
- 166f-167w-168s. Laboratory. Laboratory work on special problems in ferrous, nonferrous, and X-ray metallography. Credits arranged. Mr. Dowdell.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s. Advanced Metallography for Graduate Students. Seminar. Credits arranged. Mr. Dowdell.
- 204f-205w-206s. Metallographic Research. Special research problems in metallography. Credits arranged. Mr. Dowdell.

METALLURGY

Professors Thomas L. Joseph, Levi B. Pease.

Prerequisites.—Elements in physics and chemistry.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 104w. Metallurgy of Pig Iron and Wrought Iron. General underlying principle of iron ore reduction, including construction, operation, and regulation of the iron blast furnace together with direct reduction of iron ore and refining products in the hearth and puddling furnaces. Prerequisite: General Metallurgy 3. Three lectures and one consultation hour per week. 3 credits. Mr. Joseph.
- 105s. Metallurgy of Steel. General principles involved in the refining and purification of pig iron and scrap into various grades of steel. Three lectures and one consultation hour per week. 3 credits. Mr. Joseph.
- 106f. Metallurgy of Base Metals. Lead, copper, zinc. Consideration of methods and principles involved in roasting, smelting, and refining base metals. Hydrometallurgy and electrolytic refining. Four lectures per week. 4 credits. Mr. Pease.
- 107w. Metallurgy of Base Metals. Continuation of Course 106f. Four lectures per week. 4 credits. Mr. Pease.
- 108s. Metallurgy of the Precious Metals. Principles involved and methods used in the extraction of gold, silver, and other precious metals. Cyanidation, amalgamation, and refining. Four lectures per week. 4 credits. Mr. Pease.

- 110f-111w. Ore Dressing. General principles involved in the crushing, sizing, gravity separation, flotation, and magnetic concentration of ores. 3 credits. Mr. Pease, Mr. Searles.
- 112f-113w-114s. Ore Dressing Laboratory. Practical examination of ores. Operation of laboratory ore dressing equipment. Laboratory concentration of common ores. 2 credits. Laboratory and conference. Mr. Pease, Mr. Searles.
- 117w. Advanced Metallurgy. Metallurgical calculations to determine heat balance and heat distribution in furnaces. Four lectures and six laboratory hours per week. 4 credits. Mr. Joseph.
- 118s. Advanced Metallurgy. Designs of furnaces together with laboratory work. Consultations. Mr. Joseph.
- 123f. Electrometallurgy. Application of electricity to the production of heat for the smelting of ores and refining of metals. Relative cost of fuel and electric heating; also relative efficiencies of fuel and electric furnaces. Construction of high temperature furnaces and operation of commercial plants. Three lectures and one consultation hour per week. 3 credits. Mr. Searles.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201-202. Field Course in Metallurgy. Detailed study of the actual operations at one or more smelters. To be arranged with individual students upon application to the department. This may be carried on during summer vacations and detailed written reports will be required.
- 204f-205w-206s. Thesis Course for Graduate Students. Intended primarily for research work. Credits arranged. Mr. Joseph, Mr. Pease.
- 207-208-209. Special Problems in Metallurgy. Seminar work on metallurgical problems. Credits arranged. Mr. Joseph, Mr. Pease.
- 210-211-212. Special Problems in Advanced Metallurgy. Intended primarily for research work. Credits arranged. Mr. Joseph, Mr. Pease.

MINING AND PETROLEUM ENGINEERING

Professors Elting H. Comstock, Edward W. Davis, Walter H. Parker, Levi B. Pease.

Prerequisites.—Candidates for the degree of master of science in mining or petroleum engineering must have completed an undergraduate course of study, the substantial equivalent of that required for graduation in the School of Mines and Metallurgy of the University of Minnesota. The basic courses in mathematics through Calculus; Mechanics; Strength of Materials; Hydraulics; General and Mine Surveying; a geologic sequence including General Geology, Mineralogy, Rock Study, Petrography, Economic Geology, and Ore Deposits; chemistry through Quantitative Analysis; Assaying and General Metallurgy must be included. In addition candidates for the degree of master of science in mining engineering must have included in their undergraduate course, Ore Dressing, Exploration, Development and Mining Methods. Candidates for the degree of master of science

in petroleum engineering must have included additional geology so as to have a foundation in Sedimentation, Structural and Metamorphic Geology and Paleontology; Oil Field Exploration, Development and Production Methods. In all cases, before registering for advanced courses the necessary prerequisites will be required.

Language requirement.—Exemption from the language requirement may be made in individual cases.

Master's degree.—Offered only under Plan A.

Mining

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 112f-113w-114s. Mine Plant. Discussion of the machinery and appurtenances employed in the equipment of mines. Air compression, rock drills, mechanical features of hoisting, pumping, ventilation, underground transportation. Electricity applied to mining. 18 credits. Mr. Comstock.
- 131f. Exploration. Location of mineral lands, prospecting, exploration, boring, explosives, drilling, blasting, and timber treating. Five lectures per week. 4 credits. Mr. Trengove.
- 132w. Tunneling. Tunneling, drifting, shaft sinking, raising and mining methods. Five lectures per week. 4 credits. Mr. Parker, Mr. Trengove.
- 134s. Mining Methods. Underground mining methods and support of underground excavations. Five lectures per week until May 1. 3 credits. Mr. Parker.
- 141f. Mine Examinations and Contracts. Mine examinations, sampling, and mining reports. Amortization. Contracts and specifications. Corporations, capitalization, stocks, and bonds. Five lectures per week. 4 credits. Mr. Parker.
- 143w. Coal Mining and Mining Law. Coal mining methods. Mechanization and coal preparation. Mine gases. Accident prevention. State mining codes. Compensation laws. Mining law and court interpretations. Taxation. Five lectures per week. 4 credits. Mr. Parker.
- 145s. Placer and Quarries. Placer, hydraulic mining, and dredging. Quarries. Five lectures per week until May 1. 4 credits. Mr. Parker.
- 151-152-153. Special Problems in Mining. Seminar work on mining problems. Credits arranged. Mr. Parker.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201-202-203. Special Problems in mining. Seminar work on mining problems. Credits arranged. Mr. Parker.
204. Advanced Mine Examinations. Mathematical principles necessary for a complete evaluation of a mine. Mathematical and economic principles involved in the valuation of mine plant involving obsolescence, replacement of equipment and structures, etc. Mathematical, economic, and ore dressing principles involved in the valuation of an ore deposit. 5 credits. Mr. Comstock, Mr. Parker.
205. Gold Mine Valuation. Application of the principles and methods de-

- veloped in Course 204 to the valuation of a gold mine. 5 credits. Mr. Parker, Mr. Pease.
206. Copper Mine Valuation. Application of the principles and methods developed in Course 204 to the valuation of a copper mine. 5 credits. Mr. Parker.
207. Iron Mine Valuation. Application of the principles and methods developed in Course 204 to the valuation of an iron mine. 5 credits. Mr. Parker.
208. Lead-Zinc Mine Valuation. Application of the principles and methods developed in Course 204 to the valuation of a lead-zinc mine. 5 credits. Mr. Parker, Mr. Pease.
209. Valuation of Mine of Nonmetallics. Application of the principles and methods developed in Course 204 to the valuation of a mine of non-metallics. 5 credits. Mr. Parker.
210. Field Course in Mining. Detailed study of the actual operations, accounts, ore treatment, etc. of a mine. To be arranged with individual students upon application to the department. This may be carried on during a summer. A detailed written report will be required.
211. Applied Ore Testing. Ore testing as applied to mine production of some particular ore deposits. 5 credits. Mr. Pease, Mr. Parker.
212. Applied Ore Dressing. Ore dressing as applied to yearly production and segregation of ore shipments of some particular mine. 5 credits. Mr. Davis, Mr. Parker.
213. Applied Ore Estimating. Estimating ore reserves with the object determining life and value of mine. 5 credits. Mr. Parker.
- 214-215-216. Special Problems in Mining Economics. Intended primarily for research. Credits arranged. Mr. Parker.

PETROLEUM ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 131f. Exploration. Location of oil lands, methods of drilling, blasting, timber treating. Five lectures per week. Mr. Trengove.
- 132w. Oil Field Development. Aerial surveys, geology, oil and gas production. Five lectures per week. Mr. Trengove.
- 134w. Oil Field Equipment. Mechanical features of oil field lift, pumping, natural gasoline extraction, etc. under various conditions. Two lectures per week. Mr. Trengove.
- 138s. Oil Field Mapping. Twelve lectures per week. Mr. Trengove.

- 151s. Petroleum Refining. Distillation and purification processes used in the production of commercial products from crude petroleum. Five lectures a week until May 1. 2 credits. Mr. Trengove.
- 155-156-157. Special Problems in Petroleum Engineering. Seminar work on petroleum problems. Credits arranged. Mr. Comstock, Mr. Parker.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201-202-203. Seminar Work on Petroleum Problems. Credits arranged. Mr. Comstock, Mr. Parker.
204. Advanced Oil Lease Valuation. Mathematical principles necessary for a complete evaluation of an oil lease. Mathematical and economic principles involved in the valuation of plant and equipment involving obsolescence, replacement of equipment and structures, etc. Mathematical economics and refining principles involved in the valuation of a pool. 5 credits. Mr. Comstock, Mr. Parker, Mr. Trengove.
205. Applied Lease Valuation. Application of the principles and methods developed in Course 204 to the valuation of a specific oil lease. 5 credits. Mr. Comstock, Mr. Parker, Mr. Trengove.
206. Field Course in Petroleum Engineering. A detailed study of the actual operations, accounts, crude oil treatment, etc., of an oil field lease. To be arranged with individual students upon application to the department. This may be carried on during a summer. A detailed written report will be required.
207. Crude Oil Emulsions. A study of the methods of dehydration. Lectures and laboratory work. 5 credits. Mr. Comstock.
- 209-210. Special problems in petroleum economics intended primarily for research. Credits arranged. Mr. Comstock, Mr. Parker.

MUSIC

Wald N. Ferguson.

Approval of the departmental adviser the following course may be taken as a minor:

211. Musical Expression. Open only to graduates. Prerequisite: 210. 58. 9 credits. Mr. Ferguson.

OBSTETRICS AND GYNECOLOGY

Study offered, see Graduate Medical School

OTO-LARYNGOLOGY

Graduate Medical School

141i. Admini-
stocks and
week. 4

142w. Admini-
taxation,
per week

stration.
d bonds,
credits.

stration.
proration
4 credits.

Reports, amortization, corporations, capitalization,
leases, contracts and specifications. Five lectures per
Mr. Parker.

Accident prevention, state codes, compensation laws,
and unitization, production decline. Five lectures
Mr. Parker.

2 credits. Mr. Comstock.

hours a week until May 1. 3 credits.

geophysical prospecting, oil
week. 4 credits. Mr. Parker.

tures of drilling equipment, gas
Special devices for abnormal

explosives, Mr.

be counted
100f-101w-102s. Basis of
requisite: Course 56-57

OBSTETRI

For staff and courses of s
Bulletin.

OPHTHALMOLOGY AND

For staff and courses of study offered, see Graduate
Bulletin.

PATHOLOGY

A. Courses Offered at the Medical School
Professors Elexious T. Bell, Benjamin J. Clawson; Associate Professors
James Shearer McCartney, Jr., John Franklin Noble.

- veloped in Course 204 to the valuation of a gold mine. 5 credits. Mr. Parker, Mr. Pease.
206. Copper Mine Valuation. Application of the principles and methods developed in Course 204 to the valuation of a copper mine. 5 credits. Mr. Parker.
207. Iron Mine Valuation. Application of the principles and methods developed in Course 204 to the valuation of an iron mine. 5 credits. Mr. Parker.
208. Lead-Zinc Mine Valuation. Application of the principles and methods developed in Course 204 to the valuation of a lead-zinc mine. 5 credits. Mr. Parker, Mr. Pease.
209. Valuation of Mine of Nonmetallics. Application of the principles and methods developed in Course 204 to the valuation of a mine of non-metallics. 5 credits. Mr. Parker.
210. Field Course in Mining. Detailed study of the actual operations, accounts, ore treatment, etc. of a mine. To be arranged with individual students upon application to the department. This may be carried on during a summer. A detailed written report will be required.
211. Applied Ore Testing. Ore testing as applied to mine production of some particular ore deposits. 5 credits. Mr. Pease, Mr. Parker.
212. Applied Ore Dressing. Ore dressing as applied to yearly production and segregation of ore shipments of some particular mine. 5 credits. Mr. Davis, Mr. Parker.
213. Applied Ore Estimating. Estimating ore reserves with the object of determining life and value of mine. 5 credits. Mr. Parker.
- 214-215-216. Special Problems in Mining Economics. Intended primarily for research. Credits arranged. Mr. Parker.

PETROLEUM ENGINEERING

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 131f. Exploration. Location of oil lands, methods of drilling, explosives, blasting, timber treating. Five lectures per week. 4 credits. Mr. Trengove.
- 132w. Oil Field Development. Aerial surveys, geophysical prospecting, oil and gas production. Five lectures per week. 4 credits. Mr. Parker.
- 134w. Oil Field Equipment. Mechanical features of drilling equipment, gas lift, pumping, natural gasoline extraction. Special devices for abnormal conditions. Two lectures per week. 2 credits. Mr. Comstock.
- 138s. Oil Field Mapping. Twelve hours a week until May 1. 3 credits. Mr. Trengove.
- 141f. Administration. Reports, amortization, corporations, capitalization, stocks and bonds, leases, contracts and specifications. Five lectures per week. 4 credits. Mr. Parker.
- 142w. Administration. Accident prevention, state codes, compensation laws, taxation, proration and unitization, production decline. Five lectures per week. 4 credits. Mr. Parker.

- 151s. Petroleum Refining. Distillation and purification processes use the production of commercial products from crude petroleum. Five lectures a week until May 1. 2 credits. Mr. Trengove.
- 155-156-157. Special Problems in Petroleum Engineering. Seminar work on petroleum problems. Credits arranged. Mr. Comstock, Mr. Parker.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201-202-203. Seminar Work on Petroleum Problems. Credits arranged. Mr. Comstock, Mr. Parker.
204. Advanced Oil Lease Valuation. Mathematical principles necessary for a complete evaluation of an oil lease. Mathematical and economic principles involved in the valuation of plant and equipment involving obsolescence, replacement of equipment and structures, etc. Mathematical economics and refining principles involved in the valuation of a pool. 5 credits. Mr. Comstock, Mr. Parker, Mr. Trengove.
205. Applied Lease Valuation. Application of the principles and methods developed in Course 204 to the valuation of a specific oil lease. 5 credits. Mr. Comstock, Mr. Parker, Mr. Trengove.
206. Field Course in Petroleum Engineering. A detailed study of the actual operations, accounts, crude oil treatment, etc., of an oil field lease. To be arranged with individual students upon application to the department. This may be carried on during a summer. A detailed written report will be required.
207. Crude Oil Emulsions. A study of the methods of dehydration. Lectures and laboratory work. 5 credits. Mr. Comstock.
- 208-209-210. Special problems in petroleum economics intended primarily for research. Credits arranged. Mr. Comstock, Mr. Parker.

MUSIC

Professor Donald N. Ferguson.

With the approval of the departmental adviser the following course may be counted toward a minor:

- 100f-101w-102s. Basis of Musical Expression. Open only to graduates. Prerequisite: Course 56-57-58. 9 credits. Mr. Ferguson.

OBSTETRICS AND GYNECOLOGY

For staff and courses of study offered, see Graduate Medical School Bulletin.

OPHTHALMOLOGY AND OTO-LARYNGOLOGY

For staff and courses of study offered, see Graduate Medical School Bulletin.

PATHOLOGY

A. Courses Offered at the Medical School

Professors Elexious T. Bell, Benjamin J. Clawson; Associate Professors James Shearer McCartney, Jr., John Franklin Noble.

Prerequisites.—Graduate students who desire to take their major work in pathology must present credits for the equivalent of the first two years' work of the Medical School of this University. They must also have a reading knowledge of German.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 104f,w,s,su. Autopsies. The average number of post-mortems available is about 175 per month or about 2,100 per year. Graduate students take part in post-mortems, prepare post-mortem records, and make microscopic examinations of various organs and tissues. The student may attend as many post-mortems as his other work allows.
- 107f. Advanced Pathology. Diagnosis of tumors.
- 107aw. Advanced Pathology. Diagnosis of tumors.
- 107bw. Advanced Pathology. Diseases of the heart.
- 107s. Advanced Pathology. Diseases of the kidney.
- 107su. Advanced Pathology. Each student is assigned a problem on which surgical or post-mortem material is available. Hours to be arranged.
- 109f,w,s,su. Clinical Pathologic Conference. The students are provided one week in advance with the clinical history of a case. The case is fully discussed clinically. The students are expected, in so far as possible, to predict the post-mortem findings from the clinical data. A full post-mortem report is then given. One hour per week. Dr. Bell.
- 110f,w,s. Seminar in Pathology. Prerequisite: Path. 102. Dr. Bell.
- 111su,f,w,s. Conference on Autopsies. Prerequisite: Path. 102. Dr. Bell and staff.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f,w,s,su. Research. Graduate students, of the necessary preliminary training, may elect research, either as majors or minors in pathology. Hours and credits arranged.

B. Courses Offered in the Mayo Foundation

Professors Louis B. Wilson, Albert C. Broders, James W. Kernohan, William C. MacCarty, Thomas Byrd Magath, Frank C. Mann, Harold E. Robertson, Arthur H. Sanford; Associate Professors Jesse L. Bollman, William H. Feldman; Assistant Professors Carl F. Schlotthauer; Instructor William L. A. Wellbrock.

Opportunities for advanced work in pathology are offered in four different sections in the Mayo Foundation, as follows:

M101. Clinical Pathology. Dr. Magath, Dr. Sanford.

Work in this section includes diagnostic work in the laboratories of gastrology, urinalysis, serology, bacteriology, parasitology, and clinical chemistry. Graduate students in these clinical laboratories may learn the technique of accepted diagnostic procedure. Special attention is called to

the opportunity for experience and research in serology under the direction of Dr. Sanford, and for training and research in parasitology under the direction of Dr. Magath. This work may be taken either as a major, or fulfilling the conditions of a minor.

M102. Pathologic Anatomy. Dr. Robertson, Mr. Kernohan.

Post-mortem examinations are made in sufficient numbers to provide active work for approximately eight fellows at a time.

The service is designed to permit the laying of a thoro foundation in the general principles of pathologic anatomy. Each fellow serves as junior assistant three months and senior assistant three months, during which time he takes part in the routine of post-mortem examinations and studies the microscopic sections of these post-mortems, and engages in weekly conferences and seminars concerned with general and special subjects in pathologic anatomy. Each fellow is expected to take up some special line of work upon which he reports to the group. Microscopic and gross demonstrations are held at frequent intervals and the work throughout is intimately supervised. Collateral reading and study are encouraged and oftentimes the foundation may be laid for thesis subjects or special lines of research. In connection with this work there is a well-organized museum for both display and study purposes. Fellows are aided and encouraged in the use of this museum to further their knowledge.

M103. Surgical Pathology. Dr. Broders, Dr. MacCarty, Dr. Wellbrock.

The laboratories of surgical pathology receive immediately all tissue removed at operation. It is studied both grossly and microscopically. The minimum residence in this service is six months, during which time opportunity is given to study a large amount of operative material in conjunction with clinical histories. Besides the routine diagnostic work fellows are expected to begin to carry along in these laboratories some piece of pathologic research.

M104. Experimental Pathology and Comparative Pathology. Dr. Mann, Dr. Bollman, Dr. Feldman, Dr. Schlotthauer.

Work in this section consists of research in problems of pathology involving the use of experimental animals.

COURSES PRIMARILY FOR GRADUATE STUDENTS

M263f,w,s,su. Clinical Pathology. Making and examination of cultures, preparation and administration of autogenous vaccines, Wasserman tests, special clinical and laboratory methods including hematology and serology and opportunity for research. Dr. Sanford.

M264f,w,s,su. Parasitology. Routine clinical and special research in parasitology, examination of stools, study of internal parasites. Dr. Magath.

M265f-w,w-s,s-su,su-f. Necropsy. Service. Junior assistant three months; senior assistant three months; demonstrations in clinico-pathologic conferences; microscopic examination of fixed tissues removed at necropsy. Bacteriology and necropsy material. Research problems. Weekly seminars. Dr. Robertson, Mr. Kernohan.

- M266f-w,w-s,s-su,f. Surgical and Fresh Tissue Pathology. The diagnosis of surgical specimens (gross and microscopic) with immediate correlation with all clinical data. Bacteriology of surgical material. Research problems. Daily demonstrations and discussions. Dr. Broders, Dr. MacCarty, Dr. Wellbrock.
- M267f,w,s,su. Research Work on Assigned Problems in Experimental Pathology. Dr. Mann, Dr. Bollman.
- M268f,w,s,su. Research Work on Assigned Problems in Comparative Pathology. Dr. Feldman, Dr. Schlotthauer.

In addition to the above, students majoring in pathology may do research work in biophysics, physiologic chemistry, experimental physiology, or bacteriology. For details, see these departments.

See also History of Science, page 103.

PEDIATRICS

For staff and courses of study offered, see Graduate Medical School Bulletin.

PHARMACOLOGY AND THERAPEUTICS

A. Courses Offered at the Medical School

Professor Arthur D. Hirschfelder; Associate Professors Raymond N. Bieter, Edgar D. Brown; Assistant Professor Harold N. G. Wright.

The laboratories of the Department of Pharmacology are excellently equipped for the study of both the chemical properties of drugs and their actions upon the functions of the living organs and tissues. They are well equipped with chemical apparatus for the synthesis of new medicinal compounds, for studies upon the detection, isolation and estimation of poisons in toxicology and for the isolation of medicinal plant constituents. By the co-operation of the clinical departments, special studies may be made of the action of drugs, old and new, upon patients in the University and allied hospitals.

Opportunities are afforded for the special study of the actions of drugs which are used in each of the clinical specialties and the literature bearing upon them. As the needs of each graduate student are individual in this regard, these studies are taken up by conference, seminar, and experiments specially devised to meet each case.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101w. Introduction to Pharmacology. The principles underlying the structure, physicochemical properties, physiologic, therapeutic, and toxic action of substances, natural or synthetic, used as medicines. At least one quarter of physiology is prerequisite. 22 hours; 2 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.

- 102s. General Pharmacology. A study of the most important drugs used in medicine with consideration of their chemical properties, actions on the normal and abnormal body, modes of administration, preparations, dosages, etc. 132 hours; 6 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 105su,w. General Pharmacology, in continuation. Lectures on narcotic, soporific, analgesic, antipyretic drugs; remedies used for the treatment of arthritides, etc. Writing of prescriptions for the drugs used. 33 hours; 3 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Wright.
- 106f. General Pharmacology, in continuation. Lectures on the salts of the metals, antiseptic, antisyphilitic drugs, chemotherapy, etc. 33 hours; 3 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Wright.
- 108su,f. Prescription Writing. The principles of prescription writing. Fifth year. 11 hours; 1 credit. Dr. Brown, Dr. Wright.
- 109f,w,s,su. Pharmacological Problems. Special investigations and experimental study of one or more of the following topics: anesthetics; circulatory stimulants and depressants; drugs acting upon the kidneys; urinary antiseptics; poisons and antidotes; effects of common harmless drugs; internal secretions; action of drugs upon parasites, tumors, etc. Hours and credits by arrangement. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 110f,w,s. Poisons. Their detection, actions, and antidotes. 66 hours; 2 credits. Dr. Brown, Dr. Bieter, Dr. Wright.

Courses 101, 102, 105, 106 are not acceptable for the minor in the case of graduates of medical colleges who are candidates for the degree of master of science.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f,w,s. Seminar in Physiology and Pharmacology. Reviews of recent literature. 11 hours; 1 credit. Staff.
- 203su,f,w,s. Research in Pharmacology. Open to graduate and advanced students. Hours and credits arranged. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 204f,w,s. Advanced Pharmacology. With collateral readings. Limited to six advanced students. 11 hours; 1 credit. Hours arranged. Staff.
- 205w. General Discussions in Pharmacology. With collateral readings. Hours and credits to be arranged. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.

B. Courses Offered in the Mayo Foundation

All opportunities for advanced work in pharmacology and therapeutics offered in the Mayo Foundation are in connection with the Departments of Medicine, Pediatrics, and Surgery. See announcements of these departments.

See also History of Science, page 103.

PHILOSOPHY

Professors Norman Wilde, David F. Swenson; Associate Professor George P. Conger.

Prerequisites.—For a major, 18 credits; for a minor, 9 credits.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100f. History of Religions. Prerequisite: 8 credits. 3 credits. Mr. Conger.
- 101w. Psychology of Religion. Prerequisite: 8 credits. 3 credits. Mr. Conger.
- 102s. Philosophy of Religion. Prerequisite: 8 credits. 3 credits. Mr. Conger.
- 103f. Esthetics. Prerequisite: 8 credits. 3 credits. (Alternates with 104.) Mr. Swenson.
104. History of Esthetic Theory. Prerequisite: 8 credits. 3 credits. Mr. Swenson.
- 105f. Fundamental Philosophies of Life. Prerequisite: 8 credits. 3 credits. Mr. Swenson.
- 108f-109w-110s. History of Ethics. Prerequisite: 20 credits in any social science or 8 credits in philosophy. 6 credits.
- 115w. Contemporary Philosophy. Prerequisite: 8 credits including Philosophy 50 or 52. 3 credits. Mr. Conger.
120. Scandinavian Philosophy. Prerequisite: 8 credits. 3 credits. Mr. Swenson.
124. Political and Social Ethics. Prerequisite: 20 credits in any social science, or 8 credits in philosophy. 5 credits.
- 129w. Development of Political Thought. Prerequisite: 8 credits in philosophy or 18 credits in any social science. 5 credits. Mr. Wilde.
- 135w-136s. Philosophy of Plato. Prerequisite: 8 credits including 50. 6 credits. Mr. Swenson.
- 141s. Metaphysics. Prerequisite: 8 credits. 5 credits. Mr. Conger.
- 147-148. Advanced Logic. Prerequisite: 8 credits including Philosophy 2. 6 credits.
- 151f-152w. Nineteenth Century Philosophy. Prerequisite: 8 credits in philosophy, including 52. 6 credits. Mr. Castell.
- 161f-162w-163s. Seminar in Philosophy. Individual investigation, topics to be determined after consultation with the department. Prerequisite: 20 credits in philosophy and consent of instructor. 9 credits. Mr. Wilde, Mr. Swenson, Mr. Conger, Mr. Castell.

PHYSICS

Professors Henry A. Erikson, Louallen F. Miller, John T. Tate, Anthony Zeleny; Associate Professors J. William Buchta, Joseph Valasek; Assistant Professor Edward L. Hill.

Prerequisites.—For major work, differential and integral calculus and two years of physics of college grade. For minor work, one year of college physics.

Major.—A student majoring in physics is required to take Courses 101-103-105 and 52 unless excused by the department upon satisfactory evidence at entrance. A course of general reading as outlined by the department in each case is also advised.

Language requirement.—For the Master's degree a reading knowledge of French or German and a thesis are required unless Plan B is advised by the department. It is desirable that the language requirement be fulfilled before graduate work is begun. For the Ph.D. degree a reading knowledge of both French and German is required.

Master's degree.—Offered in general under Plan A. In exceptional cases Plan B may be offered by petition.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-103w-105s. Theoretical Physics. An analytical survey of fundamental principles of mechanics, sound, heat, light, electricity, and magnetism designed to supplement the general courses and to prepare students for more specialized courses. Five lectures a week. Prerequisites: 12 credits in physics, Math. 51. 5 credits per quarter. Mr. Tate.
- 107f-109w-111s. Modern Physics. A survey of the newer developments in physics. Prerequisites: Math. 51, 12 credits in physics. 3 credits per quarter. Mr. Williams.
- 108f-110w-112s.‡ Modern Experimental Physics. An experimental study of outstanding effects in modern physics. Prerequisite: Course 144. 3 credits per quarter. Mr. Erikson, Mr. Williams.
- 113w. Intermediate Acoustics. The mechanics of vibrating systems and wave motion. The production, propagation, analysis, and reception of sound. Prerequisites: Math. 51, 15 credits in physics, including Phys. 13. 3 credits. Mr. Buchta.
- 114f-116w-118s. Elementary Physical Investigation. The experimental or theoretical study of physical phenomena the nature of laws of which are not as yet understood. Prerequisites: Course 104, Math. 51. The work in this course requires the submission of a written report on the work accomplished. 3 credits. Staff.
- 117w-119s. History of Physics. A chronological study of the discoveries and generalizations in physics from early historical times to the present. Prerequisite: A general course in physics. 3 credits per quarter. Mr. Erikson.
- 124s.‡ Pyrometry. A theoretical and experimental study of different principles involved in temperature measurement, covering standardization and calibration with some practical considerations. Prerequisites: Courses 23, 24. 3 credits. Mr. Miller.
- 126f,s.‡ Advanced Heat. A theoretical and experimental study of heat phenomena such as comparative calorimetric methods, temperature regu-

‡ A fee of \$2 per quarter is charged for this course.

- lators, ratio of specific heats of gases, conductivities and radiation. Prerequisites: Courses 23, 24. 3 credits. Mr. Miller.
- 134f,w.‡ Experimental Optics. Special experimental work in spectrometry, optical instruments, photometry, absorption, polarized light. Two three-hour laboratory periods a week. Prerequisite: Course 34. 3 credits. Mr. Valasek.
- 136w,s.‡ Spectrum Analysis. An experimental course dealing with the measurement of wave lengths, intensities, and absorption coefficients in the infra-red, visible, and ultra-violet regions of the spectrum. Two three-hour laboratory periods a week. Prerequisite: Course 34. 3 credits. Mr. Valasek.
- 144f.‡ Electricity Measurements. Devoted mainly to the study of potentiometer methods, capacity, inductance, magnetic flux. 3 credits. See the Bulletin of the Institute of Technology. Mr. Zeleny.
- 146w.‡ Advanced Electricity Measurements. Precision measurements of electromotive force, current, resistance, capacity, inductance, and magnetic flux. Use of apparatus of highest precision. Three two-hour laboratory periods a week. Prerequisite: Course 144. 3 credits. Mr. Zeleny.
- 148s.‡ Radioactivity. An analytical study of the theories and methods of investigation supplemented by laboratory technique. Those pursuing this course should continue with Chemistry 151, Radiochemistry. Prerequisites: Courses 43 and 44. 3 credits. Mr. Williams.
- 152f. X Rays. A study of the nature and production of X rays. Prerequisites: Courses 43 and 44. 3 credits. Mr. Valasek.
- 154w,s.‡ X-Ray Spectroscopy. Theory of diffraction of X rays by crystals. Emission and absorption spectra. Theory and systemization of X-ray spectra. Satellites of diagram lines. Effects of chemical combination. Lectures combined with laboratory work. Prerequisites: Course 152, Math. 51. 3 credits. Mr. Valasek.
- 171f-173w-175s. Problems Course. The work of this course consists entirely in solving problems and exercises designed to give practice in the mathematical analysis of physical problems. Prerequisites: Course 105, Math. 51. 3 credits per quarter. Mr. Buchta.

COURSES PRIMARILY FOR GRADUATE STUDENTS

Physics 101-103-105 and Mathematics 51 are prerequisites for all the graduate courses listed below. A reading knowledge of German is highly desirable and will be presumed in certain phases of the work, particularly that of the seminars.

The major work of the graduate division is embodied in various seminars in which the emphasis is placed on problems and developments in fields of current interest in experimental and theoretical physics. Individual study of the literature, together with reports and discussions, will form the basis of the work. The choice of topics for study will vary from year to year.

‡ A fee of \$2 per quarter is charged for this course.

Course 201-203-205 consists of advanced work principally in classical mathematical physics in extension of the general survey given in 101-103-105.

- 201f. Analytical Dynamics, Elasticity, and Hydrodynamics. D'Alembert's principle, Lagrange's equations, variational principles. Wave propagation in solid and fluid elastic media; vibrations of strings and plates; general theory of small vibrations in discrete and continuous media. Applications to the theory of sound. 5 hours a week. Mr. Hill.
- 203w. Electrodynamics and Theoretical Optics. General field equations; electron theory and the special theory of relativity. Reduction to macroscopic field equations. Molecular theory of dielectrics; dia-, para-, and ferro-magnetism. General mathematical theory of the optical behavior of isotropic, anisotropic, and metallic media. 5 hours a week. Mr. Hill.
- 205s. Statistical Mechanics and Thermodynamics. Classical theory of statistical mechanics and advanced kinetic theory. Brownian movements; specific heats of gases and solids; crystal physics from the molecular viewpoint. Three laws of thermodynamics, phase rule, equations of state, thermodynamic potentials with applications to homogeneous and heterogeneous substances. Statistical interpretation of thermodynamics; chemical constant theory. 5 hours a week. Mr. Hill.
- 207f-209w-211s. Seminar in Contemporary Experimental Physics. Study and discussions of fields of major interest and importance: internal and external photoelectric effect, thermionic emission, electron scattering, and ionization of atoms and molecules. Radioactivity and problems of nuclear physics; cosmic rays, etc. Mr. Tate, Mr. Buchta.
- 215f-217w-219s. Seminar in Spectroscopy. Problems of X-ray spectroscopy, X rays and crystal structure analysis. Line and band spectra. Mr. Valasek.
- 221f-223w-225s.* Seminar in Contemporary Theoretical Physics. Study of the literature and problems of modern physical theories, primarily of quantum mechanics and its applications to atomic and molecular structure, theory of radioactivity, etc. Quantum statistics, theory of radiation, metallic conduction; theory of valence. Mr. Hill.

The following courses will be offered provided at any time there is sufficient demand for them:

- Applied Electricity—Theory of Electrical Circuits.
 The Partial Differential Equations of Mathematical Physics.
 Advanced Topics in Electron Theory and the Special Theory of Relativity.
 The General Theory of Relativity.
 Advanced Quantum Theory.
 Advanced Hydrodynamics and Theory of Sound.

See also History of Science, page 103.

PHYSIOLOGY AND PHYSIOLOGIC CHEMISTRY

A. Courses Offered in the Medical School

Professors Jesse F. McClendon, Frederick H. Scott, Karl W. Stenstrom;
Assistant Professors Allan Hemingway, Joseph T. King.

The Department of Physiology is well equipped for the various types of physiologic investigation. The library facilities are good.

Major and minor.—For a major or minor in physiology, good courses in general zoology, general chemistry, organic chemistry, and college physics, are prerequisites. Physical chemistry is desirable.

For a major or minor in physiologic chemistry, physics, general chemistry, organic chemistry, and physical chemistry are prerequisite, quantitative chemistry, physiology, and zoology are desirable.

Students majoring in clinical subjects, and who desire a minor in physiology or physiologic chemistry, must have had the courses in these branches usually required of medical students.

Language requirement.—A reading knowledge of German or French is required of candidates for the Master's degree in this department, and reading knowledge of both French and German, of candidates for the Doctor's degree.

Master's degree.—Offered in general under Plan A. In exceptional cases Plan B may be offered by petition.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100f,su-101w,su. Physiologic Chemistry. The components of the animal body; foods, digestion, the excreta, and metabolism. Prerequisites: physics, organic chemistry. 222 hours; 13 credits. Mr. McClendon, Mr. Hemingway, Mr. Cavett.
- 103su,f. Physiology of Muscle, Nerve, Blood, Circulation, Respiration, Digestion, Excretion, and Metabolism. Fourth year medical students and others. Prerequisites: organic chemistry and zoology. 132 hours; 9 credits. Mr. Scott, Dr. King, and others.
- 104w,su. Physiology of the Nervous System and Special Senses. Fourth year medical students and others. Prerequisite: Course 103 or organic chemistry and neurology. 88 hours; 6 credits. Mr. Scott, Dr. King, and others.
- 105f. Roentgen Rays, Light, and Radium. The physical and physiological basis of physical therapy. Fifth year medical students. 11 hours; 1 credit. Mr. Stenstrom.
- 113su,f,w,s. Problems in Physiology. Arranged by instructors with qualified students. Each student will be assigned a topic for special laboratory study, leading in some cases to original investigation. Conferences and reading. May be taken one or more quarters. Prerequisites: Courses 103, 104, or equivalent. 66 hours; 3 credits each quarter or arranged. Mr. Scott, Dr. King.

- 114w-115s. Applied Physiology. The interpretation of symptoms and signs of abnormal function. Prerequisites: Courses 103, 104, or equivalent. 3 credits each quarter.
- 116f. Tissue Culture Theory. Two lectures. Hours arranged; 2 credits. Dr. King.
- 117w. Tissue Culture Laboratory. Limit 4 students. Prerequisite: 116f. Hours arranged; 3 credits. Dr. King.
- 135f,w,s. Conference on Physiology, with qualified students. 11 hours; 1 credit. Mr. Scott.
- 153f,w,s,su.* Problems in Physiologic Chemistry. Special work arranged with qualified students. May be taken one or more quarters. Prerequisite: Course 100-101. Hours and credits arranged. Mr. McClendon, Mr. Hemingway, Mr. Cavett.
- 154f. Seminar in Temperature Regulation and Water Balance. 11 hours; 1 credit. Mr. Hemingway.
- 155f,156w,157s.* Pathological Chemistry. Blood chemistry of diabetes and nephritis. Basal metabolism, deficiency diseases. Prerequisite: Course 100-101. 66 hours; 3 credits each quarter. Mr. Cavett.
- 163f,164w,165s. Physical Chemistry and Biophysics in Biology and Medicine. Prerequisite: Course 100-101 or Biochemistry 112. 3 credits per quarter. Mr. Hemingway.
- 166f,167w,168s. Laboratory Work Related to Courses 163, 164, 165. Credits arranged. Mr. Hemingway.
- 170f,w,s,su. Problems in Biophysics. Special work arranged with qualified students. Mr. Stenstrom.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 200s.* Seminar in Physiologic Chemistry. Mr. Cavett.
- 201f,w,s,su.* Seminar in Physiology and Pharmacology. For instructors and advanced students. 11 hours; 1 credit. Mr. Scott, Dr. Hirschfelder, and staff.
- 203f,w,s,su. Research in Physiology. Hours and credits arranged. Mr. Scott, Dr. King.
- 204f,w,s,su. Research in the Physics and Physiology of Radiation. Hours and credits arranged. Mr. Stenstrom.
- 205f,w,s,su.* Research in Physiologic Chemistry. Hours and credits arranged. Mr. McClendon, Mr. Hemingway.

EXPERIMENTAL PHYSIOLOGY

B. Course Offered in the Mayo Foundation

Professor Frank C. Mann; Associate Professors Jesse L. Bollman, Hiram E. Essex, George M. Higgins.

Work in this section consists of research problems of experimental physiology.

M271f,w,s,su. Research Work on Assigned Problems in Experimental Physiology. Dr. Mann, Dr. Bollman, Dr. Essex, Dr. Higgins.

PHYSIOLOGIC CHEMISTRY

B. Course Offered in the Mayo Foundation

Professor Edward C. Kendall; Associate Professor Arnold E. Osterberg; Assistant Professors Mildred Adams, Harold L. Mason, Marschelle H. Power; Instructors Bernard F. McKenzie, Charles S. Myers.

Most of the opportunities for graduate work in physiologic chemistry in the Mayo Foundation are in connection with the Departments of Medicine, Pediatrics, and Clinical Pathology, for which see announcements under these several departments. In addition to these, advanced work is offered in the Department of Biochemistry to a limited number of well-prepared fellows.

M272f,w,s,su. Physiologic Chemistry. Research work in problems related to metabolism and the chemistry of the blood; includes training in the use of methods of organic and inorganic analysis. Dr. Kendall, Dr. Osterberg.

In addition to the above, students majoring in physiologic chemistry may carry on research work in experimental physiology. For details, see that department.

See also History of Science, page 103.

PLANT BREEDING

Plant breeding may be elected as a field for either major or minor work. For prerequisites for specialization and statement of courses of study see announcement under Agronomy and Plant Genetics.

PLANT PATHOLOGY AND BOTANY

Professors Edward M. Freeman, Elvin C. Stakman; Associate Professors Jonas J. Christensen, Julian G. Leach.

Prerequisites—

Plant Pathology major: The minimum requirement is (a) three years (27 credits) in the basic plant sciences; (b) one year (9 credits) in plant pathology—preferably two years (18 credits), including mycology.

Plant Pathology minor: The minimum requirement is (a) three years (27 credits) in the basic biological sciences; (b) five credits in plant pathology (not including mycology).

Plant Physiology and Agricultural Botany major: The minimum requirement is (a) three years (27 credits) in the basic plant sciences; (b) one year (9 credits) in plant physiology.

Plant Physiology and Agricultural Botany minor: The minimum requirement is (a) three years (27 credits) in the basic plant sciences; (b) five credits in plant physiology.

Master's degree.—Offered under both Plan A and Plan B. Master's degree offered under Plan A, foreign language required; Master's degree offered under Plan B, a reading knowledge of French or German strongly advised but not required.

NOTE.—For courses in botany including plant physiology see also Department of Botany.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 105f-106w-107s. Mycology. Morphology, taxonomy, and biology of fungi. Lectures, laboratory, and field work. Prerequisite: Plant Path. 1 or 10, or equivalent. 9 to 15 credits. Miss Dossdall.
- 110w. Principles of Pathology. A systematic consideration of the basic factors governing the development of plant diseases. Prerequisites: Course 1 or 10 and Bact. 41. 3 credits. Mr. Stakman, Mr. Eide.
- 111w. Disease of Field Crops. Symptomatology, etiology, and practical methods of control. Laboratory, lecture, and greenhouse work. Prerequisite: Course 1 or 10. 3 credits. Mr. J. J. Christensen.
- 112s. Diseases of Fruit and Vegetable Crops. Especially those important in Minnesota. Laboratory, lecture, and field work. Prerequisite: Course 1 or 10. 3 credits. Mr. Leach, Mr. Eide. (Not offered in 1937-38).
- 114w. Advanced Forest Pathology. Wood rots, including a study of the deterioration of wood products caused by fungi. Lectures and laboratory work. Prerequisite: Course 1 or 10. 3 credits. Mr. Stakman, Mr. C. Christensen. (Not offered in 1936-37.)
- 118f. Bacterial Diseases of Plants. Bacteria as plant pathogens; representative types with particular reference to the technique used in studying bacterial diseases of plants. Lectures, laboratory, and greenhouse work. Prerequisite: Course 1 or 10. 3 credits. Mr. Leach.
- 119s. Principles of Plant Disease Control. A general consideration of principles and practices in controlling plant diseases. Lectures, demonstrations, and reference work. Prerequisite: Course 1 or 10. 3 credits. Mr. Leach, Mr. Eide.
- 141f-142w. Insects in Relation to Plant Diseases. A study of the principal insect vectors and their habits; types of insect injuries affecting health of plants; modes of insect transmission and dissemination of plant disease; methods of rearing and handling insect vectors. Prerequisite: 8 credits in ent. or plant path. Six credits. Mr. Granovsky, Mr. Leach.
- 143f. Methods. Theoretical and practical consideration of methods used in mycological and pathological research. Prerequisite: Course 1 or 10. Three credits. Mr. Eide, Miss Hart, Mr. Moore.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 203f-204w-205s.*Research in Plant Pathology. Special assignment of work in laboratory and field problems in pathological research. Mr. Freeman, Mr. Stakman, Mr. J. J. Christensen, Mr. Leach, Miss Dossdall.

- 207f-208w-209s.* Research in Mycology. Research work along following suggested lines: taxonomy of natural groups, fungous flora of particular regions, localities, or habitats; investigation of fungi involved in special industrial or natural processes; morphology or physiology of special forms. Prerequisite: Course 105-106-107. For minor or major. 3 credits per quarter. Mr. Freeman, Mr. Stakman, Miss Dossdall.
- 211w. History of Plant Pathology. Development of important mycological and pathological researches; historical basis of modern science of plant pathology. 2 credits per quarter. Mr. Stakman.
- 213.* Seminar. Assigned topics with special reference to current pathological problems. Historical review of literature on special problems and critical study of current literature. Two credits. Mr. Stakman, Mr. J. J. Christensen, Mr. Eide, Miss Hart.
- 215f. Genetics of Plant Pathogenes. A study of physiologic specialization, sexuality, hybridization, mutation, and similar phenomena in plant pathogenes with particular emphasis on practical implications. Prerequisites: Course 1 or 10 and Agron. and Pl. Gen. 131. Mr. Stakman, Mr. J. J. Christensen. (Not offered in 1937-38.)

PLANT PHYSIOLOGY AND AGRICULTURAL BOTANY

Professor Rodney B. Harvey.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 160w. Plant Microchemistry. The localization, identification, and function of plant constituents. Lecture, demonstration, and laboratory. Prerequisite: organic chemistry or phytochemistry. Lecture, 3 credits; laboratory, 2 credits. Mr. Harvey, Mr. Landon.
- 161w. Transport, Storage, and Ripening of Fruits and Vegetables. The effects of temperature, respiration, packing, etc., on storage life. Prerequisite: Plant Physiol., 5 credits. 3 credits. Mr. Harvey.
- 162w. Physiological Relations of Crop Plants to Temperature. A graduate course covering in detail hardiness and general temperature effects. Readings and translation. Prerequisite: Phys. 23. 3 credits. Mr. Harvey.
- 163s. Applied Plant Physiology. A general discussion of plant physiology as applied to the food industries and to agriculture and forestry. Lectures and demonstrations. Prerequisites: Plant Physiol., 3 credits; Organic Chemistry, 5 credits. 3 credits. Mr. Harvey, Mr. Landon.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 250s.* Research Methods in Applied Plant Physiology. Advanced research methods of analysis and physical measurements applied in physiology. Laboratory and lecture. 3 to 5 credits. Mr. Harvey, Mr. Landon.
- 251f-252w-253s.* Seminar in Applied Plant Physiology. 1 credit. Mr. Harvey.
- 254f-255w-256s-257su.* Research Problems in Applied Plant Physiology. Special assignment of work in applied plant physiology. Mr. Harvey.

258f-259w.* Growth Factors in Crop Plants. A lecture and reading course covering genetic physiology, the initiation of growth, growth rate, and effect of the environment on growth. Prerequisite: cytology and genetics. 3 credits per quarter. Mr. Harvey.

See also History of Science, page 103.

POLITICAL SCIENCE

Professors William Anderson, Oliver P. Field, Harold S. Quigley, Lloyd M. Short; Associate Professor Clarence C. Ludwig; Assistant Professors Benjamin E. Lippincott, Lennox A. Mills, Joseph R. Starr.

REQUIREMENTS FOR THE M.A. DEGREE

For requirements not stated here, see pages 9-14.

Prerequisites.—For major work, 18 credits, for minor work, 12 credits, or their equivalent, in political science.

Course requirements.—Eighteen hours in major subjects in addition to Course 176 (Scope and Methods of Political Science); 9 hours in minor subjects.

A candidate with a major in political science is expected to choose two fields from among the following:

1. American Government, Politics, and Administration
2. Public Law
3. Comparative Modern Government
4. Political Theory (including the history of theory)
5. Local Government and Administration
6. International Law, Organization, and Relations

He should choose one field outside of political science for a minor. The minor field should be related to the major or be calculated to support it. A reading knowledge of French or German is required.

Examinations.—Final written examinations will be given upon the major, also an oral examination upon the thesis and the major and minor fields.

Master's degree.—Offered under both Plan A and Plan B.

REQUIREMENTS FOR THE PH.D. DEGREE

For requirements not stated here, see pages 17-20.

Prerequisites.—For major work, 18 credits, for minor work, 12 credits, or their equivalent, in political science.

Major and minor.—The character of the work for the doctorate requires that a candidate exhibit a grasp of fields of knowledge rather than of specific courses. A candidate will choose, in consultation with his major advisers, four major fields from among those listed above, and such minor fields as may be acceptable to his major and minor advisers. Course 176 (Scope and

Methods of Political Science) is required of all majors. The division of work between the major and the minor may be adjusted somewhat to suit individual cases. The work done for the M.A. degree may be applied toward the Ph.D. A reading knowledge of French and German is required.

Examinations.—The preliminary examinations will cover the minor fields, and the major fields other than the field of the thesis. Except in unusual circumstances, no general written examination will be required in the minor fields. The final examination will, as a rule, be limited to the thesis and the field in which it is written. The candidate will be expected in the preliminary examinations to show a comprehensive knowledge of facts and principles, and of the literature of his chosen field; in the final examination he will be expected to defend his thesis and to show a detailed knowledge of his special field of research.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-102w-103s.† Constitutional Law. I. Constitutional amendment; national-state relations; national judiciary; powers of Congress; taxation; interstate commerce. II. The executive; foreign relations; military affairs; territories; interstate relations. III. Government and the individual; freedom of speech; ex post facto laws; obligation of contracts; due process of law; equal protection of laws. 9 credits. Mr. Field.
- 108w. Legislative Organization and Procedure. A study of the structure and functioning of legislative bodies, including such topics as bicameralism, the committee system, party leadership, the caucus, parliamentary procedure, limitations on debate, legislative councils, bill drafting bureaus, and reference services. Mr. Short.
- 113f-114w-115s.† Topics in Administrative Law. Election, appointment, status, compensation, and discharge of civil officers and employees of government; official powers; construction of powers; discretion; enforcement of administrative orders; judicial remedies against abuse of official authority. 9 credits. Mr. Field.
- 116f-117w†-118s. Local Government. A survey of local government, urban and rural, in the United States and selected foreign countries. Status, organization, powers, and methods. Finances, and such services as police, health, education, housing, city planning, and public utilities. 9 credits. Mr. Anderson.
119. Jurisprudence. See announcement of Law School.
- 120f. Municipal Functions. A general survey of functions. Three credits. Mr. Ludwig.
- 121w. Municipal Administration. A general survey of administration, with special emphasis upon such topics as administrative organization, personnel, and finance. 3 credits. Mr. Ludwig.
- 122s. Topics in Municipal Administration. Intensive consideration of selected topics: public works, police, public relations, etc. 3 credits. Mr. Ludwig.
- 131f-132w.† Public Administration. I. National and State: Structure and Functions. The history, structure, areas, and functions of public admin-

- istration, with special reference to national and state government. 6 credits. Mr. Short.
- 133s. Public Administration. II. Staff Services. A study of budgeting, fiscal control, purchasing, accounting and auditing, reporting, and personnel, with emphasis on the problems of integration. 3 credits. Mr. Short.
- 145w. British Political Parties. Recent political history; the policies, composition, organization, activities, and functions of the existing political parties; suffrage, elections, and related subjects; selected constitutional problems related to political parties. 3 credits. Mr. Starr.
146. Continental European Political Parties. Intensive study of political parties in France, Italy, Germany, and Soviet Russia, recent political history; the policies, composition, organization, activities, and functions of the existing political parties; suffrage, elections, and related subjects. 3 credits. (Not offered in 1936-37.)
- 147f. American Political Parties. The policies, composition, organization, activities, and functions of the political parties of today; suffrage, elections, and related subjects; evaluation of the political party as a force in American government. 3 credits. Mr. Starr.
- 148s. European Dictatorships. Description and evaluation of contemporary absolute government, especially in Soviet Russia, Italy, and Germany; organization and policies of political parties. 3 credits. Mr. Starr.
- 149-150.† Government and Politics of the British Empire. The imperial relationship; status and government of the self-governing dominions, the crown colonies, and India. 6 credits. (Not offered in 1936-37.)
151. Problems in the British Empire. Intensive study of some phase of British imperial affairs. 3 credits. (Not offered in 1936-37.)
- 153f. Far Eastern Government and Politics. The constitutional development of Japan and China; government, parties, and political problems. 3 credits. Mr. Quigley.
- 161w-162s.† Recent Political Thought. Recent and present schools of political thought compared; ideas concerning sovereignty and liberty, state functions, representative government, and democracy; analysis of socialism, communism, syndicalism, and fascism. 6 credits. Mr. Anderson.
- 163s. Topics in American Political Thought. Stress to be laid on current American political ideas. 3 credits. Mr. Lippincott.
- 164w-165s.† Development of Political Thought. I. The Greek and Roman writers. II. Medieval to Early Modern. 6 credits. Mr. Anderson, Mr. Lippincott.
166. Development of Political Thought. III. From the 17th to the early 19th century. A continuation of Course 164-165. 3 credits. (Not offered in 1936-37.)
- 167w-168s. Readings in the Classics of Politics. 4 credits. Mr. Anderson, Mr. Lippincott.
169. Readings in the Classics of Politics. A continuation of 167-168. 2 credits. (Not offered in 1936-37.)
- 171s. Political Psychology. (Identical with Psy. 141.) 3 credits. Mr. Bird.
- 176f. Scope and Methods of Political Science. The field of political science;

- relation to other studies; types of approach; research methods and technique; bibliography. Problems of teaching at the college level. Required of all candidates for postgraduate degrees in political science. 3 credits. Mr. Anderson.
- 180f-181w-182s.† International Law. Nature, sources, and sanctions of international law. The laws of peace, war, and neutrality. 9 credits. Ar.
- 184w. International Organization. The structure of the older international community and of the League of Nations; procedure in the formation of international policy; international legislation and administration, the settlement of international disputes; sanctions. 3 credits. Mr. Quigley.
- 185s. International Relations. Internationalism and competing theories of international relations; national theories and policies that condition the application of internationalism; armaments and war; conditions of peace; international planning. 3 credits. Mr. Quigley.
- 191f-192w.† Far Eastern Diplomacy. The international relations of China from the earliest period; early contacts between Japan and China; the policy of exclusion gradually overcome by western powers; the opening of the Far East in the nineteenth century; the "open door" policy; the Great War and the revision of treaties; the present situation. 6 credits. Mr. Quigley.
- 193s. Problems of the Pacific. Intensive study of selected problems in the political and constitutional developments, or in the foreign relations, of Far Eastern countries. 3 credits. Mr. Quigley.
- 195-196.† Colonial Government and Administration. The economic and political factors in colonization; forms of government; administrative organization, personnel, and problems; commercial policies; mandates under the League of Nations. 6 credits. (Not offered in 1936-37.)
197. Problems in Colonial Administration. 3 credits. (Not offered in 1936-37.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.*† Seminar in American Government, and Administration. Mr. Short.
- 211f-212w-213s.*† Seminar in Public Law. Mr. Field.
- 221f-222w-223s.*† Seminar in Comparative Modern Government and Politics. Mr. Quigley, Mr. Starr.
- 231f-232w-233s.*† Seminar in Political Theory. Mr. Anderson, Mr. Lippincott.
- 241f-242w-243s.*† Seminar in Local Government and Administration. Mr. Anderson, Mr. Ludwig.
- 251f-252w-253s.*† Seminar in International Law, Organization, and Relations. Mr. Quigley.

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Courses Offered at the Medical School

Professors Kenneth F. Maxcy, Harold S. Diehl, Albert H. Chesley, J. Arthur Myers; Associate Professors Ruth E. Boynton, Orianna McDaniel. Harold A. Whittaker; Assistant Professor Eula B. Butzerin.

Inquiries concerning other work in public health should be addressed to the director, Dr. K. F. Maxcy, Millard Hall, University of Minnesota.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100s. Preventive Medicine and General Hygiene. (Medical students.) Prerequisites: bacteriology, physiology. 36 hours; 3 credits. Dr. Maxcy, Dr. Diehl, Dr. Myers.
- 101f,w,s,su. Public Health Administrative and Field Work. Demonstrations of health agencies at work. Groups of 10 to 18 (medical students) for 6 weeks. Prerequisite: 100. 18 hours; 2 credits. Staff.
- 102w. Environmental Sanitation. Sanitary supervision of water and milk supplies, sewerage systems and sewage, refuse and garbage disposal systems, industrial hygiene. Practical work including field investigations, laboratory examinations, interpretation of results, recommendations to correct unsatisfactory conditions, report writing, and office procedure. Open only to graduate students who have had Bact. 101-102; Anal. Chem. 1-2 or 7 and Organ. Chem. 1-2 or 51, 52, 53; Physics 3, 13, 23, 33, 43. Credits arranged. Mr. Whittaker.
- 103s.* Public Health Bacteriology. Modern methods of a public health laboratory in making diagnoses; in the preparation of vaccines, and in research. Prerequisites: Bacteriology 101-102, 116. Credits arranged. Dr. McDaniel, Miss Heathman.
- 104f,w,s.* Epidemiology. Lectures on principles and methods of epidemiological investigation. Analysis of data; methods of reaching conclusions; individual field work; collateral reading. Open only to graduate medical students. Credits arranged. Dr. Maxcy, Dr. McDaniel.
- 106f,w,s.* Public Health Administration. Organization of state, municipal, and voluntary health activities; preparation of budgets; procedures in enforcing quarantine; in correcting insanitary conditions; in controlling tuberculosis and venereal diseases; special fields of public health work, such as mental hygiene, tuberculosis control, school health work, etc. Credits arranged. Dr. Maxcy, Dr. Diehl, Dr. Chesley.
- 107x.* Community Public Health Surveys. Conferences, practical field work, and report on a specified survey. Prerequisite: Course 53 or 100. 2 credits. Dr. Boynton.
- 171f, 172w.* Advanced Problems in Public Health Nursing. Miss Butzerin.
- 173f,w,s.* Advanced Field Work in Public Health Nursing. Miss Butzerin.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 200f,w,s. Research. Opportunities will be offered by the University and by the various co-ordinated organizations for qualified students to pursue research work. Dr. Maxcy, Dr. Diehl and staff.
- 210f,w,s. Seminar in Preventive Medicine and Public Health. Staff.

PUBLIC HEALTH NURSING

Courses Offered at the Medical School

Eula B. Butzerin, Director, Course in Public Health Nursing.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

171f,172w. Advanced Problems in Public Health Nursing. Miss Butzerin.
173f,w,s. Advanced Field Work in Public Health Nursing. Miss Butzerin.

ADDITIONAL COURSES

Other courses offered in this and the Graduate Medical School Bulletin which contribute to work in public health:

Department	Course No.	Title	Instructor
Anatomy	160	Seminar and Physical Growth	Dr. Boyd
Bacteriology	101-102	Medical Bacteriology	Dr. Larson
Bacteriology	114	Molds, Yeasts, and Actinomycetes	Dr. Henrici
Bacteriology	116	Immunity	Dr. Larson
Bacteriology	120	Bacterial and Virus Diseases Common to Man and Animals	Dr. Green
Bacteriology	150-151	Advanced Bacteriology	Dr. Henrici
Biometry	102	Medical Biometry	Mr. Treloar
Botany	101	Biometric Principles	Mr. Treloar
Child Welfare	130-131	Child Development	Mr. Anderson
Child Welfare	190-191	Mental Examination of Preschool Children	Miss Goodenough
Physiology	114-115	Applied Physiology	
Psychology	144-145	Abnormal Psychology	Mr. Bird
Hydraulic Engineering	161	Hydrology	Mr. Bass
Municipal Engineering	162-163	Water Supply and Sewerage	Mr. Bass
Sanitary Engineering	261-262	Water and Sewage Purification	Mr. Bass
Sociology	100	Social Psychology	Mr. Kirkpatrick
Zoology	107-108	Protozoology	Mr. Turner
Zoology	144-145-146	Animal Parasites and Parasitism	Mr. Riley

PSYCHOLOGY

Professors Donald G. Paterson, John E. Anderson, Charles Bird, Richard M. Elliott; Associate Professors Miles A. Tinker, William T. Heron.

Prerequisites.—For either major or minor work, 12 credits.

Master's degree.—Offered only under Plan A.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

101f-102w†-103s. Experimental Psychology. The theory and technique of the leading methods of experimental investigation in human psychology. Individual research problems in the second and third quarters. One lecture, four laboratory hours per week. 3 credits per quarter. Mr. Tinker.

- 108f. Systems of Psychology. A comparative study of the problems, methods, and viewpoints of modern psychology. Tutorially directed reading. Credits arranged. Mr. Elliott.
- 114w-115s.† Human Behavior. An analysis of the background, development, and organization of human behavior. Consciousness and purposes are treated as properties of the living body. 6 credits. Mr. Elliott. (114 only, offered in 1936-37.)
- 125f-126w†-127s. Psychology of Individual Differences. Experimental and statistical study. Influence of sex, race, immediate ancestry, environment and maturity in the causation of individual differences. Investigation of definite problems and analysis of results. Individual research problems in third quarter. Three credits per quarter. Mr. Paterson.
- 130s. Vocational Psychology. Psychology of individual differences in intelligence, aptitudes, interest, and training, with special reference to vocational guidance. 2 credits. Mr. Paterson.
- 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 credits. Mr. Bird.
- 141s. 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 credits. Mr. Bird.
- 144f-145w.† Abnormal Psychology. Normal and abnormal behavior contrasted. Varieties of maladjustment as illustrated in criminality, deficiency, fanaticism, and insanity. Stress will be laid on the inadequacies of personality as shown in everyday life. 6 credits. Mr. Bird.
- 148w. Physiological Psychology. The topics treated and illustrated by demonstrations will include 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 credits. Mr. Hathaway.
- 151f-152w†-153s. Animal Psychology. Vertebrate behavior is emphasized. A critical study of the literature, and of the relationship between animal and human psychology. Individual investigation of special problems in the third quarter. 3 credits per quarter. Mr. Heron.
- 160f. Psychology in Personnel Work. Psychology as applied to the selection and retention of a stabilized personnel. The standardized interview; principles and technique of employment tests; methods of judging character qualities; the rating scale; personnel classification methods. 3 credits. Mr. Longstaff.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 200f-201w-202s.† History of Psychology I. Origin and development of scientific psychology. Men, schools, and methods. Emphasis on the experimental period, 1860 to the present. Open to advanced students with permission of instructor. 1 credit per quarter. Mr. Tinker.

- 203f-204w-205s.† History of Psychology II. Psychology in America. Development of laboratories, departments, apparatus, text, and journals. Present status. Open to advanced students with permission of instructor. 1 credit per quarter. Mr. Tinker.
- 206f-207w-208s. Research in Animal Behavior. Mr. Heron.
- 210f-211w-212s. Research Problems. Laboratory investigations. Open to graduate students only. Mr. Paterson, Mr. Anderson, Mr. Bird, Mr. Elliott, Mr. Tinker, Mr. Heron.
- 215f-216w-217s.† Seminar in Psychology. A basic seminar required of every candidate for the Ph.D. degree with a major in psychology unless excused in writing by his major adviser. Program based on a syllabus of required and optional readings prepared during the previous year. Lectures, reports of reading and research, and discussions. 4 credits per quarter. Mr. Paterson, Mr. Bird, Mr. Elliott, Mr. Tinker, Mr. Heron, Mr. Hathaway.
- 225f,w,s.† Seminar in Contemporary Research. Discussion of the problems of psychology and related sciences and reports of research projects. Monthly meetings attended by the department staff and graduate students majoring in psychology. Open for credit to candidates for the Ph.D. degree who have completed one year of graduate study. Other graduate students are urged to attend. 2 credits. Mr. Elliott and others.
- 230f-231w-232s. Field Work in Psychometrics. For properly qualified students. Written permission of instructor required to register for this course. Credits arranged. Mr. Paterson.
- 250f-251w-252s. Topics in Psychology. Independent reading, tutorial conferences, and reports in any field of psychology, such as the psychology of sensation, reaction time, perception of space, Gestalt psychology, differential psychology, social and political behavior, personnel psychology, esthetics, human and animal learning, etc., which meets the approval of one of the listed instructors. The chairman of the department will, if requested, assist the student in selecting the most appropriate instructor to guide reading in a particular field. Credits arranged. Mr. Paterson, Mr. Bird, Mr. Elliott, Mr. Tinker, Mr. Heron.
- 295f-296w-297s. Seminar in Individual Differences. Advanced students meet for reports and discussion of contemporary trends in the psychology of individual differences and applied psychology. 1 credit per quarter. Mr. Paterson.

ROMANCE LANGUAGES

Professors Everett W. Olmsted, Francis B. Barton, Irville C. LeCompte, Colbert Searles, Edward H. Sirich; Associate Professor Raymond L. Grismer; Assistant Professor Elizabeth Nissen.

Prerequisites.—For major work, 27 Senior College credits or equivalent; for minor work, 18 Senior College credits or equivalent. Candidates for Master's degree must also have a reading knowledge of at least one other modern language. Candidates for the Doctor's degree must have a knowl-

edge of Latin equivalent to at least two years of high school Latin; a reading knowledge of a second Romance language, and, by the end of the first year of graduate work, a reading knowledge of German.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

FRENCH

- 103f-104w-105s.*† French Syntax and Composition. Special studies in characteristic problems of French syntax. 3 credits. Mr. Barton.
- 115f.* French Literature: Seventeenth Century: Formation of the Classic Ideal. 4 credits. Mr. Searles.
- 116w.* French Literature: Seventeenth Century: Molière, Racine, LaFontaine. 4 credits. Mr. Searles.
- 117s.* French Literature: Seventeenth Century: Moral and Didactic Literature. 4 credits. Mr. Searles.
- 118f-119w-120s.* French Literature: Eighteenth Century. First quarter, beginnings of the philosophic movement, Bayle, Montesquieu, Diderot; second quarter, Voltaire; third quarter, Rousseau, the theater, the novel. 9 credits. Mr. Sirich.
- 121f-122w-123s.* French Literature: Sixteenth Century. First quarter, the Rhétoriciens, Marot, Rabelais; second quarter, the Pléiade; third quarter, Montaigne, Amyot. 9 credits. (Not offered in 1936-37.) Mr. Olmsted.
130. French Romantic Poetry, Victor Hugo. (Not offered in 1936-37.) Mr. Clefton.
- 131f. Parnassian Poetry. 3 credits. (Not offered in 1936-37.) Mr. Clefton.
- 132s. Baudelaire, Verlaine, and the Symbolists. 3 credits. Mr. LeCompte.
- 141f-142w.† Eighteenth Century Dramatic Literature. 6 credits. (Not offered in 1936-37.) Mr. Olmsted.
- 143s. Romantic Drama. 3 credits. (Not offered 1936-37.) Mr. Olmsted.
- 144f. French Dramatic Literature: 1843-1890. 3 credits. Mr. Olmsted.
- 145w. Le Théâtre Libre. 3 credits. Mr. Olmsted.
- 146s. Contemporary Dramatic Literature. 3 credits. Mr. Olmsted.
153. Contemporary French Lyric Poetry. 3 credits. (Not offered in 1936-37.) Mr. LeCompte.
156. French Realistic Novel. 3 credits. (Not offered in 1936-37.) Mr. Minault.
- 157w. Modern Novel: Bourget, France, Loti. 3 credits. Mr. Minault.
- 158s. Contemporary French Novel. 3 credits. Mr. Minault.
- 171f-172w-173s.*† History of French Language. Lectures and illustrative texts giving the development of the French language from its origins to the nineteenth century. Especially intended for prospective teachers. 3 credits. Mr. LeCompte.

ITALIAN

- 159f-160w. Dante. *The Divina Commedia*. (Alternates with 161-162.) 6 credits. (Not offered in 1936-37.) Miss Nissen.

- 161f-162w. The Sixteenth Century. Reading of texts and study of literary influences. Miss Nissen.
164. Dante (in English). Lectures, reading, and discussion of the *New Life*, and parts of the *Divine Comedy*. 3 credits. (Not offered in 1936-37.) Miss Nissen.

SPANISH

- 110f-111w-112s. Spanish Literature: Nineteenth Century. 9 credits. Mr. LeFort.
- 115f-116w-117s.* Spanish Literature: Seventeenth Century. First quarter, the drama; second quarter, the novel; third quarter, lyric and epic poetry. Alternates with 155-156-157. 9 credits. Mr. Grismer.
- 120w. The Ballad. 3 credits. Mr. Grismer.
- 130s. Cervantes: Don Quixote. 3 credits. Mr. Grismer.
- 155-156-157.* Spanish Literature: Sixteenth Century. First quarter, the drama; second quarter, Cervantes and the novel; third quarter, poetry, the mystics. Alternates with 115-116-117. 9 credits. (Not offered in 1936-37.) Mr. Grismer.
- 174f-175w-176s. Contemporary Spanish Literature. First quarter, the drama; second quarter, the novel; third quarter, poetry. 6 credits. (Not offered in 1936-37.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s. Old French Phonology and Morphology. Lectures on the origin and development of the French language, with practical exercises and reports on assigned topics. 6 credits. Mr. LeCompte.
- 204f-205w-206s. Reading in Old French Literature. An introductory course in the reading of Old French. Different types of literature will be read and their origin and development discussed. A certain amount of collateral reading required. 6 credits. Mr. LeCompte.
- 207f-208w-209s. Old Provençal. Reading in early Provençal literature with special attention to the poetry of the troubadours. 6 credits. Mr. LeCompte.
- 222f-223w-224s.* French Seminar. Classical period. 6 credits. Mr. Searles, Mr. Sirich.
- 225-226-227.* French Seminar. Modern period. 6 credits. Mr. Barton.
- 230-231-232. Research Methods and Material. 3 credits. (Not offered in 1936-37.)
- 241f-242w-243s.* Old Spanish Philology. 6 credits. Mr. Grismer.
- 244f-245w-246s.* Old Spanish Literature. Every year a different genre is studied, such as the epic. Subject to be decided by agreement of students. 6 credits. Mr. Olmsted.
- 250f-251w-252s.* Spanish Seminar. 6 credits.
- 259f-260w-261s.* Research in Romance Languages. Credit depends upon amount of work accomplished.

SCANDINAVIAN

Professor Andrew A. Stomberg.

Prerequisites.—For major work, 18 credits; for minor work, 6 credits in the department. All required foreign language credits for the Master's degree in this department may be in either Danish, Norwegian, or Swedish.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-102w-103s. Modern Norwegian Literature. From 1814 to the present day. Prerequisite: Course 4-5. 9 credits. Mr. Madsen.
- 104f. Modern Scandinavian History. Prerequisites: Courses 10-11-12 or 4-5, or 15 credits in history. 2 credits. Knowledge of Scandinavian not required. Mr. Stomberg.
- 107f-108w-109s.* Modern Swedish Literature. The Swedish novel. Prerequisite: Course 10-11. 9 credits. Mr. Stomberg.
110. Ibsen. Prerequisite: Course 101-102-103. 3 credits.
- 111-112-113. Old Norse (Icelandic). Grammar and reading. 6 credits. (Not offered in 1936-37.)
- 114f* Strindberg. Prerequisite: Course 107-108-109. 3 credits. Mr. Stomberg.
117. Earlier Norwegian Literature. Prerequisite: Course 4-5. 5 credits. (Not offered in 1936-37.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201f-202w-203s.* Seminar in the History of the Scandinavian Languages. 9 credits. Mr. Stomberg.
- 209f-210w-211s.* Seminar in Modern Swedish Literature. 9 credits. Mr. Stomberg.
- 215f-216w-217s.* Seminar in Norwegian Literature.

SOCIOLOGY AND SOCIAL WORK

Professors F. Stuart Chapin, Clifford Kirkpatrick, Robert W. Murchie, Malcolm M. Willey; Associate Professors Anne L. Fenlason, Alice M. Leahy, Gertrude Vaile, George B. Vold; Assistant Professors Elizabeth G. Gardiner, Elio D. Monachesi, Calvin F. Schmid; Lecturer Monica K. Doyle.

Prerequisites.—In sociology: for major work, 18 quarter credits; for minor work, 12 credits. The major for the master of arts degree in sociology is given only under Plan A and includes the usual foreign language requirement. In social work: for the major, at least 13 credits in sociology, which are to be included within a total of 39 credits in social sciences distributed according to the approval of the adviser in social work among the following subjects: economics, history, political science, psychology, and sociology. The master of arts degree in social work is taken under an extension of Plan B (see page 8). Courses involving field work or in which

field work is a prerequisite are open only to professional students in social work.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

A. SOCIOLOGY

Master's degree.—Offered only under Plan A.

- 100f. Social Psychology. Primarily for sociology students. The social attitudes; their development and modification under social pressure; the interactions of individuals and groups. Mr. Kirkpatrick.
- 101f. Social Organization. The organization and structure of social groups; the basic culture patterns of economic, political, and social institutions. Integration and disintegration of social groups and institutions. Essentials of social dynamics. Mr. Chapin.
- 102s. Social Control and Criminal Behavior. A consideration of criminal behavior in relation to the breakdown of social control. Mr. Vold.
- 103w. Sociology of Conflict. Types of social conflict and their rôle in social life. Mr. Vold.
- 104f. § Principles of Sociology. An introductory course for graduate students. Mr. Monachesi.
- 110f. Rural Organization. A study of social organization as it affects living conditions in small towns and rural districts. Especially designed for rural social workers and specialists in rural sociology or agricultural economics. Mr. Murchie.
- 112s. The Rural Social Survey. A course dealing with the methods and content of rural social research. All methods of investigation are analyzed. Especially designed for those interested in social research under Purnell or similar funds. Mr. Murchie.
- 114w. Rural Social Institutions. A detailed study of the problems of organization and efficiency of selected rural institutions, especially religious, educational, civic, and recreational. For advanced students. Lectures, discussions, reports. Mr. Murchie.
- 115w. Religion As a Social Institution. The origin and function of religion viewed as a culture pattern in relation to social processes and social organization. Mr. Kirkpatrick.
- 116w. The Newspaper As a Social Institution. A study of the social rôle of the newspaper in the United States, with special reference to the social changes that have influenced the press, and the corresponding influences of the press upon social life.
- 119f.s. The Family. The evolution of the family; development of family unity or disunity; the rôles of the several members of the family; methods of investigation of the family. Mr. Kirkpatrick.
- 120f. Social Life and Cultural Change. A history of the theories of progress and a critique of the idea of progress.

§ Primarily for graduate students but mature students who are not graduates may be admitted with consent of adviser in social work. This also applies to sociology courses 109, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 152, 153-154-155, 156-157-158.

- 122w. Advanced Statistical Methods. The analysis and interpretation of social data by application of the theory of errors, the theory of probability, the theory of sampling, partial correlation, and the analysis of time series. Mr. Chapin.
- 123s. Methods of Social Investigation. The nature of scientific method; the problems of sociology; specific methods of investigation of social phenomena. Mr. Schmid.
- 140w. History of Social Theory. A rapid survey of the leading social theories from the time of the Greeks with special reference to the more recent developments of sociology. The theories are related to their social backgrounds.
- 141s. Communication Agencies and Social Life. The development of the modern communication network, with special attention to agencies of mass impression and their influence upon social attitudes, opinion, and behavior.
- 160w. Population Problems. The major quantitative and qualitative problems of population in our contemporary society, including: population theories and doctrines since Malthus; the growth and distribution of population; changes in population composition and their social consequences; problems of human migration; urbanization and the ecology of the city; trends in mortality and morbidity; the quality of the population, significance of differential birth rates, heredity, and environment. Mr. Schmid.
- 161s. 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, the standard of living as affected by the distribution of national income, and the factors related to personal and social disorganization. Mr. Chapin.

B. SOCIAL WORK

Master's degree.—Offered under both Plan A and Plan B.

- 109f,w,s.* The Field of Social Work. An introductory course for graduate students. Mrs. Doyle.
- 125f.§ Principles of Group Work. Miss Mead.
- 126s.§ Technique of Leadership in Group Work. An advanced course for prospective executives in settlements and program agencies. Miss Mead.
- 127s.§ Legal Aspects of Social Work. A course designed to provide a proper understanding of the legal aspects of social case problems. Mr. Finke.
- 128s.§ Principles of Administration, Publicity, and Finance Applied to Social Work. A technical study of methods of organizing charitable agencies, of financing them, and of making the public aware of their work. Lectures and practice work. Mr. Atwater.

§ Primarily for graduate students but mature students who are not graduates may be admitted with consent of adviser in social work. This also applies to sociology courses 109, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 152, 153-154-155, 156-157-158.

- 129f,w,s.§ Principles of Social Case Work. A study of the purposes, problems, and processes of generic social case work, including a study of the relationships between the individual and the social worker and community as contributory to the treatment of the problems presented. Mrs. Fenlason.
- 130s.§ Advanced Case Work. A study of some of the wider aspects of social case work. Mrs. Fenlason.
- 131s.§ Rural Social Work. A study of the relation of the attitudes and social resources of the community to the problems and processes of social work especially in rural communities. Miss Vaile.
- 132w.§ Juvenile Courts and Probation. The historical, legal, and social aspects of juvenile courts and probation. A critical survey of juvenile court and probation work based upon a consideration of the nature of delinquent behavior; its "causes," its modification, and its prevention. Mr. Monachesi.
- 133s.§ Social Case Work in Health Problems. A course open only to students who are properly grounded in case work. Miss Gardiner.
- 134s.§ Legal Protection of the Child. A study of the relation of law to child welfare. A survey of existing children's protective legislation, of its administration, and its future development. (Not offered in 1936-37.)
- 135f,w,s.§‡ Field Practice in Social Work for Children. Mrs. Fenlason, Miss Leahy, Miss Vaile, Mrs. Doyle.
- 136w.§ Essentials of Medicine for Social Workers. A discussion of diseases most often encountered in social work, with a consideration of their social implications. Miss Gardiner.
- 137f.§ The History and Theory of Social Work. A consideration of the historical backgrounds of the modern social work movement and the evolution of the theory underlying it. Miss Gardiner.
- 138f.§ Case Work with Children. A study of the principles and methods of case work in the children's field. Miss Leahy.
- 139w.§ Psychiatric Problems in Social Case Work. A study of the intellectual and emotional factors in human adjustment and their significance in case work. Miss Leahy.
- 152f,w.§ Public Welfare Administration. Deals with the history of public welfare administration and special problems of state and county administration of public welfare activities. Miss Vaile.
- 153f,w,s§‡-154f,w,s§‡-155f,w,s.§‡ Field Training in Case Work. May be taken in specialized fields of child welfare and medical, as well as family work. Mrs. Fenlason, Miss Vaile, Miss Gardiner, Mrs. Doyle, Miss Leahy.
- 156f,w,s§‡-157f,w,s§‡-158f,w,s.§‡ Field Training in Group Work. Miss Vaile, Miss Mead.

§ Primarily for graduate students but mature students who are not graduates may be admitted with consent of adviser in social work. This also applies to sociology courses 109, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 152, 153-154-155, 156-157-158.

‡ A fee of \$3.50 per quarter is charged for this course.

COURSES PRIMARILY FOR GRADUATE STUDENTS

A. SOCIOLOGY

- 200f-201w-202s. Seminar in Applied Sociology. Mr. Kirkpatrick.
 203f-204w-205s. Seminar in Social Theory. Staff.
 206f-207w-208s. Seminar: Statistical Theory in Relation to Social Theory and Practice. Mr. Chapin.
 209f-210w-211s. Seminar: The Theory of Social Evolution: The Cultural Approach to Sociology.
 215f-216w-217s. Seminar in Rural Sociology. Mr. Murchie.

B. SOCIAL WORK

218f-219w-220s. Seminar in Social Work.

- A. Family Case Work. Mrs. Fenlason.
- B. Social Case Work with Children. Miss Leahy.
- C. Medical Social Work. Miss Gardiner.
- D. Public Welfare. Miss Vaile.
- E. Group Work. Miss Mead.
- F. Rural Social Work. Miss Vaile.
- G. General Social Work Problems. Staff.
- H. Social Agencies and Institutions. Mrs. Doyle.
- I. Juvenile Delinquency and Its Treatment. Mr. Monachesi.
- J. Thesis preparation. Staff.

221f‡-222w‡-223s.‡ Advanced Field Training. Staff.

224f-225w-226s.§ Medical Social Work. Principles and methods of medical social case work. Interrelations within medical institutions and with the community. The organization and development of social work in hospitals and dispensaries, its trends and scope. Open only to full-time students who wish to specialize in medical social work. Three hours a week. Miss Gardiner.

227f‡-228w‡-229s.‡ Advanced Field Training. Staff.

SOILS

Professor Frederick J. Alway, Clayton O. Rost; Assistant Professor Paul R. McMiller.

Prerequisites.—For major work, at least two years of work in chemistry, including both quantitative analysis and organic chemistry, and one year of work in general physics. A reading knowledge of French or German is required for the Master's degree. In certain cases where some other modern foreign language would be more valuable in connection with the thesis it may be substituted.

Master's degree.—Offered only under Plan A.

§ Primarily for graduate students but mature students who are not graduates may be admitted with consent of adviser in social work.

‡ A fee of \$3.50 per quarter is charged for this course.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101w. Chemical Analysis of Soils. A laboratory course in the chemical analysis of soils including the determination of replaceable bases. Prerequisites: Course 6 and Volumetric and Gravimetric Analysis. 3 to 5 credits. Mr. Rost.
- 102f,w,s. Special Problems in Soils. Individual laboratory or field work upon some special soil problem in soil physics, soil chemistry, or soil erosion. Arrangements must be made in advance. Prerequisite: Course 101 or 108. Credits, according to amount of work. Mr. Alway, Mr. Rost.
- 103s. Soil Erosion. Causes and types of erosion; relation of erosion to soil type; principles of control of erosion, by tillage, contour cultivation, strip farming, choice of crops, and terracing; conservation of moisture and plant nutrients; relation of forest to erosion control. Prerequisite: Course 6. 2 credits. Lectures and field observation. Mr. Rost.
- 104f. Soil Surveying. Principles of soil surveying with field practice in the preparation of soil maps. Prerequisite: Course 108. 3 credits. Mr. McMiller.
- 107s. Fertilizers. Development of the use of commercial fertilizers. Their sources, preparation, composition, combination, and uses. Lectures and laboratory work. Prerequisite: Course 6. 3 credits. Mr. Rost.
- 108w. Physical Properties of Soils. The determination of physical constants of soils, including mechanical composition. Prerequisite: Course 6. 3 credits. Mr. McMiller.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 202f,w,s. Research in Soils. The investigation in the field, in the laboratory, or in both, of soil problems. The particular problem which a student may select will depend upon his previous training in agronomy, botany, chemistry, geology, and physics. Credit, according to work. Mr. Alway.
- 203w. Seminar in Soils. Review of current literature; presentation and discussion of papers on research; study of methods of investigation of soils. Required of graduate students. 1 credit. Mr. Alway.

SPEECH

Professor Frank M. Rarig; Assistant Professors Bryng Bryngelson, A. Dale Riley, Franklin H. Knower.

Prerequisites.—For major work 18 quarter credits in speech, including Fundamentals of Speech, Speech Correction, Phonetics and Interpretative Reading.

Master's degree.—Offered under both Plan A and Plan B subject to the following conditions: each candidate shall earn from 21 to 27 credits in graduate courses in Speech and the remaining twenty-three to twenty-seven credits in related graduate courses selected, with the approval of his adviser, from English, Psychology, History, Sociology, Philosophy, Education, and Child Welfare.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101f-102w.† Advanced Speech Composition. Structure and oral style. Psychology of persuasion. Briefing. Critical study of models. Written speeches. Reports. Prerequisites: Courses 41-42-43, or 45-46; Psy. 1-2; 10 credits in Social Science. 6 credits. Mr. Rarig.
- 105s. Theory of Reading and Acting. The forms of literature; literature regarded as art; psychology of creative imagination; speech elements in literature; technique governing use of auditory and visual symbols. Collateral readings, speech problems, reports, term papers. Prerequisites: Courses 41-42-43 or 45-46; 81-82-83; Psy. 1-2. 3 credits. Mr. Rarig.
- 111f‡-112w‡-113s.‡‡ Stage Direction. An advanced course in the practice and theory of stage direction, including esthetics of the theater, analysis of the play, casting, centering attention, rhythm, reading, climaxes, organization for production, the unified whole. Prerequisite: Course 91-92-93. 9 credits. Mr. Riley.
- 115f-116w-117s. Playwriting and Production. Theory and practice of writing and producing plays. Composition of the play from the elementary scenario to the completed dialog. Registration limited to 10 students. Prerequisites: Course 71-72-73 and permission of instructor. 6 credits. Mr. Riley.
- 121w‡-122s.‡‡ Advanced Speech Problems. Factors determining the behavior of speakers and audiences. Prerequisites: Course 41-42-43 or 45-46; Psy. 1-2. Recommended: Psy. 114-115; Anat. 4. 6 credits. Mr. Knower.
- 141‡-142‡-143.‡ Voice Science. The study of the voice mechanism and of vocal sound; methods of analysis and synthesis. The study of hearing. Experimental methods applied in individual research projects. Readings, reports, experiments. Prerequisites: Course 41-42-43; Psy. 1-2 and 4-5 or 7. 9 credits. (Not offered in 1936-37.)
- 151su. The Teaching of Speech. Orientation in problems of speech education. History, applications of psychology; objectives, programs, and methods; direction of extra-curricular activities; evaluation of texts. 3 credits. Mr. Knower.
- 162w‡-163s.‡‡ Speech Pathology. The physiological and psychological aspects of organic and functional speech problems. Theories of stuttering. Diagnoses, case histories, and treatment of speech cases. Observation of clinical diagnosis and treatment. Prerequisites: Courses 41-42-43 or 45-46; 61, 67; Psy. 1-2 and permission of instructor. 6 credits. Mr. Bryngelson.
- 164f-165w-166s.* Clinical Methods and Practice in Speech Pathology. Study of cases and practice in clinical diagnosis and remedial treatment. Prerequisites: Courses 61, 67, 162-163. 9 credits. Mr. Bryngelson.
- 191‡-192‡-193.‡ Technical Stage Problems. Advanced problems in design

† A fee of \$1 per quarter is charged for this course.

‡‡ A fee of \$3 per quarter is charged for this course.

and construction; stage management, color effects, and wiring. Special problems assigned to individual students. 9 credits. Mr. Riley.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 207f-208w-209s.* Seminar in Orators. A critical study of the great English and American orators. One historical period each quarter. Prerequisites: Courses 41-42-43 or 45-46; 101-102; Psy. 1-2; 140; 10 credits in soc. sci. 9 credits. Mr. Rarig.
- 261f-262w-263s.* Seminar in Speech Pathology. A study and critical analysis of current literature in the field of speech pathology. Thesis problems. New theories and clinical procedures. Specific cases for group study. Prerequisites: Courses 41-42-43 or 45-46; 61; 67; 121-122; 162-163; Psy. 1-2. 6 credits. Mr. Bryngelson.
- 291f-292w-293s.* Research. Open to graduate students who are engaged in research on special problems. 6 credits. Mr. Rarig, Mr. Bryngelson, Mr. Riley, Mr. Gilkinson, Mr. Kowner.

SURGERY

(Including divisions of General Surgery, Neurosurgery, Experimental Surgery, Orthopedic Surgery, Urology, Proctology, Anesthesia, and Dental Surgery)

For staff and courses of study offered, see Graduate Medical School Bulletin.

VETERINARY MEDICINE

Professor Clifford P. Fitch.

Prerequisites.—For major work, 12 credits; for minor work, 6 credits in the department.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 101w-102s. Advanced Anatomy of Domestic Animals. Advanced study of the structures involved in the type, conformation, and nutrition of the common farm animals. Dissection of farm animals, including a study of the osseous, muscular, and other principal anatomical structures. 6 credits. Mr. Kernkamp.
- 103w-104s.† Advanced Comparative Physiology. An advanced course in physiology of the domestic animals, including laboratory work with special emphasis on animal nutrition. Credits arranged. (Not offered in 1936-37.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 205f-206w-207s-208su.‡§ Veterinary Pathology and Bacteriology. Advanced problems. Specially adapted to meet the needs of graduate students.

§ Graduation from a recognized and approved veterinary college with the degree of D.V.M. or its equivalent.

Offered as major or minor work. Credits arranged. Mr. Fitch.

See also History of Science, page 103.

ZOOLOGY

Professors Dwight E. Minnich, William A. Riley, Jerry E. Wodsedalek; Associate Professors Clarence E. Mickel, Adolph R. Ringoen; Assistant Professors Samuel Eddy, Clarence P. Oliver.

Prerequisites.—For major work, Course 1-2-3, and at least 18 credits of advanced work approved by the department; for minor work, Course 1-2-3 or the equivalent.

Master's degree.—Offered under both Plan A and Plan B.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- 100f, 101w, 102s. Zoological Techniques. The content of this course is subject to the direction of the major adviser. Credits arranged, not to exceed 9.
- 107f-108w. Protozoology. A survey of the Protozoa, with special reference to their structure and life histories. Lectures, laboratory, reading. 6 credits. Mr. Turner.
- 109f-110w-111s. Physiology. A survey of animal behavior from the physiological viewpoint including the physiology of sense organs, nervous systems, muscles, glands, etc. Lectures, laboratory, reading. 9 credits Mr. Minnich.
- 117f-118w-119s.¶ Animal Ecology. Ecology of animals with special reference to insects. Lectures, laboratory, assigned reading, and field excursion. 9 credits. Mr. Eddy, Mr. Hodson.
- 120s.¶ General Ecology of Insects. General ecology with special emphasis on its application in insect control. 3 credits. Mr. Hodson.
- 125f-126w-127s. Advanced Entomology. Morphology and classification of insects, with lectures on the history of entomology. 9 credits. Mr. Mickel.
- 144w-145s-146s. Animal Parasites and Parasitism. Lectures and laboratory work. Origin and biological significance of parasitism; the structure, life history, and economic relations of representative parasites. Second term devoted primarily to the relation of insects to diseases of man and animals. 9 credits. Mr. Riley.
- 148f-149w-150s. Histology and Organology. Comparative study of the microscopic structure of tissues and organs. Textbooks, lectures, laboratory. 9 credits. Mr. Ringoen.
- 160-161. Cytology. A survey of cell structure and behavior with special reference to genetic cytology. Lectures, reading, and laboratory work. 6 credits. Mr. Wodsedalek.
- 170f-171w. Advanced Genetics. General laws involved in heredity and variation, with deviations from and practical applications of the laws. Textbooks, lectures, laboratory. 6 credits. Mr. Oliver.

¶ Either 119s or 120s or both may be taken to complete Course 117f-118w.

- 181w-182s. Comparative Embryology. A survey of the principles of animal development dealing with fundamental invertebrate and vertebrate types. Lectures, reference, and laboratory work. 6 credits. Mr. Ringoen.
- 197f-198w-199s.* Problems. Advanced work in some special line. 5 or more credits. Mr. Minnich, Mr. Riley, Mr. Wodsedalek, Mr. Mickel, Mr. Ringoen, Mr. Eddy, Mr. Oliver.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- 201-204.* Research in Entomology. Mr. Riley.
- 205-208,* 209-212, 265-268. See Entomology and Economic Zoology.
- 211-213.* Research in Ecology. Mr. Eddy.
- 217-219.* Research in Physiology. Mr. Minnich.
- 229-231.* Research in Animal Histology. Mr. Ringoen.
- 233-235.* Research in Embryology. Mr. Ringoen.
- 237-239.* Research in Animal Cytology. Mr. Wodsedalek.
- 251-253.* Research in Animal Genetics. Mr. Oliver.
- 261-263.* Research in Animal Parasitology. Mr. Riley.

See also History of Science, page 103.

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The Bulletin
of the University of
Minnesota

The College of Education
Announcement of Courses for the Years
1936-1938



Vol. XXXIX *No. 42* *August 24 1936*

Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota

Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918

COLLEGE OF EDUCATION

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- George Otterness, B.A., Instructor in Physical Education for Men
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- Ruth F. Segolson, B.S., Instructor in Home Economics Education
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- Neils Thorpe, B.S., Instructor in Physical Education for Men
- Mary Jo Walker, Ph.D., Instructor in Education
- Lucy Will, M.A., Instructor in Education

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 Richard M. Drake, M.A., Instructor in Mathematics
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 Royal B. Embree, M.A., Personnel Director
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 Alice Torkelson, B.S., Librarian
 Elmer F. Vaurio, B.A., Instructor in Science and Mathematics
 Mary Jo Walker, Ph.D., Instructor in French
 Virgil Walker, M.A., Instructor in Mathematics
 Mabel Wettleson, M.A., Instructor in English and Adviser of Girls
 Lucy M. Will, M.A., Instructor in German
 Walter R. Williams, M.A., Instructor in Industrial Education
 Lenore E. Wolfe, B.S., Instructor in English
 Elizabeth Zimmerli, M.A., Instructor in Physical Education

MEMBERS OF OTHER FACULTIES GIVING INSTRUCTION IN
THE COLLEGE OF EDUCATION

For a complete list of members of other faculties giving instruction in the College of Education, see the following bulletins:

College of Science, Literature, and the Arts
 College of Agriculture, Forestry, and Home Economics
 Medical School
 Institute of Technology
 School of Business Administration
 Division of Library Instruction
 Institute of Child Welfare

GENERAL INFORMATION

The College of Education is organized to offer professional courses in the field of education, to promote research in the problems of education, and to provide educational guidance for prospective teachers and other educational workers in the schools. The completion of satisfactory curricula in this college entitles graduates to receive certificates for school work from the Minnesota State Department of Education. Such certificates are issued only to those graduating from this college.

Among the important curricula offered by the college are those relating to teaching in the following fields: academic subjects in elementary and high schools, agriculture, art, business subjects, home economics, industrial arts, natural science, physical education, and public school music.

Work is also offered in the fields of educational administration and supervision, clinical psychology, educational psychology, library service, school health work, sociology, teaching of subnormal children, professional education of teachers, work of the visiting teacher, educational and vocational guidance, nursery school and kindergarten education, nursing education, and public health education.

ADMISSION

Admission as regular students.—Admission to regular standing in the College of Education may be effected in one of the following ways:

a. Completion of the requirements for admission to the College of Education as outlined below, or to the junior year of the College of Agriculture, Forestry, and Home Economics. This preparation involves the earning of 90 credits and 90 honor points exclusive of physical education and represents two years of work in a junior college.

b. Graduation from the advanced graduate course of the Minnesota state teachers colleges or of other fully accredited state teachers colleges. The College of Education grants 90 credits to such graduates.

c. Registration in one of the following four- or five-year specialized curricula in the freshman year, provided the requirements for admission to the University have been completed:

Art Education
Industrial Education
Music Education

Physical Education for Men
Physical Education for Women
School Health Work

In all other cases of four- or five-year curricula as outlined in this bulletin, the prescribed work of the first two years is to be taken prior to the student's entrance to the College of Education.

ENTRANCE REQUIREMENTS

All students who desire to prepare for teaching and who are not following one of the four- or five-year curricula must register in the College of Education beginning with the junior year. They should enroll as pre-education students in the Junior College as early in their course as possible.

Advisers for pre-education students will be members of the faculty of the College of Education. Entrance to the college will be conditioned upon a student's meeting the general and specific requirements outlined below:

1. A minimum of 93 credits for men and 95 credits for women carried with an average of one honor point per credit. For men 3, and for women 5 of these credits shall be in physical education. The remaining 90 credits shall be earned in the following groups of college courses:

- Group A English
- Group B Foreign languages: Classical Languages, German, Romance Languages, Scandinavian
- Group C Social sciences: Anthropology, Economics, Geography, History, Political Science, Sociology
- Group D Natural sciences: Astronomy, Botany, Chemistry, Geology and Mineralogy, Human Physiology, Physics, Psychology, Zoology
- Group E Mathematics
- Group F Journalism, Philosophy, Speech, Fine Arts, or such courses in other colleges or departments of the University as are approved by the College of Education

2. Within the general requirements listed above the student during his high school and Junior College years must have completed the required work indicated under A, B, C, and D below, and at least 20 credits in Groups B, C, and D must be completed in college.

SUBJECT	IN HIGH SCHOOL	IN COLLEGE
A. English	3 years	and 9 credits in composition
B. Language	3 years in one language	or 20 credits in one language
	or	
	2 years in one language	and 10 credits in same language
	or	
	1 year in one language	and 15 credits in same language
C. Social sciences	2 years	or 10 credits in one department
D. Natural sciences	2 years	or 10 credits in one department

NOTE.—In lieu of the specific course requirements indicated in the language group a student may elect a comprehensive examination in a chosen language to be conducted by a committee appointed by the dean of the College of Education.

3. Within the total credits stipulated under No. 1 a student must meet, in fields of study which are represented in prevailing high school curricula, the following requirements: at least 15 credits in a major field and at least 10 credits in each of two minor fields. The purpose of this requirement is to prepare the student for the study of the advanced courses necessary to the completion of satisfactory teaching majors and minors.

4. The student must have completed 6 credits in general psychology.

5. In the cases of certain specialized curricula described in this bulletin the above requirements may be modified in details. All courses of a special curriculum or equivalents should be completed, altho it may not always be possible to complete the courses in the order listed.

6. Students with two years of college training who are lacking certain entrance requirements may be admitted to the College of Education and will make up all deficiencies after enrolment in the College of Education.

7. At the time of entrance a student must present a certificate from the Students' Health Service indicating that he is free from physical defects which would prevent him from the successful pursuit of educational work.

8. At the time of entrance to the College of Education the student will be given a general examination designed to show his capacity to pursue professional curricula in education.

9. In the freshman and sophomore years, men must complete three quarters of physical education; women must complete six quarters of physical education. For men 3 credits, and for women 5 credits, to be counted toward graduation from the College of Education, will be granted for the completion of the requirement in physical education. The total number of credits required for graduation will be 183 for men and 185 for women. No credit is granted for physical education in the College of Science, Literature, and the Arts but upon transfer to the College of Education, the student will receive credits and honor points earned in the various courses. Students will receive credit for advanced courses in military science and tactics.

10. Students in the College of Education may elect toward a degree a maximum of 24 hours in military training of which 6 credits are to be in the Basic Course and 18 credits from advanced R.O.T.C. courses.

Admission on probation.—Students with advanced standing who wish to enter the College of Education are admitted on probation if the average of the grades presented for admission is below that of the average mark required for graduation in the college from which they enter.

Students in Home Economics.—Students expecting to receive certificates to teach upon graduation shall be registrants in the College of Education beginning with the junior year. Students in the College of Agriculture, Forestry, and Home Economics desiring a teacher's certificate in home economics shall in addition to their registration in that college register also in the College of Education. No formal application for transfer is necessary if such transfer is made at the beginning of the junior year. At least 90 credits, and honor points equal to the number of credits are required for admission to the junior class.

Admission as unclassified students.—Graduates of a five-year normal course, if individually recommended by the normal school president, are allowed 63 quarter credits and are admitted as unclassified students pending the completion of 27 additional credits.

Teachers of experience who are unable to meet the regular requirements for admission are admitted to the College of Education as unclassified students.

Admission with advanced standing.—Graduates of the three-year course in the state teachers colleges of Minnesota may receive not more than 113 quarter credits; credits earned in such three-year normal course shall be applied, in case they are deemed of equivalent merit, in the College of Education, to courses for supervisors in elementary grades, principals in state graded schools, teachers in junior high schools, or in normal school departments in high schools; students coming from such three-year course shall not receive certificates in high school subjects from the University without completing the prescribed courses of the University for such certificates.

Applicants for transfer from the third or fourth year of the degree course offered in Minnesota teachers colleges may receive credit for any part of their work in so far as such work is equivalent in subject-matter to courses offered in the College of Education.

Graduates of state teachers colleges will not be permitted to take for credit, Psychology 1 and 2, General Psychology.

QUALIFYING EXAMINATIONS—REQUIREMENTS FOR REGISTRATION FOR THE SENIOR YEAR

Registration for the work of the senior year in the College of Education is provisional pending satisfactory performance upon the qualifying examinations as outlined below.

The qualifying examinations consist of four sections:

1. A. Teaching major—materials usually taught in secondary schools.
B. Additional phases of the major field taught in college courses.
2. Fundamentals of educational psychology, secondary education, and methods or techniques of instruction.
3. English form and composition.

Students not preparing to work in secondary schools will be permitted to take an alternative form of the examination in education which deals with elementary education and methods of teaching in elementary schools.

No registration for student teaching or other work of the senior year will be regarded as completed until these examinations have been taken.

Statements of the scope of these examinations are on file at the reserve desk of the University Library. Booklets giving the scope of these examinations may be obtained at the office of the dean of the College of Education.

These examinations are now given toward the close of each quarter and students whose senior year or first enrolment in student teaching falls in the fall quarter will take the examinations some preceding quarter, usually the spring quarter.

Qualifying examinations are also given the first week of the first summer term for summer school students who expect to take directed teaching or practice supervision during the Summer Session and for students who were not enrolled during the spring quarter and for students who wish to retake examinations in which they have failed.

Qualifying examinations are also given on Thursday and Friday of the week preceding the beginning of classes in the fall. Only (1) senior students transferring from other colleges or universities, (2) students in certain specialized curricula, (3) students who wish to retake examinations in which they have failed, and (4) students who have been enrolled in one or both of the summer terms are eligible to take the examinations at this time. Papers of others will not be scored.

Students entering the College of Education at any time other than the fall of their junior year should consult an adviser in regard to the qualifying examinations and admission to methods and directed teaching.

GRADUATION—DEGREES—HONORS

The degree of bachelor of science.—Students graduating from the College of Education will receive the degree of bachelor of science. A total of 183 credits and 183 honor points for men and 185 credits and 185 honor

points for women is required for graduation. Candidates for this degree must (a) have met the requirements in a major and in a minor field and in professional subjects, or (b) they must have completed one of the specialized curricula. In addition they must have met the special scholarship requirements as stated on page 14. Candidates may major in any department listed on page 16.

Graduation with high distinction.—All graduates of this college who have attained *special excellence* in scholarship as is evidenced by an honor point ratio* of 2.5 or more are candidates for the degree of bachelor of science *with high distinction*. This award is not automatic but is conditioned upon favorable recommendations of the faculty and is conferred by faculty action only. Other conditions that influence the award are the amount of advanced work taken by the student, the percentage of work taken at the University of Minnesota, evidence of ability to do independent work, and other conditions affecting scholastic standing.

Graduation with distinction.—All graduates of this college who have attained *excellence* in scholarship to the extent of having earned an average honor point ratio* of 2.0 or more are candidates for the degree of bachelor of science *with distinction*. This award is not automatic but is conditioned upon favorable recommendations of the faculty and is conferred by faculty action only. Other conditions that influence the award are the amount of advanced work taken by the student, the percentage of work taken at the University of Minnesota, evidence of ability to do independent work, and other conditions affecting scholastic standing.

INDEPENDENT STUDY COURSE

An Independent Study Course† will be offered during the year 1936-37.

1. The purpose of this course will be to offer students of ability the opportunity to direct their own training to a greater degree than is now afforded by the prevailing methods of class instruction.

2. The course will be open by choice to those students who by tests of general ability and previous scholastic achievement give evidence of the capacity for self-direction. Continuance in the course will be conditioned by continued evidence of worthiness of such enrolment.

3. This course will be in lieu of the requirements of Educational Psychology, the High School, and Technique of High School Instruction, and is equivalent to Ed. 51A,B,C. The field of work to be covered will be approximately that now embraced in the three courses. Students who satisfactorily complete this Independent Study Course and the final examination covering all units, will be given nine credits and will be relieved of the special course requirements named above.

4. Students electing the Independent Study Course will be relieved from certain formal requirements but not from the mastery of a minimum content.

* The honor point ratio is calculated by dividing the total number of honor points earned by the total number of credits earned. See p. 15.

† Previously designated as Limited Honors Course. See College of Education Bulletin, 1930-32.

GRADUATE WORK IN EDUCATION

Graduate work in education leading to the degree of master of arts or doctor of philosophy may be pursued in the Graduate School. All courses bearing numbers of 100 and above are open for credit to graduate students. Before attempting to make out their programs, graduate students in education should consult the dean of the College of Education and the dean of the Graduate School.

Graduate courses may be pursued during the Summer Session. The work for the Master's degree may ordinarily be completed in three or four Summer Sessions. For full statement of regulations, consult the Graduate School Bulletin.

Prerequisites for graduate work in education.—For major work at least 6 quarter credits in psychology and in addition to this a total of not less than 18 quarter credits of undergraduate work in education which shall include Ed. 51A,B,C or Ed. 61A,B,C or the equivalent. For minor work at least six quarter credits in psychology and in addition to this, a total of not less than 18 credits of undergraduate work in education.

Exemption from the language requirement for the Master's degree may be made in individual cases.

Seminar courses are conducted primarily for students preparing theses for the Doctor's degree or for the Master's degree, Plan A. Credit for seminar courses is not allowed.

MAJORS AND MINORS

Major and minor work for advanced degrees may be arranged from courses listed below under the following groupings:

Doctor's Degree

Major.—Major work will be chosen in the field of education in the following manner. With the approval of his adviser the student will select a group of courses, excluding the field of his minor, centering about his special interest in education. The center of interest may be determined in either of three ways:

1. By reference to problems of general education.
2. By a more limited grouping as determined by special subject-matter content.
3. By the type of educational institution to which courses relate.

Under the second grouping the following are acceptable as typical centers of interest:

Agricultural education
Curriculum and instruction
Educational administration
Educational psychology
History of education
Home economics education
Industrial education

Under the third method of grouping courses typical centers of interest will be as follows:

Elementary education
Secondary education
Higher education

Minor.—Minors may be designated as follows:

1. Any other field of study offered in the University of Minnesota in which satisfactory courses of graduate character are available and which is obviously related to the field of major interest.
2. Students majoring in fields other than education may choose education or any of its subdivisions enumerated above as a minor when it appears that such a minor is appropriately related to the major field.

Master's Degree—Plan A

Major.—Majors may be chosen as follows:

Education: Under this designation the student, with the approval of his adviser, may select a group of courses from among those listed below,* excluding the field of his minor, centering about his special interest in education. The center of interest may be determined by subject-matter content or by the type of educational institution to which courses are related. Typical centers of interest are the same as those listed under Doctor's Degree above.

Minor.—Minors may be chosen from any of the groupings of courses enumerated above when such grouping is not included in the major.

Any other field of study offered at the University of Minnesota in which satisfactory courses of graduate character are available and which is obviously related to the major field.

Students majoring in fields other than education may choose education or any of its subdivisions enumerated above as a minor when it appears that such a minor is appropriately related to the major field.

Master's Degree—Plan B

Field of concentration.—Under Plan B, which encourages a wider selection of courses, the student will be expected to select a field of concentration in which he will attain the required number of course credits. The field of concentration differs from the major in that it encourages the choice of a somewhat wider range of courses related to the student's interest. As in the case of the major, however, the student will be expected to indicate his field of concentration according to the general arrangement of courses that prevails for the requirement of a major. This arrangement is as listed under Doctor's Degree above.

Additional courses.—The student may elect the additional courses required to complete the total of 45 credits from an area of education not included in the field of concentration or from any other field of study offered at the University of Minnesota in which satisfactory courses of graduate character are available and which is obviously related to the student's interest.

* See pages 72-106.

Colloquium in Education, Education 200.—Candidates for the Master's degree under Plan B are expected to earn 9 credits in courses involving independent study. This requirement will be satisfied by earning 9 credits in Education 200, Colloquium in Education. Credits in other courses may not be used to satisfy the requirement of independent study.

Education courses in the following pages (pp. 72-106)* are grouped with a view of bringing together those of related content. It is not intended, however, that this grouping shall be followed explicitly in the determination of majors, minors, or fields of concentration. The student will be free to determine, within limits approved by his adviser, the arrangement of courses that he wishes to offer for satisfying major, minor, or field of concentration requirements.

BUREAUS OF RECOMMENDATIONS AND RESEARCH

Bureau of Recommendations.—Graduates of the College of Education who have met the requirements for a state teacher's certificate will be recommended for positions for which they are qualified. Students on the Minneapolis campus should register with the Bureau of Recommendations, 208 Burton Hall.

Bureau of Educational Research.—The College of Education conducts a Bureau of Educational Research for the purpose of promoting investigations by faculty and students in problems of education. The bureau is under the direction of the dean of the college and the members of the faculty co-operate as their several interests dictate. Through the bureau, opportunity is given for co-operation with public schools in studies bearing upon problems of school administration, classroom instruction, and related matters. The bureau is responsible for the publication of a series of studies under the general title of Educational Monographs.

SPECIAL FEES

All special methods and directed teaching courses carry a fee of \$1 per credit hour. Certain courses in the various departments require the payment of special fees. Such fees are indicated in connection with the course descriptions in this bulletin and with the schedules of courses as listed in the College of Education section of the Combined Class Schedule. For a statement of tuition and other fees see the Bulletin of General Information.

* See also description of courses in the Bulletin of the Graduate School.

GENERAL REQUIREMENTS

Residence requirements.—The minimum term of residence in the College of Education is two years beginning as soon as the entrance requirements have been fulfilled.

Students may shorten the two years of residence only by meeting such additional requirements in quality and quantity of professional work as will make the training of such students equal to that of students regularly registered for two full years.

AMOUNT AND QUALITY OF WORK

a. Upon entering the College of Education the student should, under advisement, plan his program (a) to secure one academic major and one or more academic minors and the required professional courses;* or (b) he should plan his program in accordance with one of the specialized curricula.

b. During his entire course the student must earn (1) 183 credits if a man or 185 credits if a woman, including the required courses in gymnasium, and physical education, *or* a smaller number of credits determined as follows: For every 5 honor points in excess of one honor point per credit the number 183 or 185 is diminished by one, but no student will be recommended for graduation who has not completed all of the courses required in his particular curriculum and who has not satisfied all the requirements of his curriculum; (2) $1\frac{1}{2}$ honor points per credit in his major subject; and (3) an average of 1 honor point per credit in all other courses pursued during the junior and senior years.

c. Fifteen credits are regarded as the usual load. Students who wish to register for more than 17 hours must show a record of $1\frac{1}{2}$ honor points per credit for the previous quarter.

d. A maximum of 27 credits is elective from courses in agriculture and home economics except in the special curricula in those fields.

e. Continued residence in the college is conditioned upon reasonable success in the student's work. Any student who does not make satisfactory progress in the course in which he is registered may be placed on probation by the Students' Work Committee. No student is considered to have a wholly satisfactory standing who fails to secure in the course of any year the normal advance of one honor point for each credit for which he is registered. A student who is found to be below passing in 50 per cent of his work either at the middle or at the end of the quarter will be placed on probation.

f. All students registered in the College of Education shall maintain satisfactory standards of oral and written English. A Committee on Standards of English in Education will recommend ways of remedying deficiencies and will determine when satisfactory standards have been attained.

g. Students registered as freshmen and sophomores in the College of Education will be guided by the faculty regulations of the College of Science,

* For requirements in Education see p. 18.

Literature, and the Arts, but will be amenable to the Students' Work Committee of this college.

h. Honor points are computed on the basis of one and one-half times the number of credits required in the major subject, e.g., in case a major recommendation requires 36 credits, the number of honor points will be 54. From among the courses carried in a department the student may select those which he will present as meeting this requirement except that he must include all courses which are specified in the departmental announcement as required for the recommendation for the certificate.

Credits and honor points.—The Senate regulations governing the system of marks is as follows:

1. That there shall be four grades, A, B, C, and D, representing varying degrees of achievement, which shall be acceptable for the completion of a single course; but this definition shall not be construed as preventing any college or school from setting special standards of performance as a condition of registration in particular courses of study, of admission to the college or school, of promotion, of counting work toward a degree, or of continued residence in the college or school. Work merely acceptable for the completion of all his single courses of study does not constitute a satisfactory record for a student when his college specifies higher requirements for any purpose.

2. There shall be two grades indicating work of distinctly unsatisfactory quality. These grades shall be known as E (condition), which may be removed by examination or other means stipulated by the faculty of the college or school concerned, and F (failure), which may be removed only by a repetition of the work in the course, or, in exceptional cases, by examination by permission of the faculty concerned.

3. There shall be a Grade I (incomplete), which shall indicate that a student, for reasons satisfactory to the instructor in charge, shall have been unable to complete the work of the course. This grade shall be given only when the work already done has been of a quality acceptable for the completion of the course. Any student receiving this grade shall be given an opportunity to complete the said course within the first thirty days of his next quarter in residence.

4. There shall be a symbol, T (transferred), indicating the transfer of credit from another institution or from one college to another of the University of Minnesota. This symbol shall be provisional and subject to final evaluation by the faculty of the college or school to which the student is transferred.

The amount of work pursued by a student is estimated in credit hours; the quality or grade of his work, in honor points.

A *credit hour* is one hour per week of recitation or lecture work extending throughout one quarter, or three hours per week of laboratory work through one quarter. It is assumed that each credit hour will demand on the average three hours a week of the student's time for recitation or lecture, one hour in class and two hours of preparation; for laboratory courses, three hours in the laboratory.

Honor points are computed as follows: each credit hour with the grade of A entitles the recipient to 3 honor points; each credit hour with the grade of B entitles the recipient to 2 honor points; each credit hour with the grade of C to 1 honor point; each credit hour with the grade of D to no honor points. Illustration: A student completing a one-quarter 3-credit course and receiving the grade of A would be entitled to 9 honor points; if receiving the grade of B, to 6 honor points; if receiving the grade of C, to 3 honor points; if receiving the grade of D, to no honor points.

Professional lectures.—From time to time during the year lectures of general interest to students of education will be given by members of the

faculty and invited speakers. All students in the College of Education are expected to attend these lectures. Special announcements will appear in the *Official Daily Bulletin*.

CERTIFICATION OF TEACHERS

Employment in a professional capacity in the schools of Minnesota is conditioned upon the proper licensing of the person to be employed. By a law enacted in 1929 all authority for such certification is conferred upon the State Department of Education. Certification by institutions and the university teacher's certificate have been discontinued. Within the scope of this law the University operates its program for those students who desire certification for teaching in the public schools of this state.

The law provides that certification is automatic for the graduates of the College of Education who have completed specifically named curricula in this college. No provision is made for the certification of any other university graduates. Certificates may be issued only to those persons who are "physically competent and morally fit to teach." The various curricula in the College of Education provide the training necessary for any type of state certificate which is based upon four or five years of training beyond the high school.

Courses which provide the training necessary for holding positions in the public schools of Minnesota are offered in the following subjects:

Agriculture	Mathematics
Art Education	Natural Science
Botany	Nursery School and Kindergarten Education
Chemistry	Nursing Education
Clinical Psychology	Physical Education for Men
Commercial Education	Physical Education for Women
Educational and Vocational Guidance	Physics
Educational Psychology	Political Science
Elementary Education	Professional Education of Teachers
Elementary School Supervision	Public Health Nursing
English	Public School Administration
French	Public School Music
Geography	Scandinavian
German	School Health Work
History	Social Studies
Home Economics	Sociology
Industrial Education	Speech and Speech Pathology
Junior High School Education	Teaching Subnormal Children
Latin	Zoology
Library Methods	

Students who desire certification upon graduation shall be registrants in the College of Education beginning with the junior year. Students in home economics and agriculture shall also be registrants in the College of Agriculture, Forestry, and Home Economics. They shall have satisfied the prescribed requirements for a major and a minor in secondary school subjects

or the specific requirements of a specialized curriculum as outlined in this bulletin. Such students will also be required to complete the two years' work leading to the degree of bachelor of science. No certificate is granted without a degree from the University of Minnesota.

By a proper selection of courses students qualifying for the degree of bachelor of science may qualify for teaching in more than one field. This is desirable since most beginning teachers in public schools are required to teach more than one subject.

Because the regulations and requirements in subject-matter fields and in education necessary for certification in different states are constantly changing, students who plan to teach in states other than Minnesota should consult their major advisers in order that they may fully complete the requirements for the specific state in which they wish to teach.

GENERAL COURSE

FOR TEACHERS OF SECONDARY SCHOOL SUBJECTS

In order to receive the Bachelor's degree and to qualify for the Minnesota state high school standard certificate in secondary school subjects, students not completing a specialized curriculum as set forth in this bulletin will meet the following requirements:

A. One academic major.

B. One or more academic minors.

Majors and minors must be selected from the subjects commonly taught in high schools. Students should elect majors and minors early in their college course and with regard to the demands of high schools. By careful selection of courses students may complete two or more minors thus qualifying them to teach in several different fields. The following pages list the fields in which majors and minors are offered and the requirements in each field.

C. Professional courses totaling 26 credits.

The student preparing for high school teaching in academic subjects must meet the following professional requirements:

1. *Required course—General.*—Ed.51A,B,C (formerly Ed.51-52-53). Introduction to Secondary School Teaching. (9 credits, prerequisite, Psy. 1-2.)

This course consists of work in educational psychology, high school administration, and the technique of high school instruction.

2. *Methods and practice teaching.*—In addition the student must complete a *Special Methods and Practice Teaching Course* (9 credits, prerequisite, Ed. 51A,B,C and passing the qualifying examination) in his major fields and a course in Special Methods in his minor field (3 credits, prerequisite, Ed. 51C and passing the qualifying examination).

3. *Education electives.*—To complete the professional requirement of 26 quarter credits required for this degree and the teacher's certificate the candidate will elect additional credits, under faculty advisement, from among the following subjects:

Course No.	Title	Credits	Prerequisite Courses
Ed. 71	Brief Course in History of Education	5	Psy. 1-2
Ed. 73	Educational Sociology	3	Psy. 1-2
Ed. 75	Public Education in the U. S.	3	Psy. 1-2
Ed. 101	Historical Foundations of Modern Education	3	Psy. 1-2
Ed. 102	History of Modern Secondary and Higher Education	3	Psy. 1-2
Ed. 103	History of Modern Elementary Education	3	Psy. 1-2
Ed. 131	Comparative School Systems	3	9 hrs. in ed.
Ed. 167	The Junior High School	2	10 hrs. in ed.
Ed.C.I. 113	The High School Curriculum	3	10 hrs. in ed.
Ed.C.I. 119	The Elementary School Curriculum	3	10 hrs. in ed.
Ed.C.I. 121	Educational Advising of Women and Girls	3	15 hrs. in ed. and psy.

Course No.	Title	Credits	Prerequisite Courses
Ed.C.I. 122	Literature for Adolescents	2	See departmental statement
Ed.C.I. 133	Guidance in Secondary Schools.....	2	9 hrs. in ed.
Ed.C.I. 135	Teaching of Occupations	2	9 hrs. in ed.
Ed.C.I. 169	Extra-Curricular Activities	2	9 hrs. in ed.
Ed.C.I. 193	Foundations of Secondary School Instruction	3	Ed. 51B
Ed.Ad. 124	Public School Administration	3	10 hrs. in ed.
Ed.Psy. 120	Basic Principles of Measurement.....	3	Ed. 51A or equiv.
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3	Ed.Psy. 120 or equiv.
Ed.Psy. 146-147	Child Guidance	4	15 hrs. in psy. and ed.
Ed.Psy. 157	Psychology of Child Development.....	2	6 hrs. in psy.
Ed.Psy. 158	Psychology of Adolescence	3	Ed. 51A or equiv.
Ed.Psy. 159	Psychology of Personality	3	Ed. 51A and Ed.Psy. 60 or 134 or equiv.
Ed.Psy. 183	Psychology of Gifted Children	3	Ed. 51A or equiv.
ArtEd. 189	Application of Esthetic Theory to Art Education	3	See departmental statement
Ind. 105	Industrial Education	3	See departmental statement
Ind. 110	Guidance in the Schools	2	Ed. 51A
P.M.&P.H. 80	Health Supervision of the School Child	3	P.M.&P.H. 50 or 52 or 53

DIRECTED TEACHING*

Special methods and practice teaching are normally combined into a one-year course extending throughout the senior year. Failure to register for such course for the fall quarter of the senior year will probably result in delay in graduation. All courses prerequisite to special methods and practice teaching, including the final examination in Ed. 51A,B,C and the qualifying examination, should have been completed by the beginning of the senior year. In addition to the special methods and practice teaching course in the subject which the student wishes to teach he must satisfy the requirements for a major or minor in that subject according to his curriculum. By the beginning of his senior year he should have made adequate preparation, particularly in his major teaching field, for successful directed teaching in high school classes. As evidence of adequate preparation, the students planning to do student teaching must pass all four qualifying examinations (see page 9). Registration for courses involving student teaching, practice supervision, or applied field work of any sort before passing these examinations is invalid.

Arrangements for directed teaching should be made at the close of the junior year and before the student registers for other courses. In the academic subjects arrangements should be made through Mr. Charles W. Boardman, director of student teaching, and in the special subjects through the major advisers.

* See departmental statement, Methods and Directed Teaching, pages 92-96.

MAJORS AND MINORS IN ACADEMIC SUBJECTS

BOTANY

Major Adviser: C. O. Rosendahl

For curriculum in natural science, see p. 51.

Botany as a major subject:

Course No.	Title	Credits
Bot. 1	General Botany	4
Bot. 2	Elementary General Morphology of Plants	3
Bot. 5	Elementary Plant Histology	3
Bot. 7	Taxonomy of Flowering Plants	3
Bot. 12	Morphology of Algae	3
Bot. 21	Elementary Ecology	3
Bot. 22	Elementary Plant Physiology	3
Bot. 62	Bryophytes and Pteridophytes	5
Additional courses		6

Total credits 33

Botany as a minor subject:

Bot. 1, 2, 7, 21, 22 and 3 additional credits.

CHEMISTRY

For curriculum in natural science, see p. 51.

Chemistry as a major subject:

Course No.	Title	Credits
Inorg. Chem. 9-10	General Inorganic Chemistry	10
Inorg. Chem. 12	Qualitative Chemical Analysis	5
Anal. Chem. 7	Quantitative Analysis	4
Org. Chem. 51-52	Organic Chemistry	10
Additional courses		10

Chemistry as a minor subject:

Inorgan. Chem. 9-10, 12; Anal. Chem. 7; six additional credits in chemistry.

Students without entrance credits in chemistry register for Inorg. Chem. 6-7-8 instead of 9-10.

ENGLISH

Major Advisers: C. W. Nichols, Dora V. Smith

English as a major subject:

Course No.	Title	Credits
Eng. 22-23	Introduction to Literature	10
Eng. 55-56	Shakespeare	6
Eng. 73-74	American Literature	6
Comp. 27-28	Advanced Writing	6
Speech 1-2	Fundamentals of Speech	6
Additional credits, all of which must be secured in courses numbered 100 or above		6

Total credits 40

English as a minor subject:

Eng. 22-23	Introduction to Literature	10
Eng. 55-56	Shakespeare	6
Eng. 73-74	American Literature	6
Comp. 27-28	Advanced Writing	6

Total credits 28

GEOGRAPHY

Major Adviser: D. H. Davis

For curriculum in social studies, see p. 66.

Geography as a major subject:

Twenty-eight credits from the following courses:

Course No.	Title	Credits
Geog. 11	Human Geography	5
Geog. 41	Geography of Commercial Production	5
Geog. 43	Political Geography	5
Geog. 47	Geography of Minnesota	3
Geog. 53	Historical Geography of the U.S.	3
Geog. 71	Geography of North America	3
Geog. 101	Geography of Europe	3
Geog. 102	Trade Routes and Trade Centers	3
Geog. 110	Geography of South America	3
Geog. 111	Cartography	3
Geog. 120	Geography of Asia	3
Geog. 133	Climatology	3
Geog. 241	Field Course	3
Geog. 251- 252-253	Seminar in Geography	3

Five additional credits from the following courses in geology:

Geol. 1-2	General Geology (Dynamic and Historical).....	10
Geol. 1-3	General Geology (Dynamic and Economic).....	10
Geol. 8	Introductory Geology	5

Total credits 33

Geography as a minor subject:

Eighteen credits selected from the following courses:

Geog. 11 or 41 (preferably 11), 53, 71, 101, 102, 110, 120

GERMAN

Major Adviser: S. Kroesch

German as a major subject:

Course No.	Title	Credits
Ger. 50-51-52	Composition*	6
Ger. 53-54-55	Conversation	3
Ger. 56-57	Essay Writing	6
Ger. 68	Survey of German Literature	3
Ger. 108	Phonetics	3
Additional credits in courses numbered above 40.....		15

Total credits 36

German as a minor subject:

Ger. 50-51-52	Composition	6
Ger. 108	Phonetics	3
Additional credits in courses numbered above 40		8

Total credits 17

* Prerequisite, Ger. 4 or four years preparatory German.

HISTORY

Major Adviser: E. S. Osgood

For curriculum in social studies, see p. 66.

History as a major subject:

Total number of credits 45

At least 18 credits must be in Senior College courses. 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 and an average of 2.0 in courses in history taken after the freshman year, may take at least one course numbered above 150; all other majors will take an additional survey course in the senior year, but will not take a course numbered above 150.

History as a minor subject:

A minimum of 18 credits of which no fewer than 9 are in Senior College courses.

No major recommendation to teach history will be given unless the student has taken at least the general course in American History, Hist. 7-8-9.

JOURNALISM

Major Adviser: Ralph D. Casey

Journalism as a minor subject:

Course No.	Title	Credits
Jour. 13	Introduction to Reporting	3
Jour. 41	Editing for Non-Majors	3

Twelve credits in Senior College courses, including Jour. 69 and 82, and 6 additional credits in Senior College courses. Course 109-110 is recommended. Ed.T. 74, Teachers' Course in Journalism, is also required.

LATIN

Major Adviser: R. V. Cram

Latin as a major subject:

Eighteen credits including:

Course No.	Title	Credits
Lat. 73-74-75	Prose Composition	3
Lat. 111-112-113	Advanced Prose Composition	3

Additional courses in Latin including two with numbers between 50 and 100 and two with numbers above 100.

Latin as a minor subject:

Nine credits including Lat. 73-74-75 and any two courses with numbers between 50 and 100.

Sequence of courses in Latin.—Students who have had no Latin in high school will take Courses 1, 2, 3, 11, 12, 63, etc. Students entering the University with one year of high school Latin will take Courses 2, 3, 11, 12, 63, etc. Students entering with two years' of Latin will take 11, 12, 63, etc. Students entering with three years of Latin will take 12, 63, etc. or 51, 52, etc. Students with four years of high school Latin will take 51, 52, etc.

MATHEMATICS

Major Adviser: A. L. Underhill

Mathematics as a major subject:

Prerequisite courses: Solid Geometry (entrance credit or its equivalent);* Higher Algebra taken either in high school or college. Mathematics 20 (The Mathematics of Investment) is strongly recommended as an elective.

Course No.	Title	Credits
Math. 6	Trigonometry	5
Math. 7	College Algebra	5
Math. 30	Analytic Geometry	5
Math. 50	Calculus I	5
Math. 51	Calculus II	5
Additional credits in courses numbered over 51		8
Total credits		33

The Qualifying Test 1B in Mathematics covers the content of Mathematics 6, 7, 30, and 50.

Mathematics as a minor subject:

Prerequisite courses: Solid Geometry (entrance credit or its equivalent);* Higher Algebra taken either in high school or college.

Course No.	Title	Credits
Math. 6	Trigonometry	5
Math. 7	College Algebra	5
Math. 30	Analytic Geometry	5
Math. 50	Calculus I	5
Additional credits in courses numbered over 50		3
Total credits		23

PHYSICS

Major Adviser: H. A. Erikson

For curriculum in natural science, see pp. 51-52.

Physics as a major subject:

Course No.	Title	Credits
Phys. 3,4	Elements of Mechanics	4
Phys. 13	Acoustics	3
Phys. 23,24	Heat	4
Phys. 33,34	Optics	4
Phys. 43,44	Electricity	4
Phys. 52	Laboratory Arts	3
Phys. 107-109-111	Modern Physics	9

Physics as a minor subject:

Twenty-two credits consisting of the following courses: 3 and 4, 13, 23 and 24, 33 and 34, 43 and 44, 52.

* Those who did not present solid geometry for entrance may meet this requirement in one of the following ways: (1) By taking the subject in the Summer Session or in the General Extension Division by correspondence study; (2) By passing a college entrance examination or a special examination given by the Department of Mathematics.

POLITICAL SCIENCE

Major Adviser: O. P. Field

For curriculum in social studies, see p. 66.

Political Science as a major subject:

Thirty-six credits including:

Course No.	Title	Credits
Pol.Sci. 1-2-3	American Government and Politics	9

Additional courses in Political Science to the extent of 27 credits, including 7 or 15 or 25 and 12 credits in Senior College courses.

Political Science as a minor subject:

Eighteen credits including:

Course No.	Title	Credits
Pol.Sci. 1-2-3	American Government and Politics	9

Additional courses in Political Science to the extent of 9 credits, including either 7 or 15 or 25 and at least 3 credits must be in Senior College courses.

ROMANCE LANGUAGES

Major Adviser: F. B. Barton

French as a major subject:

Thirty-five credits in courses numbered above 4 including:

Course No.	Title	Credits
French 70-71-72	Survey of French Literature (or 73-74)	9 or 10
	and	
	One other literary course	3 to 9
French 50	French Pronunciation	3
French 53	French Composition)	7
and	French Conversation)	
French 54-55	French Conversation)	
or		
French 20	Oral and Written French	5
French 63	Advanced French Composition	3
French 103-104-105	French Syntax and Composition	3

French as a minor subject:

Seventeen credits in courses numbered above 4.

For majors and minors in other Romance languages consult adviser.

SOCIOLOGY AND SOCIAL WORK

Major Advisers: F. S. Chapin, Clifford Kirkpatrick

For curriculum in social studies, see p. 66.

Sociology as a major subject:

Thirty-six credits including 1, 6, and 14.

Course No.	Title	Credits
Soc. 1	Introduction to Sociology	5
Soc. 6	Social Interaction	3
Soc. 14	Rural Sociology	3
Additional credits		25

Students majoring in sociology must complete two teaching minors in addition to the required professional courses. Teachers of experience who already hold a teacher's certificate and do not desire further certification may be relieved of this requirement upon petition.

Sociology as a minor subject:

Nineteen or twenty credits including Soc. 1, 6, and 14.

SPEECH

Major Advisers: F. M. Rarig, B. Bryngelson

For curriculum in speech pathology, see pp. 66-67.

Speech as a major subject:*

Course No.	Title	Credits
Speech 1-2-3	Fundamentals of Speech	9
or		
Speech 5-6	Fundamentals of Speech	10
Speech 55-56	Argumentation and Debate	6
Speech 61	Speech Correction	3
Speech 67	Phonetics	3
Speech 71-72	Elements of Dramatic Production	6
Speech 81-82	Interpretative Reading	6
Speech 121-122	Advanced Speech Problems	6
Total		39 or 40

Speech as a minor subject:

A minimum of 24 credits including Speech 1-2-3 or 5-6; 61 and 67; 55-56-57 or 71-72-73 or 81-82-83.

Speech Correction as a minor subject:*

Course No.	Title	Credits
Speech 1-2-3	Fundamentals of Speech	9
or		
Speech 5-6	Fundamentals of Speech	10
Speech 61	Speech Correction	3
Speech 67	Phonetics	3
Speech 162-163	Speech Pathology	6
Psy. 144-145	Abnormal Psychology	6
Total		27 or 28

All students majoring or minoring in Speech must present satisfactory evidence of interest and effective participation in one or more activities, such as debating, dramatics, oratory, public reading, or public speaking.

Because of the close relation between English and speech in the high schools in Minnesota, students majoring in Speech must have one of their minors in English.

Students intending to take further work in speech correction, specializing in that field of speech alone, should include in their undergraduate course Physiology 4.

Students majoring in Speech register for methods and directed teaching in Ed.T. 66A,B,C.

* Students are advised to take Psy. 4-5 or 7. Students expecting to major in Speech should consult a major adviser as early as possible in their Junior College course.

ZOOLOGY

Major Adviser: J. E. Wodsedalek

For curriculum in natural science, see p. 51.

Zoology as a major subject:

Course No.	Title	Credits
Zool. 1-2-3	General Zoology	10
Zool. 52	Introductory Entomology	5
Zool. 53	Faunistic Zoology	5
Zool. 75	Nature Study	3
Zool. 83	Introduction to Genetics and Eugenics.....	3
HumanPhysiol. 4	Human Physiology	4

Zoology as a minor subject:

Minimum of 18 credits including Zool. 1-2-3, 53, and 75.

SPECIALIZED CURRICULA

ADMINISTRATION, SUPERVISION, AND TEACHER TRAINING

The following specialized curricula are prescribed for prospective superintendents of schools, elementary school principals or supervisors, high school principals, supervising teachers or critic teachers in training schools, and instructors of educational administration, supervision, or teacher training in colleges, teachers colleges, and universities. The complete curricula require five years for completion; two years in the Junior College, two years in one of the four special curricula described below in the College of Education for the Bachelor's degree, and one year in the Graduate School, for the Master's degree. The satisfactory completion of four years of work entitles the student to the degree of bachelor of science and to the state high school teacher's or the advanced elementary school teacher's certificate. The satisfactory completion of the fifth year's work entitles the student to the Master's degree and also provides the training for the university certificate in administration or supervision.

1. *Students from other institutions.*—Students entering from other institutions may qualify for the certificate in administration or in supervision, either by meeting the requirements set forth below, by receiving blanket credit for the first two years, or by making such substitutions or modifications as their previous education and training shall warrant. All substitutions or modifications of these requirements must meet with the approval of the student's major adviser and the Students' Work Committee.

2. *Extra-curricular activities.*—The student who is anticipating one of these fields as his life work should avail himself of the opportunities which the University offers for the development of leadership and those personal qualities essential to success in the field. Under guidance, he should select for active participation those extra-curricular activities which offer the best training and experience suitable to his individual needs.

3. *Teaching minors.*—Students in general or secondary administration anticipating the state high school teaching certificate must complete at least two regular teaching minors during the four years of undergraduate work, and a course in special methods and practice teaching in one of these minors. The teaching minors* may be selected from any two of the following fields: English, foreign language, history and social science, mathematics, science. Other teaching minors may be selected on the approval of the major adviser and the faculty. A third teaching minor is desirable. Students in elementary administration, supervision, or teacher training anticipating the advanced elementary education teaching certificate and also the special certificate for elementary school principalships, supervision, or teacher training, should follow the directions for minors in curricula as directed below in B3 and B4, p. 29. Students should have these requirements in mind when planning their work in the Junior College.

* See departmental statements for minor requirements.

CURRICULA

A. FIRST AND SECOND YEARS—COLLEGE OF SCIENCE, LITERATURE,
AND THE ARTS

1. For students anticipating a four- or five-year specialized curriculum for superintendents and principals and a *high school* teaching certificate:

Freshman and Sophomore Years

Course No.	Title	Credits
Eng. A-B-C	Freshman English	15
or		
Comp. 4-5-6	Freshman Composition (or exemption)	9
Hist. 1-2	Modern World	10
Pol.Sci. 1-2-3	American Government	9
	Natural Science	10
	French or German*	5-20
Psy. 1-2	General Psychology	6
Soc. 1	Introduction to Sociology	5
Econ. 8-9	Principles of Economics	6
	Electives§	8-28
	Physical Education	3 or 5

2. For students anticipating a four- or five-year specialized curriculum for elementary supervision, elementary school principalship, or teacher training, with an *elementary teaching* certificate. See 1A, Elementary Education Curriculum, pp. 40-41.

B. THIRD AND FOURTH YEARS—COLLEGE OF EDUCATION—
SPECIALIZED CURRICULA IN ADMINISTRATION,
SUPERVISION, AND TEACHER TRAINING

1. Curriculum for superintendents of schools and elementary school principals with a *high school* teaching certificate:

Major Adviser: Fred Engelhardt

Junior Year

Course No.	Title	Credits
Ed. 51A-B-C	Introduction to Secondary School Teaching	9
Ed.Psy. 60	Statistical Methods	2
Ed.C.I. 119	The Elementary School Curriculum	3
	Electives§§	31

*Twenty credits must be secured in either French or German in the University if no work in these languages was presented for entrance. (See under General Information, p. 7.)

§ The electives should be selected in view of the teaching minor requirement.

§§ Selection under guidance from the following additional courses is recommended: Ind.Ed. 105, Industrial Education; P.M.&P.H. 53, Elements of Preventive Medicine; Speech and Journalism; Phys.Ed. 97, Organization and Administration of Physical Education; Agricultural Administration 151; Ed.Ad. 158, Organization for Supervision; Ed. 73, Educational Sociology; Ed. 103, History of Education.

Senior Year

Course No.	Title	Credits
Ed.T.*	Special Methods and Practice Teaching	9
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 125	Techniques in Administration	3
Ed.C.I. 123	Supervision of High School Instruction	3
Ed.C.I. 150	Supervision and Improvement of Instruction	3
Ed.C.I. 156*	Practice Supervision	3
Ed.Psy. 120	Basic Principles of Measurement	3
	Electives§¶	18

2. Curriculum for high school principals with a *high school* teaching certificate:

Major Adviser: Harl R. Douglass

Junior Year

Course No.	Title	Credits
Ed. 51A-B-C	Introduction to Secondary School Teaching	9
Ed.Psy. 60	Introduction to Statistical Methods	2
Ed. 102	History of Modern Secondary and Higher Education	3
Ed.C.I. 119	The Elementary School Curriculum	3
	Electives§¶	28

Senior Year

Course No.	Title	Credits
Ed.T.*	Special Methods and Practice Teaching	9
Ed.Ad. 124	Public School Administration	3
Ed.C.I. 113	High School Curriculum	3
Ed.C.I. 123	Supervision of High School Instruction	3
	or	
Ed.C.I. 150	Supervision and Improvement of Instruction	3
Ed.C.I. 133	Guidance in Secondary Schools	2
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.Psy. 158	Psychology of Adolescence	3
Ind. 105	Industrial Education	3
	Electives§	13

3. Curriculum for elementary school supervision and elementary school principals with *advanced teaching* certificate in elementary education. Special state certificate for elementary school principals or supervisors:

Major Adviser: Leo J. Brueckner

See curriculum on pages 39 to 43 for first four years and C below for the fifth year.

4. Curriculum in teacher training:

Major Adviser: W. E. Peik

For the first four years in the field of elementary education see curriculum on pages 39 to 43. For fifth year in teacher training, elementary or secondary field, see C below.

* Passing the qualifying examination is prerequisite to this course.

§ The electives should be selected in view of the teaching minor requirements.

¶ Selection under guidance from the following additional courses is recommended: Ind.Ed. 105, Industrial Education; P.M.&P.H. 53, Elements of Preventive Medicine; Speech and Journalism; Phys.Ed. 97, Organization and Administration of Physical Education; Agricultural Administration 151; Ed.Ad. 158, Organization for Supervision; H.Ed. 3, Educational Sociology; H.Ed. 103, History of Education.

C. FIFTH YEAR—GRADUATE SCHOOL PROGRAM

Major Advisers: Leo J. Brueckner, Harl R. Douglass, Fred Engelhardt,
Wesley E. Peik

The candidate for the certificate in administration or supervision for any one of the following fields (superintendent of schools, elementary principal, elementary supervisor, secondary school principal, supervisor or supervising critic teacher in a training school and other administrative or supervisory position) must satisfactorily complete the requirements for the Master's degree. (See Bulletin of the Graduate School.)

The language requirement may be waived in all cases where a language is not essential in the thesis or the work to be pursued.

The work of the student will usually constitute a major in educational administration and supervision and a minor in educational psychology, but other combinations with subject-matter departments or a general major in education can be arranged, subject to approval of major adviser.

AGRICULTURAL EDUCATION

Major Adviser: A. M. Field

Students who have completed the required work of the freshman and sophomore years of the College of Agriculture, Forestry, and Home Economics, or equivalent, may prepare to teach agriculture in the public schools by completing the junior and senior years in a combined curriculum of the College of Education and the College of Agriculture, Forestry, and Home Economics.

The agriculture requirements can be fulfilled by the major, minor, and elective plan (Method I) as shown below, or by completing the suggested curriculum under Method II, page 31.

The education requirements can be fulfilled by completing satisfactorily 24 quarter credits in Agricultural Education courses, some of which are required courses. The courses now required are Agr. Ed. 51, 81, 82, 83, 91.

FRESHMAN AND SOPHOMORE COURSES

The courses required for the freshman and sophomore years are essentially the same as are required of all agriculture students in the College of Agriculture, Forestry, and Home Economics. Every student should, if possible, complete these subject courses before the end of the sophomore year. See the Bulletin of the College of Agriculture, Forestry, and Home Economics.

JUNIOR AND SENIOR YEARS

Method I. Elective Curricula

Under this method the student, with the approval of his adviser, may select any curriculum which complies with the following requirements:

- a. A major of from 24 to 36 credits.
- b. A minor of 18 credits.
- c. Limited electives 18 credits, which must be selected outside of the groups from which the major and minors have been chosen.

d. Free electives, sufficient to meet the number of credit hours required for graduation chosen from any of the courses offered in the University.

The major and minor must be selected from different elective groups.

Elective Groups

A. Groups from which major, minor, or electives may be chosen :

1. Agricultural Economics and Farm Management
2. Agricultural Education
3. Animal Industry, including
 - Animal Husbandry
 - Dairy Husbandry
 - Poultry Husbandry
 - Veterinary Medicine
4. Agricultural Sciences and Plant Industry, including
 - Agricultural Biochemistry
 - Agronomy and Plant Genetics
 - Entomology and Economic Zoology
 - Horticulture
 - Plant Pathology and Botany
 - Soils
5. Agricultural Engineering

B. Groups from which electives only may be chosen :

1. Bee Culture
2. Forestry
3. Home Economics
4. Military Science and Tactics
5. Physical Education
6. Rural Publications and Journalism
7. Courses in departments of other schools and colleges of the University.

Method II. Suggested Curriculum

The following suggested curriculum may serve as a guide to students desiring a well-balanced preparation for teaching agriculture and the sciences, for serving as county agent, or for practical farming, and will facilitate making a program that will avoid conflicts.

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Agron. 21	Grain Crops	3			Agron. 1
An.Husb. 3-4	Types and Breeds of Livestock	3	3		An.Husb. 1-2
Dy.Husb. 101	Milk Production	5			Dy.Husb. 1
Hort. 6	Fruit Growing	3			
Ent. 65	Economic Entomology	5			Zool. 15
Agron. 31	Principles of Genetics	3			
Vet. 9-10	Veterinary Studies	3	3		
Agr.Eng. 40	Mechanical Training I			3	
Agron. 23	Forage Crops	3			Agron. 1
An.Husb. 56-57	Livestock Feeding	3	3		An.Husb. 1-2
Agr.Ed. 51	Educational Psychology			3	
	Electives			6	
		17	20	15	

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Agr.Econ. 40	Principles of Marketing Organization	3	.....	.....	Agr.Econ. 2
Agr.Econ. 102	Farm Management Organization .....	.....	3	.....	Agr.Econ. 2
Agr.Ed. 91*	Supervised Teaching Experience .....	.....	.....	3	Agr.Ed. 82
An.Husb. 112	Animal Breeding .....	.....	3	.....	Agron. 31
Pl.Path. 1	Plant Pathology	5	.....	.....	Bot. 7 cred.
Agr.Econ. 103	Farm Management Operation .....	.....	.....	3	Agr.Econ. 102
Soc. 14	Rural Sociology .....	.....	3	.....	Junior classification
Agr.Ed. 81, 82,83	Teaching Agriculture	5	5	5	Agr.Ed. 51
	Electives	3	3	6	
		16	17	17	

It is recommended that electives be chosen from the courses in Agricultural Education or from such of the subject-matter courses as will best complete a well-balanced and well-distributed preparation. In addition to those found in the suggested curriculum above may be mentioned Agricultural Engineering 12; Agronomy 124, 132; Pl. Path. 9; Poul. 1; Agr. Econ. 101. Recommended electives in education: Agr. Ed. 135, 54; Ed. 51C, 167; Ed. C.I. 133.

Graduates of the University of Minnesota completing these agriculture and education requirements will be eligible to apply for the Minnesota "high school standard special" certificate for teaching agriculture and the sciences in high schools or elementary schools of this state.

Students desiring to obtain the teacher's certificate should consult the head of the Division of Agricultural Education, preferably during the freshman year, to avoid difficulties that may arise in program making.

ART EDUCATION

Major Advisers: Ruth Raymond, Robert S. Hilpert

The following special curriculum is planned to develop in the individual student his resources of taste and talent in art and to help him to acquire techniques for sharing them in the public schools and in the current and projected set-ups for adult education, and for community service in wholesome, life-expanding recreation. Five years may very profitably be spent in classes in the various phases of art, in courses broadening and deepening the student's appreciation of excellence in life, in professional courses fitting him to share with others his enjoyments, knowledge, skills, sense of significance and in activities provided to give him practical opportunities for such sharing.

A four-year curriculum in art education leads to the B.S. degree and provides the training necessary for the Minnesota "high school standard special" certificate for teaching art in elementary and high schools. Students

* Passing the qualifying examination is a prerequisite to this course.

register at the beginning of their freshman year and will divide their time between art and academic courses. The four years should cover the following minimal requirement and allow much freedom of election of courses for their artistic and general cultural value.

MINIMAL REQUIREMENT FOR THE ART MAJOR

1. Art courses:
 - A. 18 credits in design—appreciation and creation, experience generalized into principles and recorded two dimensionally
 - B. 12 credits in handicrafts—three dimensional design, experience with materials, tools, and processes which have industrial relation, and social enjoyment values*
 - C. 18 credits in "drawing" (design with objective reference) in various mediums and with varying stimulations
 - D. 5 credits in the history and enjoyment of the arts of the past†
 - E. 3 credits in theory of art teaching
 - F. 9 credits in student teaching and special methods thereof
2. Professional education courses:
 - 9 credits in Education 51A,B,C (Introduction to Secondary School Teaching)
 - 9 credits selected from the professional courses listed on pages 18-19
3. A minor group of at least 18 credits in which the student should develop an interest allied with and only secondary to his art interest. These courses may be chosen from any one of the departments of the University‡
4. Required supporting courses: a minimum of
 - 19 credits in English composition and literature
 - 9 or 10 credits in history, if a minor of high school history has not been presented for entrance
 - 6 to 10 credits in a natural science, if a minor of a laboratory science has not been presented for entrance
 - 6 credits in general psychology
 - 5 credits in sociology
 - 3 credits in textiles
5. Electives: Recommended electives: continuation of a language begun in high school (French especially recommended); speech arts, for use in teaching, and to lead to the play production courses; courses in philosophy, history, sociology, and psychology; courses for the appreciation of music, literary classics, and the stage (attendance upon concerts, exhibitions, and plays is urged as part of an art education). A large number of the 40 electives may be spent profitably in art courses in Art Education, Architecture, the Fine Arts, and Home Economics, beyond the minimal requirement listed above.

A MINOR IN ART EDUCATION

A minor is provided with especial reference to graduates of state teachers colleges who have taste in art and some teaching experience, that they may meet the state's need for teachers able to teach art in combination with other elementary or high school subjects, and for undergraduate students in curricula other than art.

* Ind.Ed. 11 may be chosen as a handicraft.

† ArtEd. 55, 56, 57, 153, and 154 and various courses offered in English by the Department of Classical Languages may fulfill this requirement as well as those courses specifically designated Art History or Art Appreciation.

‡ Freshman English cannot be included in this minor group. This requirement is waived for graduates from state teachers colleges.

REQUIREMENTS FOR A MINOR IN ART

Twenty-seven credits distributed in the manner indicated below and to be selected from courses listed.

Courses which emphasize experience with masses, volumes, forces, and rhythms with an effort to record such experience by drawing	9 credits
ArtEd. 4-6-8 Experiences from Still Life and Pose.....	2 to 6 credits
ArtEd. 10-11-12 Experiences with Color and Rhythm.....	2 to 6 credits
ArtEd. 29-30 Experiences with Human Bodies in Motion.....	2 credits
Courses which present experience in selecting, assembling, and constructing things relating to costume, the home, schoolroom, and community activities, to develop sensitiveness to quality and ability to produce harmonious relationships	15 credits
ArtEd. 1-2-3 Fundamental Experiences in Design.....	9 credits
ArtEd. 20-21-22 Fundamental Experiences in Design (cont.)	9 credits
G.C. 119-120-121 Fundamental Art Experiences	9 credits
Courses which stress the enjoyment of the products of past and present arts	3 credits
History of Art Courses (see Fine Arts and Home Economics)	3 credits
Ed. 54-55-56 Fundamental Art Experiences	2 to 6 credits
ArtEd. 57 Art and Leisure	1 credit
Courses which deal with the theory and practice of sharing artistic resources in teaching in the schools or in community service.....	3 credits
ArtEd. 80-81-82 Types of Art Instruction	3 credits
ArtEd. 83 Problems in Art Education.....	3 credits
ArtEd. 86-87-88 Student Teaching in Art	6 credits

COMMERCIAL EDUCATION

The curriculum in commercial education is designed to prepare teachers of commercial subjects in secondary schools. It is purposely made much broader in its scope than the present program of the typical high school commercial department, with the idea of paving the way for meeting more effectively than at present the needs of high school students who enter business. Completion of this curriculum leads to the bachelor of science degree and provides the training necessary for the Minnesota "high school standard special" certificate for teaching commercial subjects.

The first two years' work, taken in the Junior College, College of Science, Literature, and the Arts, consists of the regular academic requirements of that college, with the foreign language requirement omitted and foundation courses in psychology, economics, statistics, and accounting added.

Students who enter the College of Education from other institutions must substitute for some of their electives such of the Junior College requirements as they have not fulfilled. Graduates from the two-year course in state teachers colleges may find it necessary to attend an extra Summer Session in order to meet all requirements.

For the professional requirement in this curriculum, see pages 18-19.

FOUR-YEAR CURRICULUM IN COMMERCIAL EDUCATION

JUNIOR COLLEGE, COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition (or Eng. A-B-C or exemption).....	9
	Natural Science	10
	Social Science, other than economics.....	10
Econ. 3	Mechanism of Exchange	5
Econ. 6-7	Principles of Economics	10
Psy. 1-2	General Psychology	6
Econ. 20	Elements of Accounting†	3
Econ. 25-26	Principles of Accounting	6
Econ. 14	Elements of Statistics	5
Econ. 32	Secretarial Training§	1
Econ. 37-38-39	Secretarial Training¶	9
	Physical Education	3 or 5
	Electives, for which the following are especially recommended: continuation of a language begun in high school, speech, philosophy, additional social science.	

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
B.A. 51-52-53	Business Law	9
Econ. 40-41-42	Secretarial Training	9
Econ. 33-34	Secretarial Training§	2
B.A. 139	Advanced General Accounting	3
Ed. 51A,B,C	Introduction to Secondary School Teaching.....	9
	Electives**	

Senior Year

Course No.	Title	Credits
Ed.T. 73A,B,C	Special Methods and Directed Teaching	9
Econ. 85	Economics of Marketing	3
Econ. 141	Monetary and Banking Policy	3
Econ. 161	Labor Problems and Trade Unionism.....	3
B.A. 86	Office Organization and Management.....	3
Geog. 41	Geography of Commercial Production.....	5
Geog. 102	Trade Routes and Trade Centers.....	3
	Electives**	

Recommended Electives

Title	Credits
History of Education (Ed. 71, 101, 102, or 103).....	3 or 5
Educational Sociology (Ed. 73)	3
Advertising (Psychology 56 and B.A. 88).....	6
Introduction to Economic History (History 80-81).....	6
Personnel Management (B.A. 167).....	3
Additional English Composition	6
The Modern Corporation (Econ. 160).....	3
Survey of Cost Accounting (B.A. 130).....	3
Economics of Transportation (Econ. 172)	3

† Students who have had a high school course or experience in bookkeeping may be exempt from this course and admitted to Econ. 25 by passing a placement test.

§ Students who have had one year of high school typewriting are admitted to Econ. 33; those who have had two years of high school typewriting are admitted to Econ. 34.

¶ Students who have had two years of high school shorthand are admitted to Econ. 40 and are exempt from Econ. 37-38-39.

** Electives must include the 8 credits in education courses as listed on pp. 18-19.

For the purpose of computing the C+ average of 1.5 honor points per credit the following are considered the major courses: Econ. 6-7; 20, 25, 26; B.A. 51-52-53; Geog. 41; Econ. 32, 33-34, 37-38-39, 40-41-42.

EDUCATIONAL PSYCHOLOGY

UNDERGRADUATE CURRICULA IN EDUCATIONAL PSYCHOLOGY, CLINICAL PSYCHOLOGY, AND EDUCATIONAL AND VOCATIONAL GUIDANCE

Students who are planning on assuming certain specialized duties in connection with their high school teaching or who are interested in securing a basis for graduate work may elect an undergraduate major or minor in the above fields.

These curricula are intended particularly for students who may perform the duties of counselor, dean, clinical psychologist, or specialist in tests and measurements in connection with teaching duties in the high school. It is not their purpose to produce a person with highly specialized training in those fields, but to supply a basis for later professional growth as well as some immediate background for handling the problems involved in the several positions indicated. Students with a real interest in these fields are advised to procure training on the graduate level.

Three general programs have been set up. The first constitutes a major or minor in general educational psychology; the second is a major in clinical educational psychology; and the third is a major or minor in educational and vocational guidance. Students who secure a major in one of these curricula will also secure a teaching major or two teaching minors in academic subjects in meeting the requirements for the state teacher's certificate. If the curricula are elected as minors, the student will secure a major in an academic subject in order to meet the requirements for the certificate.

Permission of the adviser must be secured to elect one of these curricula.

I. UNDERGRADUATE CURRICULUM IN EDUCATIONAL PSYCHOLOGY

Major Advisers: W. S. Miller, A. C. Eurich

For a Major

Course No.	Title	Credits
Psy. 1-2*	General Psychology	6
Psy. 4-5	Introductory Laboratory Psychology	4
Ed. 51A	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.Psy. 157	Psychology of Child Development	
	or	
Ed.Psy. 158	Psychology of Adolescence	3
	Electives in Educational Psychology	10
	Total	35

* To be taken during the sophomore year. Graduates of normal schools are not permitted to take Psy. 1-2 for credit.

For a Minor

Course No.	Title	Credits
Psy. 1-2*	General Psychology	6
Psy. 4-5	Introductory Laboratory Psychology	4
Ed. 51A	Educational Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.Psy. 157	Psychology of Child Development	
	or	
Ed.Psy. 158	Psychology of Adolescence	3
	Total	25

In addition to the above major or minor requirements students will take the two remaining quarters of Ed. 51A,B,C, Introduction to Secondary School Teaching, 6 additional credits, and special methods and directed teaching, 9 credits.

II. CLINICAL PSYCHOLOGY

Major Adviser: Herbert A. Sorenson

The following courses are considered basic for the training of the clinical psychologist. The student should plan on pursuing training for an advanced degree. He may secure an undergraduate major by electing a total of 45 credits from the courses listed below.

Course No.	Title	Credits
Psy. 1-2*	General Psychology	6
Psy. 4-5	Introductory Laboratory Psychology	4
Psy. 144-145	Abnormal Psychology	6
Soc. 1	Introduction to Sociology	5
Soc. 49	Social Pathology	3
Soc. 52	Elementary Case Work	3
Soc. 53	Elements of Criminology	3
Soc. 60	Social Protection of the Child	3
Soc. 90	Survey of Social Work	3
Soc. 91	Field Observation of Social Work	2
Ed. 51A	Educational Psychology	3
Ed.Psy. 60 or 116-117-118	Statistical Methods	2 or 9
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.Psy. 141	Construction and Use of Group Aptitude Tests	3
Ed.Psy. 142	Construction and Use of Individual Aptitude Tests	3
Ed.Psy. 146-147	Child Guidance	4
Ed.Psy. 149- 150-151	Psycho-Educational Clinic	6
Ed.Psy. 184	Mental Deficiency	2

In addition to the above major, students will take the two remaining quarters of Ed. 51A,B,C, Introduction to Secondary School Teaching, 6 additional credits, and special methods and directed teaching, 9 credits.

* To be taken during the sophomore year. Graduates of normal schools are not permitted to take Psy. 1-2 for credit.

III. EDUCATIONAL AND VOCATIONAL GUIDANCE

Major Advisers: M. E. Haggerty, Marcia Edwards

For a Major

Course No.	Title	Credits
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 146-147	Child Guidance	4
Ed.Psy. 187	Practice in Personnel Work	2
Ed.C.I. 133 or	Guidance in Secondary Schools }	2 or 3
Ind.Ed. 110	Guidance in the Schools }	
Ed.C.I. 113 or	The High School Curriculum }	2 or 3
Ed. 167	The Junior High School }	
Ed.C.I. 135	Teaching of Occupations	2
Ed.C.I. 169	Extra-curricular Activities	2
Soc. 1	Introduction to Sociology	5
Soc. 49	Social Pathology	3
Soc. 90	Survey of Social Work	2
	Electives from courses listed below	5
Total		35 or 37

Recommended Electives

Ed.Psy. 157	Child Development	2
	or	
C.W. 80	Child Psychology	3
Ed.Psy. 158	Adolescent Psychology	3
	or	
C.W. 82	Later Childhood and Adolescence	3
Ed.Psy. 183	Psychology of Gifted Children	2
Ed.Psy. 184	Mental Deficiency	2
Psy. 144-145	Abnormal Psychology	6
P.M.&P.H. 61	Mental Hygiene	3
Ed.Ad. 124	School Administration	3

ELEMENTARY EDUCATION

CURRICULA IN ELEMENTARY EDUCATION FOR TEACHING, SUPERVISION, OR ELEMENTARY SCHOOL PRINCIPALSHIPS

Major Advisers, Elementary Education, Supervision, or Teaching:

L. J. Brueckner, W. E. Peik

Major Adviser, Teacher Training: W. E. Peik

Major Advisers, Nursery School, Kindergarten-Primary, and Parental Education: J. E. Anderson, Josephine C. Foster

Curriculum IA, Curriculum IB, and Curriculum II are for three different groups of students.

Curriculum IA and Curriculum II are for:

1. General elementary school teaching (all grades: primary, intermediate, or upper grades), qualifying for the Minnesota *elementary school advanced* certificate.
2. Elementary school principalships and elementary school supervisor-

ships in Minnesota, if or when holder has had two years of elementary school teaching experience.

3. Junior high school teaching when so endorsed after certain modifications, as specified later, have been made.

Curriculum IB is for nursery school, kindergarten-primary teaching qualifying for the Minnesota special *kindergarten-primary* certificate.

The three four-year curricula constitute also the first four years of five-year curricula (see page 43) for more intensive specialization in elementary teaching, general grade supervisorships, elementary school principalships, critic teaching or supervision of student teaching in teacher training institutions, nursery school, kindergarten teaching, parental education, and for instructors of elementary education in teachers colleges and other institutions.

CURRICULUM IA AND IB

For university, college, and teachers college students who will spend the first two years largely or entirely in academic or pre-education junior college work and who wish to qualify for the advanced elementary school certificate for teaching, supervision, or principalships in any or all of the eight grades with or without special endorsement for the junior high school, Curriculum IA; or for nursery school, kindergarten-primary certification, Curriculum IB.

*General Minimum Requirements for Curriculum IA and Curriculum IB
Junior College*

Junior College work at the University of Minnesota (or equivalent elsewhere)*

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition (or Eng. A-B-C or exemption).....	9
Hist. 1-2 or 7-8-9	Modern World or American History or both.....	9 or 10
Geog. 11	Human Geography	5
Science	Biological sciences (General Botany, General Zoology or both), total minimum required	10
Sp. 1-2	Fundamentals of Speech	6
Soc. 1	Introduction to Sociology	5
Pol.Sci. 1-2-3	American Government and Politics	9
ArtEd. and Ind.†	ArtEd. 7-8-9, Fundamental Principles of Design, or 3 credits from ArtEd. 4-5-6, 32, 35, 37, 38, 41; Home Economics 21-22; Industrial Arts 11	11
Mu.	Mu.Ed. 1,† Music Orientation, 3 credits; Mu. 1-2, Ear Train- ing, 4 credits	7
Psy. 1-2	General Psychology	6
H.E. 30	Introduction to Nutrition	2
	Health and Physical Education:	
	Freshman and Sophomore Physical Education†	5
	Public Personal Health, P.M.&P.H. 3	2
	Physical Education 43 or 44, and 80	3½
	Electives	—
	Total	95

* Equivalent courses offered in the General College or equivalents elsewhere may be substituted in various fields with approval of adviser and of Students' Work Committee in the College of Education.

† Credit will be given upon entrance to College of Education. May not be taken for credit in the College of Science, Literature, and the Arts.

Certain deficiencies due to transfer from other schools can be made up after entry to the College of Education. Certain substitutions can be made. The aim is broad functional contacts with cultural fields of knowledge essential for the general education of the teacher and as marginal resources for teaching the common and special subjects of the elementary school.

COLLEGE OF EDUCATION

A. *Curriculum IA* (third and fourth years).—For those who wish to secure the Minnesota elementary school advanced certificate qualifying holder to teach in any grades 1 to 8, inclusive; and when so endorsed, after certain modifications as noted below, also in junior high schools. After two years of successful experience the curriculum qualifies for the Minnesota elementary school principal's and supervisor's certificate.

1. *Academic fields*.—Completion of one regular academic minor and 18 credits of concentration in each of two additional fields in the following subject-matter fields, including with approval of major adviser, Junior College subject-matter courses already completed at the University of Minnesota or elsewhere:

English	A natural science or preferably general science
A foreign language	Mathematics
Geography	Art
History	Music
A social science other than history or geography, or preferably, general social sciences other than history or geography	Library Methods
	Physical Education
	Others by special permission of adviser

Much of the work of the junior year should be in the above academic subjects. A total of 18 credits in prescribed or elective academic subjects must be in courses numbered 50 or above.

2. *General and elementary education*.—A major of 45 credits.

Junior Year

Course No.	Title	Credits
Ed.61A,B,C	Introduction to Elementary School Teaching	9
Ed.Psy. 60	Introduction to Statistical Methods	3
ArtEd.	Courses in theory and practice of art teaching as advised by Art Department	3
Mu.Ed. 50	Elementary Methods	3

Senior Year

Course No.	Title	Credits
Ed.T. 54A,B,C*	Teaching of Elementary School Subjects (Reading, social studies, English including handwriting, and arithmetic, with observation and directed teaching)	15
Ed.Ad. 124	Public School Administration	3
Ed.C.I. 119	The Elementary School Curriculum	3
Ed.C.I. 150	Supervision and Improvement of Instruction	3
Ed.C.I. 151	Diagnostic and Remedial Instruction	3

* Passing the qualifying examination is a prerequisite to this course.

Special examinations.—Students should consult the advisers early in their work about the specific comprehensive examinations which may be required for practice teaching and for graduation. These vary somewhat for those desiring junior high school endorsement.

Junior high school endorsement.—Upon the completion of Ed. 167, The Junior High School, a special methods course covering the junior high school level in one minor, and directed teaching or experience in grades 7, 8, or 9, the students pursuing Curriculum IA may receive endorsement for junior high school teaching on the certificate for the elementary school.

B. *Curriculum IB* (third and fourth year).—For those who wish to secure the Minnesota special kindergarten-primary certificate qualifying for nursery school, kindergarten-primary teaching.

Junior Year

Course No.	Title	Credits
Ed. 61A,B,C	Introduction to Elementary School Teaching	9
C.W. 80	Child Psychology	3
Ed.T. 55	Principles of Kindergarten and Nursery School Education	3
Ed.T. 56	Permanent Play Materials	2
Ed.T. 57	Plastic Materials	3
Ed.T. 58	Rhythmic Games and Music	2
Ed.T. 59	Story Telling for Young Children	2
Ed.T. 76A,B,C	Methods and Observation	3
Soc. 49	Social Pathology	3
Soc. 90	Survey of Social Work	3
Ed.Psy. 60	Introduction to Statistical Methods	3
Phys.Ed. 80	Principles of Play	3
C.W. 90	Physical Growth and Health Care	3
	Electives	3

Senior Year

Course No.	Title	Credits
Ed.T. 54A,B*	The Teaching of Elementary School Subjects	10
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.T. 77A,B,C*	Practice Teaching in Kindergarten or Nursery School	9
	Electives	20
	Total	90

CURRICULUM II (Third and Fourth Year)

For graduates of the usual two-year advanced normal professional curriculum for elementary teachers in teachers colleges and normal schools, or its equivalent, for which 90 blanket credits (2 years' work) are allowed in the College of Education toward graduation:

The curriculum leads to the elementary school advanced certificate and if or when two years of experience in elementary education have been completed, to the Minnesota state principal's or supervisor's certificate as well. By substituting certain elective courses in the junior high school field the certificate is made legal also for junior high school teaching.

* Passing the qualifying examination is a prerequisite to this course.

A. *Major in elementary education.*—30 credits in the College of Education as follows:

1. Required of all.

Course No.	Title	Credits
Ed.Psy. 60	Introduction to Statistical Methods.....	3
Ed.Ad. 124	Public School Administration.....	3
Ed.C.I. 119	The Elementary School Curriculum.....	3
Ed.C.I. 150	Supervision and Improvement of Instruction.....	3
Ed.C.I. 151	Diagnostic and Remedial Instruction.....	3
Ed.C.I. 181	Foundations of Elementary School Method.....	3
Ed.C.I. 160	Supervision of Elementary Subjects.....	3
Total		21

2. Additional electives in education to complete 30 quarter credits selected from the following courses:

Course No.	Title	Credits
Ed. 73	Educational Sociology.....	3
Ed. 103	History of Modern Elementary Education.....	3
Ed. 167	The Junior High School.....	3
Ed. 185	Professional Education of Teachers.....	2
Ed.T. 44	Children's Literature.....	2
Ed.T. 45	The Teaching of Geography and History.....	2
Ed.C.I. 122	Literature for Adolescents.....	2
Ed.C.I. 143	The Teaching of Reading.....	3
Ed.C.I. 148	Teaching of Primary Arithmetic.....	2
Ed.C.I. 149	Teaching of Intermediate Grade Arithmetic.....	2
Ed.C.I. 152	Adjustment of Schools to Individual Differences.....	2
Ed.C.I. 153	The Supervision and Teaching of English.....	2
Ed.C.I. 154	The Supervision of Social Studies.....	2
Ed.C.I. 155	The Supervision and Teaching of Arithmetic.....	2
Ed.C.I. 156*	Practice Supervision—Group observation and group problems in local schools.....	3
Ed.C.I. 157*	Practice Supervision—Individual problems in field.....	3
Ed.C.I. 159	The Supervision and Teaching of Reading.....	2
Ed.C.I. 172	Curriculum and Course of Study Construction.....	2
Ed.Ad. 115	Organization of the Elementary School.....	2
Ed.Ad. 125	Techniques in Administration.....	3
Ed.Ad. 158	Organization for Supervision.....	2
Ed.Psy. 113-114-115	Psychology of Elementary School Subjects.....	2-4-6
Ed.Psy. 141	Construction and Use of Group Aptitude Tests.....	3
Ed.Psy. 146-147	Child Guidance.....	4
Ed.Psy. 157	Psychology of Child Development, or C.W. 80—Child Psychology.....	2 or 3
Ed.Psy. 158	Psychology of Adolescence (open to those desiring Jr. H.S. endorsement or certificate).....	3
Ed.Psy. 183	Psychology of Gifted Children.....	2

Others with approval of adviser. Ed.Psy. 120 and 140 are required in addition to 30 credits if no course in tests and measurements has been taken previously.

B. *Subject-matter and academic fields.*—60 credits.

- Eighteen credits in each of at least two of the following or such other fields as may be approved by the adviser. In each case all 18 credits are to be taken during the third and fourth years and are as a rule

* Passing the qualifying examination is a prerequisite to this course.

to be selected from courses offered in minor and major sequences of the College of Education (see pages 20 to 26 and Combined Class Schedule). Transfer students must aim to supplement, and not to duplicate, courses taken elsewhere. Credit cannot be allowed for courses that are largely duplication. The fields are:

English	Mathematics
A foreign language	Art
Geography	Fine Arts
History	Music
A science or general science	Library Methods
A social science or general social sciences (other than history or geography)	Physical Education
	Others by special permission

2. Academic electives.—24 credits.

NOTE.—At least 18 of the 60 academic credits are to be in courses numbered 50 or above.

Excess quality credits earned in all courses will reduce the general elective credits required in academic subjects.

C. *Special examinations.*—Students should consult the advisers early in their work about the specific comprehensive examinations which may be required for graduation.

Junior high school endorsement.—It is required that Ed. 167, The Junior High School and a methods course in a minor as outlined, be included in the educational electives to secure endorsement on the certificate for junior high school teaching. The qualifying examination in the minor is prerequisite to the methods course.

Elementary teachers, taking extension courses, who will ultimately transfer to the College of Education for a degree should follow the pattern of the curriculum to be certain that the work taken will apply toward graduation, certification, and contribute toward passing the comprehensive examinations based upon the requirements.

Exemption from directed teaching based on previous practice teaching or in lieu of equivalent experience must be obtained by petition to Mr. C. W. Boardman.

FIFTH YEAR IN THE GRADUATE SCHOOL

ELEMENTARY SCHOOL ADMINISTRATION AND SUPERVISION, TEACHER TRAINING, NURSERY, KINDERGARTEN-PRIMARY EDUCATION, OR GENERAL ELEMENTARY EDUCATION

It is recommended that as a rule students without any teaching experience teach a year or two before taking graduate work. Students will select their advisers according to their specialization, interests, and needs. For the list of advisers see the introductory statement (pp. 38-39). For statement of the general plan of graduate work in the College of Education, see pp. 11-13. For a further discussion of general Graduate School requirements see the Bulletin of the Graduate School. Fifth year or graduate registration is limited to courses numbered 100 or above. For a schedule of classes see the Combined Class Schedule for the ensuing year.

HOME ECONOMICS EDUCATION

Major Advisers: Wylle B. McNeal, Clara M. Brown, Ella J. Rose

The College of Agriculture, Forestry, and Home Economics and the College of Education co-operate in the preparation of teachers of home economics. Satisfactory completion of the following curricula will lead to the B.S. degree and will provide the necessary training for qualification for the Minnesota "high school standard special certificate" for teaching home economics in the secondary school. The teachers' curricula are arranged in accordance with the provisions of the Vocational Education Act.

When the student has acquired a minimum of 90 credits, exclusive of physical education, and at least one honor point per credit (junior classification) and indicated her specialization as the teachers' or the extension teachers' curriculum, she becomes a registrant also in the College of Education. At the beginning of the junior year, the student is required to take the psychological examination given in the College of Education.

Prior to registration for Supervised Teaching, the student must have completed the following requirements:

The qualifying examination required of all those graduating from the College of Education.

Home experience in meal preparation and clothing.

Certain home economics courses with at least a grade of C.

In order to be recommended for graduation in the teaching specialization the student must have (1) 1.5 honor points per credit in the home economics courses required in the curriculum for general home economics teaching, (2) an average of 1 honor point per credit in all other courses pursued during the junior and senior years.

By a proper selection of courses, students qualifying for the degree of bachelor of science may qualify for teaching in more than one field. This is desirable since beginning teachers in public schools are often expected to teach an academic subject in addition to home economics.

CURRICULUM FOR GENERAL HOME ECONOMICS TEACHING*

The following courses are required of those preparing for teaching general home economics: (See Combined Class Schedule for course number, title, hour, and prerequisites.)

Home Economics: H.E. 1 (or 5), 3, 4, 10, 15, 20, 21, 22, 31, 34 (or 170-171), 40, 41, 50, 52 (or 53), 55, 85, 86, 180, 185.

English: Rhet. 1, 2, 3, 22 (or 11), 31 (or 32 or 33), 34, 51.

Biological Science: Zool. 14-15 and Physiol. 4 (or 51) or G.C. 101-102, Bact. 41, P.M.&P.H. 52.

Physical Science: Chem. 1-2 (or 9-10§ or 6-7) and Agr.Eng. 23† (or 35) or G.C. 88-89, Agr.Biochem. 4.

* For General Home Economics Teaching specialization a grade of at least C is required for the following courses: H.E. 1, 3, 4, 20, 21, 22, 31, 34 (or 170), 40, 41, 55. Freshman Assembly: A course of lectures offered only in the fall quarter.

† Students who have had one year of high school physics may be exempted from Agr.Eng. 23 and G.C. 88 and substitute Agr.Eng. 35.

§ Open to those who have had one year of high school chemistry.

Social Science: Agr.Econ. 3 (or Bus.Adm. 6-7), 126, Soc. 1, 6 (or 14 or 49 or 55 or 119 or G.C. 28 or 29 or 30 or 50 or 51 or Hist. 1-2).

Psychology: Psy. 1-2.

Home Economics Education: H.E.Ed. 90 (or C.W. 40), Ed. 51A (or Agr.Ed. 51), 53, H.E.Ed. 91, 92, 93-94, 192a.

Physical Education: 3 credits.

Those whose interests lead them into further specialization in the teaching field may choose one of the following groups. The student should plan her program early in her college course to be certain that she has the necessary prerequisites.

Textiles and Clothing: To the above requirements in general teaching add: H.E. 102, 115, 120, Bot. 1.

Foods: H.E. 61, 142, 146 or 147; Agr.Biochem. 2.

Nutrition: To the above requirements in general teaching add: H.E. 24, 75, 142, 173, 179. Desirable electives are H.E. 33, Agr. Biochem. 2. Omit H.E. 3, 4, 21, 22, 52 (or 53), 55 and 180 and G.C. courses and Agr.Econ. 126.

Home Economics Extension: Those who wish to go into home economics extension teaching should fulfill the requirements of the general teachers' curriculum and add H.E. 98.

Related Arts:* Substitute for the requirements in general teaching the following list of required courses:

Home Economics: H.E. 1 (or 5), 3, 4, 10, 15, 20, 21, 22, 23, 25 (or 26), 31, 34, 40, 50, 55, 85, 86, 120, 121, 122, 125, 180, 185.

English: Rhet. 1, 2, 3, 22 (or 11), 31 (or 32 or 33), 34, 51.

Biological Science: G.C. 101, 102, P.M.&P.H. 3, 4.

Physical Science: G.C. 89, 88† (or Agr.Eng. 23).

Social Sciences: Agr.Econ. 3, Soc 1, G.C. 26 (or 27 or 28 or Hist. 1-2).

Psychology: Psy. 1-2.

Home Economics Education: H.E.Ed. 90 (or C.W. 40), 91, 92, 93, 94, 192, 197.

Education: Ed. 51A (or Agr.Ed. 51), 51C

Physical Education, 3 credits.

Art Education: ArtEd. 7, 4, 6 (or Arch. 21-22-23).

Fine Arts: Any course.

In order to fulfill the requirements for teaching general home economics in addition to related art, the course listed below should be included.

Home Economics: H.E. 41.

INDUSTRIAL EDUCATION

Major Adviser: Homer J. Smith

The following curriculum has been designed for young men who desire to prepare for teaching and administrative positions in the fields of the industrial arts and trade education. The satisfactory completion of the four years of work here specified entitles a student to the bachelor of science degree and provides the training necessary for the Minnesota "high school standard special" certificate.

Minnesota Standards for Graded Elementary and High Schools, p. 35, contains the following provision:

From and after July 1, 1929, a certificate to teach general industrial education may be issued only upon a Bachelor's degree in industrial education from an institution accredited for the training of teachers of industrial arts, but the status of industrial teachers holding certificates prior to that date shall not be affected.

* For the Related Arts Teaching specialization a grade of at least C is required for the following courses: H.E. 1, 20, 21, 22, 23, 25, 26, 55, 122, 125, 180.

† Students who have had one year of high school physics may be exempted from Agr.Eng. 23 and G.C. 88 and substitute Agr.Eng. 35.

Certain courses of the curriculum are acceptable for Smith-Hughes certification, for service in trade schools and classes—day, evening, and part time. These courses should be selected only upon recommendation of the departmental adviser or the state supervisor of trade and industrial education.

A bulletin descriptive of the plan and work of this special department will be furnished upon request. Those interested in credit transfer, graduate work, etc., should confer with the major adviser. A degree candidate is privileged to complete his work under the curriculum form which was current when he entered.

FOUR-YEAR CURRICULUM IN INDUSTRIAL EDUCATION*

Freshman Year

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition (or Eng. A-B-C or exception).....	9
Math. or Nat.Sci.	(Consult adviser)	15
Ind. 1-2	General Shopwork	4
Ind. 5	Finishing	2
Ind. 10	Mechanical Drawing	2
Ind. 30	Graphic Presentation	2
Shopwork	(Consult adviser)	4
Drawing	(Consult adviser)	2
Electives¶	(Consult adviser)	5
	Physical Education	3

Sophomore Year

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
Math. or Nat.Sci.	(Consult adviser)	5
Ind. 60	Philosophy of Vocational Education	2
Ind. 61	Practices in Vocational Education	2
Ind. 80	General Industrial Training	2
Shopwork	(Consult adviser)	10
Drawing	(Consult adviser)	6
ArtEd.	(Consult adviser)	6
Electives¶	(Consult adviser)	6

Junior Year

Course No.	Title	Credits
Econ. 6-7	Principles of Economics	10
Soc. 1	Introduction to Sociology	5
H.Ed. 73	Educational Sociology	3
Ed.Psy. 60	Introduction to Statistical Methods.....	3
Ed. 51A,B,C	Introduction to Secondary School Teaching.....	9
Ind. 75	Methods in Drawing	2
Ind. 40	Analysis	2
Ind. 42	Course Organization	2
Ind. 70	Methods in Shop Subjects	2
Electives¶	(Consult adviser)	7

* The College of Education section of the Combined Class Schedule lists some courses of this department which are not a part of this curriculum. Examples, Ind. 11, Ind. 65, Ind. 105, and Ind. 150-151-152. These courses are described in pages that follow.

¶ Fifteen elective credits may be earned in shopwork and drawing courses.

Senior Year

Course No.	Title	Credits
Ed.Adm. 124	Public School Administration	3
Ind. 44	Equipment and Management	2
Ind. 50A,B,C†	Directed Teaching	6
Ind. 66	The Related Subjects	2
Ind. 101	Tests in Industrial Subjects	2
Ind. 103	Instructional Aids	2
Ind. 110	Guidance in the Schools	2
Ind. 115	Supervision of Industrial Education	2
Ind. 170	Day Industrial Schools	2
Ind. 171	Evening Industrial Schools	2
Ind. 172	Part Time Education	2
Electives‡	(Consult adviser)	18

Requirements above are classified as follows: 50 academic, 24 education, 40 industrial education, 30 shopwork and drawing, 36 elective. Total 180 quarter credits required for the bachelor of science degree, exclusive of physical education.

The 20 credits in shopwork and 10 credits in drawing (30 total) may be increased by election to a maximum of 45 credits. Such additional courses should be elected under advice and may be either extensive or intensive in resultant preparation for teaching.

The 20 credits in mathematics and natural science may be earned in any selected courses within these two fields, departmental prerequisites being strictly observed. Students who will plan carefully may attain certification in one of these fields in addition to industrial arts, at the same time pursuing subject-matter extremely useful in industrial arts.

Physical education, athletic coaching, art, and guidance are appropriate elective fields.

Several of the required courses and numerous others acceptable as electives may be carried in extension or by correspondence study. All required courses of the curriculum are brought into the Summer Sessions by rotation.

See Combined Class Schedule, College of Education section, for days, hours, rooms, lectures, prerequisites, etc.

LIBRARY METHODS

Major Adviser: F. K. Walter

The following curriculum has been arranged in co-operation with the Division of Library Instruction. It is designed to offer professional library training to prospective teachers who desire such work.

The successful completion of this four-year curriculum will entitle the student to the degree of bachelor of science. Students will also qualify for the Minnesota high school general certificate for teaching academic subjects in junior and senior high schools by completing requirements for a teaching major or for two teaching minors in subjects commonly taught in Minnesota

† Passing the qualifying examination is prerequisite to this course.

‡ Fifteen elective credits may be earned in shopwork and drawing courses.

high schools. It will usually be wisest to choose majors and minors in the fields of English and history.

Minor.—Students who complete 18 credits selected from Courses 52, 54, 57, 58, 62, 64, 71 will satisfy the requirements for a minor in library training.

FOUR-YEAR CURRICULUM FOR SCHOOL LIBRARIAN*

JUNIOR COLLEGE, COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Freshman Year†

Course No.	Title	Credits
Eng. A-B-C	Freshman English	15
or		
Comp. 4-5-6	Freshman Composition or exemption from the requirement.....	9
Hist. 1-2	Modern World	10
	History	5
	Language	15
	Total	45

Sophomore Year†

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
	Natural Science	10
	Language	5
	Electives‡	24
	Total	45

Junior Year

Course No.	Title	Credits	
Lib.Meth. 52	Cataloging	3	
Lib.Meth. 54	Classification	3	
Lib.Meth. 62	Reference	3	
Lib.Meth. 57	} Secondary School Libraries } any two	6	
Lib.Meth. 58			} Public Library Administration
Lib.Meth. 64				} Selection of Books for Adolescents
Lib.Meth. 71	Library Work with Children	3	
E.d. 51A,B,C	Introduction to Secondary School Teaching	9	
	Continuation of required elective academic courses§	18	
	Total	45	

* Prospective students who are interested in the curriculum should obtain the special bulletin issued by the Division of Library Instruction.

The tuition fees for full time students who are enrolled in this specialized curriculum are \$40 per quarter for residents of Minnesota and \$45 per quarter for non-residents. Unclassed students, auditors, and others carrying less than full work in library instruction (15 credits per quarter) pay a tuition fee of \$3 per credit hour for all courses under the supervision of the Division of Library Instruction, irrespective of their registration in courses in other subjects.

† During the freshman and sophomore years students must secure the required credits in physical education.

‡ Electives should be selected to meet the requirements of one teaching major or two teaching minors. Electives should also include five credits selected from the list of professional courses on pp. 18-19.

Senior Year

Course No.	Title	Credits
	Special Methods and Directed Teaching¶.....	9
	Completion of academic requirements—fall, winter, spring.	
	Library courses	27
	Electives in Education§	5
	General electives§	4

MUSIC EDUCATION

Major Advisers: Carlyle Scott, Alton O'Steen

The course in Music Education is a four-year course leading to the degree of bachelor of science, in which the theoretical, practical, and methods courses in music are combined with the study of English composition, psychology, and such subjects as the College of Education demands as a definite requirement. The object is to provide a well-rounded course for candidates for the bachelor of science degree in music education.

For graduation, students must earn 185 credits and 185 honor points for women and 183 credits and 183 honor points for men and a C+ average in their major instrument with a C average in the rest of the work. They must earn 24 credits in Practical Music (11-17), 18 of which shall be the minimum requirement for their major subject and six of which must be in a second field other than the major. Either the major or minor must be in voice. (Students not majoring in piano shall be required to take one year of Piano A, B, C, 2 credits per quarter, exemption dependent upon entrance examination.)

A teaching minor in one academic secondary school subject is required for graduation of all music education students. English, history, and languages are suggested. For advice concerning minors, see departmental advisers.

For advice concerning a minor in Music Education, see major advisers.

Pending the development of a specialized curriculum in instrumental music, elective credits to the extent of 7, may be used.

In addition to the practical and theoretical studies in music this course includes such cultural subjects as English, psychology, and history, and the professional courses which are prescribed by the College of Education. The music studies are distributed between the instrumental and vocal departments so that, on graduation, a student is capable of being an instrumental, vocal, or general supervisor.

Observation and directed teaching are required in the Minneapolis and St. Paul grade schools, and in the Minneapolis, St. Paul, and University high schools.

§ Electives should be selected to meet the requirements of one teaching major or two teaching minors. Electives should also include five credits selected from the list of professional courses on pp. 18-19.

¶ Passing the qualifying examination is prerequisite to this course.

Following are the specific regulations and requirements applying to this course:

For entrance.—All students wishing to register for the course in Music Education must, upon matriculation, choose a major instrument, and pass an entrance examination in that instrument, before a committee of the faculty of the Music Department. Entrance requirements for a major, according to instruments are:

Piano—Any minor or major scale in octaves, thirds, sixths, or tenths, M.M. quarter notes—108; Bach Invention, or dances from one of the suites; a sonata by Haydn or Mozart; a modern composition of equal difficulty with the sonata.

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. Have a promising voice. Some knowledge of piano is urgently recommended.

Violin—Major and minor scales, arpeggios; the simpler Kreutzer *Etudes*; a sonata by Handel, Haydn, Mozart, or Schubert; a more modern work displaying special technique peculiar to the violin.

Organ—Same as piano.

Students not majoring in piano, will be examined concerning requirements to be met in piano.

Fees.—For statement of special fees see Music and Music Education in the Combined Class Schedule Bulletin.

FOUR-YEAR CURRICULUM IN MUSIC EDUCATION

Freshman Year

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition (or Eng. A-B-C, or exemption)	9
Mu. 1-2	Ear Training	4
Mu. 4-5	Harmony	6
Mu.Ed. 1	Music Orientation	3
Mu.Ed. 59*	Choral Literature and Conducting	1
	Practical Music	6-12
	Physical Education	3
	Electives*¶	10-16

Sophomore Year

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
Mu.Ed. 4-5-6	Applied Instrumental Technique	6
Mu. 34-35-36	Introduction to Music	6
Mu.Ed. 59*	Choral Literature and Conducting	1
Mu. 40-41-42†	Orchestra	6
or		
Mu. 43-44-45†	Chorus	3
	History	9 or 10
	Practical Music	6-12
	Physical Education	
	Electives*¶	

* Four credits in Mu.Ed. 59 required.

† Three credits in chorus or orchestra required, the total credits in both not to exceed six.

¶ Electives should be in academic subjects.

Junior Year

Course No.	Title	Credits
Mu.Ed. 50	Elementary Methods	3
Mu.Ed. 51	Comparative Methods	2
Mu.Ed. 52	Technique of Teaching Appreciation	1
Mu.Ed. 53	High School Methods	3
Mu.Ed. 54	Operetta Conducting	3
Mu.Ed. 70§	Accompanying and Sight Reading	2
Mu.Ed. 65	Instrumentation	3
Mu.Ed. 59*	Choral Literature and Conducting	1
Mu. 60	Instrumental Ensemble	2
Mu. 63	Vocal Ensemble	2
Mu. 59	Technique of Voice	2
Mu. 76	Form and Analysis	3
Mu. 40-41-42†	Orchestra	6
or		
Mu. 43-44-45†	Chorus	3
Ed. 51A,B,C	Introduction to Secondary School Teaching	9
	Practical Music	
	Electives*‡	

Senior Year

Course No.	Title	Credits
Mu.Ed. 57	Theory of Conducting	2
Mu.Ed. 58	Orchestra Conducting	2
Mu.Ed. 59*	Choral Literature and Conducting	1
Mu.Ed. 55	Survey of Materials (Vocal)	1
Mu.Ed. 56	Survey of Materials (Instrumental)	1
Mu.Ed. 60-61-62**	Supervision and Teaching	9
Ed.T.	Special Methods—Academic Minor	4
	Practical Music	6-12
	Electives*‡	

NATURAL SCIENCE

Students preparing to teach science in Minnesota high schools should qualify to give instruction in two or more sciences, since almost all positions open to graduates require teaching in at least two fields. As a matter of fact most Minnesota schools now require instruction in general science, for which the teacher should be trained in both biological and physical sciences. While it is possible to meet the major or minor sequences in one or more of the sciences as in other academic subjects, the following special curriculum in natural science is recommended for those persons desiring to secure the best preparation for the teaching of high school science. It requires:

- A. The completion of a sequence of a minimum of twenty-nine hours in one of the four natural sciences: chemistry, physics, botany, or zoology.

* Four credits in Mu.Ed. 59 required.

† Three credits in chorus or orchestra required, the total credits in both not to exceed six.

§ Elective.

‡ Electives should be in academic subjects.

** Passing the qualifying examination is prerequisite to this course.

- B. The completion of at least fifteen hours in another science (excepting the one chosen under A) selected from the following: physics, geology, botany, zoology, chemistry.
- C. The completion of at least nine credits in each of the remaining sciences listed under B but not selected to meet requirements A and B. In lieu of 9 credits in geology, 5 credits in geology and 5 credits in astronomy will be accepted. For graduation 10 credits in a social science are also required.
- D. Completion of Ed. 51A,B,C, Ed.T. 68A,B,C, and 8 credits in education electives.

CHEMISTRY

Major: Courses 9, 10, 12, 7, 51, 52 or 6, 7, 8, 12, 51, 52 if without high school chemistry.

Minor: Courses 9, 10, 12 or 6, 7, 8, 12.

PHYSICS

Major Adviser: H. A. Erikson

Major: Courses 3, 4, 13, 23, 24, 33, 34, 43, 44, 52, 107, 109, 111.

Minor: Courses 3, 4, 13, 23, 24, 33, 34, 43, 44, 52.

BOTANY

Major Adviser: C. O. Rosendahl

Major: Courses 1, 2, 5, 7, 12, 21, 22, 62, and approved electives.

Minor: Courses 1, 2, 7, 21, 22.

ZOOLOGY

Major Adviser: J. E. Wodsedalek

Major: Courses 1, 2, 3, 52, 53, 75, 83, and Human Physiology 4.

Minor: Courses 1, 2, 3, 53, 75.

NURSERY SCHOOL AND KINDERGARTEN EDUCATION

See Elementary Education, pp. 38-41.

NURSING EDUCATION AND PUBLIC HEALTH NURSING

Major Adviser, Nursing Education: Katharine J. Densford

Major Adviser, Public Health Nursing: Eula B. Butzerin

The following courses are arranged so as to indicate the minimum requirements for students wishing to secure a bachelor of science degree with a major in nursing. They are planned to prepare the student for such public health nursing positions as visiting nursing, school nursing, health teaching, infant welfare, rural and industrial nursing; for administrative, supervising, and teaching positions in schools of nursing and hospitals; and for combined positions in secondary schools involving both nursing and teaching. In the case of those who choose proper subjects in the College of Education it entitles the graduates to receive a *high school teacher's* certificate.

I. FIVE-YEAR COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE AND GRADUATE IN NURSING

Open to high school graduates who meet the entrance requirements of the College of Science, Literature, and the Arts.

Part A. During the first five quarters of the course the student is registered in the College of Science, Literature, and the Arts, during which time she must complete required subjects.

Course No.	Title	Credits
Eng. A-B-C	Freshman English	15
or		
Comp. 4-5-6	Freshman Composition (or exemption from the requirement).....	9
Science	One of these laboratory sciences: chemistry, bacteriology, human anatomy, human physiology, preferably human physiology.....	10
Soc. 1	Introduction to Sociology	5
Psy. 1-2	General Psychology	6

Electives to make a total of 75 credits exclusive of physical education. (For each five honor points in excess of one honor point per credit, the number is diminished by one. Recommended electives are: history, zoology, botany, nutrition courses, and more natural science. Ten credits of zoology and 10 credits of botany are required for those wishing to obtain a high school teacher's certificate in their senior year. Physical Education, six quarters. One quarter of this requirement may be completed after registering in the School of Nursing. No credit is granted for physical education courses in the College of Science, Literature, and the Arts; but upon transfer to the College of Education, the student will receive the credits and honor points earned in those courses. Five credits are granted for required physical education courses.

Part B. During the next ten quarters the student is registered in the School of Nursing, taking required subjects and nursing practice as listed in the School of Nursing Bulletin, including Educational Psychology, Ed. 51A, 3 credits, and Social Pathology, Soc. 49, 3 credits. Sixty credits are granted for the work taken in the University of Minnesota School of Nursing.

Part C. During the last three quarters, the student is registered in the College of Education, majoring either in nursing education or in public health nursing.

1. The Public Health Nursing curriculum is as follows:

Course No.	Title	Credits
P.M.&P.H. 53	Elements of Preventive Medicine	3
P.M.&P.H. 58	Maternal and Child Hygiene	2
P.M.&P.H. 60	Tuberculosis and Its Control	2
P.M.&P.H. 61	Mental Hygiene	3
P.M.&P.H. 62	Principles of Public Health Nursing	3
P.M.&P.H. 63	Special Fields in Public Health Nursing	3
P.M.&P.H. 65	Field Practice, School Nursing	} Minimum
P.M.&P.H. 66	Field Practice, County Nursing	
P.M.&P.H. 76	Field Practice, Family Health Agency	
Soc. 129*	Principles of Social Case Work	5
Soc. 153*	Field Training in Case Work	4
Soc. 60	Social Protection of the Child	}
or		
H.E.Ed. 90	Child Training	3
Ed. 51B,C†	Introduction to Secondary School Teaching	6
Total		45

* Students in Public Health who have credit in Soc. 1 and 49 are eligible to enter these courses.

† The entire course, Ed. 51A,B,C, including the final examination covering all units, must be completed successfully before credit is received for the course. Completion of Ed. 51A,B,C and the passing of the qualifying examinations is prerequisite to Ed.T. 51A,B or 68A,B,C or 76A,B,C.

2. The Nursing Education curriculum is as follows :

Course No.	Title	Credits
Ed. 51B,C	Introduction to Secondary School Teaching.....	6
Ed.T. 51A-51B	Special Methods and Practice Teaching in Nursing.....	8
Nurs. 60	Ward Administration	4
Nurs. 61	Survey of Hospital Relationships	2
Nurs. 69	Survey of Conditions and Trends in Nursing	3
Nurs. 71	Curriculum Making in Schools of Nursing	3
	Electives§	19
Total		45

Suggested alternatives in the Nursing Education curriculum :

a. For those desiring a high school teacher's certificate :

The student takes Ed.T. 68A,B,C, Teacher's Methods Course and Directed Teaching in Secondary School Science, in place of Ed.T. 51A,B above. Zoology, 10 credits and Botany, 10 credits, are prerequisite to this course in addition to the other required courses in the Nursing Education curriculum.

b. For those interested in child health :

Course No.	Title	Credits
<i>Nursing Courses</i>		
Nurs. 60	Ward Administration	4
Nurs. 61	Survey of Hospitals Relationships	2
Nurs. 69	Survey of Conditions and Trends in Nursing.....	3
Nurs. 71	Curriculum Making in Schools of Nursing.....	3
<i>Education Courses</i>		
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing.....	3
Ed. 51B,C†	Introduction to Secondary School Teaching.....	6
<i>Nursery School Courses</i>		
Ed.T. 53	Principles of Kindergarten and Nursery School Education.....	3
Ed.T. 54	Permanent Play Materials	2
Ed.T. 55	Plastic Materials	3
Ed.T. 56	Rhythms, Games, and Music	2
Ed.T. 57	Story Telling for Young Children	2
Ed.T. 76A,B,C†	Methods and Observation	3
Ed.T. 77A	Directed Teaching in Kindergarten or Nursery School.....	3
	Electives	6
Total		45

c. For those interested in diet therapy :

Students taking this curriculum must have completed H.E. 70, 2 credits, before entering the School of Nursing.

† The entire course, Ed. 51A,B,C, including the final examination covering all units must be completed successfully before credit is received for the course. Completion of Ed. 51A,B,C and the passing of the qualifying examinations is prerequisite to Ed.T. 51A,B or 68A,B,C or 76A,B,C.

§ Electives must be chosen so as to complete the professional requirement of 26 quarter credits as listed on pages 18-19. Nurs. 71, 3 credits may count in this group.

Course No.	Title	Credits
<i>Nursing Courses</i>		
Nurs. 60	Ward Administration	4
Nurs. 69	Survey of Conditions and Trends in Nursing	3
Nurs. 71	Curriculum Making in Schools of Nursing	3
<i>Education Courses</i>		
Ed.T. 51A,B†	Special Methods and Directed Teaching in Schools of Nursing	8
Ed. 51B,C†	Introduction to Secondary School Teaching	6
	Controlled electives in Education courses	6
<i>Home Economics Courses</i>		
Agr.Biochem. 4	Introduction to Organic and Biochemistry	5
H.E. 74	Nutrition Problems	4
H.E. 170	Nutrition of the Family	3
H.E. 173	Nutrition in Disease	3
Total		45

II. CURRICULA FOR STUDENTS WHO ARE GRADUATES OF ACCREDITED SCHOOLS OF NURSING

Open to those who meet entrance requirement for specialized curricula of the College of Education (see Bulletin of General Information). Advanced credit for the professional nursing course will be determined by the Committee for the Evaluation of Nursing Records who will indicate any additional hospital services to be completed before credit is granted. Forty-five credits represent approximately the average advanced standing granted for a satisfactory course of study in a school of nursing.

Candidates must conform to the College of Education regulation relative to total credits and honor points and are entitled to the privilege of the quality credit rule. Candidates must also meet the physical education requirements of the College of Education.

To secure a degree in the College of Education students must earn 185 credits and 185 honor points, and in addition must earn 1.5 honor points for each credit in a major field.

Graduate work may be carried and a Master's degree earned by students who meet the requirements of the Graduate School. Programs should be made out in consultation with a major adviser in the department.

The amount and type of college courses to be required of each candidate is to be decided by her major adviser after consideration of a candidate's general education and experience. All programs must also be approved by the Students' Work Committee and the dean of the College of Education. As a rule, however, the following curricula meet the needs of the majority of students. Substitutions may be made by petition upon the recommendation of the major adviser and Students' Work Committee of the College of Education.

† The entire course, Ed. 51A,B,C, including the final examination covering all units must be completed successfully before credit is received for the course. Completion of Ed. 51A,B,C and the passing of the qualifying examinations is prerequisite to Ed.T. 51A,B or 68A,B,C or 76A,B,C.

A. PUBLIC HEALTH NURSING

Major Adviser: Eula B. Butzerin

Curriculum leading to a bachelor of science degree with a major in public health nursing. In addition to the courses listed in Part C—1, the following courses are required:

A. Included in major sequences:

Course No.	Title	Credits
P.M.&P.H. 2	First Aid	1
P.M.&P.H. 67	Tuberculosis Nursing*	2
P.M.&P.H. 71	Supervision in Public Health Nursing	3
Soc. 119	The Family	3
or		
H.E. 89	Home Management Problems for Social Workers	3
A minimum of 15 credits in Public Health Field courses or accepted substitutes.		

B. Other requirements:

Hist. 1-2	Modern World	10
Zool. 1-2-3	General Zoology	10
Physiol. 1	Elements of Physiologic Chemistry	3
Physiol. 2	Elements of Physiology	5
Bact. 41	General Bacteriology	5
Comp. 4-5-6	Freshman Composition	9
or		
Eng. A-B-C	Freshman English or exemption	0-15
Psy. 1-2	General Psychology	6
Soc. 1	Introduction to Sociology	5
Soc. 49	Social Pathology	6
Ed. 51A	Introduction to Secondary School Teaching	3

B. NURSING EDUCATION

Major Adviser: Katharine J. Densford

Courses will correspond in general to Part A and Part C—2 (pages 53 and 54) of the five-year course plus Ed. 51A and Soc. 49 and such electives, recommended by the major adviser, as may be needed to fulfill the total credit and honor point requirement.

C. PROGRAM FOR STUDENTS IN PUBLIC HEALTH NURSING OR NURSING EDUCATION QUALIFYING FOR HIGH SCHOOL TEACHER'S CERTIFICATE

Students majoring either in nursing education or public health nursing may secure the *high school teacher's* certificate for secondary school teaching if they include the following courses in their programs in addition to the required courses in their major:

Course No.	Title	Credits
Zool. 1-2-3	General Zoology	10
Bot.	General Botany and six additional credits	10
Ed.T. 68A,B,C†§	Teacher's Methods Course and Secondary School Directed Teaching in Science	9
Electives chosen to complete the professional requirement of 26 quarter credits as listed on pages 18-19.		
Nurs. 71, 3 credits may be counted in this group.		

* For students who have not had acceptable theory and practice in the care of tuberculous patients.

† Passing the qualifying examination is prerequisite to this course.

§ Students in nursing education who choose to take Ed. 68A,B,C may be exempt from Ed.T. 51A,B.

NOTE.—The following suggested minor in general science is strongly recommended for students following this program:

Course No.	Title	Credits
Zool. 1-2-3	General Zoology	10
Bot.	General Botany and 6 additional credits	10
Chem. 6-7 or 9-10	General Inorganic Chemistry	10
Astron. 11	Descriptive Astronomy	5
Geol. 8	Introductory Geology	5

PHYSICAL EDUCATION FOR MEN

Physical Education 1, 2, and 3, Sports Education courses, are required of all freshmen in the College of Education except physical education majors and minors. See Combined Class Schedule for activities and period schedule.

The following curriculum has been outlined for a special four-year professional course in physical education and athletic coaching. Satisfactory completion of this curriculum entitles the graduate to the bachelor of science degree and provides the training necessary for the Minnesota "high school standard special" certificate for teaching physical education in elementary and high schools.

CURRICULUM FOR MEN MAJORING IN PHYSICAL EDUCATION

Major Advisers: L. F. Keller, R. A. Piper

Freshman Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Comp. 4-5-6	Freshman Composition	3	3	3	None
or					
G.C. 58-59-60	Current English Reading	} 3	3	3	None
and					
G.C. 61-62-63	Writing Laboratory				
Soc. 1	Introduction to Sociology			5	3rd qtr. freshmen
Chem. 6-7 or 14-15	General Inorganic Chemistry	5	5		None
or					
G.C. 88-89-90	Physical Science	5	5	5	None
P.M.&P.H. 3	Personal Health			2	None
Phys.Ed. A-B-C	Physical Education Activities	1	1	1	None
Phys.Ed. 37	Football Fundamentals			1	None
Phys.Ed. 38	Basketball Fundamentals	½			None

Sophomore Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Zool. 1-2-3	General Zoology	3	4	3	None
or					
G.C. 101-102-103	Human Biology	3	3	3	None
Psy. 1-2	General Psychology	3	3		
Anat. 5	Human Anatomy			4	Zool. 1-2 or G.C. 101-102-103
Phys.Ed. 10,11,12	Minor Sports	2	2	2	None
Phys.Ed. 19-20-21	Physical Education Activities	1	1	1	Phys.Ed. A-B-C

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Physiol. 50,51,52	Human Physiology	3	4	4	For 50, Gen. Chem.; for 50,51, chem. and zool.
Phys.Ed. 22-23	Kinesiology	2	2	.....	Anat. 5
Phys.Ed. 54-55	Methods in Physical Education	2	2	.....	Phys.Ed. A,B,C
Phys.Ed. 60	Athletic Training and First Aid .....	.....	.....	2	None
P.M.&P.H. 53	Elements of Preventive Medicine	3	.....	.....	10 cred. in biological science
Ed. 51A,B,C	Introduction to Secondary Teaching	3	3	3	Psy. 1-2
Phys.Ed. 7-8-9	Advanced Leaders	1	1	1	Phys.Ed. A,B,C; 10, 11,12,19-20-21
General Electives*					

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
P.M.&P.H. 80	Health of the School Child .....	.....	3	.....	40 or 52 or 53
Phys.Ed. 58	Physical Examination and Normal Diagnosis	2	.....	.....	Physiology
Phys.Ed. 59	Adaptation of Activities in Orthopedic Procedures .....	.....	2	.....	Phys.Ed. 22-23,58
Phys.Ed. 61	History of Physical Education	2	.....	.....	None
Phys.Ed. 62	Principles of Physical Education .....	.....	3	.....
Phys.Ed. 63	Organization and Administration of Physical Education .....	.....	.....	3	Phys.Ed. 62
Phys.Ed. 67	Football Coaching .....	.....	.....	2	One year practice and Phys. Ed. 37
Phys.Ed. 68	Basketball Coaching	1½	.....	.....	One year practice and Phys.Ed. 38
Phys.Ed. 69	Track Coaching .....	.....	.....	2	None
Phys.Ed. 73-74-75	Directed Teaching	2	2	2	Phys.Ed. 19-20-21,22-23, 54-55, Ed. 51A, B,C, and passing qualifying examinations
General Electives*					

* At least 8 credits of elective work in the junior and senior years must be selected from the education courses listed on pages 18-19.

COURSES FOR MEN MINORING IN PHYSICAL EDUCATION AND
ATHLETIC COACHING

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Phys.Ed. A,B,C	Physical Education Activities	1	1	1	
Phys.Ed. 10-11-12	Minor Sports	2	2	2	
Phys.Ed. 19-20-21	Physical Education Activities	1	1	1	Phys.Ed. A,B,C
Phys.Ed. 54-55	Methods in Physical Education .....	.....	.....	2	Phys.Ed. A,B,C
Phys.Ed. 60	Athletic Training .....	.....	.....	2	None
Phys.Ed. 63	Organization and Administration of Physical Education .....	.....	.....	3	
Phys.Ed. 37	Football Fundamentals .....	.....	1	.....
Phys.Ed. 67	Football Coaching .....	.....	.....	2	One season on a Minnesota football squad and Phys.Ed. 37
Phys.Ed. 38	Basketball Fundamentals	$\frac{1}{2}$	.....	.....
Phys.Ed. 68	Basketball	$1\frac{1}{2}$	.....	.....	Phys.Ed. 38
Phys.Ed. 69	Track Athletics .....	.....	.....	2	None
Phys.Ed. 72	Baseball .....	.....	2	.....	None

NOTE.—All candidates for teacher's certificate with minor recommendation in physical education and athletic coaching must take Phys.Ed. 19-20-21, 54-55, 60, and 63. The balance of 19 credit hours may be secured from any of the courses listed above.

PHYSICAL EDUCATION FOR WOMEN

Major Adviser: J. Anna Norris

This department aims to promote the physical efficiency of the women students. It gives to all on entrance, physical examinations and classification tests covering individual and team sports, fundamentals of movement, posture, orthopedics, and hygiene; organizes neuromuscular activity leading toward organic strength, nervous stability, conscious motor control, correct body mechanics, skill in handling the body and in physical recreation, and the development of that valuable social quality known as good sportsmanship; co-operates closely with the Women's Athletic Association in encouraging and organizing athletic sports.

Six consecutive quarters of work in physical education are required of all women students in the College of Education. Courses 1-7 should be taken during the freshman and sophomore years. (See statement on page 8.) Additional six credits toward graduation can be earned by taking the following courses: 43, 44, 52-53, 61-62-63; 71-72-73; 80; 98, 99.

REQUIREMENTS FOR TEACHING PHYSICAL EDUCATION

The special four-year professional course described below is designed to prepare graduates for the responsible direction of physical education activities and provides the training necessary for the Minnesota "high school standard special" certificate for teaching physical education in elementary and high schools. Students desiring to enter the course should consult with the head of this department. They should be without organic diseases or serious functional disorder, should have a keen sense of rhythm, and should possess qualities of personality which will win the co-operation of others. They

should have a voice adapted to speaking in public. They should have training in the sciences and should have had a unit of physics in high school. Students are required to provide themselves with suits and other equipment in accordance with uniform standards of the department.

Students who have a grade lower than B in posture at the end of their sophomore year must register for orthopedic gymnastics in the fall quarter of their junior year.

FOUR-YEAR CURRICULUM IN THE COLLEGE OF EDUCATION FOR
WOMEN STUDENTS MAJORING IN PHYSICAL EDUCATION

Freshman Year

Course No. Eng. A-B-C or Comp. 4-5-6 (or exemption) P.M.&P.H. 3 P.M.&P.H. 2 Soc. 1 Zool. 1-2-3 Phys.Ed. 36-37-38 Phys.Ed. 40-41-42	Title	Credits			Prerequisite Courses
		F.	W.	S.	
	Freshman English	5	5	5	None
	Freshman Composition	3	3	3	None
	Personal Health				2 None
	First Aid				1 Zool. 1-2-3
	Introduction to Sociology				5 None
	Social Science†	5	5		None
	General Zoology	3	4	3	None
	Freshman Team Sports.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	None
	Individual Sports and Fundamentals of Movement.....	1	1	1	
		<u>14$\frac{1}{2}$</u>	<u>15$\frac{1}{2}$</u>	<u>17$\frac{1}{2}$</u>	

Students should be able to pass the swimming test by the end of the freshman year.

Students who do not present a unit of physics at entrance must complete this requirement before being permitted to register for Phys.Ed. 66, Kinesiology.

Sophomore Year

Course No. Chem. 1-2 Psy. 1-2 Sp. 1-2 Ed. 51A Phys.Ed. 43,44 Phys.Ed. 46-47-48 Phys.Ed. 49 Phys.Ed. 50-51 Phys.Ed. 54-55 Phys.Ed. 59-60 Phys.Ed. 61-62-63	Title	Credits			Prerequisite Courses
		F.	W.	S.	
	General Inorganic Chemistry§	4	4		None
	General Psychology	3	3		None
	Fundamentals of Speech.....	3	3		Eng. A-B-C or Comp. 4-5-6
	Introduction to Secondary School Teaching				3 Psy. 1-2
	Elementary Games and Folk Dancing		$\frac{1}{2}$	$\frac{1}{2}$	None
	Sophomore Team Sports.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	Phys.Ed. 36-37-38
	Human Anatomy				6 Zool. 1-2-3
	Sophomore Individual Sports..	$\frac{1}{2}$		$\frac{1}{2}$	Phys.Ed. 40-41-42
	Danish Gymnastics	$\frac{1}{2}$	$\frac{1}{2}$		None
	Swimming for Majors	$\frac{1}{2}$	$\frac{1}{2}$		Elem. Swim. Test
	Modern Dance, Elementary	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	None
	Electives	3	3	5	
		<u>15$\frac{1}{2}$</u>	<u>15$\frac{1}{2}$</u>	<u>16</u>	

† Choice of History 1-2, or Geography 1-2; or G.C., Science and Civilization.

§ For description of course see Bulletin of the Institute of Technology.

Junior Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Ed. 51B,C	Introduction to Secondary School Teaching	3	3	.....	Ed. 51A
H.E. 32	Nutrition¶	3	3	.....	Zool. 1-2-3 Phys.Ed. 49
Physiol. 50	Physiological Chemistry**	3	.....	.....	Zool. 1-2-3, Chem. 1-2
Physiol. 51	Human Physiology**	4	.....	.....	Physiol. 50
Physiol. 52	Physiology of Exercise** .....	.....	4	.....	Physiol. 51
P.M.&P.H. 53	Elements of Preventive Medicine .....	.....	3	.....	Psy. 1-2
Phys.Ed. 56-57-58	Technique of Teaching Sports	1	1	1	Phys.Ed. 46-47-48; 50-51
Phys.Ed. 64-65	Modified Swedish Gymnastics .. ½	½	.....	.....	Phys.Ed. 40,41,42; 54-55
Phys.Ed. 66	Kinesiology	3	.....	.....	Phys.Ed. 49
Phys.Ed. 67	Physical Examination .....	.....	2	.....	Phys.Ed. 49; 66
Phys.Ed. 69-70	Technique of Teaching Swimming	1	1	.....	Phys.Ed. 59-60
Phys.Ed. 71-72-73	Modern Dance, Intermediate	½	½	½	Phys.Ed. 61-62-63
Phys.Ed. 74-75	Technique of Teaching Gymnastics .....	.....	1	3	Phys.Ed. 49; 64-65; 66
Phys.Ed. 77	Advanced Folk Dancing	1	.....	.....	Phys.Ed. 43,44
Phys.Ed. 78	Technique of Teaching Folk Dancing .....	.....	1	.....	Phys.Ed. 77
Phys.Ed. 80	Principles of Play .....	.....	3	.....	Phys.Ed. 43,44; Psy. 1-2
	Electives	2	.....	.....
		15	15	16½	

¶ For description of course see the Bulletin of the College of Agriculture, Forestry, and Home Economics.

** For description of course see the Bulletin of the Medical School.

Senior Year

Course No.	Title	Credits			Prerequisite Courses
		F.	W.	S.	
Ed.Psy. 158	Adolescent Psychology*	.....	.....	3	Ed. 51
Phys.Ed. 76A-76B	Orthopedic and Remedial Gymnastics	1½	1½	.....	Phys.Ed. 67
Phys.Ed. 81	Modern Dance, Advanced	½	.....	.....	Phys.Ed. 71-72-73
Phys.Ed. 82	Technique of Teaching Rhythm	1	.....	.....	Phys.Ed. 71-72-73
Phys.Ed. 83	Principles of the Dance	.....	2	.....	Phys.Ed. 71-72-73
Phys.Ed. 84-85	Advanced Fundamentals of Movement	½	½	.....	Phys.Ed. 74-75
Phys.Ed. 87	Trends in Physical Education	2	.....	.....	Phys.Ed. 64-65, 74-75
Phys.Ed. 88	Principles of Physical Education	2	.....	.....	See Phys.Ed. 87
Phys.Ed. 89	Health Education in Elementary and Secondary Schools	3	.....	.....	P.M.&P.H. 53; H.E. 72; Phys.Ed. 74-75
Phys.Ed. 90	Problems in Physical Education	.....	.....	2	Phys.Ed. 88
Phys.Ed. 92-93-94	Directed Teaching	2	3	2	Phys.Ed. 56-57-58; 59-69; 74; 82; 83; Ed. 51A,B,C and passing the qualifying examination
Phys.Ed. 97A-97B	Administration of Physical Education	.....	2	.....	Phys.Ed. 80; 88; 89
	Electives*	3	6	8	
		15½	15	15	

Elective Courses in Physical Education

Phys.Ed. 79	Massage and Therapeutic Exercise	.....	.....	2	Phys.Ed. 76A-76B
Phys.Ed. 98	Camp Leadership	.....	.....	2	None
Phys.Ed. 99	Recreational Leadership (Not offered 1936-37)	.....	.....	2	Psy. 1-2

* Eight credits must be elected from educational subjects listed on pages 18-19 of this bulletin.

REQUIREMENTS FOR WOMEN STUDENTS MINORING IN
PHYSICAL EDUCATION

Course No.	Title	Credits	Prerequisite Courses
Phys.Ed. 1-7*	Individual Sports and Fundamentals of Movements and Lectures in Physical Education and Health	5	None
Phys.Ed. 37,38	Freshman Major Team Sports	1	Phys.Ed. 1-7
Phys.Ed. 43-44	Elementary Games and Folk Dancing	1	Phys.Ed. 1-7
Phys.Ed. 49 or	Human Anatomy	6	Zool. 1-2-3 or Human Biology 6-7-8 (General College)
Anat. 3	Elementary Anatomy	3	
Phys.Ed. 54	Danish Gymnastics	$\frac{1}{2}$	None
Phys.Ed. 56	Technique of Teaching Sports	1	Phys.Ed. 1-7,37,38
Phys.Ed. 64	Modified Swedish Gymnastics	$\frac{1}{2}$	Phys.Ed. 54
Phys.Ed. 66	Kinesiology	3	Phys.Ed. 49 or Anat. 3
Phys.Ed. 74-75	Technique of Teaching Gymnastics	3	Phys.Ed. 64,66
Phys.Ed. 80	Principles of Play	2	Phys.Ed. 43-44, Psy. 1-2
Phys.Ed. 97	Administration of Physical Education	3	Phys.Ed. 80
P.M.&P.H. 3 or	Personal Hygiene and Elementary Sanitation	2	None
P.M.&P.H. 50	Public and Personal Health	3	Zool. 1-2-3; Psy. 1-2 or permission of instructor
Zool. 1-2-3 or	General Zoology	10	None
G.C. 101-102-103	Human Biology	9	None

SCHOOL HEALTH WORK

Major Advisers: H. S. Diehl, Ruth E. Boynton

This course is designed to prepare students to develop comprehensive health programs in school systems. In the smaller systems such persons may teach health education and allied subjects, such as biology, in the high school and supervise the health work in the elementary schools. Since the responsibility of persons in these positions will cover all phases of school health work such as physical inspections, control of contagious diseases, correction of physical defects, and the teaching of health and physical education, the aim has been to provide a broad background in the whole field of health education, rather than a high degree of specialization in any one aspect of the problem.

Teachers of experience who are graduates of two-year courses in teachers colleges will be allowed the usual 90 credits toward the completion of the course. Graduates or students in nursing, physical education, home economics, elementary education, and others will be allowed advanced credit, determined in each case by their previous training. The work of all students desiring advanced credit toward the completion of the course will be evaluated and a program of studies worked out for each student on an individual basis.

* In Phys.Ed. 1-7 students minoring in physical education must include the following activities: swimming, tennis, fundamentals, archery, golf.

Provision also is made whereby those who have completed the course and have had experience in the field may pursue a fifth year of graduate work, specializing in some phase of the school health problem such as physical education, school nursing, health instruction, etc.

Students in this course will be selected by the advisory committee on the basis of their ability and qualifications for the work.

Certification for teaching will be made in a minor field such as natural science or physical education.

FOUR-YEAR CURRICULUM IN SCHOOL HEALTH WORK*

Freshman and Sophomore Years

Course No.	Title	Credits
Comp. A-B-C or 4-5-6	Freshman English or Composition (or exemption)	15 or 9
Hist. 1-2	Modern World	10
Bot. 1	General Botany	4
Chem. 1,2,3 (or 4-5)	General Inorganic Chemistry	12 or 8
P.M.&P.H. 3	Personal Health	2
Soc. 1	Introduction to Sociology	5
Psy. 1-2	General Psychology	6
Zool. 1-2-3	General Zoology	10
Anat. 3	Human Anatomy	3
or		
Anat. 5	Human Anatomy	4
or		
Phys.Ed. 49	Human Anatomy	6
Physiol. 4	Human Physiology	4
Bact. 41	General Bacteriology	5
Sp. 1-2	Fundamentals of Speech	6
P.M.&P.H. 2	First Aid	1
Phys.Ed. 1-2-3- 4-5-6	General Course in Physical Education*	5
Phys.Ed. 43-44	Elementary Folk Dances and Games	1
Total required credits		79 to 92

Approved electives to total 95 credits including required physical education courses are required.

* Men interested in this curriculum may take the required number of credits in physical education in their minor course in athletic coaching. Selection of the proper courses will be made in consultation with an adviser in the Department of Physical Education for Men

Junior and Senior Years

Course No.	Title	Credits
Phys.Ed. 80	Principles of Play*	3
Phys.Ed. 56-57-58	Technique of Teaching Sports	3
Phys.Ed. 66	Kinesiology	3
P.M.&P.H. 53	Elements of Preventive Medicine	3
P.M.&P.H. 61	Mental Hygiene	3
P.M.&P.H. 69	School Nursing Procedures	3
P.M.&P.H. 74	Health Instruction Methods and Materials	3
P.M.&P.H. 75	Practice Teaching in Health Education	3
P.M.&P.H. 80	Health of School Child	3
P.M.&P.H. 101	Public Health Administration and Field Work	2
Ed. 51A,B,C	Introduction to Secondary School Teaching	9
or		
Ed. 61A,B,C	Introduction to Elementary School Teaching	9
Ed.Ad. 124	Public School Administration	3
Ed.C.I. 150	Supervision and Improvement of Instruction	3
Ed.Psy. 120	Basic Principles of Measurement	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.T. 68A,B,C†	Special Methods and Directed Teaching	9
H.E. 30	Introduction to Nutrition	2
H.E. 171	Child Nutrition	3
Soc. 49	Social Pathology	3
Soc. 90	Survey of Social Work	3
C.W. 170	Parental Education	3
Bot. 101	Elementary Biometry	3
Total required credits		76

Approved electives to total 90 credits for the junior and senior years.

Recommended Electives

Course No.	Title	Credits
Ed.C.I. 133	Guidance in Secondary Schools	2
or		
Ed. 169	Extra-Curricular Activities	2
Ed.Psy.	(Consult adviser)	2 to 6
Ed.Psy. 146-147	Child Guidance	4
Ed.Psy. 159	Psychology of Personality	3
H.E. 170	Nutrition of Family	3
Bact. 101	Special Bacteriology	4
Bact. 116	Immunity	3
C.W. 130	Child Development	2
P.M.&P.H. 106	Public Health Administration	Ar
P.M.&P.H. 210	Seminar in Preventive Medicine and Public Health	Ar

Graduate Work

Graduate work, leading to specialization along the lines of supervision in physical education, school nursing, or health education, may be followed by properly qualified students, preferably after some actual experience in the field of school health work. Permission to pursue graduate work in

* Men interested in this curriculum may take the required number of credits in physical education in their minor course in athletic coaching. Selection of the proper courses will be made in consultation with an adviser in the Department of Physical Education for Men.

† Passing the qualifying examination is prerequisite to this course.

this field must be obtained from the advisory committee on school health work. Students who register in the Graduate School and fulfill its various requirements will receive appropriate graduate degrees.

SOCIAL STUDIES

Major Adviser: Edgar B. Wesley

The secondary teacher of the social studies is seldom given the opportunity of devoting his entire schedule to one special subject. Prospective teachers are therefore urged to take some work in each of the social studies. The following programs are designed to furnish a diversified preparation.

Major.—The course requirements for a major in the social studies are prescribed under A and B below:

- A. The student must select one of the five fields listed and must complete the course requirement indicated.
 1. Economics, 30 credits including Courses 6-7, 3, 103-104, 161, 141, and at least 3 credits chosen from the following: 160, 154, 54, 176, 191-192, and 149.
 2. Geography, 28 credits, composed of Courses 11, 41, 53, 71, 101, 110, 120, and 111.
 3. History, 36 credits, 18 of which must be from the Senior College.
 4. Political science, 30 credits.
 5. Sociology, 30 credits.
- B. In addition to the requirements set forth under A the student must secure a total of 25 credits selected from the subjects listed under A. Note the following limitations: Not fewer than 5 credits may be chosen from any one field, and no field selected under A may be used to meet the B requirement.

Minor.—The course requirements for a minor in the social studies are 35 credits divided among at least three subjects selected from the five listed under A above. The distribution should approximate 15 credits in history (except for those who major in history) and 10 in each of the two other fields chosen. A variation not to exceed 3 credits within the fields chosen will be permitted as long as the total of 35 credits is maintained. A student may not have both a major and a minor in the social studies.

SPEECH PATHOLOGY

Major Adviser: Bryng Bryngelson

This program of study has been arranged for those students who are interested in children with speech disorders. The training in this specialized field is designed to qualify students for professional work in speech correction in schools, hospitals, private clinics, and in child guidance clinics.

The program is arranged for five years of study. The required courses are listed below. Students interested in this field should consult the major adviser before registering. All electives selected to complete the work for a degree should have the approval of the adviser. Junior and senior electives should be selected from the following: Psy. 9, Soc. 52, 49, Zool. 181-182, C.W. 40, 82, 90, 170, P.M.&P.H. 57 or 53.

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Freshman and Sophomore Years

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition (or English A-B-C or exemption).....	9
Phys.Ed. 1-7	General Course in Physical Education	5
Zool. 1-2-3	General Zoology	10
Psy. 1-2	General Psychology	6
Sp. 1-2-3	Fundamentals of Speech	9
Psy. 4-5	Laboratory Psychology	4
Zool. 83	Introduction to Genetics and Eugenics.....	3
Zool. 21	Histology (optional—recommended for those minoring in zoology)	5
HumanPhysiol. 2	Elements of Physiology	5
HumanAnat. 3	Elementary Anatomy	3
	Electives	36
Total		95

COLLEGE OF EDUCATION

Junior and Senior Years

Course No.	Title	Credits
Sp. 61	Speech Correction	3
Sp. 67	Phonetics	3
Sp. 162-163	Speech Pathology	6
Psy. 144-145 or 113	Abnormal Psychology	6 or 3
Psy. 151-152 or	Animal Psychology	6
Psy. 52	Genetic Psychology	3
Ed.Psy. 60	Introduction to Statistical Methods.....	3
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.Psy. 142	Construction and Use of Individual Aptitude Tests.....	3
Ed. 61A,B,C	Introduction to Elementary School Teaching.....	9
Ed.C.I. 145	Clinical Remedial Reading	2
Ed.C.I. 174-175-176*	Clinical Methods and Practice in Speech Pathology.....	9
C.W. 80	Child Psychology	3
C.W. 130	Development of Young Child	2
Ger. 108	Comparative Phonetics	3

Graduate School (Fifth Year)

The fifth year of this curriculum is devoted to graduate work. See Graduate School Bulletin for detailed requirements. Only those having at least a "B" average in undergraduate work will be considered for graduate study. The major, consisting of at least 18 credits, should be selected on approval of major adviser from the following:

Sp. 121-122, 141-142, 261-262-263; Psy. 114-115, 125-126; Zool. 170-171; Ed.Psy. 149-150, 157.

A minor selected from courses in psychology, zoology, or physiology is recommended.

* Passing the qualifying examination is prerequisite for this course.

TEACHERS OF SUBNORMAL CHILDREN

Major Adviser: Herbert A. Sorenson

Students who complete the freshman and sophomore years of this course, who have had two years of teaching experience in elementary schools, and who complete a minimum of six credits in approved courses of the junior and senior years, will qualify for a special teaching certificate required of teachers of subnormal children, in special classes for which state aid is received. All students who have not had the equivalent previously must take the courses in directed teaching and handwork to qualify them for this special certificate.

Unclassed students with proper prerequisites may pursue courses for which they are qualified in the junior and senior years, on the basis of previous training and experience.

FOUR-YEAR CURRICULUM FOR THE TEACHERS OF
SUBNORMAL CHILDREN

JUNIOR COLLEGE, COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Freshman Year

Course No.	Title	Credits
Eng. A-B-C or	Freshman English	15
Comp. 4-5-6	Freshman Composition or exemption from the requirement	9
ArtEd. 1-2-3	Fundamental Principles of Design	9
Zool. 1-2-3	General Zoology	10
Soc. 1	Introduction to Sociology	5
	Physical Education	3
	Electives*	6-12

Sophomore Year

Course No.	Title	Credits
Psy. 1-2	General Psychology	6
Psy. 4-5	Psychology Laboratory	4
Hist. 1-2	Modern World	10
Ind. 11 _a	Special Class Woodwork	2
ArtEd. 32	Handicraft—Paper	1
ArtEd.	Handicraft	1
ArtEd. 37	Handicraft—Reed and Raffia	1
Phys.Ed. 43-44	Elementary Games and Folk Dances	1
Sp. 1-2	Fundamentals of Speech	6
	Physical Education	2
	Electives*	13

* Electives should be chosen upon recommendation of the major adviser.

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Ed. 61A,B,C†	Introduction to Elementary School Teaching	9
Ed.Psy. 60	Introduction to Statistical Methods	3
Ed.Psy. 120	Basic Principles of Measurement	3
Phys.Ed. 80	Principles of Play	3
Ed.Psy. 184	Mental Deficiency	2
Soc. 49	Social Pathology	3
Soc. 60	Social Protection of the Child	3
	Child Welfare	3
	Electives*	16

Senior Year

Course No.	Title	Credits
Ed.T. 53§	Directed Teaching	5
Ed.T. 54A,B†§	Teaching of Elementary School Subjects	10
Ed.Psy. 140	Construction and Use of Educational Tests and Examinations	3
Ed.Psy. 141	Construction and Use of Group Aptitude Tests	3
Ed.Psy. 142	Construction and Use of Individual Aptitude Tests	3
Ed.C.I. 159	Supervision and Teaching of Reading	2
Soc. 90	Survey of Social Work	3
Soc. 91	Field Observation of Social Work	2
	Electives*	14

THEORY AND PRACTICE OF TEACHING

Major Advisers: Dora V. Smith, E. B. Wesley

GRADUATE WORK

FIFTH YEAR FOR ENGLISH TEACHERS IN THE THEORY AND PRACTICE OF TEACHING

English teachers may secure a Master's degree with a major in theory and practice teaching and a supporting minor in English. Courses applicable to the teaching of English from which the student may profitably choose are as follows: Ed.C.I. 113, 122, 133, 193, 194, 196-197; Ed. 169, 208; Ed.Psy. 158. The seminar, Ed.C.I. 222-223-224, is required without credit for all students with a major or minor in theory and practice of teaching under Plan A. Programs should be arranged in consultation with a major adviser in the department.

FIFTH YEAR FOR TEACHERS OF SOCIAL STUDIES

Social studies teachers may secure a Master's degree with a major in education or in theory and practice of teaching and a minor in history, economics, political science, geography, or sociology. Courses which are recommended as fitting into this plan are Ed.C.I. 154, 166, 193, 201-202-203, Ed. 140-141-142, Ed. 208. The seminar Ed.C.I. 222-223-224, is required without

* Electives should be chosen upon recommendation of the major adviser.

† Teachers with experience upon the recommendation of the major adviser, should take other courses in educational psychology and education, including Ed.C.I. 119, 150, 151 and 181.

§ Passing the qualifying examination is prerequisite to this course.

credit for all students with a major or minor in theory and practice of teaching under Plan A. Programs should be arranged in consultation with the major adviser in social studies.

VISITING TEACHERS

Major Adviser: E. B. Wesley

The work of the visiting teacher is social work in the schools for the development of the individual child through adjustment of school-home problems, utilizing the special techniques of social work which are required through theory courses and field training. Those students interested in further information regarding social work are referred to the special bulletin of the Training Course for Social and Civic Work.

FOUR- AND FIVE-YEAR CURRICULUM FOR VISITING TEACHERS

JUNIOR COLLEGE, COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Freshman Year

Course No.	Title	Credits
Eng. A-B-C or Comp. 4-5-6	Freshman English	15
Hist. 1-2	Freshman Composition (or Exemption)	9
Bot. 1-2	Modern World	10
Zool. 1-2-3	General Botany	7
Phys.Ed. 1-2-3	General Zoology	10
	Physical Education	3
	Electives	3 to 9
	Total	48

Sophomore Year

Course No.	Title	Credits
Econ. 6-7	Principles of Economics	10
Hist. 7-8-9	American History	9
Pol.Sci. 1-2-3	American Government and Politics	9
Psy. 1-2	General Psychology	6
Soc. 1	Introduction to Sociology	5
Soc. 6 or Soc. 14 Soc. 49	Social Interaction } Rural Sociology } Social Pathology } Physical Education }	3 3 2
	Total	47

COLLEGE OF EDUCATION

Junior Year

Course No.	Title	Credits
Ed. 51A,B,C	Introduction to Secondary School Teaching	9
Soc. 45	Social Statistics	5
Soc. 90	Survey of Social Work	3
Soc. 91	Field Observation of Social Work	2
P.M.&P.H. 53	Elements of Preventive Medicine	3
P.M.&P.H. 61	Mental Hygiene	3
H.E. 89	Home Management Problems for Social Workers	3
	Electives	17
	Total	45

Senior Year

Course No.	Title	Credits
Ed.T. 68Am,Bm*	The Teaching of Secondary School Science	4
Ed.T. 69Am-Bm*	The Teaching of Social Studies in Secondary Schools.....	4
Ed.Ad. 124	Public School Administration	3
Ed.Ad. 125	Techniques of Administration	3
Soc. 60	Social Protection of the Child.....	3
Soc. 129	Principles of Social Case Work.....	5
Soc. 153	Field Training in Case Work	2 to 5
Econ. 161	Labor Problems and Trade Unionism)	6-12
Soc. 53 and/or	Criminology)	
Psy. 144-145	Abnormal Psychology	6-15
	Electives	
	Total	45

FIFTH YEAR IN GRADUATE SCHOOL

The program should be selected in conference with the major adviser. The following courses are suggested. For general requirements see Bulletin of the Graduate School.

Course No.	Title	Credits
Soc. 131	Rural Social Work	3
Soc. 134	Legal Protection of the Child.....	3
Soc. 137	History and Theory of Social Work.....	3
Soc. 139	Psychiatric Problems in Social Case Work.....	3
Soc. 154-155	Advanced Field Training in Case Work.....	6
	Education as a minor (Consult adviser).....	8

* Passing the qualifying examination is prerequisite to this course.

DESCRIPTION OF COURSES

GENERAL COURSES

COURSES FOR UNDERGRADUATE STUDENTS

- Ed.51A,B,C*‡ (formerly Ed.51-52-53). Introduction to Secondary School Teaching. Objectives, organization, curricula, and methods of secondary schools and instruction with special reference to the fundamental facts of psychology involved therein. A combination and integration of topics commonly treated in courses in educational psychology, principles of education, and general secondary school methods. Unit A, Psychological fundamentals; Unit B, Methods of instruction; Unit C, Organization, objectives, materials.
- Ed.51A,B,C*‡ (formerly Ed.51-52-53). Introduction to Secondary School Teaching—Independent Study. See above for description. Previously designated Limited Honors Course. The group will not meet each week but one class period a week will be arranged for conference. An average of B and permission of the instructor is required for registration in this course.
- Ed.54-55-56. Fundamental Art Experience. Enjoyment of the visual arts and experience in using the "art way" in everyday choices. Activities giving familiarity with materials and processes may be elected but no technical facility is required. Contact for superintendents, supervisors, and teachers in the general field of education with this so-called "special subject."
- Ed.61A,B,C*‡ (formerly Ed.61-62-63). Introduction to Elementary School Teaching. Objectives, organization, curricula and methods of elementary schools and instruction with special reference to the fundamental facts of psychology involved therein. A combination and integration of topics commonly treated in courses in educational psychology, principles of education, and general elementary school methods. Unit I, Psychological fundamentals; Unit II, Organization, objective, materials; Unit III, Methods of instruction.
- Ed.71 (formerly H.Ed.1). Brief Course in History of Education. Current school problems and educational theories in the light of their history. Emphasis upon 18th and 19th centuries and education in the United States.
- Ed.73 (formerly H.Ed.3). Educational Sociology. A study of the effects of recent social trends upon American educational institutions and of the chief problems in educating individuals for their associations and in directing educative forces of society.
- Ed.75 (formerly H.Ed.5). Public Education in the United States. A survey of historical factors influencing public education in the United States,

* The entire course including the final examination covering all units must be successfully completed before credit is received for any quarter.

‡ A fee of \$1 per credit is charged for Courses 51B and 61A,B,C.

followed by a study of the development of educational theory and the rise of state systems. A course in the history of education.

- Ed.W. Professional Preparation for Teaching. This course is designed for students already holding a baccalaureate degree and desiring to complete their preparation for teaching. Such students should consult the adviser and outline an entire program covering at least three quarters of study for completion of work for a teacher's certificate. The entire course, including the final examination, must be successfully completed before credit is given for any quarter.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ed.101 (formerly H.Ed.101). Historical Foundations of Modern Education. Historical analysis and interpretation of the more important elements in modern education derived from the Hebrews, Greeks, Romans, Middle Ages, and Renaissance.
- Ed.102 (formerly H.Ed.102). History of Modern Secondary and Higher Education. A historical study of the origin, aims, growth of existing types of American and European secondary schools.
- Ed.103 (formerly H.Ed.103). History of Modern Elementary Education. The development of educational theory and the evolution of the common school. Not open to students who have had Ed. 71.
- Ed.104. Adult Education. An examination of the main lines of development in the fields of adult education, with special attention to principles of adult learning, methods of teaching adults, and the organization of adult education programs.
- Ed.105. Visual Aids in Teaching. This course is designed to train students in the practical use of simple projected visual aids including opaque and slide lanterns, microslide, film strip, and 16 mm. silent motion pictures. The course will provide information on the kinds of films available for school use in the various fields of the social studies, literature, and science. Laboratory course meetings.
- Ed.129-130 (formerly H.Ed.129-130). Educational Classics. An intensive study of selected writings of educational leaders from ancient times to the present day.
- Ed.131-132 (formerly H.Ed.131-132). Comparative School Systems. A survey of the existing school systems in foreign countries including France, England, Germany. Emphasis upon present problems.
- Ed.140-141-142 (formerly H.Ed.140-141-142). Topics in the History of Education.
- Ed.167-168 (formerly Ed.Ad.167-168). The Junior High School. Sources of the movement; theory, purposes, functions, and limitations; types of reorganization; fundamental problems of reorganization; reorganization of subject-matter.
- Ed.185 (formerly Ed.Ad.185). The Professional Education of Teachers. A study of the present status of teacher education and of the problems that relate to the institutional training of teachers for public schools and higher education.

- Ed.186 (formerly Ed.Ad.186). Individual Problems in Teacher Training. Individual problems for those who have a special interest in this field. An intensive study of specific problems. Consult instructor before enrolling.
- Ed.187 (formerly Ed.Ad.187). Instruction and Administration in Teacher Training Institutions. Historical development; curricula; instructional organization; personnel management; administrative procedures; student teaching; trends and innovations.
- Ed.188 (formerly H.Ed.188). Special Problems in Educational Sociology. The sociological foundations of educational theory. Lectures, readings, and problems.
- Ed.199. Organization and Supervision of Vocational Education. A general course to consider objectives, methods, operation, and supervision of vocational education in the public schools, with special emphasis on agricultural education. Especially for superintendents, principals, and supervisors of vocational education.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.200. Colloquium in Education. This colloquium is intended to combine independent study with group conferences. Each student will pursue his work under the guidance of an adviser and will be required to submit a written report showing the results of independent work required of all candidates for the Master's degree under Plan B. Nine credits earned in this colloquium must be presented for the degree. Meetings will be conducted for the colloquium as a whole, but there will be additional meetings for groups having special related interests. Credit in the colloquium will be conditioned upon the satisfactory passing of such examinations as the staff may deem desirable.
- All advisers of graduate students will participate in the conduct of the colloquium.
- Ed.205. Problems in Adult Education.
- Ed.208. Methods in Educational Research. A study of the methods employed in the investigation and report of educational problems. Designed to aid students in the preparation of theses. Suggested for all candidates for graduate degrees.
- Ed.211-212-213 (formerly H.Ed.211-212-213). Seminar in History of Education. Historical investigation of educational problems.
- Ed.227. Current Readjustments in Higher Education. A consideration of the major administrative and curricular readjustments in higher education. Studies making apparent the need for the adjustments will be critically reviewed. Methods for evaluating a college will be studied in detail.
- Ed.228-229-230. Problems of College Education. Problems of student personnel, of college curricula and instruction, of organization and administration.
- Ed.231. Problems in Comparative Education.

AGRICULTURAL EDUCATION

COURSES FOR UNDERGRADUATE STUDENTS

- Agr.Ed.51 (formerly Agr.Ed.11). Educational Psychology. The main facts and principles of educational psychology and the fundamental principles upon which education is based. Emphasis is placed on those phases which are most closely related to vocational education.
- Agr.Ed.52 (formerly Agr.Ed.21). Vocational Education. A short history of vocational education; present status in Europe and the United States; industrial arts and home arts in an educational system; place of agriculture in the public schools with special reference to Minnesota.
- Agr.Ed.54 (formerly Agr.Ed.154). Rural Education and Community Leadership. The rural school as a community center, and ways and means of organizing educational and recreational activities, such as clubs, festivals, fairs, and other desirable features of rural community life.
- Agr.Ed.80 (formerly Agr.Ed.81). Extension Work. Federal, state, and local extension aims, organization. Assembling and use of extension data and equipment. Development of extension methods especially as applied to the work of Minnesota.
- Agr.Ed.81 (formerly Agr.Ed.181). Teaching Agriculture. Introduction to the set-up for teaching agriculture in the high school. Observations of class work, apprentice teaching, curriculum organization, farm practice, and use of the farm and community for teaching purposes.
- Agr.Ed.82 (formerly Agr.Ed.182). Teaching Agriculture. Special methods course dealing with conducting a high school agriculture department. Fundamentals of method in teaching as related to teaching agriculture in the high school. Organizing subject-matter. Selection and manipulation of devices.
- Agr.Ed.83 (formerly Agr.Ed.183). Teaching Agriculture. Organization and administration of agriculture in secondary schools including all-day, part-time, and evening school instruction. Special emphasis on equipment, text and reference books, extension work, and organizations.
- Agr.Ed.91*‡ (formerly Agr.Ed.42). Supervised Teaching Experience. Preparation of lesson plans and actual teaching of classes under careful supervision in recitation and laboratory; criticism and discussion of plans, methods, and results of student teaching. Review and discussion of assigned professional readings.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Agr.Ed.121. Enterprise Analysis. Experience in analyzing enterprises in agriculture as a basis for identifying problems and distributing them in the horizontal set-up for the course of study in agriculture.
- Agr.Ed.135. The Curriculum in Vocational Agriculture. A study of curriculum organization, determination of subject-matter, organization of subject-matter, job analysis, course construction, instruction on individual basis, texts, and references.

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

- Agr.Ed.141. Supervised Practice in Vocational Agriculture. A special methods course dealing with the selection, planning, supervising, and summarizing of the practical work in agriculture. Special emphasis on the problem method of teaching, and the use of the farm and community for teaching purposes.
- Agr.Ed.145. The Integrated Course of Study in Agriculture. A presentation of the problems of organization, administration, and teaching in departments of agriculture in the secondary schools. Special emphasis on planning programs for individual students.
- Agr.Ed.161. Vocational Education in Agriculture. A study of the principles developed and established in agricultural education. The principles developed in other vocational education and their relation to agricultural education.
- Agr.Ed.171. Problems in Procedure. For agriculture teachers. Emphasizes working out problems in detail in order that the processes as formulated can be used in teaching the following year by those enrolled. Discussions, readings, papers, laboratory.
- Agr.Ed.184. Special Methods in Teaching Agriculture. Designed especially for teachers in service. Emphasis on advanced problems in directing the learning activities of all-day, part-time, and evening school students.
- Agr.Ed.186. Special Problems in Agricultural Education. Analysis and discussion of special problems of individual teachers. Opportunity for intensive study of specific problems related to local school programs.
- Agr.Ed.191-192-193. Seminar in Agricultural Education. Critical studies of important problems in agricultural education; opportunity for individual investigation and research; review and interpretation of current educational literature.

COURSE PRIMARILY FOR GRADUATE STUDENTS

- Agr.Ed.232. Research in Agricultural Education. Introduction to investigational work in problems of teaching agriculture in high schools. Experience in selecting problems, preparation of bibliographies, analyzing and interpreting data, and preparing manuscripts.

ART EDUCATION

JUNIOR COLLEGE COURSES

DESIGN AND HANDICRAFTS

- ArtEd.1-2-3. Fundamental Experiences in Design. One unit each term of contact with the products of man's industry, selecting and relating them with reference to problems of costume, shelter, and community living; one unit each term of manipulative experience to develop sensitiveness to qualities of materials and workmanship, and the ability to integrate elements into harmonious wholes; some experience in recording in visual terms the selections and relationships produced.
- ArtEd.20-21-22. Fundamental Experiences in Design continued, with especial emphasis upon light and color.

DIRECT MANIPULATION OF MATERIALS

- ArtEd.32. Paper.
 ArtEd.35. Clay.
 ArtEd.37, ArtEd.8, ArtEd.39, ArtEd.40. Textile Fibers.
 ArtEd.46.‡ Metal.
 For Wood see Ind.Ed. and Eng.

EXPERIENCE WITH PROCESSES USED BY INDUSTRY

- ArtEd.33. Book Manufacture and Typographic Arts.
 ArtEd.40.‡ Textile Manufacture.
 ArtEd.41-42‡-43. Ceramic Production.
 ArtEd.44. Applying Design to Fabrics by Printing and Dyeing.
 ArtEd.45. Application to Design by Needle Processes.

REPRESENTATION

Controlled contact with the external world to arouse sensitiveness to and understanding of mass, volume, force, rhythm, processes of interaction as exemplified in the human body, landscape, and man-made objects; recording of such contacts by "drawing" in various mediums:

- ArtEd.4-6-8. Experiences from Still-Life and Pose.
 ArtEd.10-11-12. Experiences with Rhythm and Color.
 ArtEd.23-24-25. Continuation of 4-6-8 with handling of more difficult mediums.
 ArtEd.29-30. Experiences with Human Bodies in Motion (simple recordings on blackboard and paper).

ENJOYMENT OF ART

Contacts with excellence in the visual arts; experience in stores and galleries, especially the University Gallery, supervised and credited as part of all the above mentioned courses.

For History of Art see offerings in Fine Arts.

SENIOR COLLEGE COURSES

DESIGN AND HANDICRAFTS

- ArtEd.50-51. Commercial and Industrial Design. Students may elect to (1) place the emphasis of their activity upon history, theory of processes and fine choices of products of commerce and industry, or (2) create solutions of problems in these fields.
 ArtEd.54-55-56. Fundamental Art Experience (see Ed.54-55-56). Manipulative experience at the level of ArtEd.1-2-3 but more maturity and general knowledge demanded for application in terms of community needs.
 ArtEd.70-71-72. Experiences with Light and Color. Manipulation on the level of 20-21-22 but more maturity and knowledge demanded in order (1) to relate these experiences to industry and the stage or (2) to use them in community service for recreative and therapeutic values.

‡ A fee of \$1.50 per quarter is charged for this course.

ArtEd.73‡-74‡-75.‡ Manipulative Experience with Materials. At the level of ArtEd. 32, 35, 37, 39, 40 applied in problems (1) relating to modern industry, or (2) to their use in community service for recreative or therapeutic value.

ArtEd.76‡-77‡-78.‡ Manipulative Experience with Handicraft Processes. Corresponding in content to ArtEd. 33, 41, 42, 43, 44, 45 but studied (1) to see their relationships to modern quantity production processes and the design therefor, or (2) in order to use them in social service activities.

REPRESENTATION

ArtEd.61-62-63. Experience in the Art of Painting. From the human head and figure and from objects, in various mediums, and in relation to architectural, industrial, and dramatic demands.

ArtEd.64-65-66. A continuation of 61-62-63.

ENJOYMENT OF ART PRODUCTS

Contact with excellence in the visual arts; supervised study of achievements in the arts and integral parts of all the courses above.

ArtEd.57. Art and Leisure. Recreative values of art.

For History of Art see offerings in Fine Arts, Architecture, and Home Economics.

THEORY AND PRACTICE OF ART TEACHING

ArtEd.80§-81§-82§. Types of Art Instruction. A special methods course with definite reference to the problems of student teaching in the Minneapolis public schools. Attendance upon art supervisor's meetings and visits to the supervisor's office.

ArtEd.83. Problems in Art Education. Experience in student teaching generalized in the light of art teaching practices of past and present. Students helped to derive their own philosophies and principles of future procedure. Developing of creative plans for teaching situations existent or needed in relation to community leadership in enjoying and applying art as a way of life.

ArtEd.86§-87§-88.§ Student Teaching in Art. Actual experience under public school conditions. Informal discussions and conferences.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

ArtEd.153-154. Design for the Consumer. Architecture and costume as mirrors of the life of their time. Practical problems relating to dramatic productions and other recreational activities. Graduate credit by the addition of a piece of original research or creation.

ArtEd.189. Application of Esthetic Theories in Public School Art Education. An integration course. Original problems and intensive study for advanced students.

‡ A fee of \$1.50 per quarter is charged for this course.

§ A fee of \$1 per credit is charged for this course.

CHILD WELFARE§

COURSES FOR UNDERGRADUATE STUDENTS

- C.W.40. Child Training. A study of the physical and mental development of the child followed by a discussion of the problems of training of young children. Observations in the Nursery School, lectures, and reports.
- C.W.60. Modern Aspects of Child Study. To orient student with reference to the Nursery School and parental education. Consideration given also to the kindergarten and Montessori movement and to the physical and mental hygiene movement.
- C.W.80. Child Psychology. A survey of child development with special reference to nursery school and kindergarten education.
- C.W.82. Later Childhood and Adolescence. Growth, social adjustment, emotional, mental, and personality development. Training and guidance in leisure time activities.
- C.W.90. Physical Growth and the Health Care of the Young Child. The anatomical and physiological growth of the body and its systems. The physical care, illnesses, prevention of disease, and health problems of the young child.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- C.W.130-131. Child Development. Development of motor, linguistic, and intellectual skills. Development of emotion, personality, social reactions, interests, and abilities. Lectures, readings in the experimental literature and reports.
- C.W.133-134†-135. Observational and Experimental Methods in the Study of the Development of the Young Child. A study of the various methods and techniques such as growth records, mental tests, ratings, controlled observations, etc., used in experimental study of the young child. Practical exercises and problems on institute records and data.
- C.W.140. Behavior Problems. Nature and origin of behavior difficulties. Emphasis upon young children and the relation between early behavior trends and later maladjustment.
- C.W.141-142. Practicum in Behavior Problems. Clinic and field work in the study and treatment of behavior problems.
- C.W.170. Parent Education. History and survey of present programs in parent education and adult education. Analysis of child development and training literature in relation to the preparation of materials for study groups. Lectures, discussions, and reports.
- C.W.171. Technique of Parent Education. Methods of teaching adults. Organization and administration of study groups. Demonstration lessons and observations.
- C.W.172. Field Work in Parent Education. Lesson plans, observations, and field work.

† Two quarters must be completed before credit is received for any quarter.

§ The institute also offers Courses Ed.T. 55-59, and Ed.T. 75-77 listed under Methods and Directed Teaching, pp. 95-96.

C.W.190-191. Mental Examination of Pre-school Children. A study of the methods used in testing young children together with practice.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- C.W.230-231-232. Seminar in Child Development. Reviews of current literature, discussion of fundamental problems, and reports on research. Meetings in alternate weeks.
- C.W.233-234-235. Research in Child Development.
- C.W.250. Nursery School Education. Discussion of historical background and current practices, fundamental problems and theory, problems of administration and organization.
- C.W.260. Seminar on Physical Growth. Survey of the growth of the human body and its systems from early fetal life to maturity. Same as Anatomy 160. Credit cannot be received for both Anatomy 160 and C.W. 260.
- C.W.261-262-263. Statistical and Laboratory Work on Physical Growth. Same as Anatomy 161-162-163. Credit cannot be received for both.
- C.W.270-271-272. Readings in Child Development. Independent readings and reports in any field such as physical growth, health problems, mental development, social behavior, nursery school theory, parent education, etc., which meets the approval of the listed instructors.

CURRICULUM AND INSTRUCTION†

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ed.C.I.113 (formerly Ed.Ad.113). High School Curriculum. A study of principles and of methods for the selection and organization of subject-matter for courses; the organization of curricula; contemporary viewpoints and curriculum issues; reorganization trends; typical research findings by subjects.
- Ed.C.I.118 (formerly Ed.T.118). Problems in Junior High School English.
- Ed.C.I.119 (formerly Ed.Ad.119). The Elementary School Curriculum. A study of the principles underlying the selection and organization of subject-matter for courses in the elementary school and a survey of the methods, problems, and findings of research by subjects.
- Ed.C.I.119T-120T (formerly Ed.Ad.119T-120T). The Elementary School Curriculum. (Same as above for teachers.)
- Ed.C.I.121 (formerly Ed.Ad.121). Educational Advising of Women and Girls. A course designed to acquaint students with the problems of educational advising of girls and young women, particularly those of high school age. Open to seniors and graduates, and juniors by permission of the instructor.
- Ed.C.I.122 (formerly Ed.T.122). Literature for Adolescents. Background for pupil guidance in extensive reading in junior and senior high schools; analysis of studies of adolescent choices in literature; principles of selec-

† The courses in this grouping were formerly listed under Administration and Supervision and Theory and Practice of Teaching. In most cases they bear the same numbers.

- tion; critical reading in broad field of literary, biographical historical, scientific, and vocational interests of boys and girls.
- Ed.C.I.123 (formerly Ed.Ad.123). Supervision of High School Instruction. The present status of high school supervision; its proper scope and function. A course combining consideration of principles and their application to improving high school instruction in the academic and special subjects.
- Ed.C.I.130. Problems of Childhood Education. Lectures, discussions, readings upon current kindergarten and primary methods, the needs of five-, six-, and seven-year-old children and the philosophy of primary instruction.
- Ed.C.I.133 (formerly Ed.133). Guidance in Secondary Schools. Basic principles and current practices in educational and vocational guidance in junior and senior high schools. Application of principles through case discussions.
- Ed.C.I.135 (formerly Ed.135). Teaching of Occupations. Discussion of the content of the secondary school course in occupations, stressing sources of material and vocational trends.
- Ed.C.I.143-144‡ (formerly Ed.T.143-144). Teaching of Reading. A study of the objectives, the materials, and teaching procedures in lower, intermediate, and upper grades in the light of the contributions of research; survey of current practices and curricula; class and individual projects; observation of reading techniques and materials in the demonstration school.
- Ed.C.I.145 (formerly Ed.T.145). Clinical Remedial Reading.
- Ed.C.I.148 (formerly Ed.T.148). The Teaching of Arithmetic in the Primary Schools. Functions of arithmetic; curriculum studies; preparation of informational units; tests of arithmetic readiness; organization of materials; teaching methods.
- Ed.C.I.149 (formerly Ed.T.149). The Teaching of Arithmetic in the Intermediate Grades. Function of arithmetic instruction; curriculum studies; development of socialized units; measurement and diagnosis; experimental research on methods of arithmetic instruction; literature on arithmetic.
- Ed.C.I.150‡ (formerly Ed.Ad.150). Supervision and Improvement of Instruction. An analysis of the functions and duties of a supervisor as related to the improvement of instruction; specific supervisory technique; objective analysis of classroom activity; concrete applications to present day problems; case studies.
- Ed.C.I.151‡ (formerly Ed.Ad.151). Diagnostic and Remedial Instruction. Objective evaluation of the results of teaching; diagnosis of pupil difficulty; remedial work; tests as aids to teaching; following up a testing program.
- Ed.C.I.152 (formerly Ed.Ad.152). Supervision—The Adjustment of Schools to Individual Differences. The adaptation of the school, the curriculum, and classroom procedures to the abilities and interests of pupils.

‡ A fee of \$1 per credit is charged for this course.

- Ed.C.I.153 (formerly Ed.Ad.153). Supervision of English in the Elementary Schools. Improvement of instruction in language, grammar, spelling, and handwriting; the results of scientific investigation; use of standardized and informal tests; remedial work.
- Ed.C.I.154 (formerly Ed.Ad.154). Supervision of the Social Studies. The scientific work being done on the course of study, in geography, history, science, and related fields; improvement of instruction in social studies in the elementary schools.
- Ed.C.I.155 (formerly Ed.Ad.155). Supervision of Arithmetic in the Elementary Schools. Locating supervisory needs; enrichment of instruction; selection, organization, gradation of the curriculum; diagnostic and remedial teaching; recent trends and research.
- Ed.C.I.156*‡ (formerly Ed.Ad.156). Practice Supervision—Group Problems and Field Work. Instructional and supervisory problems studied with the help of direct classroom visitation in university demonstration schools and schools in the Twin Cities, followed by conferences with teachers and supplemented with research in the literature.
- Ed.C.I.157*‡ (formerly Ed.Ad.157). Practice in Supervision. Individual research on special supervisory problems; especially intended for supervisors in service.
- Ed.C.I.159 (formerly Ed.Ad.159). Supervision and Teaching of Reading. The improvement of instruction and supervision of reading by teachers, principals, and supervisors.
- Ed.C.I.160‡ (formerly Ed.Ad.160). Supervision of Elementary Subjects. An overview course for giving supervisor and superintendent information as to recent trends in elementary education.
- Ed.C.I.161 (formerly Ed.Ad.161). Special Problems in Elementary School Supervision. Intended primarily for graduate students majoring in supervision and others qualified to make intensive studies of specific problems related to school supervision. Fall, surveys of instruction; winter, construction of tests for measuring the extent to which objectives are achieved; spring, problems in the evaluation of teaching.
- Ed.C.I.162 (formerly Ed.Ad.162). The Significance of Progressive Education. A survey of the progressive education movement and its effects on curriculum, methods, organization, and supervision.
- Ed.C.I.163 (formerly Ed.Ad.163). Recent Research in Arithmetic Instruction. A study of recent research in curriculum, gradation of subject-matter, methods, materials, and supervision of arithmetic.
- Ed.C.I.164 (formerly Ed.Ad.164). Recent Research in Educational Diagnosis. A study of recent research in the methods of diagnosis in education, and the techniques of preventive and remedial teaching.
- Ed.C.I.165 (formerly Ed.Ad.165). Recent Literature in Supervision. A study of recent research on problems of elementary school supervision.
- Ed.C.I.168 (formerly Ed.T.168). Current Developments in the Social Studies. A survey of contemporary literature, curricular trends, the commission report, and recent development of integration.

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

- Ed.C.I.169 (formerly Ed.Ad.169). Extra-Curricular Activities.
- Ed.C.I.172 (formerly Ed.Ad.172). Curriculum and Course of Study Construction. A practicum course. A study of, and practice in, the techniques employed at elementary, secondary, and higher education levels. Class projects and individual projects according to needs, interests, level, and specialization. Thoro exploration of one field by each student.
- Ed.C.I.173. Recent Research and Literature in Reading. A survey of recent problems, issues, studies, and findings. Intended for those who have had previous training in reading, who have a special problem or who wish to survey the most recent literature.
- Ed.C.I.174‡§-175‡§-176‡§ (formerly Ed.T.164-165-166). Clinical Methods and Practice in Speech Pathology.
- Ed.C.I.181‡ (formerly Ed.T.181). Foundations of Elementary School Method. A survey of the current philosophy and research which form the bases for improvement of elementary school instruction. Observation in the demonstration school.
- Ed.C.I.184 (formerly Ed.Ad.184). Supervision of Practice Teaching. Primarily for teachers engaged in the direction of practice teachers in secondary education.
- Ed.C.I.188‡ (formerly Ed.T.188). Advanced Course in Methods of Teaching Modern Languages. An advanced course of the seminar type in methods of teaching modern foreign languages. Designed primarily for experienced teachers and graduate students. Lectures, readings, discussion.
- Ed.C.I.191‡ (formerly Ed.T.191). Advanced Course in the Teaching and Supervision of Secondary School Mathematics. Evaluation of the present practices in methods, content, and administration of junior and senior high school mathematics.
- Ed.C.I.193 (formerly Ed.T.193). Foundations of Secondary School Methods. A study of the investigations which form the bases of the technique of high school instruction and the application of their results to subject-matter and to classroom procedure. Each member will work primarily in the field of his teaching choice, with a final synthesis by the class as a whole.
- Ed.C.I.194‡ (formerly Ed.T.194). Advanced Course in Methods of Teaching English. Evaluation of present practices in methods and content of junior and senior high school English courses in the light of the known results of scientific investigations in that field.
- Ed.C.I.196-197-198 (formerly Ed.T.196-197-198). Special Problems in Techniques of Secondary School Instruction. Special research problems in the field of the student's individual choice.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.C.I.201-202-203‡ (formerly Ed.T.201-202-203). Advanced Course in the Methods of Teaching History and the Social Studies.

‡ A fee of \$1 per credit is charged for this course.

§ Passing the qualifying examination is prerequisite to this course.

- Ed.C.I.222-223-224 (formerly Ed.T.222-223-224). Seminar in Techniques of Secondary School Instruction. No credit. Required of students working on theses.
- Ed.C.I.225. Problems in Supervision of Instruction in Secondary Schools. Study of special problems in supervision primarily for graduate students and supervisors in schools who are qualified to make intensive studies. Consult instructor before registering.
- See also Ed.228-229-230 under General Courses, page 74.
- For graduate courses in the theory and practice of teaching in special subjects see the respective departmental course description.

EDUCATIONAL ADMINISTRATION†

COURSES FOR UNDERGRADUATE STUDENTS

- Ed.Ad.24. Public School Administration. The organization and administration of public schools in relationship to the teacher and other staff members. For teachers.
- Ed.Ad.65. The High School. Development of secondary education in the U.S.; types of secondary schools; recent tendencies in reorganization; the aims and functions of secondary education; courses of study as related to aims; curriculum organization and programs of studies. Now offered as Ed.51C.
- Ed.Ad.65a. The High School. For students majoring in administration. (See Ed.Ad.65.)
- Ed.Ad.75. The Elementary School. A systematic study of the modern elementary school as an introduction to elementary education. Now offered as Ed.61C.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ed.Ad.115. Organization of the Elementary School. Problems relating to the organization for instruction and classification of pupils in elementary schools with critical examination of current practices.
- Ed.Ad.124. Public School Administration. The organization, administration, and general support of public schools in states and local school districts.
- Ed.Ad.125. Techniques in Administration. Standard practices regarding child accounting problems, records and reports; procedures having to do with personnel and school board relations and rules and regulations; standard office practices, including textbook and supply management.
- Ed.Ad.126. School Plant Management. Plant program planning and financing, including operation and maintenance of public school buildings.
- Ed.Ad.128. Special Problems in Educational Administration. This course is designed primarily for superintendents and principals qualified to make intensive studies of specific problems related to the administration of a school system.
- Ed.Ad.129. Educational Publicity Materials.

† For courses formerly listed under Administration and Supervision, see Curriculum and Instruction.

- Ed.Ad.130. Educational Publicity Agencies.
- Ed.Ad.158. Organization for Supervision. The organization and the administration of a public school system for supervision, treating specifically the delegation and co-ordination of the supervisory responsibilities of all staff members associated in these activities.
- Ed.Ad.175. Financial Aspects of Public School Business Administration. Financial program planning, budgeting, accounting, cost finding, income and expenditure control; and the preparation and analysis of financial reports.
- Ed.Ad.178-179. School Surveys. A study of the literature and method of school surveys, as a basis for the investigation of practical problems in school administration and supervision.
- Ed.Ad.180.‡ Practice in High School Administration. Practical experience in problems of administration, pupil personnel, curriculum administration, extra-curricular activities, staff problems, program and schedule making, etc. Consult instructor before registering.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.Ad.205-206-207. Seminar in Educational Administration.
- Ed.Ad.218-219-220. Seminar in Secondary School Problems.
- Ed.Ad.264. High School Administration. Organization of secondary school units; housing; selection and assigning of the staff; schedule making; public relations and publicity; organization of guidance and of extra-curricular activities; pupil, equipment, and internal fund accounting and related problems of administration; government; problems related to instruction.
- Ed.Ad.270. Special Problems in Secondary Education. Primarily for those at work in high schools who are qualified to make intensive studies. Consult instructor before registering.

EDUCATIONAL PSYCHOLOGY

COURSES FOR UNDERGRADUATE STUDENTS

- Ed.Psy.55. Educational Psychology. A survey of fundamental facts of human behavior, involved in educational activities. Particularly designed for high school teachers. Now offered as Ed.51A.
- Ed.Psy.56. Educational Psychology for Elementary School Teachers. This course is similar to Ed.Psy. 55 but particularly adapted to the needs of the elementary school teacher. Equivalent to Ed.61A.
- Ed.Psy.56-57. Educational Psychology for Elementary School Teachers. Same as Ed.Psy.56.
- Ed.Psy.60. Introduction to Statistical Methods. This course includes a study of measures of central tendency, variability, and correlation.

‡ A fee of \$1 per credit is charged for this course.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ed.Psy.111-112. Educational Measurements in the Elementary School.
- Ed.Psy.113-114-115. Psychology of Elementary School Subjects. A discussion of the research studies in the field of the psychology of elementary school subjects.
- Ed.Psy.116-117-118. A course designed to lay the foundations of statistical theory and to develop the craftsmanship to put theory to application with special reference to educational and psychological problems. Primarily for graduate students.
- Ed.Psy.120. Basic Principles of Measurement. Principles applied to the construction and use of tests and to the interpretation and evaluation of scores. Illustrations from mental and other aptitude tests, education, personality, and character tests.
- Ed.Psy.135-136. Problems in Mental Testing. A study of practical problems in the administration and use of group mental tests.
- Ed.Psy.138-139. Experimental Educational Psychology. A laboratory course designed to train students in the use of experimental methods in the study of educational problems, particularly in the field of the psychology of learning. It is suggested that this course supplement either 133 or 190, 191, 192 or 193-194.
- Ed.Psy.140. Construction and Use of Educational Tests and Examinations. A study of tests for elementary and secondary school pupils and for graduate students. Each student will have opportunity to construct examinations and to evaluate published tests in the field of his major interest.
- Ed.Psy.141. Construction and Use of Group Aptitude Tests. A study of group aptitude tests for all school levels with special emphasis on reliability and validity as instruments for educational and vocational guidance.
- Ed.Psy.142. Construction and Use of Individual Aptitude Tests. Application of basic principles of measurement to individual diagnosis. Demonstration and practice. Stanford-Binet, Kuhlman-Binet, and performance tests. Consideration of other clinical methods.
- Ed.Psy.145. Special Problems in the Field of Individual Mental Testing. The understanding and treatment of all forms of behavior problems in children of school age. Didactic lectures, reading, and presentation of clinical case records.
- Ed.Psy.149-150-151. Psycho-Educational Clinic. Conducted in co-operation with existing clinics and agencies in the Twin Cities. Students will receive practice in giving psychological examinations, in case study, and in scientific interpretation of data.
- Ed.Psy.153-154-155. Research Problems. Intended for properly prepared students who desire to pursue special investigation in the field of educational psychology.
- Ed.Psy.157. Psychology of Child Development. The physical, mental, social, and emotional development of children from birth to adolescence.

- Ed.Psy.158. Psychology of Adolescence. A study of physical and mental changes characterizing the transition from childhood to adult life. Implications for guidance during the period of secondary education.
- Ed.Psy.159. Psychology of Personality. Theoretical basis. Survey of methods for the measurement and study of character and the emotions. Relation to school success and other factors in the school situation. Genetic development of personality traits in childhood and adolescence.
- Ed.Psy.180. Esthetics in Education. An objective approach to the existence, causes, and methods of dealing with individual differences in esthetic abilities.
- Ed.Psy.181. Practice in Personnel Work. Course designed to give properly qualified students practical experience in the use of psychological and related methods in dealing with school children.
- Ed.Psy.183. Psychology of Gifted Children. A study of the abilities and characteristics of intellectually gifted children and adults.
- Ed.Psy.184. Mental Deficiency. Survey of physical and mental traits of intellectually subnormal children and adults; social problems of feeble-mindedness.
- Ed.Psy.189. The Human Organism. The development of the human organism in relation to educational practice.
- Ed.Psy.190. Original Nature of Man. Advanced work in genetic psychology, man's unlearned behavior, and inherited capacities.
- Ed.Psy.191. Individual Differences. A study of group and individual differences and their relations to educational practice.
- Ed.Psy.192. Recent Literature in Educational Psychology. Readings and reports on problems in educational psychology.
- Ed.Psy.193-194. Psychology of Learning. A study of the experiments in learning; a survey of the points of view on learning of the several schools of psychology.
- Ed.Psy.197-198-199. Special Problems of Subnormality. Phases of subnormality studied intensively. Review of important literature and original investigation. Student required to make report on assigned topics and submit a paper on some problem at the close of the quarter.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- Ed.Psy.201-202-203. Seminar in Educational Psychology. A research course for graduate students. Required of all students writing theses in educational psychology. Does not carry credit as course work.
- Ed.Psy.240. Problems in Measurement. Intensive study and individual research in problems of educational and vocational measurement.

HOME ECONOMICS EDUCATION

COURSES FOR UNDERGRADUATE STUDENTS

- H.E.Ed.90 (formerly H.E.Ed.40). Child Training. A brief study of the physical and mental development of the child is followed by a discussion of the problems of training small children. Emphasis is placed on the pre-school child. Lectures, observations in the Nursery School, and reports.

- H.E.Ed.91† (formerly H.E.Ed.42). Observation, Materials, Teaching Home Economics. The psychological bases for teaching; investigation and collection of facts on teaching situations through observation and participation in school activities; study of teaching materials and method. (5 cred.; jr., sr.; prereq. H.E. 4, 34 (or 170), 41, 50, 55; Psy. 1-2; Ed. 51 (or Agr.Ed. 11), Ed. 53 and parallel H.E.Ed. 93).
- H.E.Ed.92. Teaching Problems in Home Economics. Reports, discussion, conferences on the planning of units, teaching procedures, illustrative materials, and equipment. (2 cred.; sr.; prereq. H.E.Ed. 91, 93), parallel H.E.Ed. 94, 192.
- H.E.Ed.93*‡ (formerly H.E.Ed.49). Supervised Teaching of Home Economics. Observation, participation, and actual teaching experience under supervision in different home economics situations and on different age levels. (3 cred.; jr., sr.; prereq. H.E. 4, 34 (or 170), 41, 50, 55, Psy. 1-2, Ed. 51 or Agr.Ed. 11, Ed. 53, parallel H.E.Ed. 91.) The student must have received a grade of C or higher in H.E. 1, 3, 4, 20, 21, 22, 31, 34 (or 170), 40, 41, 55, and must have completed Home Experience in Meal Preparation and Clothing, and must have passed the qualifying examination.
- H.E.Ed.94.*‡ Supervised Teaching in Home Economics. A continuation of H.E.Ed. 93. (3 credits; sr.; prereq. H.E.Ed. 91, 93 (parallel), H.E.Ed. 92 and 192). To receive credit for this course students must have completed H.E.Ed. 93.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- H.E.Ed.191 (formerly H.E.Ed.141). Vocational Education in Home Economics. The place and development of home economics in the vocational education program. Study of the problems of the all-day, evening, and part-time schools.
- H.E.Ed.192a (formerly H.E.Ed.142a). Educational Measurement in Home Economics. Problems of measurement in home economics; home economics tests and scales; construction and evaluation of objective tests.
- H.E.Ed.192b (formerly H.E.Ed.142b). Educational Measurement in Home Economics. A continuation of Course 192a, dealing with methods of interpretation and utilization of test data.
- H.E.Ed.193 (formerly H.E.Ed.143). Home Economics Curricula. The objectives of home economics in junior and senior high schools; recent surveys and other investigations used in determining curriculum content; home economics courses of study.
- H.E.Ed.197 (formerly H.E.Ed.147). Organization and Methods for Related Art Teaching. Organization of a related art course and methods of teaching art principles as applied to familiar objects and processes.
- H.E.Ed.199 (formerly H.E.Ed.149). Research Problems. A study of the methods used in collection, treatment, and interpretation of data in the field of home economics.

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

COURSES PRIMARILY FOR GRADUATE STUDENTS

- H.E.Ed.292 (formerly H.E.Ed.242). Problems in Home Economics Education. Current problems in home economics education will be studied. Required of all candidates minoring in home economics education.
- H.E.Ed.295 (formerly H.E.Ed.245). Seminar in Home Economics Education. A research course for graduate students. Required of all students writing theses in home economics education. Does not carry credit as course work.

INDUSTRIAL EDUCATION

Shop and drawing courses.—Courses Ind. 1-2, 5, 10 are offered by instructors of the special department. Other courses in wide variety are available in the Departments of Mechanical Engineering and Agricultural Engineering. Students may arrange for shopwork and drawing, day or evening, at the William Hood Dunwoody Industrial Institute without fees other than those paid to the University, except one dollar which is subject to refund.

All shop and drawing courses should be selected under advice and may be either extensive or intensive in resultant preparation for teaching. Twenty credits in shopwork and ten credits in drawing, including courses numbered above, are required. It is recommended that the twenty required credits in shopwork be distributed with reference to woodworking, metal working, electricity, and printing in equal amounts. Fifteen additional credits in either field, or in both fields combined, may be elected. A maximum of forty-five credits is strictly enforced, which fact should be noted, particularly by those who transfer to this University or to this special curriculum with advanced standing.

COURSES FOR UNDERGRADUATE STUDENTS

- Ind.1-2.‡ General Shopwork. Primarily for Industrial Education majors. Six shop activities available.
- Ind.5‡ Finishing. Theory and practice of modern wood and metal finishing; stains, fillers, varnishes, paints, enamels, and nitrocellulose lacquers; polychrome finishes; spray-gun work; refinishing.
- Ind.10.‡ Mechanical Drawing. Principles and technique of elementary mechanical drawing. Primarily for Industrial Education majors.
- Ind.11.*‡ Special-Class Woodworking. For teachers of art, subnormal, and primary work; lectures, demonstrations, and shop practice; not open to those with college credit in woodworking.
- Ind.30. Graphic Presentation. Typical methods of the graphic portrayal of data; use of educational and social facts for drill in construction and interpretation; corrected charts become student property.
- Ind.40. Analysis. Necessity for, and types of, occupational analysis; individual work upon selected trade fields—for teaching purposes.
- Ind.42. Course Organization. Makes definite use of analyses; content of courses selected and arranged for common and special teaching situations; both general and vocational classes and groups considered.

* Not a part of the four-year curriculum.

‡ A fee of \$1 per credit is charged for this course.

- Ind.44. Equipment and Management. Sources, purchases, costs, and inventories; installation, upkeep, and safe operation; storage and issue of tools and supplies; financial accounts, bills of material, and disposal of products.
- Ind.50A,B,C§‡ (formerly Ind. 50-51-52). Practice Teaching. Three quarters or six credits required. (Consult with adviser or critic teacher.)
- Ind.60. Philosophy of Vocational Education. Development and characteristics of vocational training; conservation of human and material resources; social and economic significance; results and weaknesses; current theories.
- Ind.61. Practices in Vocational Education. Plans of organization and control; types of schools and classes; public versus private and corporation training; state and federal aid; teacher preparation; efficiency factors.
- Ind.65.*‡ The Non-Vocational Subjects. Materials in civics, industrial history, commercial geography, English, and other branches classified by the Smith-Hughes Law, as "non-vocational"; the needs of groups, course planning, and special devices.
- Ind.66.‡ The Related Subjects. Theories, practices, and problems of related instruction; special reference to mathematics, drawing, science, and safety; group study, unit courses, usable techniques, and the means of supervision.
- Ind.70.‡ Methods in Shop Subjects. Conduct of shop classes with and without reference to production work; discussion of lesson plans, demonstrations, drill, grading, reports, records, and standards of workmanship.
- Ind.75.‡ Methods in Drawing. The selection and arrangement of course materials; methods of presentation and problems of the drawing room.
Not a course in drawing.
- Ind.80. General Industrial Training. Administration of the industrial work for grades and high school in typical Minnesota towns; aims, offerings, schedules, teaching fitness, general management; consideration of the unifying opportunities within a department and a school.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

- Ind.101. Tests in Industrial Subjects. Acquaintance with such available tests of aptitude and achievement as are useful in industrial education; application of known techniques in remedial teaching to the work of shop and drawing instructors. Critical evaluation and planning.
- Ind.103. Instructional Aids. Preparation of individual instruction sheets and other such specific shop and classroom aids. Each student will be privileged to select the industrial subject in which he will work, under the group guidance and personal assistance of the instructor.
- Ind.105.* Industrial Education. For superintendents, principals, and teachers not specializing in the field named; general and vocational phases considered; objectives, administration, and supervision; programs and practices; laws, rulings, and standards for aid; significant literature; how to judge teachers, courses, and methods.

* Not a part of the four-year curriculum.

‡ A fee of \$1 per credit is charged for this course.

§ Passing the qualifying examination is prerequisite to this course.

- Ind.110. Guidance in the Schools. History of the educational and vocational guidance movement; typical public school means and methods; use of occupational information; duties of the counselor; organization and relationships.
- Ind.115. Supervision of Industrial Education. Supervisory practices and problems in both industrial arts and trade training. Attention to small-town and large-city situations and to the activities of state supervision. Application, to the special field, of devices and techniques common in the more general subjects.
- Ind.150-151-152.* Problems in Vocational Education. Six credits offered. Survey of printed reports and theses; critical analysis; selection of thesis problems; formulation of work plans; reports of progress; organization and presentation. Graduates only.
- Ind.170. Day and Industrial Schools. National, state, and local organization and types; buildings and equipment; promotion and advertising; co-operative relationships; teaching staff; pupil guidance, training, and placement.
- Ind.171. Evening Industrial Schools. Development of the after training of adults; agencies and scope of the movement; national and state legislation; qualifications of instructors; problems and difficulties; records and certification; fees and charges; buildings, equipment, and instruction facilities.
- Ind.172. Part Time Education. A study of the new movement for part time education; social and economic background; organization of classes; study of special student groups; courses of study; typical schools; comparative state legislation and plans.

LIBRARY METHODS

Statement of fees.—A tuition fee of \$3 per credit is charged for all courses in Library Instruction under the Division of Library Instruction, except Course 1. (See Combined Class Schedule, pp. 10-11.) Maximum fee for courses in Library Methods, not including courses in other subjects, for residents, \$40; for nonresidents, \$45.

COURSES FOR UNDERGRADUATE STUDENTS

- Lib.Meth.51. Bibliography. Trade and national bibliography of the United States, Great Britain, and Europe; book ordering methods.
- Lib.Meth.52. Cataloging. Elements of dictionary cataloging. Lecture, problems, and practice.
- Lib.Meth.53. Advanced Cataloging. Continuation of 52, with special attention to difficult books and administrative aspects of a catalog department.
- Lib.Meth.54. Classification. Classification by the Dewey Decimal System, subject headings, author numbers, shelf and accession records.
- Lib.Meth.55. Advanced Classification. Continuation of 54. Library of Congress and other classifications; classed catalogs; special adaptations of classification.

* Not a part of the four-year curriculum.

- Lib.Meth.57. Secondary School Libraries. Administrative methods and problems of school libraries.
- Lib.Meth.58. Public Library Administration. Administration, equipment, finance, and extension work of public libraries.
- Lib.Meth.60. Library Binding. Economics of library binding. Materials, processes, records, book repair.
- Lib.Meth.61. Library Practice. Practice, under supervision, in Minneapolis and St. Paul libraries. The time and character of the practice will be arranged individually to suit student aptitudes, usually in the second and third quarters. Required of all students as prerequisite to a degree in library training.
- Lib.Meth.62. Reference. Reference books and other material with emphasis on methods of search and adaptation of material to needs of users.
- Lib.Meth.63. Advanced Reference. Specialized reference material, public documents, and periodicals. Reference lists and reports on special problems.
- Lib.Meth.64. Selection of Books for Adolescents. Principles of selection and criticism of representative books. Study and preparation of book lists for adolescents in school and public libraries.
- Lib.Meth.67. Library Printing. Preparation of copy, editing, proof reading, layout of library publications. Criticism of typical printed material.
- Lib.Meth.68. Library Publicity. Preparation and use of print in library publicity. Library exhibitions, etc.
- Lib.Meth.69. Current Library Problems. Discussion of typical problems and conditions in American libraries.
- Lib.Meth.70. Current Library Problems. Further discussion of typical library problems, library buildings, library surveys, etc.
- Lib.Meth.71. Library Work with Children. Administration of children's rooms and book selection.
- Lib.Meth.72. Library Work with Children. Further discussion of administration of children's rooms and book selection.
- Lib.Meth.73. Selection of Books for Adults. Principles of selection and criticism of representative books. Criticism and preparation of book lists.
- Lib.Meth.74. Selection of Books for Adults. Further discussion of books and aids to book selection.
- Lib.Meth.75. Selection of Books for Adults.

COURSE PRIMARILY FOR GRADUATE STUDENTS

- Lib.Meth.126. Advanced Bibliography. Senior or graduate standing and bibliographical or research training or experience are prerequisite to this course.

METHODS AND DIRECTED TEACHING†

COURSES FOR UNDERGRADUATE STUDENTS

SPECIAL METHODS AND DIRECTED TEACHING—COMBINED COURSE

Arrangements for practice teaching in the academic subjects should be made through Mr. Charles W. Boardman before the close of the junior year. Such arrangements should be completed before the student registers for other

† The following courses were formerly listed under Theory and Practice Teaching.

courses. Passing the qualifying examination is prerequisite to all special methods and practice teaching courses.

The teachers' courses in methods of teaching and in practice teaching are combined into a one-year course in the following subjects:

Ed.T.60A,B,C*‡ (formerly Ed.T. 24-25-26). Geography. (For junior high schools.)

Ed.T.66A,B,C*‡ (formerly Ed.T.52-53-54). English.

Ed.T.67A,B,C*‡ (formerly Ed.T.56-57-58). Mathematics.

Ed.T.68A,B,C*‡ (formerly Ed.T.62-63-64). Secondary School Science.

Ed.T.69A,B,C*‡ (formerly Ed.T.66-67-68). History and Social Science.

Ed.T.70-71-72*‡ (formerly Ed.T.70-71-72). German.

Ed.T.71A,B,C*‡ (formerly Ed.T.73-74-75). Latin.

Ed.T.72A,B,C*‡ (formerly Ed.T.76-77-78). Romance Languages (French and Spanish).

Ed.T.73A,B,C*‡ (formerly Ed.T.80-81-82). Commercial Subjects.

DIRECTED TEACHING FOR SPECIAL STUDENTS

Ed.T.51A‡ (formerly Ed.T.11). Special Methods of Teaching in Schools of Nursing. A study of the problems of nursing education, surveying present conditions. Objectives of nursing education and the making of curricula. Principles underlying clinical and classroom teaching in schools of nursing. Planning instruction.

Ed.T.51B‡ (formerly Ed.T.12). Special Methods of Teaching in Schools and Practice Teaching in Schools of Nursing. Observation and study of principles of teaching applied in the nursing school situation. Supervised practice in teaching of nursing subjects.

Ed.T.52*‡ (formerly Ed.T.16). Directed Teaching. Teaching under supervision in the University High School and in the Twin City schools. The course calls for one period daily at the school where the work is assigned. Registration in this course is limited to students who have completed special methods courses or have had teaching experience. Practice teaching in academic subjects is normally combined with special methods courses in a one-year teachers' course.

Ed.T.53*‡ (formerly Ed.T.17). Directed Teaching of Subnormal Children. Students will have opportunity to observe work with the special classes, and to teach under direction. Conducted in co-operation with the public schools of Minneapolis and St. Paul.

SPECIAL METHODS COURSES IN JUNIOR-SENIOR HIGH SCHOOL SUBJECTS

Ed.T.60A,B,C*‡ (formerly Ed.T. 24-25). Special Methods and Directed Teaching in Geography.

Ed.T.61*‡ (formerly Ed.T.35). Teachers' Course in Norwegian.

Ed.T.62*‡ (formerly Ed.T.41). Teachers' Course in Swedish.

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

- Ed.T.66A,B,C*‡ (formerly Ed.T.52-53-54). Special Methods and Directed Teaching in English. A one-year course. This course is required of all students with a major in English or Speech.
- Ed.T.66Am*‡ (formerly Ed.T.52a). The Teaching of Composition in the Senior High School. Objectives of composition; selection of subject-matter and its relation to the problem—project method of assignment; problems of grading composition; problems of teaching grammar, punctuation, and spelling; oral composition. Practice teaching and observation are combined with this course except in special cases.
- Ed.T.66Bm*‡ (formerly Ed.T.53a). The Teaching of Literature in the Senior High School. Objectives of literature teaching; differentiated method for appreciation and information; methods of handling different types such as fiction, drama, poetry, and essay; survey courses; home reading; illustrative material. Practice teaching and observation are combined with this course except in special cases.
- Ed.T.67A,B,C*‡ (formerly Ed.T.56-57-58). Special Methods and Directed Teaching in Mathematics. A one-year course required of all students with a major in mathematics.
- Ed.T.67Am,Bm*‡ (formerly Ed.T.56a-57a). The Teaching of Secondary School Mathematics. Discussion of procedures in selecting and organizing materials and in teaching secondary school mathematics.
- Ed.T.68A,B,C*‡ (formerly Ed.T.62-63-64). Special Methods and Directed Teaching in Secondary School Science. A one-year course required of all students with a major in natural science.
- Ed.T.68Am,Bm*‡ (formerly Ed.T.62a-63a). Methods of Teaching Secondary School Science.
- Ed.T.69A,B,C*‡ (formerly Ed.T.66-67-68). Special Methods and Directed Teaching in History and Social Studies. A one-year course required of all students with a major in history or the social studies.
- Ed.T.69Am,Bm*‡ (formerly Ed.T.66a-67a). Methods of Teaching History and Social Studies.
- Ed.T.70A,B,C*‡ (formerly Ed.T.70-71-72). Special Methods and Directed Teaching in German. A one-year course required of all students with a major in German.
- Ed.T.71A,B,C*‡ (formerly Ed.T.73-74-75). Special Methods and Directed Teaching in Latin. A one-year course required of all students with a major in Latin.
- Ed.T.72A,B,C*‡ (formerly Ed.T.76-77-78). Special Methods and Directed Teaching in Romance Languages. A one-year course required of all students with a major in French or Spanish.
- Ed.T.73A,B,C*‡ (formerly Ed.T.80-81-82). Special Methods and Directed Teaching in the Commercial Subjects. A one-year course required of all students in the specialized curriculum in commercial education.
- Ed.T.74*‡ (formerly Ed.T.83). Teacher's Course in Journalism.

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

METHODS AND DIRECTED TEACHING IN THE ELEMENTARY SCHOOL

- Ed.T.54A,B,C*‡ (formerly Ed.T.26-27-28). The Teaching of Elementary School Subjects. Fall—reading, social studies; winter—English, arithmetic; spring—directed teaching.
- Ed.T.63 (formerly Ed.T.44). Children's Literature. A study of the varied purposes of reading in the elementary school. Bases of selecting materials for extensive reading. Analysis of studies of children's interests. Extensive critical survey of old and new materials for children's reading.
- Ed.64 (formerly Ed.T.45). The Teaching of Geography and History in the Elementary School. The aims and purposes controlling instruction in geography and history in the elementary school; tendencies toward standardization, special emphasis on problem studies.
- Ed.T.65*‡ (formerly Ed.T.46). Directed Teaching with Special Methods in Elementary Schools. Teaching under supervision in graded or rural schools in the vicinity of the University; discussion of special methods in their application to actual problems of teaching.
- Ed.T.78A,B (formerly Ed.T.91-92). Methods in Primary Grades.

METHODS AND DIRECTED TEACHING IN THE KINDERGARTEN AND NURSERY SCHOOL

- Ed.T.55 (formerly Ed.T.30). Principles of Kindergarten and Nursery School Education. The development, aims, and organization of kindergarten and nursery school education. A consideration of the curriculum and methods.
- Ed.T.56 (formerly Ed.T.31). Permanent Play Materials. A consideration of the various kinds and types of permanent play materials (blocks, dolls, trains, wagons, etc.) and their use by children of different ages.
- Ed.T.57*‡ (formerly Ed.T.32). Plastic Materials. The materials used in constructive work, paper, crayons, paints, clay, woodwork, sewing, sand, etc. The student is given some opportunity for actual use of the materials and will gain considerable knowledge of the abilities of children of different ages.
- Ed.T.58 (formerly Ed.T.33). Rhythms, Games, and Music for the Young Child. A course designed to train the student in the handling of a music and rhythm period and in group games. The student will be expected to take part in the rhythms and music work in both the Nursery School and the Kindergarten.
- Ed.T.59 (formerly Ed.T.59). Story Telling for Young Children. A study of folk, fairy, here-and-now stories and poetry suitable for young children. The principles underlying story telling, the selection of the story, and versions. The educational importance of conversation with the child.
- Ed.T.75‡ (formerly Ed.T.84). Methods and Observation in the Nursery School. Open only to home economics and nursing education students.

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

Ed.T.76A,B,C‡ (formerly Ed.T.85-86-87). Methods and Observation. Two hours each week will be spent observing in the Nursery School or in the Kindergarten. There will be written reports of the observations and a class discussion of one hour in alternate weeks.

Ed.T.77A,B,C*‡ (formerly Ed.T.88-89-90). Directed Teaching in Kindergarten or Nursery School. Students must choose either nursery school or kindergarten practice teaching. If they desire, students may do practice teaching in both schools by putting in additional hours but they can receive credit for only one. Practice will be arranged to give the student a varied experience, and each student will be assigned one child for intensive study throughout the year.

SPECIAL METHODS IN SPECIAL SUBJECTS

For courses in the theory and practice of teaching in the special subjects see special curricula.

MUSIC EDUCATION

NOTE.—For description of courses in Music and statement of fees see Bulletin of Science, Literature, and the Arts. For statement of fees, see also Combined Class Schedule, p. 66.

COURSES FOR UNDERGRADUATE STUDENTS

Mu.Ed.1. Music Orientation. A course designed to acquaint the student with the literature of music, and to assist in the more intelligent listening and appreciation thereof. Attendance at musicales and concerts is strongly urged.

Mu.Ed.4-5-6.‡ Applied Instrumental Technique. This laboratory course is divided into three quarters, strings, brass (and percussion), and woodwinds, respectively. It incorporates the theory and technical development of the instruments, and elementary instruction in the playing of the chosen vehicle of expression, with special attention to the routine of class instruction.

Mu.Ed.50.‡ Elementary Methods. Practical methods of teaching music in the kindergarten, and grades one to six, inclusive. Particular attention is given to the child voice, its care and development. Students are required to observe music teaching in the Minneapolis and St. Paul grade schools.

Mu.Ed.51.‡ Comparative Methods. An analysis of the various techniques of music teaching and supervision, stressing the learning processes, psychology of method, and standards of attainment of each.

Mu.Ed.52.‡ Technique of Teaching Appreciation. A practical course in the teaching of appreciation of music to children in the elementary grades. Materials and methods of presentation will be discussed and demonstrated, using the class as a laboratory.

Mu.Ed.53.‡ High School Methods. Organization and methods of teaching

* Passing the qualifying examination is prerequisite to this course.

‡ A fee of \$1 per credit is charged for this course.

chorus and voice classes, appreciation and theoretical music in the modern high school. Particular attention to the changing voice. Students are required to observe in the Minneapolis, St. Paul, and University high schools.

- Mu.Ed.54.‡ Operetta Conducting. Materials and methods of presenting and organizing high school operettas, pageants, cantatas, etc. An operetta is presented by the class, paying particular attention to the details of the work from the director's standpoint.
- Mu.Ed.55.‡ Survey of Materials (Vocal). A laboratory course in materials used by the music departments of the public schools, paying particular attention to the psychology of program building. A survey of the well-known and newer publications in the field of public school music.
- Mu.Ed.56.‡ Survey of Materials (Instrumental). A laboratory course in materials used by instrumental ensembles, paying particular attention to the psychology of program building. A survey of the well-known and newer publications in the field of public school music.
- Mu.Ed.57.‡ Theory of Conducting. A study of the techniques of conducting, interpretation, and expression, the art of program making, rehearsals, organization, and the essentials of musical leadership.
- Mu.Ed.58.‡ Orchestra Conducting. This course is a laboratory for practice in orchestra and band conducting. The class is in itself the ensemble, and the responsibility of conducting is rotated among the members. Technique of the baton, interpretation, seating arrangement, and auditorium acoustics are discussed.
- Mu.Ed.59.†‡‡ Choral Literature and Conducting. This course is designed to acquaint the student with professionalized content within the field of choral music. Freshmen, sophomores, juniors, and seniors are required to take the course during the winter quarter of each year. Seniors in the course will gain experience in conducting, using the class as a laboratory.
- Mu.Ed.60-61-62.†‡§ Supervision and Teaching. Principles of music supervision, including the problems of the new teacher and supervisor, and an analysis of the various extra-curricular duties relevant to such a position. A thesis with research work in a particular field is required. Practice teaching is done in both grade and high schools in Minneapolis and St. Paul.
- Mu.Ed.63.‡ Band Conducting.
- Mu.Ed.64.‡ Band Organization.
- Mu.Ed.65.‡ Instrumentation. This course involves a theoretical study of orchestral and band instruments, in combination. The physics of tone color is explained. Revision of materials suitable for school use, and discussion of capacity and capability of school performance on the various instruments are undertaken.

† To receive credit for an part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per credit is charged for this course.

§ Passing the qualifying examination is prerequisite for this course.

¶ Four credits are required in Mu.Ed.59. The course should be repeated until all four credits are earned.

Mu.Ed.70. Accompanying and Sight Reading. A laboratory course aimed to develop proficiency in the art of accompanying and sight reading.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

Mu.Ed.101. Tests and Measurements in Music. Evaluation and application of the various ability and achievement tests in music with methods of use, analysis, and prognosis. A survey and evaluation of studies in the field of music testing.

NURSING EDUCATION

COURSES FOR UNDERGRADUATE STUDENTS

Nurs.60f,w,s,su. Ward Administration. Principles underlying effective ward management and administration. Lectures, classes, and field visits. (4 cred.; 44 hrs.)

Nurs.61s. Survey of Hospital Relationships. Study of hospital personnel, departments and interrelationships.

Nurs.69w. Survey of Conditions and Trends in Nursing. A study of conditions existing in nursing as revealed in literature and various reports. An attempt to define tendencies in nursing with a view to designating those which appear most favorable to social progress.

Nurs.71s. Curriculum Making in Schools of Nursing. General principles of curriculum making; study of the functions of the graduate nurse in the community as determinants of the clinical and classroom curricula of the professional school. Integration of materials into curricula preparing nurses as community health agents.

For descriptions of P.M.&P.H. 70, 72, and 76, see pp. 105-106.

For courses for graduate students see Bulletin of the Graduate School.

PHYSICAL EDUCATION FOR MEN

Statement of fees.—A towel and locker fee of \$1.25 per quarter is charged all students taking exercise courses. The University furnishes uniforms to students for class work or recreational play at \$1 per quarter.

COURSES FOR UNDERGRADUATE STUDENTS

Phys.Ed.1-2-3. Sports Education. Instruction and practice in recreational games and sports including swimming, touchball, handball, squash racquets, tennis, golf, diamond ball, boxing, etc.

Phys.Ed.4. Freshman Hygiene.

Phys.Ed.A,B,C. Physical Education Activities. Calisthenics, marching tactics, apparatus stunts, gymnastic dancing, touchball, diamond ball, individual and combination stunts, and tumbling.

Phys.Ed.7-8-9. Advanced Leaders. One hour of instruction; two hours leading squads in Phys.Ed. 1-2-3 or 16-17-18 under supervision.

Phys.Ed.10-11-12. Minor Sports. Rules, theory, technique, and values of different sports. Fall—swimming; winter—hockey, handball, and squash racquets; spring—soccer, golf, and tennis.

Phys.Ed.13-14-15. Individual Activities. By petition in place of Phys.Ed. 1-2-3.

- Phys.Ed.16-17-18. Individual Activities.
- Phys.Ed.19-20-21. Physical Education Activities. Games, contests, relays, volleyball, pyramid building, apparatus stunts, boxing, and wrestling.
- Phys.Ed.22-23. Kinesiology. A discussion of the principles and mechanics of bodily movements; the relation of posture to health and efficiency; the effects of various exercises upon the tissues and organs of the body.
- Phys.Ed.37. Football Fundamentals. Lectures, demonstrations, and practice in the technique of fundamentals for all positions of a football team.
- Phys.Ed.38. Basketball Fundamentals. Lectures, demonstrations, and practice in the technique of fundamentals, such as foot work, passing, guarding, dribbling, goal throwing, etc.
- Phys.Ed.54‡-55‡ (formerly Phys.Ed.24-25). Methods in Physical Education. Lectures and quizzes on terminology, technique of teaching and various methods of teaching physical education activities, emphasizing the natural method.
- Phys.Ed.58 (formerly Phys.Ed.28). Physical Examination and Normal Diagnosis. Methods of inspection to determine deviations from the normal, including posture, musculature, skin, genitals, and feet; tests of hearing and vision; inspection of nose, throat, and teeth; examination of heart and lungs; methods of taking principal measurements, such as height, weight, girth, strength tests, etc.
- Phys.Ed.59 (formerly Phys.Ed.29). Adaptation of Activities in Orthopedic Procedures. Lectures on theories governing the correction of physical and organic defects. Practice in handling classes and in executing the various remedial activities.
- Phys.Ed.60 (formerly Phys.Ed.30). Athletic Training. Principles governing conditioning of men for various sports; diet, sleep, exercise, bathing, massage. Overtraining: its cause, diagnosis, prevention, and cure. Prevention and treatment of common athletic injuries.
- Phys.Ed.61 (formerly Phys.Ed.31). History of Physical Education. A historical survey of physical education from ancient times to the present. Special consideration of different systems of physical education and contemporary developments. History of sports.
- Phys.Ed.62 (formerly Phys.Ed.32). Principles of Physical Education. Study of the aims and scope, and the biological aspects of physical education, with special reference to its place in education; comparative value of various activities; activities suitable to different sexes, ages, and varying conditions.
- Phys.Ed.63 (formerly Phys.Ed.33). Organization and Administration of Physical Education. Problems of organization, administration, and supervision. Correlation of various phases of work; required and elective courses, intramural and interinstitutional athletics. Construction, equipment, and care of gymnasias and fields. Athletic management.
- Phys.Ed.67 (formerly Phys.Ed.37B). Football Coaching. Lectures on history, rules, theory, strategy, generalship, styles of attack and defense, methods of organizing practice and handling men, development of team spirit, officiating.

‡ A fee of \$1 per credit is charged for this course.

- Phys.Ed.68 (formerly Phys.Ed.38B). Basketball. Lectures on rules, styles of offense and defense, the conditioning and handling of a team.
- Phys.Ed.69 (formerly Phys.Ed.39). Track Athletics. Instruction and practice in the standard track and field events. Lectures on the conduct of meets, rules of competition, officiating, track strategy, regulation of practice, and preparing contestants for competition.
- Phys.Ed.72 (formerly Phys.Ed.42). Baseball. Theoretical consideration of, and actual practice in, batting, base running, and methods of playing each position. Special attention to "inside baseball" and the development of team play.
- Phys.Ed.73‡-74‡-75‡* (formerly Phys.Ed.43-44-45). Directed Teaching. Six hours of practice per week. Men will do one quarter of practice teaching in the public schools, one quarter in the University High School, and one quarter in coaching, plus some teaching in individual activities courses.

COURSES FOR UNDERGRADUATE AND GRADUATE MEN AND WOMEN STUDENTS

- Phys.Ed.133. Special Administrative Problems in Physical Education. Survey of staff organizations in typical situations such as small towns, cities, states, schools, and colleges; construction, maintenance, and policies for use of facilities; purchase, care, and use of equipment; legal aspects of physical education and athletic activities.
- Phys.Ed.134. The Curriculum in Physical Education. Theory and principles of program construction applied to physical education. Critical analysis of existing programs and evaluation of activities in the light of modern trends. Practical application of principles in the construction of a program for a specific situation.
- Phys.Ed.135. Tests and Measurements and Research in Physical Education. Critical analysis of existing research studies in physical education with special emphasis upon tests and measurements. Study of current tests from both practical and theoretical standpoints. The use of tests in the administration of physical activity programs. Application of the principles of test construction to specific problems in physical education.

PHYSICAL EDUCATION FOR WOMEN

Statement of fees.—All activity courses for which registration is required, \$1.75 per quarter, maximum gymnasium fee per student, \$3.50. No fee is charged for Courses 7, 49, 66, 67, 80, 87, 89, 90, 97, 98 or for horseback riding in the General Course in Physical Education. In addition, a fee of \$1 per credit is charged for all methods and practice teaching courses as indicated in the footnotes.

COURSES FOR UNDERGRADUATE STUDENTS

- Phys.Ed.1-2-3-4-5-6. General Course in Physical Education. Orientation towards outdoor and indoor physical education activities through funda-

* Passing the qualifying examination is prerequisite for this course.

‡ A fee of \$1 per credit is charged for this course.

mentals and principles and their application in individual and team sports. Orthopedic exercise and posture work.

This course permits choice, based on the guidance of the faculty advisers, in the following activities:

Archery	Orthopedics
Baseball	Posture
Basketball	Recreational Gymnastics and Games
Dancing, Interpretive, and Tap	Skating
Field Hockey	Soccer
Folk Dancing and Games	Swimming, elementary, § intermedi-
Fundamentals of Movement	ate, advanced, diving, lifesaving
Golf*	Tennis‡‡
Horseback Riding‡	Volleyball

Phys.Ed.7.¶ Lectures in Physical Education and Health. The essential aspects of the care of personal health.

Phys.Ed.36,37,38. Freshman Major Team Sports. Fall—field ball, soccer, speed ball and volleyball; winter—basketball; spring—baseball.

Phys.Ed.40,41,42.‡‡ Individual Sports and Fundamentals of Movement. Fall—golf, archery, track; winter—fundamentals; spring—tennis.

Phys.Ed.43-44. Elementary Games and Folk Dancing. Graded games, folk dances, stunts, and track for school and playground.

Phys.Ed.46,47,48. Sophomore Team Sports. Further practice in sports included in 36-37-38. Hockey instead of soccer. For those who are exempt from 36-37-38, or those needing further practice before entering Phys.Ed.56.

Phys.Ed.49.**‡‡‡ Human Anatomy. A study of the human body with lectures, demonstrations, laboratory, dissection and quizzes.

Phys.Ed.50,51.‡‡ Sophomore Individual Sports. Further practice in sports included in 40-42. For those who are exempt from 40-42, or those needing further practice before entering Phys.Ed.56.

Phys.Ed.54-55. Danish Gymnastics. Gymnastics, marching, and appatrasu.

Phys.Ed.56-57-58.‡‡‡‡ Technique of Teaching Sports. Team games and individual sports. Special techniques for each sport and methods of teaching. Organization of extra-curricular activities. Practice in skills and practice teaching within the group.

* Students must supply their own golf equipment.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

§ Students may not enter the winter quarter of elementary swimming unless they have taken elementary swimming in the fall or spring except for Section 4, VII WF.

¶ Phys.Ed. 7f,w,s must be taken during the first year in residence, preferably during the fall quarter. Should be taken at the same time as an activity course.

‡ For horseback riding students will pay about \$1 per lesson, but not the regular physical education fee. Attendance at class hour is required for credit. Class meetings will be one hour in length. Groups will be arranged according to riding ability.

‡‡ Students taking tennis must pay \$1 for a tennis permit.

‡‡‡ A laboratory fee of \$2 is charged for this course.

‡‡‡‡ A fee of \$1 per credit is charged for this course.

** Transfer students must take an examination for credit in anatomy, Phys.Ed. 49s. Exceptions to this ruling may be recommended by the instructor in charge of the course.

- Phys.Ed.59-60. Swimming for Majors. Instruction in strokes and diving, deep water emergency measures. Preparatory course for Phys.Ed.69.
- Phys.Ed.61-62-63. Modern Dance, Elementary. Elementary techniques and group interpretations in which the purpose is to develop a sense of beauty of movement.
- Phys.Ed.64-65. Modified Swedish Gymnastics. Gymnastics, marching, and apparatus.
- Phys.Ed.66. Kinesiology. Principles of body movement based on anatomy and physics. A study of the efficient use of the body in various activities.
- Phys.Ed.67. Physical Examination. Organization and technique of examination and measurement.
- Phys.Ed.69-70.‡ Technique of Teaching Swimming. Description of strokes and diving, methods of teaching, practice in teaching and lifesaving.
- Phys.Ed.71-72-73. Modern Dance, Intermediate. Group and individual interpretations and more advanced techniques than in elementary dancing.
- Phys.Ed.74-75.‡ Technique of Teaching Gymnastics. A study is made of the educational philosophy underlying gymnastics, principles of progression, and methods of teaching gymnastics. Practice teaching is done within the group.
- Phys.Ed.76A,B. Theory of Orthopedics and Remedial Gymnastics. Principles and techniques involved in the use of exercise for the correction of functional or structural defects.
- Phys.Ed.77. Advanced Folk Dancing. The racial characteristics and folk arts of peoples are studied as a background for folk dances.
- Phys.Ed.78.‡ Technique of Teaching Folk Dancing. Practice teaching is done within the group.
- Phys.Ed.79.* Massage and Therapeutic Exercise. A consideration of the principles of massage and the study of conditions to which it is applicable. The practical application of these principles to athletic injuries, foot disorders, paralysis (spastic and flaccid), certain functional and nervous disorders, etc.
- Phys.Ed.80. Principles of Play. A consideration of nature and function of play, factors influencing play interests, organization for activity, management.
- Phys.Ed.81. Modern Dance, Advanced. Laboratory course for application of Phys.Ed.83.
- Phys.Ed.82.‡ Technique of Teaching Rhythm. A consideration of teaching rhythmic activities to elementary, high school, and college classes. Practice teaching within the group.
- Phys.Ed.83. Principles of the Dance. The dance is studied for the effect on its development of such influence as allied arts, religion, etc. The phases of the dance taught in this University are analyzed and the place of the dance in physical education determined.
- Phys.Ed.84-85. Advanced Fundamentals of Movement. A summary of fundamental elements in movement with particular reference to the teaching approach in elementary and high school classes.

* Elective, not required of students majoring in physical education.

‡ A fee of \$1 per credit is charged for this course.

- Phys.Ed.87. Trends in Physical Education. A historical survey of trends in physical education beginning with Greece and including contemporary developments.
- Phys.Ed.88. Principles of Physical Education. Philosophy of physical education, and principles underlying curriculum building, methods of teaching, and measurements of outcomes.
- Phys.Ed.89. Health Education in Elementary and Secondary Schools. Study of principles, methods, materials, and problems of health education in preparation for practice teaching.
- Phys.Ed.90. Problems in Physical Education. A study of problems in the entire field of physical education carried on by individuals or groups.
- Phys.Ed.92-93-94.‡§ Practice Teaching. Practice teaching in team and individual sports, orthopedic work, and fundamentals in university freshman classes; in games, health, fundamentals, and dancing in elementary or high schools in Minneapolis.
- Phys.Ed.97A-B. Administration of Physical Education. Study of organization of physical education and health departments in city, state, and university; construction and equipment; professional ethics.
- Phys.Ed.98.* Camp Leadership. Practical work in camp craft, administration of camp program; duties of a counselor.
- Phys.Ed.99.* Recreational Leadership. A study of the principles, organization, and administration of recreation in such groups as settlements, churches, playgrounds, and schools. Practical experience in types of recreational activities such as clubs, story telling, music activities, hand-crafts, recreational games, and dancing for children and adults. Specialists from the Recreation Department of the Minneapolis Park Board and the American Red Cross will co-operate with the University in giving this course.

Activities for Which No Registration Is Required

Fall:	Winter:	Spring:
Field Hockey	Basketball	Baseball
Horseback Riding	Swimming	Track
Volleyball	Winter Sports	Tennis
Swimming	Tap Dancing	Golf
Archery	Tumbling	Swimming
Tap Dancing	Rifle Marksmanship	Archery
Rifle Marksmanship		Horseback Riding

For courses for graduate students, see Physical Education for Men, p. 100.

PREVENTIVE MEDICINE AND PUBLIC HEALTH
COURSES FOR UNDERGRADUATE STUDENTS

P.M.&P.H.2. First Aid. Laboratory demonstrations and practice. General care and observation of patients. Emergencies and first aid treatment.

* Elective, not required of students majoring in physical education.

‡ A laboratory fee of \$1 per credit is charged for this course.

§ Passing the qualifying examination is prerequisite to this course.

- P.M.&P.H.3. Personal Health. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided.
- P.M.&P.H.4.* Family and Community Health. Study of the health and prevention of disease in the family; its relation to community health and disease control. More important diseases and their prevention.
- P.M.&P.H.50.* Public and Personal Health. Discusses the causes of diseases and of physical defects and presents the fundamental principles and working methods of health conservation and disease prevention. Lectures, demonstrations, discussions, inspection trips, and directed readings.
- P.M.&P.H.52. Health Care of the Family. (See Bulletin of College of Agriculture, Forestry, and Home Economics.)
- P.M.&P.H.53. Elements of Preventive Medicine. Susceptibility, resistance, and immunity to disease; methods of spread and the prevention of communicable and degenerative diseases; protection of food, water, and milk; school health work; vital statistics.
- P.M.&P.H.57. Health of Infant and Preschool Child. Growth and development of baby and young child. Care and feeding of normal child. Prevention and correction of physical defects. Demonstration of infant clinics.
- P.M.&P.H.58. Maternal and Child Hygiene (for public health nurses). The maternal welfare program; importance of breast feeding; conduct of infant welfare clinics in cities and rural communities; consideration of child of preschool and school age as to malnutrition, physical defects, cardiac and nervous disorders.
- P.M.&P.H.60. Tuberculosis and Its Control. History of tuberculosis movement and campaign in the United States. Early diagnosis and sanatorium treatment. Tuberculosis in children. The psychology of tuberculosis; supervision of returned sanatoria patients. State program for the eradication of tuberculosis; legislation.
- P.M.&P.H.61. Mental Hygiene. History of movement; social importance. Factors underlying emotional maladjustments and mental disease. Relation to social work, social agencies, and psychiatric practice. Illustrative case material.
- P.M.&P.H.62. Principles of Public Health Nursing. History and development of public health nursing; a study of the underlying principles of organization, administration, and service—in a program of individual and family health supervision; methods of co-operative endeavor with social agencies; health teaching as an essential factor in promotion of individual and community well being.
- P.M.&P.H.63. Special Fields in Public Health Nursing. This course deals with the application of the general principles underlying public health nursing to the specialized fields, including maternal and infant welfare, preschool, school, industrial, tuberculosis, and rural nursing. The historical development, scope of program, analysis of service will be studied.

* No student may receive credit for both Course 4 and Course 50.

- P.M.&P.H.64. Field Practice in Infant Welfare Nursing (for public health nurses). Class instruction, observation, and supervised practice in home visiting in the interest of breast feeding and well baby care; in conducting well baby clinics and behavior clinics for preschool children; in understanding family problems affecting children.
- P.M.&P.H.65. Field Practice in School Nursing. Working with the school nurse the student observes and participates in the activities included in the school nursing program. Special attention is directed to such problems as organization, relationships, techniques, methods of informal health teaching, provision for handicapped children, and home visiting.
- P.M.&P.H.66. Field Practice in County Nursing. The student accompanies the rural nurse on her rounds and observes and participates in the activities included in a rural nursing program. Special attention is directed to problems of organization for rural health work, methods of health teaching, development of community leadership, planning and conducting classes of various types for differing age groups, home visiting, etc.
- P.M.&P.H.67. Field Practice in a Tuberculosis Sanatorium. Observation and practical care of pulmonary, osseous, laryngeal tuberculosis; tuberculous enteritis; general sanatorium treatment; special treatment; exercise; laboratory; occupational therapy and the reading of literature on tuberculosis.
- P.M.&P.H.68. Field Practice in Visiting Nursing. Lectures, demonstrations, supervision, and field practice in bedside care of general and maternity patients; communicable diseases, tuberculosis, and mental illnesses with special emphasis upon recognition of social problems, co-operation with social agencies, and accurate record keeping.
- P.M.&P.H.69. School Nursing Procedures. Objectives, program, and techniques; discussion of procedures usually carried on by the school nurse in the conduct of a health program in both rural and urban schools. Opportunities for practice work will be provided. Open to public health nurses and students with teaching experience.
- P.M.&P.H.70. Principles of Teaching Home Hygiene and Care of the Sick. A study of the fundamental principles in the teaching and learning process and in the selection and organization of subject-matter for courses in home hygiene.
- P.M.&P.H.71. Supervision in Public Health Nursing. This course is planned for the experienced public health nurse and deals with the principles and practices of supervision in public health nursing and with the problems encountered in both city and rural communities.
- P.M.&P.H.72.‡ Technique of Teaching Home Hygiene. A practical application of the principles studied in P.M.&P.H. 70. Classroom demonstrations, observations, and practice teaching will be a part of the course. Community groups will be organized for student teaching.
- P.M.&P.H.73. Occupational Hygiene and Disease.

‡ A fee of \$1 per credit is charged for this course.

- P.M.&P.H.74.‡ Health Instruction and Materials. Discussion deals with administrative problems of health teaching and with programs and the actual techniques and methods employed in the classroom.
- P.M.&P.H.75.‡ Practice Teaching in Health Subjects. An opportunity is given for the advanced student to do practice teaching under supervision.
- P.M.&P.H.76. Field Practice with Family Health Agency. Lectures, demonstrations, and supervised experience in prenatal and infant clinics and in home visiting. This includes bedside care of all types of cases, with emphasis on promotion of physical and mental health and recognition of social problems.
- P.M.&P.H.80. Health of the School Child. Intended for teachers interested in child health. Consideration of hygiene of physical and mental growth; health supervision of school children; special health classes and procedures, and sanitation of school plant.
- For courses above 100 for graduate students, see the Bulletin of the Graduate School.

THEORY AND PRACTICE OF TEACHING

For courses formerly listed under this heading, see Methods and Directed Teaching, and Curriculum and Instruction.

‡ A fee of \$1 per credit is charged for this course.

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*The bulletin of the
University of Minnesota*

*General College of the University
1936-1937*



Vol. XXXIX No. 43 August 28 1936

*Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota*

*Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918*

UNIVERSITY CALENDAR

1936-37

Fall Quarter

1936			
September	14	Monday	Extension registration first semester begins
September	17	Thursday	Payment of fees closes, except for new students ⁴
September	21	Monday	Entrance tests
September	21-22		Registration for Freshman Week for all new students entering the freshman class
September	21-25		Examinations for removal of conditions Physical examinations
September	22-25		Registration period, ¹ College of Science, Literature, and the Arts
September	23-26		Freshman Week
September	24-25		Registration days ¹ for all colleges not included above except the Institute of Technology
September	25	Friday	Registration day ¹ for the Institute of Technology Payment of fees for new students closes ⁴ at 4:30 p.m.
September	28	Monday	Fall quarter classes begin 8:30 a.m. ² First semester extension classes begin ³
October	3	Saturday	Last day for extension registration without penalty
October	15	Thursday	Senate meeting, 4:30 p.m.
November	3	Tuesday	Election Day; a holiday (except for extension)
November	7	Saturday	Homecoming Day
November	11	Wednesday	Armistice Day Convocation
November	14	Saturday	Dad's Day
November	26	Thursday	Thanksgiving Day; a holiday
December	3	Thursday	State Day Convocation
December	14-19		Final examination period
December	17	Thursday	Commencement Convocation Senate meeting, 4:30 p.m.
December	19	Saturday	Fall quarter ends, 6:00 p.m.

Winter Quarter

December	24	Thursday	Payment of fees closes for all students in residence fall quarter ⁴
1937			
January	2	Saturday	Entrance tests

See footnotes on page 4.

January	2, 4		Registration ¹ and payment of fees ⁴ for new students in all colleges except the Institute of Technology Registration and payment of fees close at 4:30 p.m. on January 4
January	4	Monday	Registration day ¹ for all students in the Institute of Technology
January	5	Tuesday	Winter quarter classes begin 8:30 a.m. ²
January	25	Monday	Extension registration second semester begins
February	6	Saturday	First semester extension classes close
February	8	Monday	Second semester extension classes begin ³
February	12	Friday	Lincoln's Birthday; a holiday (except for extension)
February	13	Saturday	Last day for extension registration without penalty
February	18	Thursday	Charter Day Convocation Senate meeting, 4:30 p.m.
February	22	Monday	Washington's Birthday; a holiday (except for extension)
March	15-20		Final examination period
March	18	Thursday	Commencement Convocation Payment of fees closes for all students ⁴ in residence winter quarter
March	20	Saturday	Winter quarter ends, 6:00 p.m.

Spring Quarter

March	27	Saturday	Entrance tests
March	27, 29		Registration ¹ and payment of fees ⁴ for new students in all colleges except the Institute of Technology Registration and payment of fees close at 4:30 p.m. on March 29
March	29	Monday	Registration day ¹ for all students in the Institute of Technology
March	30	Tuesday	Spring quarter classes begin, 8:30 a.m. ²
May	8	Saturday	Mother's Day
May	13	Thursday	Cap and Gown Day Convocation
May	20	Thursday	Senate meeting, 4:30 p.m.
May	31	Monday	(Sunday, May 30, Memorial Day) a holiday
June	4	Friday	Second semester extension classes close
June	4-5 & 7-11		Final examination period
June	12	Saturday	Spring quarter ends, 6:00 p.m.
June	13	Sunday	Baccalaureate service
June	14	Monday	Sixty-fifth annual commencement

Summer Quarter

June	14-15		Registration, first term
June	16	Wednesday	First term summer quarter classes begin 8:00 a.m.

July	5	Monday	(Sunday, July 4, Independence Day) a holiday
July	22	Thursday	Commencement Convocation
July	24	Saturday	First term closes
			Registration and payment of fees for second term close at 12 m.
July	26	Monday	Second term classes begin 8:00 a.m.
August	28	Saturday	Second term closes

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also late fees for late registration, page 50, Bulletin of General Information. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

² First hour classes begin at 8:15 a.m. at University Farm.

³ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁴ New students must pay fees on dates announced for registration. Fees of graduate students are due one week after their registration is approved by the dean of the Graduate School.

GENERAL COLLEGE OF THE UNIVERSITY

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Jerry E. Wodsedalek, Ph.D., Professor of Zoology
C. Gilbert Wrenn, Ph.D., Assistant Director of the General College and Asso-
ciate Professor of Education

GENERAL STATEMENT

The General College of the University is designed primarily to provide broad training for that large body of students who seek an overview of modern life and of man's activities rather than specialized study. It is desirable for students who cannot spend the full four or more years in college—a group much larger than is popularly recognized—to devote their limited time to a complete and rounded program instead of to a fragment of a longer and specialized process. The new courses of the General College tend to build in the mind of the student a background of understanding of the present world, of his part in it, and of himself. They give him the vital comprehension of *what* other men and women do. They teach him also *why* and *how* things are done. They should, therefore, serve to satisfy his intellectual curiosity, and to prepare him for enlightened living in his public and private relations.

The University General College courses are open to any student admitted to the University. They are provided especially for the following classes of students:

1. Those who desire to pursue courses not offered in other colleges. General College courses are newly designed to satisfy the needs stated above. They do not duplicate or rival but supplement the specialized study of other colleges.

2. Those who, for financial or other reasons, have only a limited time to give to college training. Nearly half of all students who enter the University drop out before the beginning of the junior year. There are many causes. Some find themselves unable to secure work or financial support for prolonged training but are, nevertheless, able to have a year or more. Others, through illness, are forced to leave. Others find and prefer to accept the challenge of a job instead of continuing study. Others marry. Others need only two years of general training before undertaking work in special fields and schools outside the University. Others find themselves unable or unwilling to acquire the attitudes of mind and the techniques of study necessary to carry on into professional work.

3. Some applicants for entrance into other colleges will be advised to enter the General College because their high school record and entrance test results indicate mediocre or poor studentship in the past; and therefore success in their chosen curricula cannot safely be predicted for them. The General College offers these students an opportunity through its guidance program, and How To Study and other courses, to prove themselves, to develop drive towards attainable objectives. If such drives do not develop, the students may round out their education in the nonprofessional training offered in the General College.

4. Those who need and wish general orientation in the choice of, and general preparation for, a vocation. Many students are not aware of the variety of vocations which may fit their desires, interests, and abilities until they have surveyed such fields of activity as are dealt with in the courses in the General College of the University. Moreover, general training is usually profitable as preparation for a specific vocation.

5. Those who do not satisfactorily meet the entrance requirements of the other colleges because of lack of training in specific subjects. Whereas the General College does not offer high school subjects, in some instances *satisfactory* work in some college subject may be substituted for high school credit. In other instances a full year of *satisfactory* college work will clear the lacking requirement.

In many cases, however, specific high school requirements cannot be cleared up with General College courses but must be met by courses in high school, in extension work, in correspondence study, or in other colleges subject to the approval of the General College. Since the interpretation of these regulations is complex, students are advised to consult the counselors or the administration before they make out their programs.

6. Those who are transferred by mutual agreement of the General College of the University and the college in which they are registered.

7. Those who transfer from other institutions who do not meet the standards for advanced standing of the college to which they apply.

Since nearly half of the students who have entered the University in the past have come within one or more of the above classifications, it is believed that the General College will serve the needs of these students in the future more fully and with greater economies to themselves, and to the state than has previously been possible. Under a variety of conditions, two or three years of college work is enough for the individual since he may get his special training, except for the professions, on the job.

The faculty of the General College is composed for the most part of men and women now on the teaching staffs of the other schools and colleges of the University. They bring to their overview courses the results of their years of study and training in the fields of their specialties, to summarize for General College students the latest discoveries and developments of their own and other scholars in special departments of knowledge. They weave these materials into a comprehensive, realistic, vivid picture of the modern world.

From the foregoing, it is obvious that the General College of the University is by no means intended to replace or rival any other unit in the University or any existing two-year college in the state. It is neither a preparatory nor a vocational training school. It is not a college for the lazy and incompetent, but it is, as President Coffman declares, "a new experiment, an adventure in the field of higher education. It is intended to provide a superior intellectual opportunity for a body of university students whose needs cannot now be adequately met by the existing organization of the University. It will succeed or fail in terms of its service to students. Its courses should be open to the most gifted student in the University. Any student should be privileged to elect membership in the General College."

FOREWORD TO STUDENTS

The General College of the University is your college. It has been built to try to satisfy your desires, to fulfill your needs. In its planning, the colleges and departments of the entire University have co-operated to make its courses attractive and valuable. But your growth and success in this college depend not upon it but upon you. You start on a job, on an adventure in education based upon principles that have long been tested and found good. Upon what you do now, the right things and the wrong things, the mistakes and the triumphs, is dependent, in a way you can only vaguely guess at, the successes and failures of your future at work, at home, and at play. I am asking you, therefore, from the first day of Freshman Week to make the organization and development of your education your first business.

All education is self-education. We offer you courses and instructors but you must take them. No course is complete in itself. It serves merely as a guide-book and opens up for you fields to explore by study, observation, reading, and conversation. Some students take courses as some people read guidebooks—in an easy chair. Others tighten their belts, take the guidebook in hand, and go to find out. To the latter, no courses are easy because there is no end to what can be found out and looked at. To them no courses are uninteresting because each is the beginning of an adventure in the discovery of new things.

Making yourselves at home.—Your first and continuous job at Minnesota is to make yourselves at home. You come here to a strange student city of thousands housed in many buildings on two campuses. Your satisfactions from, and efficiency in, getting the most out of your college life will come from knowing your way around, from getting acquainted with your fellow students, with the faculty who teach you, with the organization in athletics, music, dramatics, debating, literary, and social fields which you may join for your pleasure and profit. And you should know your buildings and classrooms, your library, health service, study halls. For information on fellowships, scholarships, and loans see bulletin "University Aids for Student Expenses."

Finding a room.—When you first arrive you will want to find room and board. These matters are important to your health, comfort, and efficiency in college. In selecting a room you should consider heating, lighting, quiet, and cleanliness; its convenience to the campus or car lines; its furnishings, especially the bed. You spend nearly a third of your life in bed, and it pays you to get a good one. You should not hesitate to look at several rooms until you find just what you want. At first, you should board at the Minnesota Union, Shevlin Hall, or nearby restaurants until you have found your room and are ready to choose a permanent place to eat. Then pick carefully. If you are away from home for the first time you will be wise to give attention to the regularity and adequacy of your diet. This is a matter of importance to your health. A list of approved boarding and rooming houses for women may be secured at the Housing Bureau, Shevlin Hall. For further information on dormitories, rooms, and boarding places, and the rules governing them refer to the General Information Bulletin, pages 36-39.

Taking part in Freshman Week.—Full and active participation in Freshman Week will help you to wear away the preliminary strangeness and give you the first sense of freedom that comes from familiarity with this place where

you are to live for several years. During this first period it will pay to keep your wits about you, to remember things you see and hear rather than to look upon it wholly as a big reception and a good time. A word of warning. Wherever humans congregate, there is gossip and misunderstanding. Many times these lead students to fear and misery. In order to avoid such trouble find out the facts. Find them out by going directly to headquarters. Ask your professors, your dean, or whoever may be responsible and authoritative. Don't, once again, take rumor for fact.

Planning your course.—The next problem that confronts you is the planning of your course in this college and your registration. In this you will have help, for there will be made available to you time in Freshman Week for conferences with the faculty and administrative staff in this college. Before these conferences read the descriptions of the courses set forth in this bulletin and shape up in your mind the combination you would like to take. This will give you something definite to carry to your first conference. Also before you meet your adviser it would be sensible to appraise yourself, your motives in coming to college, your needs and desires for various kinds of information and knowledge. Such frank self-examination is the best of all bases for planning anything you do.

Beware of narrow interests.—Some of you will have special interests, for example, social sciences. You will be inclined, in making your course, to select for your program subjects which center in the social sciences. You will probably write down as your courses, first, Social Problems, second, Current Reading, third, American Citizen and His Government, fourth, Current Affairs, and fifth, Minnesota History. With these and physical education your program is full—and narrow. I should urge you to avoid this narrowness. You should not make the mistake of putting a tight practical limitation on what you study. In such a course as that outlined you have neglected the whole fields of physical and biological sciences, art, agriculture, euthenics, and psychology. None of these can you really afford to miss if you consider the long future and what may contribute to your human appreciation and happiness.

Others of you may have specific needs or weaknesses which should be considered in planning your course. If, for example, you know your study habits are poor, you should take the course in "How To Study." If you are floundering around with the problem of picking your future life-work, much help and valuable information may come from the course in "The Choice of an Occupation." It is good strategy to attack weaknesses in your academic preparation as well as in football or in war.

Learning new fields.—Some of you will have no special interest and should, therefore, take as widely varied a course as possible in order to sample the fields of knowledge, to satisfy your curiosity, and to test your interests and abilities. By such a survey you should, in time, find the fields that most keenly interest you and be able to plan an intelligent future course of study and recreation. It might be wise in selecting such a diverse program to pick out fields you know little about rather than those in which you know something or much. Thus, if you know little of land economics and the contribution of plant and animal life to human welfare, take Basic Wealth. Many women students will profit by the course in Physical Science Studies, many men students, by courses in art and music—both by Euthenics.

Adjusting to college classes.—When you enter your first classes, you will find a considerable adjustment to make. In high school you usually had small classes and discussion groups. Here you will be on your own responsibility in large classes taught by lectures and demonstrations. Under such a change you

must be wary lest you slip into bad habits of just half listening or watching instead of being constantly alert and active in the taking of notes and getting the full meaning of the materials as they come from the lecturer. The lectures, demonstrations, syllabi and reading lists, and library facilities are furnished by the University as tools with which to do your own work. You are working for yourself, to educate yourself. The responsibility lies with you, not with us nor your parents. You should, therefore, constantly guard also against falling behind in your work, in your reading, note taking, preparation of papers and reports. Many student failures are the result of such habits.

Establishing a routine.—Back work is much more difficult than work ahead. Day by day established routine of habit is the only thing that brings satisfactory results. Only by such a process can you possibly prepare for the comprehensive examinations that are given at the end of each year and preliminary quizzes and quarter examinations that precede them. In these matters you are your own master—control your own academic fate. The University has, however, for your aid in making these adjustments, established certain agencies.

Your counseling program.—The General College is built around two central ideas. The first deals with the development in you of broad generalized funds of information and critical but tolerant attitudes towards events in the world in which you live. The second of these central ideas concerns you more intimately as an individual. It is your counseling program, in which we try to weigh your strengths and weaknesses and help you to achieve your most satisfactory life adjustment, here and after college. Your individual efforts to reach such an adjustment should be the center from which your education proceeds.

The University maintains an extensive personnel program to help the student in solving his individual problems. This program includes the following agencies and individuals: the University Health Service, available for special diagnosis and treatment of your health problems in physical and mental well-being; the Speech Clinic, for special diagnosis and treatment of defective speech habits and related disabilities in reading, writing, and spelling; the University Testing Bureau, for the analysis of your vocational assets and liabilities and information regarding their use in job competition or job training programs; the Employment Bureau, which may be able to assist you in getting part-time jobs for self-support; special faculty counselors in the various colleges who are in a position to give you specific information about courses, job requirements and opportunities, and specialized material in their own fields.

At some time or another you can profitably make use of one or several of these agencies. It will be the job of your General College counselor to talk over your problems with you, to isolate your particular needs for student personnel services, to see that such services are made available to you, and finally to interpret the results in such a way that you can work out the solution of your own problem. Only in this manner will you arrive at the most satisfactory individual adjustment.

Space does not permit us to list in detail the possible problems you may want to have cleared up. They range all the way from a mild lack of interest in a particular course to a major discrepancy between your opportunities and your ambitions or a severe emotional upset. But remember that the counseling program has been set up to work with you. We can help you strike a satisfactory balance between your interests and abilities and opportunities if you use this service.

Extra-curricular activities.—Student life at the University includes many

other activities besides those of the classroom. Some of you may be socially inclined and for you there are the fraternity and sorority. Some may like and have ability for athletics and games and for you the varsity and freshman sports are open. Still others may be interested in dramatics or forensics or music or publications or student government. These activities are open to all students and such activity may aid materially in making your university career more happy and meaningful. To get advice, go to headquarters for your information; call on those who are in charge of various student activities. The dean of student affairs and his assistants are always ready to help and advise students in these matters.

Some of these activities are time consuming and it behooves the student to work out for himself the proper balance between studies and participation in extra-curricular affairs.

Your attitude and behavior.—I close as I began. The General College of the University is your college. In matters of behavior you must live in this college community on the assumption that your fellow students are decent people to live with; that each tends to his business and to the business of the college to the best of his ability; that what is expected of you is what is expected of acceptable members of society; that class meetings, quizzes, and other scheduled engagements are appointments to be met except in cases of emergency; that much of your college experience will be to your profit or waste in proportion to the generous, kindly, and courteous general spirit you show. In other words, you are on demonstration before the college staff, administration, and others. You will be judged on your behavior in the broadest sense. Psychologists know that childhood behavior carried over into college life in such forms as cheating, whispering, and rowdyism is dangerous since it prolongs bad habits and interferes with the progress of others. If one cheats, he cheats only himself. If, since class attendance is voluntary, he is inattentive or noisy he robs himself and others of instruction. Such behavior is not tolerated. Apart from these suggestions, no compulsion is made. The responsibility is yours.

MALCOLM S. MACLEAN, *Director*

INFORMATION FOR STUDENTS

In this section we have attempted to set down answers to the most common questions of students. It is imperative that you read the following paragraphs carefully. If you know the details of college procedure, the rules and regulations of the college, the requirements for the degree and other information, it becomes easier to plan your own education; it will save trouble in the future; and it will be possible for you to get your problems settled more quickly and satisfactorily. Your director and his associates are available for conference at all hours and request that the students come for help.

Requirements for the degree of associate in arts in the General College.—

Because in the General College we work on the principle that education is a process of mastering fields of knowledge rather than accumulating course credits, we have set up a series of comprehensive examinations. Altho course quizzes, examinations, and ranks will be given to indicate your progress in course work, *you will be required to pass six major comprehensive examinations* to take the degree of associate in arts from this college. *The comprehensive examination in General and Contemporary Affairs must be taken by all students at the end of each school year*, except those who rank high on the first examination will be exempt from the second (see p. 17). These two examinations count as two of the six required for graduation. Preparation for General and Contemporary Affairs should be a continuous process, your information being obtained from the newspapers, magazines, your conversations, university lectures, your special Current Affairs course and other course work in the General College, and your outside reading. The purpose of this requirement is to link up your formal classroom education with the outside world of events.

The comprehensive examinations deal with divisional groups, or areas, of knowledge. These groupings should be considered in planning your program, which should be designed by groups. Whenever your preparation is complete, you can take these examinations. Special examination days will be arranged during each quarter at which time students may take those comprehensive examinations which they are qualified to meet. If you fall in the low score brackets on a comprehensive examination, it simply means that your preparation is incomplete and the examination may be taken again after more course work or study in that field. The comprehensive examinations are designed to cut across course lines in order to correlate all course work—your reading and studying—into one complete whole. Everything you learn or read will be of value to you in meeting your examinations. These examinations require that you make your education continuous, that you do self-propelled work in all lines, that you realize the interrelationship between all knowledge, and that all experience should be meaningful and of value to you. It is not absolutely necessary to take all courses in each group in order to take the comprehensive examination in that field. However, our studies of former students show that your preparation will be more complete if you do so. Notice, also, that the General College requires no formal time or attendance requirement as a basis for these examinations. In other words, you do not have to have two, three, or more quarters of work before being permitted to take the examinations. However, students who plan to complete six comprehensive examinations for graduation with five quarters of residence or less in the University will be required to pay special fees. If, in your own opinion and in the opinion

of your counselors and advisers, you are ready, you may take any of the comprehensives in the various areas.

Through co-operation with the University Health Service the General College is able to discharge one of its duties to its students, that of watching defects and instructing them through its courses in problems and methods of future health care. As a final service to students, the college requires for graduation a physical examination within a few weeks before commencement. Announcement of the time of this examination will be made in the *Official Daily Bulletin* and on the bulletin boards in Wesbrook Hall.

Planning your program.—The requirements for the degree of associate in arts in the General College are based upon your comprehensive examinations. It is well to consider the specific courses of study you may elect as they fall in the various comprehensive areas. The General College courses of study are described fully elsewhere in this bulletin. You should read the course description carefully before attempting to plan your program. It is advisable to look ahead and to plan your work over a two-year or longer period; by doing so you will avoid future troubles of many kinds. The important points to consider in planning a college education are as follows: your own interests and abilities, your weaknesses, the requirements for degrees, and the amount of time you have available for your study.

Physical education.—Physical education is required of all General College students—one year for men and two years for women. Exemption from this requirement may be had by presenting your case to the director or his associates. Participation in freshman or varsity athletics meets this requirement for men. (See pages 55-60 of this bulletin for more complete information.)

Military Drill.—Military Drill is no longer required of every male student, but is now optional. Your attention is called to the advantages of military training at the University, culminating in a reserve officer's commission in the United States Army. (See pages 53-55 of this bulletin for more complete information.)

Registration.—After you have studied the Bulletin of the General College and learned about the content of the specific courses and after you have laid out your course program so that you will fulfill the requirements for the degree of associate in arts, you then proceed with the registration procedure for entering students which is described fully in the booklet issued to students during Freshman Week. It is important that each student should be familiar with the requirements of the curriculum that he is pursuing and with the rules of the college in which he is enrolled. This information can only be had by examining and reading carefully this bulletin.

Specific details important to all students, are listed below:

1. Make out your program for the quarter, preferably in conference with an adviser, and obtain adviser's approval. Be prepared to show your admission certificate, or record of advanced standing (if you are registering for the first time) or your blue print record (if you have been enrolled before at the University of Minnesota).
2. Make a copy of your program on the blank provided—for your own memorandum. This should be carried with you during the opening days of the quarter for presentation on request in case of change of program.
3. Take program to fee statement table, University Armory, for fee statement. For schedule of fees see the Bulletin of General Information.
4. Pay fees on or before last date indicated on the fee statement. It is recommended that this be done by mail to avoid standing in line for payment.

5. Retain fee receipt (in case of payment by mail the receipt will be sent to your post-office box).

6. Present fee receipt to instructors for inspection as directed by them. This receipt is evidence of the right to instruction for the quarter and it must be kept in your possession.

7. Petitions will be required only when degree requirements are to be changed. Changes in registration are made by filling out cancel-add slips in the General College office. Cancel-add slips should be signed by the adviser who helped you with your program and must be filed within a reasonable time after the beginning of the quarter.

8. Grades for individual courses will be sent to each student at the end of each quarter. All grades are given in terms of percentile ranks which mean the per cent of students in the class who scored below you. The grade of W (withheld) is given only when your course work is incomplete and examinations have not been taken.

Examinations.—Examinations being the chief means by which the college and the student himself can judge of his performance and progress, much work has been and is being done to develop fair and complete tests. The student is therefore obligated both to himself and the college to prepare adequately for these examinations and to take them at the regular times announced by instructors.

Make-up examinations will be given at specified but infrequent periods which will be posted on the college bulletin board. However, no student may take any make-up examination without official permission or a Health Service excuse. Students must register in the General College office to take make-up examinations. A \$5 fee will be charged for examinations if they are not taken on the first make-up day.

General College convocation hour.—Because of the many general educational problems of deep concern to all students as exemplified by the questions asked the administration and counselors in the past four years, it has been decided to hold a required weekly convocation hour on Tuesday at the fourth period for all new students. Members of the faculty, administration, and student body will discuss throughout the year these common problems. Attendance will be taken and only Health Service excuses accepted for absence.

Auditing.—Students from other colleges, who have the permission of their college, and adult auditors are welcome to take one or more courses in this college, the accrediting of the courses for the former resting with the college in which they take their specialized work.

Combination programs.—Courses in other colleges and departments of the University are open to General College students after their first quarter by permission of the director and the officers of other colleges. Students who wish try-out courses in mathematics, engineering, forestry, and business training may register for courses, if permitted, in these departments in conjunction with their regular General College work. Students must file application for such combination programs at the time specified on the college bulletin boards.

Transfer to other colleges.—General College students may be transferred to other colleges of the University provided they have shown evidence of ability and interest in the particular field of their choice. A high level of work in the General College, and the development of a mature attitude, together with some evidence that the student will profit by professional training are required by the director in order to obtain his recommendation for transfer. Students must file applications for transfer at the registrar's office and in the General College

office on or before dates specified in the *Official Daily Bulletin* and on the college bulletin boards.

The University does not bar the way to any student who, in the General College or any other college, gives a demonstration in his class work and examinations of hard-hitting, interested, and competent studentship. With a good record, transfer into specialized professional work is not difficult. Without such a record it would be unwise for the student to attempt it. The General College counselors will make clear to anyone who asks the details of what constitutes a record warranting transfer.

Working for support and reduced programs.—Students may, because they are working to support themselves, wish to carry reduced programs in General College courses. Others, because of physical handicaps or ill health, should carry a reduced program of study. Such plans are not usual but every effort will be made to work them out on a practicable basis. A full program of both outside work and school work may very often be a bad investment in that poor scholastic progress caused by too much outside work may prevent continuation towards a degree. Students who must work for their support are urged to discuss their programs with the General College counselors. See page 40 of the *Bulletin of General Information* for information about the Employment Bureau. For the planning of such programs you should consult the counselors in order to determine before hand the best possible arrangement.

COMPREHENSIVE EXAMINATIONS

Scope.—The General College comprehensive examinations cover the course work in ten different areas or fields of knowledge which are listed below. It is important that every student plan his or her program in such a way as to complete all or a major portion of the course work in each area before taking the comprehensive examination since these examinations will cover the work of the entire field.

Time.—The comprehensive examinations are set during examination week at the close of the spring quarter, at which time most students will have completed their course work in two or three various areas. Since it is the policy of the General College to allow students to take examinations whenever they are prepared to meet them, one examination day will be announced near the close of the fall and winter quarters at which time students will be allowed to take one comprehensive examination if they are prepared.

Requirements.—All students are required to complete six comprehensive examinations for the degree of associate in arts; two of which must be in the field of general and contemporary affairs, one at the end of each school year, regardless of time of entrance to the General College. However, those students who score at the 60 percentile or better on the General and Contemporary Affairs Studies at the first taking will be released from the second comprehensive examination in this field, but they must take another comprehensive examination in another field in order that the requirement of six comprehensive examinations may be met.

Exemptions.—Exemption from one or more comprehensive examinations for the degree of associate in arts may be given for course work in other colleges or universities if the student passes at least fifteen hours of work, or its equivalent, in a single field of knowledge. All such exemptions must be approved by the director.

Restrictions.—In each of the fields of Economics Studies, Euthenics Studies, General Arts Studies, there are two comprehensive examinations, each covering different groups of courses within those areas. No student will be allowed to take more than one comprehensive in any of these areas. For example, a student may not present both Economics Studies comprehensives, numbered I and II, to meet the requirements for the degree. The comprehensive examinations in History and Government Studies, Social Problems Studies, Economics Studies I, and Economics Studies II, fall within the social studies field. To prevent students from overweighting their programs in this field students may not take more than two of these four comprehensive examinations. For example, one student may not take examinations in History and Government Studies, Social Problems Studies, and Economics Studies I, since all three examinations fall within the social science field.

Re-examinations and fees.—Any of the General College comprehensive examinations may be retaken on the scheduled examination date. A fee of \$5 for retaking an examination is charged. If during the interim between examinations the student registers for more course work in that field the re-examination fee may be waived by the registrar. One comprehensive examination is allowed for each quarter in residence. Extra comprehensive examinations require the payment of a \$5 fee.

Eligibility.—The conference regulations regarding eligibility of General College students for intercollegiate athletics state among other requirements that students must complete one half of the work for the degree of associate in arts to be eligible to compete during the sophomore year. This means that students who plan to participate in varsity athletics must pass three comprehensive examinations in addition to meeting all other requirements of the conference in order to be eligible.

COMPREHENSIVE AREAS AND COURSES

- | | | |
|---|------|--|
| 1. General and Contemporary Affairs Studies
pp. 21-23. | { | Current Affairs
Formation of Public Opinion
Straight and Crooked Thinking |
| 2. Biological Science Studies
pp. 23-25. | { | Human Biology
Physical Education |
| 3. Economic Studies*
pp. 25-28. | I { | Our Economic Life
Mathematics of Business
The Choice of an Occupation |
| | II { | Our Economic Life
Basic Wealth
Primary Production Regions (Earth and Man, winter) |
| 4. Euthenics Studies*
pp. 28-31. | I { | Human Development and Personal Adjustment
Use of Family Resources
Income Management, and Household Buying |
| | II { | Selecting and Maintaining a Home
Renting, Buying, and Building
Food, Selection and Purchase
Clothing Selection
Clothing Purchase and Care |
| 5. General Arts Studies*
pp. 31-34. | I { | Art Today
Music Today
Film and Drama |
| | II { | Art Today
Literature Today
Minnesota History
American Citizen and His Government
Functions of Government
International Relations
Europe Today
Problems in Political Geography (Earth and Man, spring) |
| 6. History and Government Studies
pp. 35-40. | | |
| 7. Literature, Speech, and Writing Studies
pp. 40-42. | { | Literature Today
Oral Communication
Writing Laboratory |
| 8. Physical Science Studies
pp. 42-44. | { | Physical Science Studies
Relation of Sound to Music |
| 9. Psychology Studies
pp. 44-47. | { | Practical Applications of Psychology
Human Development and Personal Adjustment
How To Study
The Choice of an Occupation |
| 10 Social Problems Studies
pp. 47-48. | { | Social Problems
Current Reading |

* Two comprehensive examinations numbered I and II will be offered in each of the areas called Euthenics Studies, Economic Studies, and General Arts Studies. Students may plan to take either comprehensive examination in these areas but cannot take both comprehensive examinations in a single area.

STUDENTS ARE ADVISED TO CUT THIS CHART OUT AND PASTE IT IN THEIR NOTEBOOKS
UNIVERSITY GENERAL COLLEGE SCHEDULE OF COURSES, 1936-1937*

HOUR	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
I	Physical Science Studies f,w,s Earth and Man, w,s Literature Today, f,w,s	Physical Science Studies f,w,s	Physical Science Studies f,w,s Earth and Man, w,s Literature Today, f,w,s Art Laboratory, f,w,s	Physical Science Studies f,w,s Oral Communication, f,w,s	Physical Science Studies f,w,s Earth and Man, w,s Literature Today, f,w,s Art Laboratory, f,w,s
II	Basic Wealth, f,w,s Art Today, f,w,s Practical Applications of Psychology, w,s Introduction to Philosophy, s	Economic Life, f,w,s Oral Communication, f,w,s Minnesota History, f,w	Basic Wealth, f,w,s Art Today, f,w,s Practical Applications of Psychology, w,s Introduction to Philosophy, s Art Laboratory, f,w,s	Economic Life, f,w,s Oral Communication, f,w,s Minnesota History, f,w	Basic Wealth, f,w,s Art Today, f,w,s Practical Applications of Psychology, w,s Introduction to Philosophy, s Art Laboratory, f,w,s
III	Human Development, f,w American Citizen, f Functions of Government, w International Relations, s	Current Affairs, f,w,s Formation of Public Opin- ion, f,w,s Europe Today, s Housing, w Clothing Purchase, s	Human Development, f,w American Citizen, f Functions of Government, w International Relations, s Ind. and Family Resources, s	Current Affairs, f,w,s Formation of Public Opin- ion, f,w,s Europe Today, s Housing, w Clothing Purchase, s	Human Development, f,w American Citizen, f Functions of Government, w International Relations, s Ind. and Family Resources, s
IV	Euthenics, f,w,s Choice of Occupation, f,w,s How To Study, f,w,s Physical Education for Men	General College Convocation	Euthenics, f,w,s Choice of Occupation, f,w,s How To Study, f,w,s Physical Education for Men	All University Convocation	Euthenics, f,w,s Choice of Occupation, f,w,s How To Study, f,w,s Physical Education for Men
VI	Practical Applications of Psychology, f Math. of Business, f,w,s Social Problems, f,w,s Photography, f,w,s St. and Cr. Thinking, f	Household Buying, s Current Reading, f,w,s Art Laboratory, f,w,s	Practical Applications of Psychology, f Math. of Business, f,w,s Social Problems, f,w,s Photography, f,w,s St. and Cr. Thinking, f	Household Buying, s Current Reading, f,w,s Art Laboratory, f,w,s	Practical Applications of Psychology, f Math. of Business, f,w,s Social Problems, f,w,s Oral Communication, f,w,s St. and Cr. Thinking, f
VII	Human Biology, f,w,s How To Study, f,w Oral Communication, f,w,s Photography, f,w,s Relation of Sound to Music, f,w,s	Current Affairs, f,w,s Art Laboratory, f,w,s	Human Biology, f,w,s How To Study, f,w Oral Communication, f,w,s Current Affairs, f,w,s Photography, f,w,s Relation of Sound to Music, f,w,s	Current Affairs, f,w,s Art Laboratory, f,w,s Film and Drama, w	Human Biology, f,w,s How To Study, f,w Current Affairs, f,w,s Film and Drama, w Relation of Sound to Music, f,w,s
VIII	Music Today, f,w,s Ind. Study, f,w,s	Music Laboratory, f,w,s	Music Today, f,w,s Ind. Study, f,w,s	Film and Drama, w Imaginative Writing, f,w,s	Film and Drama, w
IX		Music Laboratory, f,w,s		Film and Drama, w Music Laboratory, f,w,s Imaginative Writing, f,w,s	Film and Drama, w

* For room schedule see the General College bulletin boards in Westbrook Hall. For physical education and military training schedules see pages 53-60.

DESCRIPTION OF COURSES

CONTEMPORARY AFFAIRS STUDIES

From a "thousand fronts" the news of the world flashes in terse, breath-taking headlines. Behind those headlines the most fascinating of all dramas is being enacted. Governments are outworn, overthrown. New ones take their places. Wars are fought. Famine, plague, and earthquake wrack the earth. Science unfolds new discoveries. Today's invention means social change tomorrow.

The student of today is confronted on every hand by the ever changing scenes of the current world drama. More than ever before he must realize himself a part of that drama, must follow it, interpret it. Only through such realization and understanding may he expect to play an intelligent rôle in the society of which he finds himself a part.

He must consider the written and spoken opinions of the experts on the various phases of this history in the making. He must learn to weigh these opinions one against the other, to distinguish the words of the demagog from those of the intellectually honest, and to emerge with well-founded views of his own. To accomplish this he must know something of that vast mobile force called "public opinion." He must know how the propagandist manipulates that opinion in his own interest, what tools and symbols he employs.

In its efforts to present this world drama in its most interesting and significant aspects and to assist the student to get behind and interpret the news, the General College has set up two related courses for its students. These courses will contribute largely to the required Contemporary Affairs comprehensive, which will also include material from the other courses in the college.

G.C.73f-74w-75s—Fall, winter, and spring quarters. CURRENT AFFAIRS.

In the first of these, Current Affairs, two lectures a week are devoted to relating in detail the news of the day, interpreting it in the light of much that has gone before, and co-ordinating the events of each week with the preceding and anticipated happenings, to keep the broad outlines of the whole picture always before the student. While social, political, and economic considerations receive major emphasis in the lectures, attention is also paid to new developments in literature, drama, and arts, and science. *Time* magazine is used as a text, with the whole field of contemporary journalism providing reference material. Mr. E. C. Wilson.

- Sec. 1 TTh III
- 2 TTh VII
- 3 WF VII

G.C.75f—FORMATION OF PUBLIC OPINION. Part A, fall quarter. THE NEWS-PAPER PERIODICAL, AND THEIR FUNCTION.

This course deals with the present day newspaper and other media of mass impression. The printed word and pictorial display of the press, magazine, and books, the spoken word of the teacher, the platform lecturer, the radio, and the visual and auditory impressions conveyed in the talking pictures, all have their influence on the thinking, attitudes, and behavior of every man and woman. As a consequence, a knowledge of the methods and sources of power of these institutions, with an explanation of the traditions, procedures, and mechanisms by which they operate and play upon their audiences, is significant.

This quarter's work will offer information leading to an understanding of the way in which the newspaper and periodical function. A brief historical background of the press. The revolution in production and distribution, the rise of democracy, the urbanization of the population, and the development of communication. Mechanical invention, mass production, standardization, and chain distribution give point to this study. The democratization of government, society, education. Their deep effect upon the press. Special reference will be made throughout to the interrelation of the newspaper and the public of today.

Such questions will be discussed during the fall term as: What is news? What is involved in news selection? Does all news fall into the same pattern? Is news a matter-of-fact recital? Is the emotional element in the news built up to create reader interest? Can emotional interest in significant things be created through the news? Does the tabloid's selection of news differ from that of the standard paper? Does the newspaper have the unlimited right to print news? Does the newspaper overplay crime news? Has the development of the telegraphic news agencies standardized news? Should the newspaper give the reader what he wants or what the editor thinks he should have? Is it a function of the newspaper to amuse and divert the reader as well as to inform and counsel him? To what extent is there coloring, suppression, and censorship of news? Is the motion picture or radio a competitor of the newspaper? TTh III. Mr. Ford.

G.C.77w—FORMATION OF PUBLIC OPINION. Part B, winter quarter. PROPAGANDA AND CENSORSHIP.

Students will be initiated in this term's work into modern techniques that serve through the various agencies of mass impression to fix attitudes, form opinions, create social values, and exercise leadership. Special attention will be given to the propaganda technique of civic, economic, racial, party, and other groups and the analysis of these pressure and political groups and their social objectives. The relationships of the pressure group to propaganda will be explored through case studies of a number of great campaigns to sway public opinion. This course will deal also with the relation of propaganda to violence, non-co-operation and other political methods. War time propaganda and its results and the censorship exerted in times of emergency will be revealed. The agents and instrumentalities of propaganda have an important place. The rise of press agency, the work of the public relations counsel, and the development of information and educational service by special interests groups and the government will occupy an important place in this course. Some attention will be paid to the measurement of the results of propaganda. TTh III. Mr. Casey.

G.C.78s—FORMATION OF PUBLIC OPINION. Part C, spring quarter. RADIO, MOTION PICTURES, AND ADVERTISING.

Modern techniques designed to shape attitudes, to influence public opinion, to affect social values, and to exert leadership include new and powerful media of mass impression. It is the purpose of the third quarter to examine the visual and auditory impressions transmitted by radio, motion picture, and advertising. The development of communications in the nineteenth and twentieth centuries, and the influences on public thinking resulting from a rapid succession of scientific discoveries and inventions in this field form a background for a discussion of the contemporary scene. How is radio broadcasting organized? How is it regulated in the United States and in foreign countries? What services does radio attempt to provide? What is the effect of radio on politics? On education? On the

transmission of news? Does advertising over radio result in social change? What is the effect of motion pictures on social change? Do these media affect public taste and standards of living? What is the effect of these competitors on the status and functions of the newspaper press? What is the influence of restrictions imposed on these media by governmental agencies and unofficial public organizations? TTh III. Mr. Nafziger.

G.C.5f—Fall quarter. STRAIGHT AND CROOKED THINKING.

Everyone is guilty of crooked thinking at times. There are many causes and reasons for this, some of which cannot be helped, but many of which can be diagnosed and treated by study. There are two provinces of crooked thinking of importance to everyone; namely, the fact that others may delude you and the fact that you may be guilty of deluding yourself.

The scope and accurateness of personal information, and the emotional patterns of the individual are perhaps the two most important factors influencing one's thinking. The wise man withholds judgment when the first is lacking, and recognizes and controls as much as possible his emotional behavior, in arriving at sound conclusions. However, there are many pitfalls in the path of straight thinking. Some of these are logical fallacies, dishonest tricks in argument, tricks of suggestion, habits of thought, vagueness, and prejudice. These topics will make up part of the material for lecture and discussion. MWF VI. Mary J. Shaw.

BIOLOGICAL SCIENCE STUDIES

There is a fundamental difference between living and nonliving matter. Everything that is known of differences between living and nonliving—the forms of life, the theories and laws of life, the causes and effects of life—is biology. That part of biology which relates to man is human biology.

Biology, because of its close association to man in so many phases of his everyday life, is by its very nature intensely interesting, and also broadly practical. Agriculture, horticulture, animal husbandry all are applied biology. For efforts to improve animals and plants can be successful only in so far as they take advantage of natural biological laws. Such applications to man we ordinarily recognize as the art and science of medicine, in its broadest ramifications—all the efforts of the doctor, dentist, nurse, laboratory worker, pathologist, eugenist, and public health specialist, are efforts to understand and apply more accurately biological principles. The preservation of health, the proper raising of children, the feeding of a nation, technological unemployment—in fact the entire basis of rational adjustments between man and his environment—involves applications of fundamental biological knowledge.

The course in Human Biology will consist of two parts; one a one-quarter course, in the fall; the other a two-quarter continuation course in the winter and spring quarters. In each case the class will meet for class exercise and lecture three times a week, and in addition there will be arranged from time to time suitable periods for the presentation of such illustrative material and demonstrations as may seem to be appropriate in assisting in the mastery of various biological principles.

G.C.101f—HUMAN BIOLOGY. Part A, fall quarter. GENERAL BIOLOGICAL CONCEPTS IN RELATION TO MANKIND.

Man's place in nature, discussed from the point of view of the human being. Broadly speaking, man's conduct explained in terms of simple yet comprehensive

concepts: how and why man exists individually and racially; laws of variability as affecting man's ability, to differing degrees, to cope with human biological problems. How did man come to be? A short history of his existence, and a comparison of his history and that of other forms of life. Is man continuing to change today? Problems of genetics, fertilization, Mendelian mechanisms of inheritance, whereby certain families run to redheadedness, insanity, all-male families, and gigantism. The maturation of both male and female cells, particularly with emphasis on how their maturation and their combination give rise to widely variable human characteristics. The inheritance of sex, and sex-linkage. The application of our knowledge of heredity to the improvement of domestic animals and plants; and especial attention to the application of the same knowledge to the betterment of the human race. Discussion of heredity's relation to environment; prenatal influences; important factors in the growth and training of the infant, child, and adolescent. The development of the human embryo, from conception to birth, and certain parallels in the story of the development of other animal species. How growth applies not only to the individual but to masses of individuals, as well: a brief consideration of population problems and trends, and how they affect every individual, in economic, sociologic, and political, as well as biological aspects of everyday life. In brief, a broad background of biological principles, applied directly to individual problems, which may contribute to a richer biological philosophy, a broader biological intelligence. VII MWF. Mr. Wodsedalek.

G.C.102w-103s—HUMAN BIOLOGY. Parts B, winter quarter, and C, spring quarter.
THE HUMAN BODY IN OPERATION, IN HEALTH AND DISEASE.

Many problems arise daily in regard to how the human body operates, normally or abnormally. Man's efficiency depends in large part on his health, and large strides have been made in learning about what makes for the best health: what health is, how it operates, how it may be safeguarded, even guaranteed. Man's progress has been great, from early superstitions regarding disease, evil spirits, charms, and magic cures, to modern medical science. Vital statistics, the "bookkeeping of humanity," help demonstrate this. Health factors now are controlled to a greater extent in home, city, and state, than ever before.

But health is more than this: it is a vitally personal matter. How one eats, how one procreates, how one sleeps, how one exercises, how one keeps the human engine in trim—these all are everyday immediate concerns. Also there is vast interest in factors involved whereby such normal processes go wrong, leading to a destruction of health. Various aspects and systems of the human body—its form and its operation—will be considered in terms of human health problems, giving enough of underlying laws and principles to explain logically conditions of health and disease.

Man begins through a reproductive process; through much of his life he is more or less intimately concerned with reproduction. Man is an engine, that needs fuel; a considerable portion of his mechanism is concerned with taking in, caring for, utilizing, storing, and eliminating this fuel—in solid, liquid, and gaseous form. A conveyor system is needed that such products may be organized and transported to different parts of the body in the most efficient manner possible, and this is supplied in the circulatory system, with the heart as the central pumping station. Man lives in a physical world, a nonliving world; and to keep his place in it must be able to translate energy to his own ends; he likewise must have the ability to control his environment to some extent: he must be able to move; and to move there must be muscles; and there must be a skeleton for the muscles to

move. With this vast complex biological machinery, there must be rapid communication and perfect co-ordination, and this is supplied by the nervous system, and by the products of the endocrine system, by means of "chemical messengers" (hormones) circulated through the blood. The human animal responds to changes in its environment as does all living matter, and it is enabled to do so better than any other organism, through the superior structure of its nervous system, which serves as the connecting mechanism between man and his environment, as well as the co-ordination of man's own processes.

Inevitably there is wear and tear; but living tissue is able, as nonliving is not, to repair and replace itself. Sometimes the replacement process is overdone, as benign or malignant tumor. Some parts of the body never are fully replaced, but gradually wear out, as in arteries, and hence man gradually grows old. Man is exposed to noxious influences on all sides and is able, to a greater or lesser extent, to combat them: as he is able to control the accidental contact with bacterial or parasitic invaders he is more immune to infectious disease. To combat such forces there must be a balance of health in man's favor, and for this to succeed all parts of his body must be operating in reasonably efficient fashion. Before finally the balance is overthrown, and the human organism ceases to exist, usually man has given rise to new generations through the reproductive process.

Health and disease, side by side, among the above and other biological considerations, will be discussed in Parts B and C, and the two parts together will be necessary to get a complete general picture of human biological processes. VII MWF. Instructor to be announced.

ECONOMIC STUDIES

The individual in our modern society comes in almost daily contact with various business organizations and enterprises. These institutions influence his conduct not only through the prices that have to be paid but also by the method of organization through which they operate. The following courses attempt to answer some of the questions raised by these relations and to explain how business enterprise functions. They are not intended to be training courses for business, but to give an understanding of this system and of the relations it bears to the individual members of society.

Mankind is also vitally concerned in gaining knowledge about the earth as a place in which to live and as a base for procuring the necessities for life and sustenance. Fortunately, nature is prolific and the earth abounds in materials that can be utilized to give comfort, pleasure, and satisfaction to man. But these natural resources must be intelligently used and conserved if future generations are likewise to enjoy an abundance of material things and wholesome living conditions.

Mankind is also deeply concerned with, and to a large extent dependent upon, plant and animal life both as it exists in nature and in the forms it has taken under domestication. A knowledge of the natural resources and of the laws governing plant and animal life is one of the elements of sound education.

With a view to acquainting students with the nature of these resources and with the interrelationships between them and human life and welfare these courses are devised.

Moreover from the time of the early Greeks the study of earth and man, or environment and man, has been a fascinating pastime as well as a profitable subject of study. A geographic study of environment includes a consideration of climate, relief, soil, natural vegetation, etc., and their importance for human life.

A geographic study of peoples includes a consideration of the distribution of population, the primary production of goods, and the racial, political, and cultural groupings of the human family.

G.C.40f—OUR ECONOMIC LIFE. Part B, fall quarter. PROBLEMS OF PRODUCTION, FINANCE, AND CREDIT.

Goods purchased must be paid for. From what sources does the buyer secure money and credit with which to make these purchases? What determines his wages or salary and the amount he can earn on his investments? What various institutions are willing to pay him interest for the use of savings and how can they afford to pay it? What part do the banks play in this system? What is a national bank? a branch bank? a chain bank system? In what way may other financial institutions serve him? TTh II. Mr. Stehman and associates.

G.C.41w—OUR ECONOMIC LIFE. Part A, winter quarter. PROBLEMS OF CONSUMPTION AND DISTRIBUTION OF GOODS.

With this object in mind consideration will be given to such matters as the production and marketing of goods. How and where are these goods grown or manufactured? Through whose hands do they pass before they are bought by the retailer? What type of organizations do these middlemen have? How do they secure their profits? How does the retailer determine what goods to buy, how does he pay for them, and what price does he charge? What attitude should the consumer take toward advertising? Why do we have department stores, mail-order companies, chain stores, and small unit stores operating side by side? TTh II. Mr. Vaile and associates.

G.C.42s—OUR ECONOMIC LIFE. Part C, spring quarter. PROBLEMS OF GOVERNMENT AND BUSINESS RELATIONS.

The relation of government to business and the consumer will also be considered. Why do we have governmental supervision of public utility companies and how does it operate? Why does the Federal Government regulate the railroads and leave to cities and states the regulation of most public utility companies? What sort of regulation do we have over the so-called trusts and, in general, what is the work of the Federal Trade Commission?

Also, in this course, questions will be raised on other matters of general economic significance. For example, where and how does the government get its funds and how does it spend them? What are the gold standard, inflation and deflation, the Federal Reserve? Why do we have tariff duties; what do we gain by them and what do we lose? What is meant by the labor problem and in what sense is it a problem? What determines the values of land and real estate? What causes prices to rise and fall? TTh II. Mr. Stehman and associates.

G.C.110f-111w-112s—INTRODUCTION TO THE MATHEMATICS OF BUSINESS.

It is common knowledge that mathematics of an advanced nature plays an essential rôle in science, engineering, and other specialized fields. On the other hand, the most elementary processes of mathematics, such as simple arithmetic, are continually used by all men and women. Between the two extremes, on the one hand, the technical applications and, on the other, the most elementary uses of mathematics, we find a large body of applications which are of extreme importance to the average educated man and woman. Fortunately, the applications in this intermediate field involve the use of only relatively elementary mathe-

matics. For example, a large and important part of the mathematics of finance and insurance, and interesting sections of the field of statistics can be cultivated with the aid of merely elementary algebra and arithmetic. This course, called an Introduction to the Mathematics of Business and Current Affairs, presents selected topics from statistics, finance, and life insurance which are of interest and value to any intelligent citizen. These applications of mathematics are presented on the level of a student who may have had only one year of mathematics beyond the eighth grade, but who is willing to master necessary techniques as a price for an efficient treatment of an interesting body of knowledge. The elements of algebra are reviewed, as a part of the course.

The extent of the course can be inferred from the following sample problems.

G.C.110f—Part A, fall quarter. ALGEBRAIC METHODS, STATISTICS, AND INTEREST.

By use of data from the *Statistical Abstract of the United States*, express the monthly production of bituminous coal for each month of 1930 as a percentage of the production in the corresponding month of 1929; plot the resulting percentages. Determine the trend line of wheat production in the United States graphically, by use of data for the years 1890 to 1930. If you borrow \$1,000 for ninety days from a bank which charges 6 per cent interest, payable in advance, at what rate do you actually pay simple interest? Suppose that you buy \$1,000 worth of merchandise and that the terms of payment specified by the seller are net cash in 60 days, or 4 per cent discount for cash in 15 days, what is the highest interest rate at which you could afford to borrow money in order to take advantage of the discount offered to you? Compute the arithmetic mean of the hourly readings of the temperature yesterday in Minneapolis. How long will it take money to double itself if it is invested (1) at 5 per cent, compounded quarterly, and (2) at 5 per cent simple interest? MWF VI. Miss Thorp.

G.C.111w—Part B, winter quarter. ANNUITIES AND THEIR APPLICATION TO PROBLEMS INVOLVING THE DISCHARGE OF DEBTS BY PERIODIC INSTALLMENTS, DEPRECIATION, AND BONDS.

Compute the annual rate of depreciation on a motor truck which costs \$1,250 and is worth only \$250 at the end of three years; find the depreciation during each year. How much money in hand today would be sufficient to provide you with \$50 per month for two years, if you were able to invest money at 6 per cent, compounded monthly? In return for a loan of \$1,000 you agree to make equal payments at the end of each three months for four years; if these payments include all interest at the rate of 8 per cent, payable quarterly, find the size of the payments. What rates of interest, compounded annually, are equivalent to the interest charges specified by a Morris Plan bank, for its various types of loans? Suppose that you bought a \$1,000, 7 per cent bond of the Great Northern Railroad at the highest price for which such a bond was sold yesterday on the New York Stock Exchange. What interest rate does this investment yield, assuming that you will hold the bond until its maturity date? MWF VI. Miss Thorp.

G.C.112s—Part C, spring quarter. PROBABILITY AND LIFE INSURANCE.

Compute the smallest possible annual premium which an insurance company could afford to charge, if it had no overhead expense, in case you should buy an ordinary \$1,000 life insurance policy today. What sum of money, in hand when a man is of age 65, would be sufficient for him to buy a pension of \$100 per month for the rest of his life, under the usual conditions specified by insurance companies? MWF VI. Miss Thorp.

G.C.44w—BASIC WEALTH. Part A, winter quarter. THE ECONOMIC UTILIZATION AND CONSERVATION OF PLANT LIFE.

Nature has covered the earth's surface with plant life. But not all plants are alike. It is a far reach from the algae and mosses to the giant forest trees. What are the differences between the higher and lower forms of plant life? Some plants thrive in one environment and fail in others. Why? What is the nature and origin of plant life? What are the fundamental facts concerning the processes of growth and reproduction? What is the influence of plants upon their environment? How may we best conserve our resources for plant food production? Our forests? To answer these questions and others relating to the uses man makes of plant for food, clothing, and shelter; for feed and forage and for industrial and economic purposes and to demonstrate methods of plant protection, improvement, and conservation through scientific procedure is the purpose of Part A. MWF II. Mr. Schmitz, Mr. Kaufert, and others.

G.C.45s—BASIC WEALTH. Part B, spring quarter. THE ECONOMIC UTILIZATION AND CONSERVATION OF ANIMAL LIFE.

When did domestication of animals begin? By what processes has differentiation in form and function been brought about? What contributions did their domestication make to modes of living? To opening new land for settlement? To extending the power and culture of nations? To diversifying and intensifying the industrial activities of advanced countries? What are the present trends in animal production, and what are the fundamental causes underlying them? Shall we maintain our fish and wild animal life or shall we destroy without replacing as has been done in the past? These questions indicate the great importance of animals, fowls, fishes, and kindred species, and bees in present-day civilization and industry. So intimately is the welfare of the human race associated with, and dependent upon, animal life that every citizen should be informed as to its major contributions to mankind through agriculture and other important industries. MWF II. Dean Coffey and associates.

G.C.47w—EARTH AND MAN. Part A, winter quarter. PRIMARY PRODUCTION REGIONS.

What are the sources of the thousands of articles on display in the shops of our modern cities? Many commodities are produced near the market but for others the dealers or their agents have ransacked the farthest corners of the earth. Whence come the iron and aluminium, copper, silver, platinum, gold, diamonds, and other minerals so important in our arts and crafts? Under what conditions are they produced? A study of the products of hunting, grazing, lumbering, fishing, and agriculture leads us to many lands; from small farm to plantation; from tropical forests to the frozen north; from the sardine industry in the Mediterranean to the whaling fleet in the Antarctic. A study of the primary production of the earth frequently reveals the meaning of remote regions in the daily life of our people. MWF I. Mr. Dicken:

EUTHENICS STUDIES

Euthenics is "the science and art of improving the human race by securing the best external influences and environmental conditions for the physical, mental, and moral development of the individual and for the maintenance of his health and vigor." It is a field which may be profitably studied by both men and women. The units outlined here are designed for both.

Certain units deal with maintenance aspects of home life—food, clothing, the house, and the sick in the house. Others deal more directly with social and economic problems—the family as a social unit, individual development through childhood and adolescence, business relationships, income management, individual and household buying.

G.C.10s—Spring quarter. FOOD SELECTION AND PURCHASE.

This unit is concerned with the everyday problems of food selection and purchase. Individual problems of securing adequate and satisfying food on a moderate or restricted budget will receive major consideration. This will include a study of food and normal body growth, factors which influence individual requirements, and the nutritive value of different foods. Food selection in the restaurant and the boarding house, meal planning in the home, and common marketing problems will be discussed. The effect of different methods of food preparation upon nutritional and esthetic values, good manners, and social aspects of eating will be presented. Food fads, fallacies, faulty advertising, food and abnormal body conditions, and certain of the larger social problems involved in feeding people will receive attention. MWF IV. Miss Hope Hunt.

G.C.11w—Winter quarter. CLOTHING SELECTION.

Men's and women's problems involved in being well dressed—a study of clothes in general and of clothes in relation to oneself will be the basis of this unit. Ways in which different people meet their clothing problems, planning of the wardrobe as a whole, and the individual ensemble will receive attention. The study of the wardrobe will be concerned with the kinds and number of garments needed, the money required to be well dressed, color planning over a period of years, and differences between cheap and inexpensive clothing and fads and fashions. The study of clothing in terms of the individual costume will center on personality in dress, becomingness, color, line, pattern, textures, suitability, durability, and grooming. The course is designed to meet problems of both men and women. MWF IV. Mrs. Edna Mathieson.

G.C.12s—Spring quarter. CLOTHING PURCHASE AND CARE.

This unit is concerned with the maximum satisfactions to be secured from the wise expenditure of money spent for clothing and the suitable care of clothing. Types of articles obtainable on the market and factors which influence the kind and amount of service given will be discussed. Attention will be given to the importance of looking for and recognizing reliable information, of asking intelligent questions, and of judging the value of advertising as aids to wise buying. A study will be made of differences in quality which may be due to the fiber used and to its properties, to the type of yarn, the method of fabric construction, the method of obtaining design in the fabric, various finishing processes, or to differences in workmanship in ready-made garments. Simple methods of fiber identification, new finishing processes which alter the appearance or performance of a fabric, the care of clothing, and sources of reliable information to help the buyer will be included. The discussion will be centered around specific articles of clothing—for both men and women. TTh III. Miss Margaret Brew.

G.C.13f—Fall quarter. SELECTING AND MAINTAINING A HOME.

The selection and care of a living place and its furnishings will be the basis of this unit. Discussion will begin with the satisfactions desired from a home, varying needs of individuals and families, major considerations in setting standards

for living arrangements and a study of house plans to meet these conditions. Attention will be given to house design from an artistic standpoint—American houses today and the styles from which they are derived, the style of the house in relation to the owner and neighborhood, and standards for judging the design and color of a house. The study of furnishing the home will include utilitarian needs to be met, securing attractiveness within the home, cost of furnishing a home, and buying furniture and furnishings. Discussions of care will be concerned largely with general principles and care in relation to making decisions in regard to purchasing furniture and furnishings and in finishes for walls and woodwork. Community problems affecting comfort in living will also be considered. MWF IV. Miss Vetta Goldstein.

G.C.15w—Winter Quarter. RENTING, BUYING, OR BUILDING A HOME—offered by the School of Architecture.

This unit is designed to present some of the problems of the individual in regard to housing. Studies will be made of the basis on which people reach a decision in regard to whether to rent, buy, or build and with selecting the neighborhood in which to live. Attention will be given through a study of house plans to suitability of space and arrangement in meeting individual needs. Points to consider in renting will be presented. Problems in buying a home—examining the plan, the construction of the building, title to property, and business aspects—will be considered. Building—planning for construction, new developments in building, construction processes—landscaping, and community problems in housing will be studied.

Open in 1936-37 to a limited number of students especially interested in these problems. TTh III. Mr. Robert T. Jones.

G.C.17f-18w—HUMAN DEVELOPMENT AND PERSONAL ADJUSTMENT.

Each individual will spend the major portion of his life in adjusting to others. His effectiveness and happiness will depend in very large part upon his personal social relations. It is important, then, that he have insight not only into his own mental and social life, but also into that of his companions and associates. To understand oneself and others, one must know something of the road which all travel in reaching maturity, something of the pitfalls and dangers, something of the cultivation of effective attitudes and sound personal relations. In recent years much has been learned of the development of normal and of maladjusted individuals, of the causes of delinquency and insanity, of the nature of mental peculiarities, and of the basic principles of mental hygiene. Such knowledge has come from the study of children and adolescents, of family and home life, and of personal and social adjustment in the practical world of affairs. It is the aim of this course to bring to the student such knowledge of himself and of others as will assist him in meeting his own life problems, in gaining insight into the motives and behavior of others, and in undertaking the responsibilities of family life.

G.C.17f—Part A, fall quarter. HUMAN DEVELOPMENT.

In order to understand ourselves and others, some knowledge of the developmental course all humans follow is necessary. Much of what we are and how we feel and act can only be understood in terms of our earlier experiences and of our childhood. Hence, this portion of the course presents a general survey of childhood and adolescence by surveying physical growth, learning, and development of motor, linguistic, intellectual, and social skills, emotional life and adjust-

ment, etc. While the normal course of development is stressed, behavior difficulties are also given some attention. MWF III. Mr. Anderson.

G.C.18w—Part B, winter quarter. PERSONAL ADJUSTMENT.

Building upon the groundwork of the first quarter, this section of the course deals with the problems facing adolescents and young people in their personal and social relations. One purpose of the course is to show that the presence of conflicts and difficulties is not unique but universal. The origin and nature of attitudes and complexes is pointed out and the relation of attitudes and conflicts to social pressures analyzed. Emphasis is given to effective adjustment as well as maladjustment. Principles of mental hygiene are derived. In the latter half of the quarter especial attention is given problems of marriage and family life in order to lead the student to understand the behavior of himself and his associates and to reflect on his coming responsibilities. MWF III. Mr. Anderson.

G.C.19s—Spring quarter. USE OF INDIVIDUAL AND FAMILY RESOURCES.

A study of the resources of the individual and family and how these may be utilized in securing the ends which are considered most worth while. The family as a unit, what home life means to the individual in his development, and how family good is realized and maintained will be discussed. Attention will be given to both the human and material resources available. The members of the family—their personal traits and characteristics—help make it what it is. Other resources to be used are the money, time, and energy at its command, the knowledge and experience of its members, and the material possessions which it has secured. The contribution of all such resources to the growth of the individual, his welfare and happiness, and to individual family well-being will receive consideration. WF III. Instructor to be announced.

G.C.21s—Spring quarter. INCOME MANAGEMENT, INDIVIDUAL AND HOUSEHOLD BUYING.

The financial policy of the individual and the family, needs which must be met by the money income, personal and family budgeting, and record keeping will be studied. General problems of consumer buying, characteristics of a satisfactory market from the standpoint of the buyer, advantages and disadvantages of different types of retail stores, and judging the quality of goods will be discussed. Consideration will also be given to the influence of advertising on consumer selection, the meaning and value of labels, guarantees, seals, and stamps of approval. Sources of consumer information will be evaluated. Attention will be given to problems arising from an increasingly highly organized market less intimately concerned with individual needs or connected with the individual buyer, and an increasing display of goods and brands accompanied by high pressure salesmanship and advertising. The interrelationship between family well-being and careful consumption in the home and the interdependence of family consumption and national economy will also be studied. TTh VI. Miss Hedda Kafka.

GENERAL ARTS STUDIES

G.C.119f‡—ART TODAY. Fall quarter. ART AND OURSELVES.

What is the relation of art to commerce and industry? Does it have any social or political significance? Are science and art opposed to each other or do they have many phases in common? How is art related to religion? Art

‡ A fee of \$1.50 per quarter is charged for this course.

plays a part in the life of every person, and is connected with every field of human interest. Whenever a human problem such as the need for a suit of clothes or the need for a new church has been solved, the use of some art principles has been made. A survey of the art needs of the major fields of human activity, such as sociology, business, and religion, will bring the student to a realization of the variety and importance of art in relation to his own life. Lecturers from related fields will bring a variety of viewpoints to the course. Mr. Faulkner, Miss Fisher.

The work in Art Today may be done entirely by the lecture method or by a combination of lectures and laboratory work. Any one of the following selections may be elected. Approximately the same materials will be covered in each one.

Lect. Sec. 1	MWF	II
2	M	II
3	M	II
Lab. Sec. 2	WF	I-II 301 Wesbrook
3	TTh	VI-VII 301 Wesbrook

G.C.120w‡—ART TODAY. Winter quarter. FORM FOLLOWS FUNCTION.

Why are some houses better looking than others? Why do the new automobiles look as if they could go faster than the older models? Why are some suits of clothes and dresses more attractive than others made of the same materials? Why are some advertisements easier to read than others? Why did certain art forms occur in southern countries rather than in northern countries? Any two objects, such as two factories, may serve their utilitarian requirements equally well, and yet one may be far more pleasant in appearance than the other. This difference is largely due to the manner in which the elements have been arranged. Some arrangements and combinations of colors are more pleasing than others because they embrace certain fundamental principles of design and organization. The winter quarter of the course will deal with the application of these principles to such problems as the spacing of windows and doors in a building, lettering on advertisements, and colors in a painting. Miss Fisher.

The work in Art Today may be done entirely by the lecture method or by a combination of lectures and laboratory work. Any one of the following sections may be elected. Approximately the same materials will be covered in each one.

Lect. Sec. 1	MWF	II
2	M	II
3	M	II
Lab. Sec. 2	WF	I-II 301 Wesbrook
3	TTh	VI-VII 301 Wesbrook

G.C.121s‡—ART TODAY. Spring quarter. MATERIALS OF ART.

Why do vases made of pottery have different shapes than vases made of metal? Why do buildings built of stone have a different shape than those built of steel and concrete? How are etchings made? How is weaving done? How are the dishes that we have on our table made from raw clay? This is the third problem that faces any person who wishes to make a new object. Clay must be turned into pottery and wool woven into cloth; pigments must be transformed into paintings and stone, into sculpture; stone, wood, steel, and concrete must be combined into buildings. The materials and the processes by which this is accomplished are important in determining the final shape of the product. The spring quarter will emphasize the nature of the raw materials and the processes by which they are fashioned into useful products. Mr. Faulkner, Miss Fisher.

‡ A fee of \$1.50 per quarter is charged for this course.

The work in Art Today may be done entirely by the lecture method or by a combination of lectures and laboratory work. Any one of the following sections may be elected. Approximately the same materials will be covered in each one.

Lect. Sec. 1	MWF	II
2	M	II
3	M	II
Lab. Sec. 2	WF	I-II 301 Wesbrook
3	TTh	VI-VII 301 Wesbrook

G.C.122f‡—MUSIC TODAY. Fall quarter.

The first quarter will begin with simple folk songs. From this point on, most of the work will deal with the music of the people of all times and of all countries. The middle of the quarter will find the class well equipped to study form, rhythm, melody, and harmony as they appear in the popular music of the present and the past. The other elements of music will be taken up as they present themselves. The first quarter ends with the approach of the holiday season when one frequently hears the music of Bach and Händel and their contemporaries performed in concert halls, in churches, and over the air—a preliminary survey of their music will be made. Mr. Killeen, Mr. Pepinsky, Mr. Hill, and others.

2 lectures, 1 two-hour laboratory period.

Lect.	MW	VIII	Music Auditorium
Lab. Sec. 1	T	VIII-IX	306A Wesbrook
2	Th	IX-X	306A Wesbrook
3	Ar	Ar	306A Wesbrook

G.C.123w‡—MUSIC TODAY. Winter quarter.

With most of the elements of musical understanding mastered, more time will be spent in listening to music in all its aspects—vocal, instrumental solo and ensemble, operatic, choral, and symphonic. An increasing amount of attention will be paid to current affairs in music, to recitals and concerts as well as to present-day trends in general musical activity and in composition. Mr. Killeen, Mr. Pepinsky, Mr. Hill, and others.

2 lectures, 1 two-hour laboratory period.

Lect.	MW	VIII	Music Auditorium
Lab.		Ar	306A Wesbrook

G.C.124s‡—MUSIC TODAY. Spring quarter.

Exploration will be continued through this quarter but with more and more attention given to the idea behind music. There will be lectures and discussions on the sociological, psychological, scientific, and geographical factors affecting music, thus conditioning the listener to the music of his everyday life. Mr. Killeen, Mr. Pepinsky, Mr. Hill, and others.

2 lectures, 1 two-hour laboratory period.

Lect.	MW	VIII	Music Auditorium
Lab.		Ar	306A Wesbrook

G.C.127w‡—Winter quarter. FILM AND DRAMA.

The newspaper, the radio, and the movies, reach and influence the majority of American citizens. In the United States, 70,000,000 persons a week go to the movies, and the influence and effect on the customs and habits of those who attend are therefore important considerations in the life of any community. For most of

‡ A fee of \$1.50 per quarter is charged for this course.

us today the motion picture is the typical American amusement and relaxation and usually the only form of dramatic art available.

To realize the extent of the strong social and personal influences upon the vast movie audiences, and to increase one's own sense of appreciation, judgment, and enjoyment of this modern type of entertainment may be a valuable asset and pleasure throughout life. Merely to discuss these topics, however, on the basis of what random movies students might have seen or be seeing currently in local movie houses would prove impracticable; therefore the sections of the course "Film and Theater" which deal specifically with movies will be profusely illustrated by numerous examples and selections of good films, by contrasts of good and bad films, thus offering a basis for analysis available in no other way.

Illustrated also will be explanations of how movies are made, the technicalities of sound photography, direction, cutting, scenario writing, animated cartoons, color, and recent developments of production methods in Hollywood. The organization of the huge motion picture industry, the methods of film distribution and exhibition will also be shown; famous landmarks and old-time movies from film archives will illustrate the history of this relatively young but popular new art form; time will be arranged for laboratory experimentation in scenario writing, and practice in acting, camera work, lighting, projection, and any other technicalities desired by the individual student.

Throughout the course the reliance of the film upon the media of drama, music, and other older arts will be demonstrated, and the materials, methods, and scope of the film will be compared to and contrasted from those of the theater.

In those sections of the course dealing with the theater students will be concentrating on two things: contemporary playwriting, acting and directing, as seen in current productions both in New York and the Twin Cities; and also attitudes with regard to the place and function of the theater. Certain questions that will be discussed and studied: What does the playwright use for his own environment as he writes his plays? What does the actor learn from studying other people? What are some of the tricks of direction and staging plays? What part does personality play in being a good theater artist? How does an actor study a rôle? How successful are propaganda plays in America, in Europe? What do we mean by the "poetic theater?" What part has the government played in the theater since 1934? and throughout all discussions: In what ways does the theater differ from the film as an art? In what ways are they similar?

The outstanding fact of the 1935-36 theater season was that the motion picture business operated as the largest "angel" on Broadway: rights to sixteen plays were bought outright by the film industry, while twenty-four productions were entirely financed by movie money. Yet the six largest "box-office" productions were non-movie backed. The year 1935-36 was the most successful theater season the theater has had since 1929, and critics believe that this success was due largely to the fact that the theater is finding itself again, and producing only those stories best adapted to its medium.

Our main interest in the theater section, then, will center around study of theater today. We will not only read and enjoy the current plays, and attend legitimate stage plays when they are available, but we will also strive to become keenly aware of the dramatic occurrences of everyday life, as they take place around us. ThF VII-VIII-IX. Mr. Kissack, Miss Lodge.

HISTORY AND GOVERNMENT STUDIES

History has been defined as past politics, and politics, as present history. This is not entirely true as a little attention to the elements that made up man's record of the past and present will show. Yet there is much truth in the statement. By learning how to live in an organized society, man discovers greater means to his own enlightenment and the enrichment of himself and his fellows.

The aim in teaching history and government in the General College is primarily to give the student a better appreciation of the historical background and contemporary status of politico-social institutions as they concern his own locality, state, and nation. However, this is hardly enough. The twentieth century, especially, has witnessed the annihilation of time and space, bringing a knowledge of the institutions and beliefs of foreign peoples ever closer to our own shores. Truly it has been said that "the mind, if it thinks very much, has no geography." To span such widening horizons more than ever becomes essential for the well-informed and the well-conversant.

It is not the objective of courses in this area to stress the purely mechanical sides of government. Nor is it the intention to train experts. Rather, it is the aim to emphasize political problems and functions and the bases of responsible living. Especially it is hoped to develop in the student an inquiring mind, a critical attitude, and a willingness to evaluate those conflicting forces and "isms" that find such voluminous expression in political forums, group discussions, and the columns of our journals and newspapers. In the words of a well-known commentator on recent trends in political economy: "In our minds, battered with six years of trying to understand a world depression, comes a daily tornado of facts, half-facts, quarter-facts, plain lies . . . Yet under the whirling confusion of headline, rumor and gossip, we feel a sense of impending danger . . . Somewhere must lie a pattern, a shape, a trend, which men can take hold of . . ." Training for intelligent living demands a fuller consideration of the relationships between disparate political institutions, facts and conclusions in an increasingly complex and interdependent world. Consequently, a better understanding of, and participation by, the student in the political life of his community, state, and nation; the extension of such interests whenever possible into the international sphere, and a genuine enthusiasm for examining the work and problems of government, constitute the main objectives of courses in this area.

G.C.32f-33w—MINNESOTA: ITS HISTORY AND PEOPLE.

The central idea of this course is that Minnesota is more than land and people and institutions, that these are bound together and given meaning by the past. This past runs from the colorful days of explorers, voyageurs, and fur traders down to the commonwealth of today with all its complex conditions. The course tries for an understanding of the life of Minnesota in its setting of time and place.

How have the state and its people come to be what they are? What changes in problems and points of view have marked the transition of Minnesota from a pioneer commonwealth to a modern commonwealth? These are some of the broad questions that the course attempts to answer. It deals with a local scene and setting and often proceeds from a local approach, but the relations of the state to the broader Northwest and to the nation and world are much stressed.

Several circumstances make possible today a realistic and broad study of Minnesota's history and people. One is the existence of marvelous collections of

letters, diaries, and other historical records at the Minnesota Historical Society in St. Paul. The course is taught by the superintendent of that society; early in the first quarter a visit is made to the society's building; throughout the work the society's many publications are utilized. A second circumstance aiding present-day study of the state's history is the fact that historians in recent years have cultivated the Minnesota field intensively and have made many new contributions, both of fact and of interpretation, to its understanding. Finally, the course takes advantage of the lengthened perspective from which the development of the state can now be viewed. It accepts the view that Minnesota has come of age and inquires into the meaning of the attainment of maturity.

G.C.32f—Part A, fall quarter. THE PIONEER COMMONWEALTH OF MINNESOTA.

As Minnesota has grown out of the pioneer commonwealth, it is necessary to know the story of Minnesota pioneering and its backgrounds. The native Sioux and Chippewa are viewed in the natural setting of their life. This furnishes the background for learning about the coming of white men into the Northwest. The French regime, with such diverse figures as Radisson, DuLuth, Hennepin, and LaVerendrye, is portrayed. The course continues with British exploration and control, the epic of the beaver empire of the Northwest seen in its world relations. The arrival of Lieutenant Pike in 1805 and the building of Fort Snelling fourteen years later are landmarks in the inauguration of the American period. All this furnishes a background for the study of American exploration and military control and of the pioneer commonwealth in the era of the establishment of the state. Some of the elements in the making of Minnesota that are considered are the fur traders of Sibley's day, the missions to the Indians, the coming of pioneer settlers, the creation of Minnesota Territory in 1849, frontier democracy, the transition to statehood in 1858, and the ordeals of panic, civil war, and Indian outbreak that the young state went through. TTh II. Mr. Blegen.

G.C.33w—Part B, winter quarter. THE MODERN COMMONWEALTH OF MINNESOTA.

The second quarter centers attention upon the emergence of the modern commonwealth of Minnesota, the processes by which the state grew up. Much of the emphasis is upon economic and social change, tho the course does not leave politics out of the picture. Among the larger forces examined are the passing of the frontier era, the development of modern industry, the transition from pioneer to contemporary social conditions, and the agrarian third-party challenges to the dominant political parties. In studying the passing of the frontier, one must deal with such subjects as the building of a network of railroads, the incoming tide of people representing diverse backgrounds, the spread of Minnesota settlement, the shifts in farming methods and problems that accompanied the decline of the wheat empire and the spread of diversification, and the rise of the conservation movement. In studying the rise of modern industry, one must investigate the flour-milling industry, the story of the iron mines, the organization of the forces of labor, the growth of cities, and similar subjects. In studying the social and cultural transition of Minnesota, one must see how standards and points of view changed, how education responded to new needs, and how the state and its people developed social controls. In this part of the course one hears about conservation, the co-operative movement, public health, state action in relation to social problems, music, art, literature, and many other subjects. All the various topics are examined in relation to the general trend from an agrarian and individualistic society to a highly integrated machine-age society in which human interdependence is of major importance. TTh II. Mr. Blegen.

G.C.30f—Fall quarter. THE AMERICAN CITIZEN AND HIS GOVERNMENT.

Popular government rests upon the principle that it is every citizen's business to see that his community is well governed. But, as Lord Bryce pointed out, what is everybody's business is likely to be nobody's business, for most citizens hesitate to assume responsibility. It has therefore been typical of American political life to find the affairs of the community managed by a relatively small part of the number of citizens, motivated often by self-interest. Those who should have been leaders in the political life have been especially slow to interest themselves in public affairs, whereas they ought to be in the forefront. Too many people in the United States have regarded politics as a business to be avoided by those wishing to be thought respectable.

As is discussed in Course 29, the functions and activities of government have now expanded to such an extent that politics touches everyone directly, constantly, intimately, and inescapably. It will be increasingly difficult for Americans who have gone to college to remain indifferent to politics, and at the same time many will be anxious to assume the increasing responsibilities which democracy places upon them.

This course is designed to equip the citizen who wishes, and who should, to take his share of the responsibilities as an intelligent member of a self-governing state, and to aid him in making his participation more effective. The structure of the American local, state, and national government will be described with particular attention to the ways in which the various parts of the structure operate, and affect the citizen.

Constant reference will be made to contemporaneous problems and developments in the field of American government, and for this selected newspaper and periodical material will be used. Instead of, for example, following some text account of the way in which a bill becomes part of the laws which govern our conduct, the progress of legislation in a legislative body will be followed through with the aid of press and other accounts. A similar treatment will be given to the problems of law enforcement, administration of government, the rôle and activities of the political party, the place of the executive in our government.

Likewise attention will be given to the more important contemporary problems and trends in American government, such as the question of constitutional reform, changes in the structure of government, problems of governmental finance, national, state, and local.

The various ways in which the citizen can take an active part in public affairs will be analyzed carefully, and to this end the functioning of the political party will be studied. Attention will also be placed on the relations between the civil service of the state and the citizens, particularly those with college training.

Most citizens will have to be content with merely voting in primaries and elections as their share of government, but to point out the wider possibilities of popular control over public affairs will be the main purpose of this course. MWF III. Mr. Kirkpatrick.

G.C.29w—Winter quarter. THE FUNCTIONS AND PROBLEMS OF GOVERNMENT.

The introductory course is to be a survey of the functions and problems of government in the present social order.

Recent political and social changes in the United States have served to emphasize the question of the proper rôle of government, and there is a wealth of material on such questions as "individualism," socialization of economic functions, and the growth of the service functions of the state.

The course will include a survey of the origin and nature of government, emphasizing the social, racial, religious, and economic factors which have influenced the development of governmental institutions and services. An examination will be made of the points of view of the fascist, the socialist, the communist, and others who have definite opinions on the rôle that government should play in present-day life.

An examination will next be made of the functions which government now performs in this country. One of the objectives of the course will be to show the evolutionary and constantly expanding rôle of government in human society, and to indicate, by selected readings in textbooks and current periodical literature, the causes and possible results of this expansion. Taking some function which is now taken for granted, such as police or fire protection, the course will move on to the discussion of functions which are now in the foreground, such as industrial regulation, state planning, state ownership, and economic security. Stress will be laid on the changing economic and social conditions which are conditioning changing governmental action. Some attention will be placed on the machinery with which government carries on its manifold services, and the position of the civil service, and the relations of the college student to governmental employment, will be treated. MWF III. Mr. Christensen.

G.C.31s—Spring quarter. INTERNATIONAL RELATIONS.

The informed citizen needs to know the problems not only of his own country, but also those of other nations, and of the world on which America so much depends. Finance and business, science and education, have become international, and nations have become increasingly interdependent. To survey this field the department offers this course in "International Relations."

The lectures will deal with the international problems of the principal nations of Europe and the Far East, and with their internal affairs where these affect the international situation. The emphasis will be placed upon the post-war period, but attention will be drawn to pre-war events where this is necessary for elucidating the present situation, e.g., France's policy toward Germany. The first part of the course will deal with the salient features of the foreign policies of the principal powers. Outstanding problems will then be discussed, e.g., the Polish and Austrian questions, reparations and inter-allied debts, the Soviet internal and foreign policy. Attention will be drawn to the significance of these questions as illustrations of such general principles as nationalism and imperialism. The efficacy of the League of Nations, disarmament conferences, and the Kellogg Pact will be considered in the light of the previous discussions of specific problems. The above schedule of lectures will be altered in order to explain any outstanding current developments, whether in internal or in foreign affairs. MWF III. Mr. Sibley.

G.C.28s—Spring quarter. EUROPE TODAY AND YESTERDAY: A STUDY OF NATIONAL SOCIAL AND GOVERNMENTAL TRENDS.

Why should the student be interested in the study of European government? What bearing has such knowledge upon an understanding of world events, an intelligent reading of the domestic and foreign press, an appreciation of the news reel, the radio, and of travel? The course "Europe Today and Yesterday" grows out of an acute realization of our expanding political horizons and attempts to answer some of these questions.

The twentieth century is beset with social and political complexities, many of which can be made understandable only by greater attention to their origin in

the past and their evolution in the modern era. Europe has become a "patch-quilt" of rival dogmas and "isms." The result may be to lead the Old World, and possibly even the New, to the brink of destruction; or the Old World may be sowing the seeds of a new and better world order. Whatever the outcome, the student in America cannot remain oblivious to happenings abroad and the causes giving rise to them. Yesterday's events in Rome, Berlin, Moscow, Vienna, Prague, Paris, and London may strike a more resounding note in the imagination, and prove ultimately more significant than what is taking place less than fifty miles from home. Given the developments of modern communication and knowledge, transmission, the affairs of the Old World press ever closer to one's doorstep, if indeed, they do not actually invade one's study and living quarters. To understand these developments some grounding in a knowledge of the European states' system becomes increasingly indispensable.

As a background, certain outstanding events in the social, economic, and governmental history of Europe from the Congress of Berlin (1878) to the Great War will be canvassed. Causes of the Great War will be briefly analyzed, together with major outlines of the peace settlement, especially as these concern the internal struggles, aspirations, and political status of certain countries following the holocaust. Attention will be paid to the growth of organized international labor as reflected in such movements as Marxian communism, guild socialism, syndicalism, and the like. In turn, these will be related to specific countries in order to show their influence upon national "patterns" of thinking and "functions" of European government.

More concretely, such phenomena will be observed as the rise of the Soviet power, the operation of the co-operative state, the development of Italian fascism, the workings of the corporative state, the growth of national socialism, the "refutation of Weimar," and the practices of the Hitler regime. Against this setting will be etched certain of the politico-social struggles and accomplishments of post-war Switzerland, France, and Britain; while the significance and comparative contributions of various of the so-called lesser states (Austria, Hungary, Czechoslovakia, Jugoslavia, and the Baltic States) also will receive attention.

Less consideration than usual in the study of European government will be devoted to mechanical structure. However, an effort will be made to give the student a working knowledge of such concepts as presidential, parliamentary, unitary, and federal forms of government; an exemplary insight into the manner in which laws are variously conceived and made operative, and some conception of basic tenets governing the operation of the suffrage in those countries selected for study. Wherever possible, the contemporary approach will be used, with shafts sunk into the historical background. The course will be definitely survey in nature and will be closely integrated with allied offerings in "Contemporary Affairs," "International Relations," and "Problems in Political Geography." TTH
III. Mr. Wenner.

G.C.48s—EARTH AND MAN. Part B, spring quarter. PROBLEMS IN POLITICAL GEOGRAPHY.

The political units of the world are not merely human organizations; they are definite, limited areas of earth surface, differing greatly in size, in character and capacity of production, and in location in relation to each other. These are fundamental geographical characteristics of states which limit their freedom of action. If this is clear in the critical case of Austria it is likewise significant for France, Germany, and larger states.

These state areas are not homogeneous units but are made up of regions differing notably in resources, in economic development, and in population characteristics and interests. The difficulty of organizing many such regions into a single political unit—the national state—gives rise to problems of “minority areas,” as in Czechoslovakia or Poland, of “regionalism” as in Germany or the United States, and of “separatism,” as in Spain, Jugoslavia, or the Soviet Union. What are the characteristics of Catalonia or the Ukraine which underly such “separatist” problems? What is the geographical foundation of political regionalism in the United States?

More critical are the regions claimed by more than one state, for these represent problems seldom solved by peaceful means; hence such territorial problems are at the base of most wars. These are the danger spots of world peace at the present time, areas such as Memel, the Polish Corridor, Manchukuo, Outer Mongolia, or the Gran Chaco. Somewhat similar are the colonial areas, such as Ethiopia, the Philippines, etc. The greater part of the course is devoted to these specific problem areas. MWF I. Mr. Hartshorne.

LITERATURE, SPEECH, AND WRITING STUDIES

G.C.55f-56w-57s—Fall, winter, and spring quarters. LITERATURE TODAY.

Literature Today, as the title suggests, will use modern writings for study in the course. The point of view will be that of examining these writings for a reflection of the ideas, institutions, and customs that make up modern civilization. Such an examination should contribute greatly to the student's understanding of the life around him. Many of our present-day ideas and institutions can be understood by studying them directly; some, however, can be best understood by examining the forms from which they grew. The course, therefore, will study older literature whenever an understanding and appreciation of today's literature depend in a great measure upon the older, tho such a study will not be chronological but comparative.

Little attention will be paid to developing speed in reading; rather the emphasis will be placed upon reading fully with great comprehension. Thoughtful, reflective reading will reveal to the student how short stories, plays, essays, novels, and biographies are used to spread propaganda for communism, socialism, capitalism, fascism, and so forth. The course, then, should stimulate the student to read wisely and objectively so that he may find his own answers to problems presented in the literature of today, and not merely conform sheeplike to spectacular, but ephemeral, tendencies of thought which he finds surrounding him.

But the course will have a further aim; it will seek to stimulate the student to express his own experiences to his better understanding of them and to stimulate the student to a greater, pleasurable appreciation of literature so as to furnish a source of never ending intellectual enjoyment and growth. MWF I. Mr. Appel, Mr. Weaver, Miss Kranhold.

G.C.70f-71w-72s‡—Fall, winter, and spring quarters. ORAL COMMUNICATION.

This course is offered for students who wish training and experience in informal speaking, i.e., discussion, recitation, conversation, conference, and interview. Particular attention is paid to basic speech habits such as vocal patterns, posture, clearness of statement, and social adjustment. Individual instruction is stressed,

‡ A fee of \$1.50 per quarter is charged to defray the cost of voice recordings, voice record play-back, and moving pictures.

and the class time is devoted almost entirely to drill and practice. Altho the course is not primarily adapted to the needs of individuals seeking special training in acting, interpretation of literature, and oratory, it does provide an approach to such special activities through the improvement of basic speech habits.

Through the co-operation of the Visual Education Department each student is given an opportunity to make two voice recordings per quarter, and moving pictures will be taken of those students remaining in the course during the fall, winter, and spring quarters. It is advisable to register for one discussion section and one laboratory section. Mr. Gilkinson.

Discussion Sec.	1	M VII
	2	T II
Laboratory Sec.	1	W VII
	2	T I
	3	Th II
	4	F VI

G.C.61f-62w-63s—Fall, winter, and spring quarters. WRITING LABORATORY.

Composition will be taught in the writing laboratory from the point of view of the student's current and future needs. Individual conferences and assignments in the writing laboratory will be augmented by general lectures and discussions so that each student will become acquainted with the various types of writing and with the procedures best adapted to those types. Special emphasis will be placed upon understanding the functions of language as it is used today, especially in regard to current usage and standards for knowing what is acceptable in speech and writing.

The general assignments will be given from time to time, each student will find frequent opportunities for writing, as a part of his work for the course, letters home, business letters, letters of application, and class notes for himself, as well as term papers, book reports, and speeches for other courses. All such writing will be done in the writing laboratory which is furnished with suitable chairs and desks and reference books.

Students may elect one or more sections, other sections will be arranged as needed. Each section meets twice a week for two consecutive hours each time. *Each section is limited to thirty-five students.*

In addition to the hours listed above, the writing laboratory will be open at certain hours, which will be announced later, for students not registered in the course or in the General College. An instructor will be in attendance to give help on writing problems. Mr. Appel, Mr. Weaver, Miss Kranhold.

Sec. 1	MW III-IV	Sec. 5*	TS III-IV
2	MW III-IV	6*	TS III-IV
3	MW VI-VII	7	TTh VI-VII
4	TTh I-II	8	TTh VI-VII

G.C.67f-68w-69s—Fall, winter, and spring quarters. IMAGINATIVE WRITING.

This course is limited to fifteen students. Only those students who show marked ability and are recommended by the counselors or the instructors in the laboratory will be admitted. Here is an opportunity for a limited number of students to follow their special interests. The work will be done entirely in individual conferences with the students, the class period being only for the reading of papers and the criticism of them by the class. Each student will decide

* Students entering General College for the first time will not be permitted to elect either of these sections.

for himself the type of writing he wishes to do and set himself special problems. Students may elect this course for two to ten hours. Conferences will be arranged. Class meeting Th VIII-IX. Mr. Appel, Miss Kranhold.

PHYSICAL SCIENCE STUDIES

G.C.88f—Part A, fall quarter. ENERGY AND MATTER.

Fundamental physical concepts, nature of gases, liquids, and solids, forces and motion, heat, electricity and magnetism, light.

When we look at the complex world about us and see its magical phenomena we take it all for granted unless our curiosity leads us to ask why the sky is blue and sunset red, how the household refrigerator works, why some of us wear glasses, what causes dew, fog, clouds, hail, and rain, what is sound, why do we have winter and summer, how does the thermostat control room temperature. More remarkable is the fact that everything in the universe is built up of only 92 different kinds of atoms, these in turn being built up entirely of electrons and protons. In other words all physical properties are functions of the properties of electrons and protons or groups of electrons and protons. With matter is always associated the thing we call energy. Here is the most fascinating study outside of life itself and no student is so intellectually stagnant that he has never searched nor asked for an explanation of some physical phenomenon. No matter what your position in life may be, a knowledge of scientific method, an appreciation of scientific philosophy, and a scientific attitude towards all things is necessary for the mentally well-balanced man.

The main topics for study, fall quarter, will be the fundamental physical concepts such as energy, matter, and time; the laws of energy and motion explained in simple mathematical language, heat and molecular motion, electricity and magnetism, and how matter emits the radiation we know as light. MTWThF I. Mr. Vaughan and others.

G.C.89w—Part B, winter quarter. THE NATURE OF CHEMISTRY.

The make-up of material objects which we now regard as necessities has changed so remarkably during the past thirty years through the development of the science of chemistry as to be almost unbelievable. This science has raised the standard of living, has given beauty and usefulness to our homes and the clothes we wear, has provided new weapons in man's fight against disease, has given us the means to refertilize our rapidly wearing out land, has given us new and interesting materials for all purposes. To show how these effects have been brought about is our objective.

The lecture topics for study, winter quarter, will be the development of the fundamental concepts of chemistry, why and how chemical changes take place—such as oxidation and reduction; the inorganic chemistry of foods, dyes, lumber, straw, clothing materials, explosives, photographic film, and other materials built out of most useful and important atoms, carbon, oxygen, hydrogen, and nitrogen. MTWThF I. Mr. Vaughan and others.

G.C.90s—Part C, spring quarter. SOUND, ASTRONOMY, AND TECHNOLOGY.

This quarter's work in the study of physical science will be divided into three main sections, sound, astronomy, and technology.

The production, transmission, and reception of sound, together with the design of auditoriums and classrooms for better acoustical properties will be considered in the first of these divisions.

Three weeks will be devoted to work in the field of astronomy, the lectures being designed to acquaint the students with the principal features of the heavens, to make them aware of the fact that the earth and even our solar system are not alone in space, and to give them a better realization of the place of man in the material cosmos.

The third part will consist of a series of lectures concerning the technological applications of physics and chemistry in manufacturing, building, transportation, communication, and how the engineer and architect utilize and apply the principles of the basic sciences of mathematics, physics, and chemistry to the satisfaction of human wants.

Explanations will of necessity be brief but will serve as an introduction for the students to further reading and study. Our approach to the study of the physical sciences is not that of the professional scientist but that of the man who desires a knowledge and an appreciation of scientific method and attitude and wants it as a necessary part of his own cultural pattern. MTWThF I. Mr. Vaughan and others.

G.C.94f—Fall quarter. THE RELATIONS OF SOUND TO MUSIC.

To the musician has been popularly attributed some divine talent, and he has been clever enough to admit it, thus being saved the trouble of proving it. But the stuff out of which music is made, the raw material, can be closely examined and measured quantitatively, and the effects produced upon us better appreciated and understood. We can—and should, therefore—learn how music is made and of what music is made.

This course, then, will be a study of the relations of sound to music. Like a zoologist when he finds a strange bug, we will take the sound wave into the laboratory, dissect it, and see what it is like. Delicate machines have been devised which show us how the sound wave behaves. We can determine which characteristics make for noise and which lead to music. We can study the structure of the complex note and determine its pitch, loudness, and quality. Then we can look into a horn and other musical instruments and see how it re-enforces and builds up an insignificant sound source. It is curious, too, how one length of tube can make many notes, and interesting to see how man's skill has improved on nature's production of musical notes. We can discuss that which we call tone color, that which enables us to hear the difference between one instrument and another, or distinguish one voice from another even when the note is played, sung, or spoken in the same pitch. And, finally, we can examine the effect of the room or hall, in which music is performed, on the listener and the performer. MWF VII. Mr. Pepinsky.

G.C.95w—Winter quarter. SPEECH AND HEARING.

Speech—There is only a limited range of distinct sounds that can be made by the organs of speech, altho there are a great many different languages spoken in different parts of the earth. The general mechanism of producing speech is similar for all people. We can in this course examine the organs of speech and observe how the variations impressed by them on the air stream, delivered by the bellows-like action of the lungs, form the sounds which are used in communicating with one another. We can attempt to classify these speech sounds and study the problems of a singer's or speaker's diction. We can apply the fundamental laws of sound to our speech mechanism and study the adjustments of our resonating cavities and their effect on quality of tone. It is intriguing, too, to trace a

relationship between the poet's lyric and the composer's musical setting of it, and then to study the effect of a translation of the same lyric into a foreign language. "Opera in English" has become a well-known slogan, and it is most interesting to note the comparative adaptability of the sounded words of various languages to the lines of musical melody associated with them.

Hearing.—Our ears are only machines, designed by nature to translate air waves into a form suited to stimulate the auditory nerve. But to understand the mechanism of the ear is by no means all that is necessary for the understanding of the act of hearing, for we have not heard until the brain has perceived the message sent by the auditory nerve. Many important factors relating to the process of hearing can be determined by measurement of the least detectable changes in sound under a variety of conditions of pitch, loudness, and accompanying noise and in the recognition of small defects in those sounds with which one has become especially familiar. Hearing, speech, and music are linked inseparably, for they only bring a meaning through our aural sense. It is an instinctive thought that they must be heard to be appreciated and criticized. MWF VII. Mr. Pepinsky.

G.C.96s—Spring quarter. TOPICS IN MUSICAL ANALYSIS.

The primary purpose of music is to make an appeal to the senses and imagination. On many, however, music has merely the same effect as a warm bath—a pleasant sensation. They listen in repose, and if asked for an opinion of a piece of music, they reply, "Oh yes, I liked it well enough" or "I don't know—it was all right, I guess," or again, "I know what I like." Robert Schumann, a great composer of the nineteenth century, admitted that music means something different to each of us. "Men in different stages of life take such different views of the impressions they derive from artistic fancies, and the youth of eighteen often discovers in a symphony the echo of some world-wide event, where the mature man sees but a local matter, whereas the musician has never thought of either the one or the other, and has merely poured forth from his heart the very best he could give."

We can learn something about the effect of music on the listener by comparing the music of primitive peoples, the music of the Orient as differentiated from that of the Occident, and then the music of the various epochs and the correlation with social, economic, and political factors. Music has form—an architecture—the development of which parallels that of the other fine arts and literature. When analyzing we must search for the relations of the individual elements and driving forces of the composition which assemble the parts into an art work. This is by no means successfully accomplished by "picking the composition to pieces," but rather through an understanding of the idea of development, even as we can tell nothing of the geographical condition of a river, tho we make the most painstaking chemical analysis of a drop of its water, but must trace the potential energies that develop the stream from an insignificant little spring into a mighty power. We have a true picture of the exalted impulse of a musical art work only then, when we succeed in tracing those powers originating in the tiny "spring" of a motive through to the mighty rushing "stream" of a many-voiced tone mass. And, finally, we should look into the processes of "conditioning" necessary for the conception of a piece of "descriptive" music, to enable the composer and listener to agree upon the idiom of expression required for suitable imagery and understanding of the "picture" in the creator's mind. MWF VII. Mr. Pepinsky.

PSYCHOLOGY STUDIES

Psychology is concerned with human activity. Because every person is influenced by the behavior of other people, it is wise to study this behavior for its practical significance.

The aim of this course is to present a picture of the ways in which the human being meets the problems of his environment and develops the many traits which are called personality. It seeks to answer the question, "Why do we behave as we do?"

G.C.If,w,s—Fall, winter, and spring quarters. **HOW TO STUDY.**

An urgent problem faces every college student. He must master quickly fields of knowledge which challenge his learning ability. Few graduates of preparatory schools have been trained to analyze and reconstruct class assignments in a lively and meaningful manner. Yet students know that special training is desirable for success in mechanics, medicine, and even sport. What then of study? Is it possible that a hit-and-miss process produces the best results? Or is it not more likely that specific training in study methods will help an earnest and diligent student to understand his various courses and enrich his university experience? It is important to master early in one's college career study methods which contribute directly to success as a student. One point the student can be sure of is that, altho instructors offer materials for study, students get full value from these materials only by thoroughness of study.

The How To Study course aims to help a student meet successfully the challenge of his college program. It offers suggestions for the most practical use of time, a matter which when neglected results in disastrous waste; and, through practical examples and experiments, it encourages a student to study efficiently. More specifically, the course affords training in making lecture and textbook notes; it introduces a variety of methods of outlining, each of which has value for particular fields of knowledge. These aids are supplemented by others designed to help in mastering special terms and in developing vocabularies necessary for thinking and remembering correctly about specific subjects. Through directed practice the student learns to apply his skill to the writing of reports, essays, and examinations. Individual attention is given to those whose study performance suffers because of reading disabilities. Such questions as, "How can I concentrate and avoid daydreaming? How can I best prepare for essay or objective examinations? How can I make useful notes in a lecture course where the instructor does not present an outline?" and many others will be answered through establishing effective habits. The aims of How To Study will be brought to students by lectures and demonstration, but the realization of these aims demands study in actual situations. Sections are restricted to 50 students. Mr. Bird, Mr. Carlson.

Fall	MWF	Sec. 1	IV
		2	VII
Winter	MWF	Sec. 1	IV
		2	VII
Spring	MWF		IV

G.C.2-3f—Fall quarter. **PRACTICAL APPLICATIONS OF PSYCHOLOGY.**

The first half of the course will consider why college students and others differ one from another. Such questions will be discussed as: What is mind? Are all men created free and equal? What is intelligence? What is an I. Q.? How is intelligence measured? Is there more than one kind of intelligence? Can we

improve intelligence? Are women smarter than men? It is true that women never reason? Why are different races of people different? What part does age play in individual differences? Are two people ever exactly alike? Can intelligence be ascertained by the shape of the head and face? Do the stars influence our behavior? Can we read people's minds? Can behavior be predicted from handwriting? Are all blondes fickle? And is there anything to numerology?

In what ways do differences come about? How are all of our various traits developed? The part played by the nervous system in behavior: how we hear, see, taste, smell, and the like; what traits we are born with and what we acquire; what causes emotion; whether emotions are always bad; the way in which advertisers and salesmen play upon our emotion in selling us their products; how we can build up sales resistance; why we fight, become angry, and fall in love; the part played by the glands in emotional behavior, also the influence they exert in our physical development.

The second half of the quarter's work will help to form a more complete picture of the individual. It will deal with questions of how we learn; how we improve our memories; how we break bad habits and build up good ones; how age influences learning; how other people shape our behavior; what is hypnotism; what is mob behavior; what gives rise to new things such as inventions; what is personality; whether it is possible to have two entirely different personalities; how personality is measured; how we can learn to get along with other people; the kind of work we are best fitted for and how we can develop healthy, normal, and pleasing personalities.

Having seen how people differ, how these differences come about, and how our traits are combined into personality, the discussion will finally center upon how personality breaks down; what happens when we go crazy; why drunkards see snakes; whether insanity can be cured; how to reduce insanity; the characteristics which make people "peculiar"; if a genius is insane in some respects; what is a complex; what is psychoanalysis; if insanity is hereditary; what happens when people see visions; what is an introvert, an extravert; why we sometimes think everyone is looking at us or talking about us; what happens when we have the "blues"; why some people think they have every disease they hear of; why we sometimes think the world "has it in for us" and at other times we feel that life is perfect.

Throughout the course stress will be laid upon the practical aspects of psychology rather than the attempt to train the student to become a specialist in the field of human behavior. MWF 1:00-2:20. Mr. Longstaff.

G.C.2w-3s—Winter and spring quarters. PRACTICAL APPLICATIONS OF PSYCHOLOGY.

This course repeats during the winter and spring quarters the work covered in the fall quarter as described above. MWF II. Mr. Longstaff.

G.C.134f,w,s—Fall, winter, and spring quarters. AN INTRODUCTION TO THE CHOICE OF AN OCCUPATION.

The General College of the University would fail to fulfill one of its functions if it neglected to offer a realistic study of the occupations and employment trends in a wide variety of fields. Data for such a realistic picture of present conditions will be drawn from the reports of the Commission on Social Trends. At present many human failures, many late starts, much wasted time, effort, and money are the direct result of student ignorance of the factors involved in any given occupation. Many people hold fanciful illusions about other callings than

their own. Some believe that all doctors and lawyers receive large incomes; that a college degree in engineering, education, business administration, nursing, agriculture, and other curricula is a guarantee of a job and of success; that the white collar clerkship is always better than a job in the engine room, at the bench, or behind the plow; that somehow it is more genteel and profitable for a woman to teach school than to sell goods or make them.

An analysis of the various methods of choosing an occupation will be made. This includes the evaluation of try-out experiences, use of vocational information contained in books and pamphlets, and an understanding of the value of aptitude tests as a means of evaluating vocational possibilities. The values and weaknesses of these methods will be presented. Finally, the pitfalls in thinking about vocations will be discussed and suggestions made as to how a student should proceed in choosing a field of work which will give him satisfaction and success. All these factors will be considered in the light of present-day unemployment and possible trends of the future.

A detailed study will then be made of the major fields of the world's work, such as medical sciences, law, teaching, business occupations, and many others. The nature of work in each field and the salary trends will be discussed. In so far as reliable information is available, the necessary abilities and interests will be presented and methods outlined as to how a student may determine if he has the proper amount of these abilities and interests. Then will follow lectures on the importance and kind of training necessary for these occupations. Emphasis will be made upon the importance of general education for leisure time and avocational interests. The necessity for versatility in training and work will be pointed out in connection with changing jobs and the changing man-in-the-job.

All students in the General College of the University are advised to elect this course not alone for the value of focusing attention on their own vocational problem but because the lectures will add to their understanding of the work of the world. MWF IV. Mr. Williamson.

SOCIAL PROBLEMS STUDIES

Great advances in science and industry are constantly increasing our knowledge of and control over our physical surroundings. Meanwhile, progress in solving social problems lags far behind. Our failure to understand and control the social environment deprives us of many of the richest fruits of scientific and technological advances.

Today men everywhere seek peace, yet all nations increase armaments in preparation for war. Crime costs our nation more than twice the total expenditures for education. Insanity and divorce increase, suicide and lynchings continue, and strikes and labor troubles threaten. These are but a few of the outer signs of underlying social ills.

While the social sciences cannot provide solutions for all of these problems, they possess bodies of knowledge which can contribute much to our understanding of them. This knowledge must be spread among us to provide means for weighing the many proposals for social action advocated on every hand. The first essential for preserving and improving democratic institutions is an intelligent, informed body of citizens.

The General College therefore offers its students a chance to become acquainted with the institutions and processes of society and with their current trends and problems. It does so in order that through the gathering of a useful

body of knowledge in this field they may find themselves through life at once more tolerant and more critical of social developments as they arise.

G.C.49f—Fall quarter. SOCIAL INSTITUTIONS AND PROCESSES.

The work of this quarter will be devoted to a study of the nature and inter-relationships of institutions. The means and limits of social control, the rôle of custom in shaping behavior, and the sources of social change will be examined. Many ways of thinking and behaving persist long after they have ceased to be useful. Fear of ghosts, superstitions, reliance on fortune-tellers and astrologers for guidance continue in this age of science. What are the reasons for survival of obsolete behavior forms? Why is almost every useful innovation in the social field so bitterly opposed? Why is it so difficult to secure consolidation of rural schools, reorganization of local government, wider adoption of the merit system for selection of government employees, or the adoption of the metric system of measurement? Does "human nature" provide insurmountable barriers to needed social changes? MWF VI. Mr. Sletto.

G.C.50w-51s—Winter and spring quarters. SOCIAL TRENDS AND PROBLEMS.

The knowledge gained concerning social institutions and social processes provides the groundwork for consideration of trends and problems. Some of the problems to be considered are listed below. Our major attention will center on analysis of problems and consideration of available evidence rather than in the search for cure-alls.

Population problems.—Is there danger of over-population in America? Of race suicide? How much more will our population probably increase in the present century? Does excluding immigrants decrease population growth? How does the infant death rate in the United States compare with other countries? Why is the maternal mortality rate so high?

Race problems.—Is migration of Negroes northward increasing? What citizenship rights are denied to Negroes in the South? Are the Indians decreasing in numbers as the term "vanishing American" implies? To what extent are Indians giving up their tribal cultures and leaving reservations? Is prejudice against Orientals subsiding on the Pacific coast? Why is there increasing opposition to immigration from Mexico?

Crime problems.—Is it true that most criminals are under 25 years of age? Is crime less frequent among college graduates than among high school graduates? What proportion of the criminal population is feeble-minded? Is there such a person as a "born criminal"? Does the average prisoner serve a shorter term since parole laws were passed? Does use of the death penalty reduce murders? How effective are juvenile courts in halting criminal careers? Why is there so much dissatisfaction with our criminal courts?

Unemployment problems.—How is unemployment affecting the attitudes of the youthful unemployed between 16 and 25? How many of these are becoming "boy and girl tramps of America"? What are major problems to be solved in providing for unemployment insurance? Do the unemployed on relief really want to work? Are the effects of unemployment more serious for the young unemployed or for older men on relief?

Dependency problems.—Are widows and orphans given sufficient financial aid? What can be done to make more of the physically handicapped self-supporting? How do old age pension laws of American states compare with those of foreign countries? Is the pension system more expensive than the poorhouse system?

What does the Social Security Act provide? How much will the number of persons in the pension age period increase in the next few decades?

Family problems.—Why is divorce increasing more rapidly in America than in most other countries? What are the reasons for increasing instability of the family? What changes can be profitably made in legal procedure for dealing with divorce? In South Carolina no divorces are permitted by law; is abolition of divorce feasible in other states? In what occupations is divorce most frequent? Do divorces increase in periods of business depression? What are the commonly alleged reasons for seeking divorce? The underlying causes?

Urban problems.—What can be done to improve housing for the poor? Can municipal government be freed from alliances between political machines and the underworld? How can the quality of police forces be raised? What is the prospect for decentralization of cities to relieve congestion? How can traffic deaths be reduced? How can municipal health conditions be improved? What is a "model city"? MWF VI. Mr. Sletto.

G.C.58f-59w-60s—Fall, winter, and spring quarters. CURRENT READING.

Throughout the year this course will deal with major human problems primarily through reading of articles appearing in current magazines. A wide variety of readings will be listed and many of them will be critically examined in the lectures. Students electing this course will read very widely from the posted lists, and be prepared to summarize and evaluate these materials. All of the magazines in which suggested readings appear will be found in the periodical room of the University Library, or students may purchase them. Through such general reading comes acquaintance with the trends of social change and the acquisition of a body of permanently useful knowledge.

The knowledge so gained is, however, often too diffuse and unorganized to be of maximum value. Students will, therefore, work in the writing laboratory in reviewing, summarizing, and building cumulative notebooks in their fields of special interest. These fields of special interest may parallel the work in one or more other courses taken in this college. Hence the reading and the writing laboratory will serve as definite aids toward mastery of fields of knowledge and as preparation for the comprehensive examinations. TTh VI. Mr. Sletto, Mr. Wilson, and others.

G.C.128s—Spring quarter. INTRODUCTION TO PHILOSOPHY.

Most men think only sporadically and disjointedly, under the pressure of special circumstances. Conclusions resulting from such thinking are rarely unified, or sufficiently assimilated to one another to give a comprehensive view; they are often mutually contradictory, or clothed in so haphazard a terminology as to make the appearance of contradiction inevitable.

Moreover, the various systematic attempts to secure a unified view of things within a given restricted field, as in the sciences, are often so highly specialized as to ignore the problems arising from the existence of other sciences and the need for thinking them together; and what is still more important, omitting to consider the relation between the whole realm of knowledge and the total human life, of which science is but a single expression. Art and morals, religion and science, are cultural expressions of the human spirit, whose relations to one another cannot be ignored in any rational survey of life.

Philosophy is the persistent attempt, by way of consecutive reflection, to organize the various scattered fields of thought and knowledge in a comprehensive

view. So far as possible it tries to remove the inconsistencies of partial views; and that which lives in the consciousness of the unphilosophical as scattered and disjointed observations, is in the philosophic consciousness attempted to be brought together, assimilated, harmonized, and organized.

Philosophy, as reflection upon life, naturally also seeks to find some systematic solution for its practical contradictions: the frustration of human hopes, the precariousness of human values, the blindness of fate, the erratic favors of fortune, suffering and despair, the demand that life should yield a good that is good for all. The serious and consecutive thought of representative members of the race in relation to these questions and others of the same kind, it is the task of philosophy to communicate and to interpret, to examine, develop, supplement, and revise.

The course here offered will be a very brief introduction to a part of what accumulated human wisdom has to offer on these subjects. There will be included a survey of the outstanding problems in each of the subordinate philosophical disciplines: logic, or the attempt to understand the structure of knowledge, and its fundamental values of truth, consistency, and systematic form; ethics, or the analysis of the good and the justifiable in human life; esthetics, or the study of such values as the beautiful, the sublime, the tragic, and the comic, together with their realization in the arts. Metaphysics will be representatively studied through the detailed discussion of some problem like that of the relations between body and mind, chiefly to furnish an illustration of philosophical procedure.

Through assigned readings in a selected list of philosophical classics, the student will be introduced to firsthand contact with some of the great thinkers of all time. MWF II. Mr. Conger.

G.C.137f-138w-139s—Fall, winter, and spring quarters. BIOGRAPHY (Not offered in 1936-37)

A study of human character as revealed in the lives of distinguished men and women. About fifty individuals will be treated in lectures and through selected readings. In each case the lectures will be given by a member of the university faculty particularly conversant with the life and times of the individual studied. The treatment will reveal the background of environmental conditions out of which the individual rose to achievement, the problems he faced, and his individual contribution to their solution. Selection will be made from the following fields of human activity: government and politics, science, business, industry, religion, medicine, education, engineering, music, painting, drama, philosophy, agriculture, literature, invention, and adventure. The point of view will be primarily psychological: each subject will be treated so as to reveal his individual qualities of mind and character. Persons will be chosen from many countries and from many periods of history. Generous recognition will be given to persons who have played their rôles in modern times. Recent years have produced a wealth of biographical writing that will be freely drawn upon for suggested readings. Each student will select two or more biographies each quarter and read widely beyond the scope of the formal lectures. TTh VII. University faculty.

G.C.140f-141w-142s—Fall, winter, and spring quarters. INDIVIDUAL STUDY AND RESEARCH.

In accordance with the General College policy of molding integrated courses to meet the needs of individuals, one group of students will be excused from part or all of their course work and launched on individual research. This group will be divided into small sections, each section choosing a special problem exemplified

in the Twin City area. For example, one section may choose the legal system. Each student in this section would then visit and study throughout the year the city, state, and federal courts, observing every detail of procedure and writing a report on it. This report will be started immediately after the student's first actual study. It will then be presented to the instructor in charge who will assign general readings on the subject. The report may then be referred to the instructor in psychology, who on the basis of it would suggest certain readings on the psychology of crime, and the psychological basis of the law. The students could then go to a biologist for suggestions on the biological basis of crime and of the law, to economists for their point of view, and so on. Instructors in English might suggest Dickens' account of the legal system in his day, a historian might trace the development of procedures in the common law. The reports would be written in the Writing Laboratory (see p. 41). These special reports could then be put together to form a comprehensive report on the place of legal procedure in Minnesota, its background, and its connection with scientific and cultural developments. In the meantime, other groups would apply similar tactics to the public relief and charity systems, the educational system, power utilization, etc. In preparing a final report on all these phases of contemporary life, students would gain a comprehensive viewpoint of the nature and interrelations of the society in which they live and which they will later help to mold.

Registration for this course of study will be made only by conference with the director or his associates. Registration will be limited and preference will be given to second year General College students who have shown evidence of the ability and initiative needed to carry on this type of work. MW VIII. Mr. Sletto, Mr. Wilson, and others.

G.C.150s—Spring quarter. INDIVIDUAL STUDY AND DISCUSSION ON PROBLEMS IN HUMAN BIOLOGY.

This course is designed to provide an opportunity for those second year students who have a keen interest in the field of human biology and have completed G.C. 101f-102w-103s Human Biology, to go on with their own self-propelled study and discussion of problems arising out of their first year's work in this field. Population trends and their sociological and economic significance, medicine and its relation to insurance, the history of biological science, medical ethics, eugenic programs, and other specific topics of biological significance of their own choosing will be discussed in the group meetings with the help and guidance of the instructor. Reports and papers on their individual topics should be prepared in the General College Writing Laboratory. Registration will be restricted to those students who have shown evidence of ability and initiative in their freshman work in human biology. The class will be limited to twenty students, and registration will be made only by conference with the director or counselors of the General College. Hours arranged. Dr. Scammon.

G.C.160f-161w-162s‡—PHOTOGRAPHY.

Photography has increasingly become an attractive, pleasant, useful, and profitable hobby. With the development of a branch of the university photographic laboratory in the Department of Visual Education in Room 3, Wesbrook Hall, the General College has been able, with the co-operation of Mr. V. P. Hollis, to offer a course for amateurs in photography.

‡ A fee of \$5 per quarter is charged for this course.

This course will take up, in the order named, photographic printing, enlarging, negative making, and manipulation. Laboratory work in these processes will continue through the entire course, supplemented by the study and discussion of cameras, lenses, lighting, composition, and the finishing and mounting of prints. Students will have the opportunity to make photographs on field trips and in the studio, also to visit commercial photographic laboratories. Competitions will be held for student's photographs and the prints will be judged and ratings given. Students will be required, as supplementary study, to audit the unit on light and optics in Mr. Vaughan's course in Physical Science Studies, 88f, at the end of the fall quarter. The course fee covers only the use of the laboratory equipment and developing and printing chemicals, but not of the films or the paper. The course also requires a focusing camera within the limits of $2\frac{1}{4} \times 2\frac{1}{4}$ to 5×7 inches, altho miniature cameras using 35 mm. motion picture film will be permitted. MW VI-VII. Mr. V. P. Hollis, assisted by Mr. Vaughan, and Mr. Faulkner.

EXPLANATIONS

Course numbering.—A course is designated by a general title, a number, and a letter. It has the same number in whatever quarter it is offered. The quarter is indicated by the 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.

Buildings.—A, Armory; Ad(F) Administration, University Farm; Adm, Administration; Ath, Athletic Bldg.; B, Business Administration; Bo, Botany; Bu, Burton Hall; C, Chemistry; CWI, Child Welfare Institute; E, Engineering; EE, Electrical Engineering; Ed, University High School; F, Folwell; G, Greenhouse; HE, Home Economics, University Farm; HH, Haecker Hall, University Farm; HS, Health Service; J, Jones Hall; Lib, Library; ME, Mechanical Engineering; MeS, Medical Sciences; MH, Millard Hall; Mu, Music; NMA, Northrop Memorial Auditorium; P, Pillsbury; Ph, Physics; Psy, Psychology; Pt, Pattee Hall; S, Stadium; SBH, State Board of Health; WeH, Westbrook Hall; WGm, Women's Gymnasium; Z, Zoology.

OTHER ABBREVIATIONS AND SYMBOLS

- I, II, III, etc. First hour (8:30 to 9:20), second hour (9:30 to 10:20), third hour (10:30 to 11:20), fourth hour (11:30 to 12:20), fifth hour (12:30 to 1:20), sixth hour (1:30 to 2:20), seventh hour (2:30 to 3:20), eighth hour (3:30 to 4:20), ninth hour (4:30 to 5:20).
(At the University Farm, first hour, 8:15 to 9:05; second hour, 9:15 to 10:05, etc., to 1:05; sixth hour, 1:30 to 2:20, etc.)
- Ar. To be arranged or assigned.
- Aud. Auditorium.
- Cred. Credits.
- Lab. Laboratory.
- Lect. Lecture.
- MTWThFS Monday, Tuesday, etc.
- Prereq. Prerequisite.
- Rec. Recitation.
- Sec. Section.

PROGRAM

MILITARY SCIENCE AND TACTICS

The Military Department offers the student courses in military science and tactics which embrace the four-year course prescribed by the War Department for Senior Division Reserve Officers' Training Corps units.

Two units of the R.O.T.C. are now established at the University of Minnesota—Coast Artillery and Signal Corps.

COAST ARTILLERY

The Coast Artillery Corps unit is open to election by all physically fit male students enrolled in the University who are citizens of the United States and who have the necessary prerequisites.

The unit training is divided into the Basic and Advanced Courses, each of two years duration, and courses further divided into the First and Second Year Basic Courses and First and Second Year Advanced Courses, each consisting of one academic year. During the summer intervening between the First and Second Year Advanced Courses, students are required to attend summer camp for six weeks at Fort Sheridan, Illinois. For sufficient reason this camp may be deferred by approval of the commanding general, Seventh Corps Area.

Basic Course

1f-2w-3s—First Year Basic (1B)—Prerequisites: higher algebra, geometry and trigonometry.

Students who lack these subjects may be enrolled, if they agree to complete them before the end of the First Year Basic Course.

Subjects: Leadership, coast artillery, hygiene and sanitation, courtesy and discipline, national defense, military history, organization, citizenship, and international situations.

4f-5w-6s—Second Year Basic (2B)—Prerequisites: 1-2-3.

Subjects: Leadership, coast artillery, air and naval targets, gas defense, signal communications, and map reading.

Credits: One (1) credit per quarter, total 6 credits, applicable towards graduation and degree.

Advanced Course

Students who apply for the Advanced Course are required to sign a contract with the U. S. Government, by the terms of which they agree to complete the prescribed two-year course. In turn, they receive one complete regulation officer's uniform which may be retained, and are paid quarterly the cost of the ration of the U. S. Army for each day on the university calendar while attending classes, and all expenses incident to camp training. The aggregate amount received by each student is approximately \$200.

151f-152w-153s—First Year Advanced (1A)—Prerequisites: Basic Course 4-5-6.

Subjects: Map and aerial photo reading, leadership, gunnery and position finding and combat orders.

154f-155w-156s—Second Year Advanced (2A)—Prerequisites: 151-152-153.

Subjects: Military history, military law, administration and supply, field engineering, leadership, motor transportation, artillery material, artillery tactics and orientation.

Credits: Three (3) credits per quarter, total 18, applicable toward graduation and a degree.

SIGNAL CORPS

Enrolment in the Signal Corps unit, R.O.T.C., is restricted to election by physically fit male citizens enrolled in the Department of Electrical Engineering only.

General

Enrolment in Reserve Officers' Training Corps involves no obligation for military service prior to receiving a commission in the Officers' Reserve Corps, and, according to a decision by the U. S. Supreme Court, is not considered bearing arms.

Upon the successful completion of the Advanced Course, the student is commissioned in the Officers' Reserve Corps, Army of the United States. Thereafter, while holding such commission, he may be subject to call in time of national emergency, or may, upon his own application, engage in active duty training, during which period he receives the same emoluments as an officer of like grade in the United States Army.

HOURS OF ATTENDANCE—COAST ARTILLERY UNIT

Basic Courses

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w	First Year Basic Course (3 cred.; fr.; no prereq.)				
	Sec. 1	III	MWF	A	Ar
	2	VI	MWF	A	Ar
	3	VIII	MWTh	A	Ar
3s	Sec. 1	I	M	A	Ar
	2	V	T	A	Ar
	3	IX	T	A	Ar
4f-5w	Second Year Basic Course (3 cred.; soph.; prereq., 1-2-3)				
	Sec. 1	IV	MWF	A	Ar
	2	II	TThS	A	Ar
	3	VIII	MWTh	A	Ar
6s	Sec. 1	I	M	A	Ar
	2	V	T	A	Ar
	3	IX	T	A	Ar

Advanced Courses

No.	Title	Hour	Day	Bldg.	Instructor
151f-152w	First Year Advanced Courses (for credit see note; prereq., 4-5-6) Total of five hours to be taken as follows:				
	One of the two-hour sections:				
	Sec. 1	VI	MW	A	Ar
	2	VII	MW	A	Ar
	One of the three-hour sections:				
	Sec. 1	II	MWF	A	Ar
	2	IV	MWF	A	Ar
153s	Sec. 1	II	MWF	A	Ar
	2	IV	MWF	A	Ar
	3	V	T	A	Ar
	4	IX	T	A	Ar
154f	Second Year Advanced Course (for cred. see note; prereq., 151-152-153) Total of five hours to be taken as follows:				
	One of the two-hour sections:				
	Sec. 1	VIII	WF	A	Ar
	2	IX	WF	A	Ar
	One of the three-hour sections:				
	Sec. 1	I	MWF	A	Ar
	2	IV	MWF	A	Ar

No.	Title	Hour	Day	Bldg.	Instructor	
155w	One of the two-hour sections:					
	Sec. 1	VIII	WF	A	Ar	
	2	IX	WF	A	Ar	
	One of the three-hour sections:					
	Sec. 1	I		Th	A	Ar
	2	II		S	A	Ar
156s	3	IV	MTWF	A	Ar	
	Sec. 1	I	MWF	A	Ar	
	2	IV	MWF	A	Ar	
	3	V	T	A	Ar	
	4	IX	T	A	Ar	

NOTE.—The general rule regarding credit for the Advanced Course is: "Three credits per quarter will be allowed for work in the advanced R.O.T.C. courses with a maximum of 18 quarter credits for the two-year course. The application of these credits toward any degree offered by the University is subject to determination by the college concerned."

PHYSICAL EDUCATION FOR WOMEN

The University presents exceptional facilities for the enjoyment of golf and tennis; the majority of women students on entrance cannot take advantage of them because they lack the skill to play these games. The state is full of lakes with sandy beaches; the majority of women do not know how to swim. This department offers courses in 20 branches of physical education which might serve students for recreation in leisure time and yet there are some entering students who do not know enough about any one of them to play them. This sequence aims to help students to round out their repertory of motor skills, both recreational and utilitarian, not only for enjoyment but for personal improvement. It meets twice a week for laboratory work in gymnasium, pool, or playing field. The physical activity is fitted to individual interests, needs, and capacities through a number of classification tests and examinations that occur in Freshman Week and at the beginning and end of each quarter. The entrance physical examination is given as an organic capacity classification of which the highest rating is "no restriction." The photograph recording the student's best posture may show a perfect posture or varying degrees of round shoulders, low chest, or sway-backs. The written examination in knowledge of the human mechanism, the way it moves, and in team and individual games and sports gives further basis for direction and advice. If a student is lacking in any of the above fields she is expected to take at least one quarter of training in that field. On the other hand, satisfactory ability in a field frees the student from that specific requirement and allows free choice of a physical education activity for that quarter. For the student who cannot profit by participation in the regular class activities, there is carefully adapted and individualized exercise fitting her particular needs.

Requirements.—All women students are required to complete **six quarters of work** in physical education including hygiene. Exemptions from the physical education requirement can only be given after a personal interview with one of the General College counselors. Students who present a physician's excuse will be referred to Dr. Norris in her health service office hours.

All women students in the college will be required to take the course in hygiene unless they pass the classification test in hygiene.

The course in Recreational Leadership is open only to second year students and then upon the recommendation of the General College and the permission of the department.

Classification tests.—All students must take classification tests, to be given during the fall quarter in order that the type of activity best suited to the

individual may be determined. Students who fail in any or all of these classification tests will be required to take prescribed courses in physical education to help them reach certain standards of achievement. These students will be given guidance in choosing their elective courses.

Statement of fees.—All exercise courses, including swimming, for which registration is required, except horseback riding, \$1.75 a quarter. Maximum fee paid by a student in physical education, \$3.50 a quarter.

No.	Title	Hour	Day	Bldg.	Instructor
1f,2w,3s 4f,5w,6s	GENERAL COURSE IN PHYSICAL EDUCATION (Students must register for the 1-2-3 sequence in their first year and for the 4-5-6 sequence in their second year)				

Lectures in Physical Education for Health.—The essential aspects of the care of personal health.

Lectures in Physical Education and Health

Sec. 1 (fall, spring)	I	MW	201WGm	Ar
2 (fall, winter)	VI	MW	201WGm	Ar

Archery.—Have you ever heard the twang of the bowstring, had the thrill of seeing your arrow strike the gold? Take this opportunity to learn the sport which is becoming so popular on playgrounds, in camps, schools, and city clubs of older people. Learn to select equipment and to care for the splendid bows and arrows offered for your use. A sport which you can carry on alone.

Archery‡

Sec. 1 (fall)	I	WF	62WGm	Ar
2 (fall, winter)	II	MW	62WGm	Ar
3 (fall, winter)	VI	TTh	62WGm	Ar
4 (spring)	III	TTh	62WGm	Ar
5 (spring)	IV	WF	62WGm	Ar
6 (spring)	VI	WF	62WGm	Ar
7 (spring)	VII	WF	62WGm	Ar

Baseball.—Practice in basic skills of batting, throwing, catching, and base running. Experience in playing various positions and opportunity to develop one position more fully if desired. Development of team strategy for the field and team at bat. Tournament competition and experience in umpiring and scoring. Rules.

Baseball‡ (spring)

Sec. 1	III	TTh	151WGm	Ar
2	IV	WF	151WGm	Ar
3	VI	MW	151WGm	Ar

Basketball.—America's most popular indoor sport. Practice in different types of banked and looped shots and in various styles of passes, e.g., single side arm, underhand, and chest. Development of individual tactics and team strategy for both attack and defense. Rules. Opportunity to play in class tournament and officiate in various capacities.

Basketball, Beginning‡ (winter)

Sec. 1	I	WF	151WGm	Ar
2	III	TTh	151WGm	Ar
3	VI	MW	151WGm	Ar
4	VII	TTh	151WGm	Ar
5	IV	WF	151WGm	Ar

Basketball, Intermediate‡
(winter)

VIII	TTh	151WGm	Ar
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Camp Leadership.—Practical work in camp craft, administration of the camp program, duties of a counselor.

Camp Leadership (spring)

Lect.	IX	W	201WGm	Ar
Lab.	IX	TTh	62WGm	Ar

‡ A fee of \$1.75 is charged for this course.

No.	Title	Hour	Day	Bldg.	Instructor
1f,2w,3s 4f,5w,6s	GENERAL COURSE IN PHYSICAL EDUCATION—Continued				

Dancing, Modern and Tap.—Everyone needs to experience the ease and relaxation of good rhythmic movement. Popular tap routines and dances to old songs and good jazz comprise the course in clog and tap. In the modern or free dance, experience is given in rhythmic movement in all parts of the body and in constructing interesting steps and dances that are suited to various types of programs. In addition to music, a definite connection is made with the dramatic and graphic arts in group work.

Dancing, Modern†

Sec. 1 (fall, winter)	IV	WF	153WGm	Miss Isaacs
2 (fall, winter, spring)	VII	TTh	153WGm	Miss Isaacs

Dancing, Tap, Elementary‡

Sec. 1. (fall, winter)	III	TTh	153WGm	Ar
2 (fall, winter)	III	MW	153WGm	Ar

Dancing, Tap, Intermediate‡

(fall, winter)	VIII	TTh	153WGm	Ar
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Field Hockey.—A vigorous English team game similar to soccer, but played with a small hard ball and a stick. This game is at present very popular in school and club circles on both east and west coasts of the United States.

Field Hockey‡ (fall)	VI	MW	151WGm	Ar
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Fundamentals.—An overview is given of a variety of sport and everyday motor activities. Training is given in the skills basic to good movement of any type. The hour provides an active general exercise period and as a result of the entire course, one should be able to learn any new activity more quickly.

Fundamentals‡ (fall, winter)

Sec. 1	III	TTh	151WGm	Ar
2	IV	WF	151WGm	Ar
3	VI	MW	151WGm	Ar

Golf.—Fundamentals underlying the use of the driver, mid-iron, mashie, and putter. A discussion of golf terminology, rules, and etiquette.

Golf, Elementary‡‡

Sec. 1 (winter)	VII	MW	62WGm	Ar
2 (spring)	I	TTh	62WGm	Ar
3 (spring)	III	MW	62WGm	Ar
4 (spring)	VIII	TTh	62WGm	Ar

Golf, Intermediate‡‡

Sec. 1 (fall)	VII	MW	62WGm	Ar
2 (spring)	II	TTh	62WGm	Ar
3 (spring)	VI	MW	62WGm	Ar

Horseback Riding.—Instruction in the fundamentals of the English style of riding, including the technique of mounting, dismounting, the proper form of riding the walk, trot, and beginning of the canter. Discussion of care of horse and etiquette of park riding.

Horseback Riding‡‡ (fall, spring)	IX	TTh	151WGm	Ar
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Orthopedics.—Students learn how to develop their possibilities and how to live within their limitations. Each student is considered individually and given her special prescriptions of exercises, based on physical examination; these progress in strength as she improves, but always lie well within her endurance. The room is equipped with mats and tables for those who must use the reclining position and with fixed apparatus for those who have no limitation in vitality.

Orthopedics‡ (fall, winter, spring)

Sec. 1	II	MW	151WGm	Ar
2	III	TTh	151WGm	Ar
3 (fall, winter)	IV	WF	151WGm	Ar
4	VI	MW	151WGm	Ar

‡ A fee of \$1.75 is charged for this course.

‡‡ For horseback riding students will pay about \$1 per lesson, but not the regular gymnasium fee. Attendance at class hours is required for credit. Class meetings will be one hour in length. Groups will be arranged according to riding ability.

§ Students must supply their own golf equipment.

No.	Title	Hour	Day	Bldg.	Instructor
If,2w,3s 4f,5w,6s	GENERAL COURSE IN PHYSICAL EDUCATION—Continued				

Posture.—This class is for those who cannot assume a satisfactory posture at the time of their "posture picture" or who habitually stand badly even tho they can correct their posture for the picture. Students learn to stretch tight muscles in the small of the back and the upper chest, to strengthen weak muscles in the abdominal wall and upper back, and to feel correct posture in themselves and to recognize it in others.

Posture‡

Sec. 1 (fall)	I	TTh	151WGm	Ar
2 (fall)	III	TTh	151WGm	Ar
3 (fall)	VI	MW	151WGm	Ar
4 (winter)	II	MW	151WGm	Ar

Recreational Games, Folk Dancing, and Gymnastics.—Get acquainted with our foreign friends through their folk dances. Delightful, picturesque dances from such countries as England, Russia, Sweden, and Czechoslovakia. Games and folk dances are graded so as to be enjoyed by elementary and high school children and adults. A splendid background for possible vocational use in camp, school, home, or playground.

Recreational Games, Folk Dancing, and Gymnastics‡

(fall, winter)	II	MW	153WGm	Ar
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Recreational Leadership.—A study of the principles, organization, and administration of recreation in such groups as settlements, churches, playgrounds, and schools. Practical experience in types of recreational activities such as clubs, story telling, games, and dancing for children and adults.

Recreational Leadership*‡ (winter)

Lect.	III	F	201WGm	Ar
Lab.	IX	W	151WGm	Ar
	VIII, IX	F	151WGm	Ar

Skating.—Instruction in the technique of skating forward, backward, turning, and stopping. Group work in elementary figure skating. Classes are held at the Hippodrome skating rink at the State Fair grounds.

Skating‡ (winter)

VII	WF	151WGm	Ar
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Soccer.—An exhilarating outdoor team game played with eleven players on a side. The field of play is similar to, but smaller than, a football field. The ball, which is slightly larger than a volleyball, is played entirely by kicking; the objective of each team is to kick the ball between the opponents' goal posts.

Soccer‡ (fall)

IV	WF	151WGm	Ar
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Swimming, Elementary.—Instruction and practice in back and face float, elementary crawl, side stroke, and sculling. Discussion of water safety and practice in deep water emergency measures and elementary diving.

Swimming, Elementary‡¶ (fall,

winter, spring)

Sec. 1	II	TTh	51WGm	Ar
2	IV	MW	51WGm	Ar
3	VII	WF	51WGm	Ar
4	VIII	TTh	51WGm	Ar

Swimming, Advanced Elementary‡

(fall, winter, spring)	VI	MW	51WGm	Ar
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Swimming, Intermediate.—Review of the strokes offered in elementary swimming. Advanced practice in the crawl, back crawl, side stroke, and instruction in treading, bobbing, surface diving, and stunts. Fundamental diving instruction based on ability of the group. Discussion of water safety.

Swimming, Intermediate‡ (fall, winter, spring)

Sec. 1	III	TTh	60WGm	Ar
2	VIII	MW	60WGm	Ar
3	VIII	TTh	51WGm	Ar

* Open to sophomores only in the General College.

‡ A fee of \$1.75 is charged for this course.

¶ Students may not enter the winter quarter of elementary swimming unless they have taken elementary swimming in the fall or spring quarters, except for Section 3, VII, WF.

No.	Title	Hour	Day	Bldg.	Instructor
1f,2w,3s 4f,5w,6s	GENERAL COURSE IN PHYSICAL EDUCATION—Continued				
	Swimming, Advanced. —Perfection of the crawl, back crawl, and side stroke. Instruction in the breast stroke and other supplementary strokes. Review of the fundamentals of diving and advanced diving, including swan, jack, back, and twist. Stunts and deep water emergency measures of a more advanced nature.				
	Swimming, Advanced‡ (fall, winter, spring)				
	Sec. 1	VI	MW	60WGm	Ar
	2	VIII	TTh	60WGm	Ar
	Swimming, Lifesaving. —Instruction and practice to pass requirements of the American Red Cross senior lifesaving test. Discussion of first aid and water safety. The lifesaving emblem can be received at the end of the course.				
	Swimming, Lifesaving‡ (spring)				
	Sec. 1	II	MW	60WGm	Ar
	2	IX	MW	60WGm	Ar
	Swimming, Diving. —This course includes instruction in the fundamentals of fancy diving. It is a course for those who wish advanced work in diving.				
	Swimming, Diving‡ (fall, winter)				
		III	MW	60WGm	Ar
	Tennis. —Fundamentals underlying the use of the forearm drive, backhand drive, and service. A discussion of tennis terminology and rules. Practice in playing both singles and doubles on university tennis courts.				
	Tennis, Elementary‡§ (spring)				
	Sec. 1	I	TTh	151WGm	Ar
	2	III	TTh	151WGm	Ar
	3	IV	MW	151WGm	Ar
	4	VI	MW	151WGm	Ar
	Tennis, Intermediate‡§ (spring)				
	Sec. 1	II	TTh	151WGm	Ar
	2	VII	WF	151WGm	Ar
	3	VIII	TTh	151WGm	Ar
	Volleyball. —Fundamentals underlying the serve, set-up volley, and team play involved in the game. Discussion of rules and refereeing. Recreational value of game is stressed.				
	Volleyball‡				
	Sec. 1 (fall)	II	MW	62WGm	Ar
	2 (winter)	III	MW	62WGm	Ar
	3 (spring)	IV	WF	62WGm	Ar

PHYSICAL EDUCATION FOR MEN

P.E.1f*-2w*-3s*—SPORTS EDUCATION.

All men are required to complete satisfactorily three quarters of work in sports education. The Department of Physical Education for Men has developed a new and interesting program in sports education for the General College based primarily upon individual needs. The values of this type of training during your college years will only become apparent and be realized as time goes on.

As a worth-while leisure time activity, as an important factor in the maintenance of physical and mental health, as a means for the increased visual enjoyment of athletic games and contests, and as a valuable means of social contact, training in sports activities, and participation in recreational sports activities should be a part of everyone's general education.

* Towel and locker fee of \$1.25 per quarter; uniform fee of \$1 per quarter.

‡ A fee of \$1.75 is charged for this course.

§ Students taking tennis must pay \$1 for a tennis permit.

Therefore, the General College is providing an education in this field through the facilities of the Department of Physical Education for those who are lacking in knowledge, appreciation, and proficiency in sports activities. It is not the purpose to put all students through the same mill of activities. Instead, assignments will be made on the basis of individual needs.

In order to determine individual needs, a preliminary test will be given each man during the first week of the fall quarter. Men who demonstrate all-around knowledge and ability will be exempted from any requirement or be given credit for participation in elective courses or for participation in intramural, extramural, or intercollegiate sports. Others may be given instruction in one or more specific activities. Some men will participate in the survey course for all three quarters, receiving instruction in twelve different sports activities. A smaller group of men who have physical defects will receive instruction in recreational activities in which they can take part in spite of their handicaps.

SPORTS EDUCATION*

No.	Title	Hour	Day	Bldg.	Instructor
1f,2w,3s	Sports Education	IV	MWF	Ath.	Mr. Piper and staff
	(All freshmen in General College and College of Education)				
	Fall: Touchball, swimming, volleyball				
	Winter: Boxing, wrestling, basketball, handball, and squash racquets				
	Spring: Soft ball, tennis, golf				
1f,2w,3s	Sports Education. Elective for sophomores in the General College and any men in all other colleges:				
	Survey Course (including above activities)				
		III	MWF		
	Beginning Swimming	II	MWF		
	Intermediate Swimming	II	TThS		
	Advanced Swimming	III	MWF	(winter and spring only)	
	Lifesaving	III	TThS		
	Miscellaneous Swimming	VI	MWF		
	Boxing	VIII	MWF	(fall and winter only)	
		IX	MWF	(fall and winter only)	
	Tennis	VII	MWF	(spring only)	
	Individual Physical Education				
	Activities (by special permission)				
		III	MWF		
		IV	MWF		

Substitution of athletic team practice may be allowed by the department to men who rank sufficiently high on the introductory test.

* Towel and locker fee \$1.25 per quarter; uniform fee \$1 per quarter.

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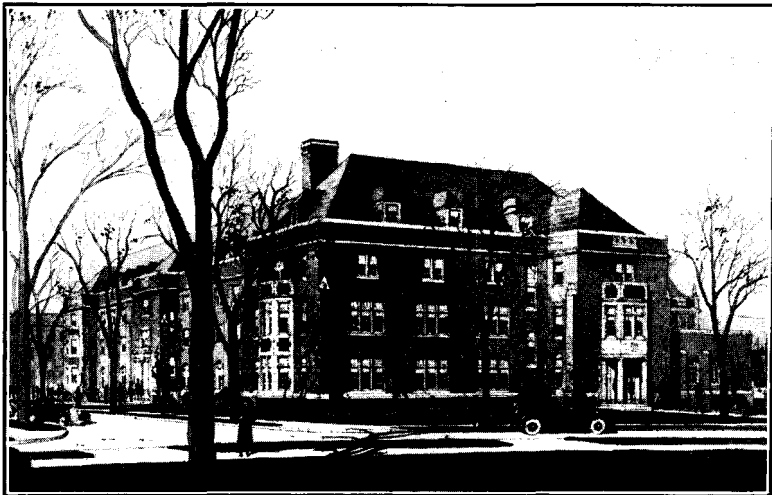
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Bulletin of the
University of Minnesota

Preliminary Announcement
of the

Center for Continuation Study

1936-37



Continuation Study Building

Vol. XXXIX, No. 45

September 9, 1936

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota. Accepted for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized July 12, 1918

Purposes of the Center

The University of Minnesota has established the Center for Continuation Study as a means of extending and improving its services to those citizens who feel a desire and need for continuing their education beyond the formal limits of their secondary, college, or professional schooling.

The Center is designed primarily for the use of men and women who wish to spend relatively short periods of time in serious and intensive study of problems related to their professional, civic, or cultural interests. In general, the studies pursued will be those which the University is especially qualified to direct.

The purposes of the new department are suggested by its name. It is a *center* in which students live and work together under one roof during their period of residence on the campus. It is a *continuation* school in the sense that it is designed to give opportunities for acquiring further education to those who have already received the usual professional, technical, and general instruction in the regular schools and colleges. It is primarily a place for definite *study* rather than for conventions or social gatherings.

The Center is not designed to duplicate the work of other agencies giving instruction to adults. The public schools with their evening classes, the various emergency educational projects financed by the Federal Government, and a vast number of privately operated institutions offer many opportunities to the citizen who wants to repair deficiencies in his schooling or extend his education along general cultural and vocational lines. The University itself, through its extension classes, correspondence study instruction, technical conferences, professional institutes, short courses, summer sessions, public lectures, and dramatic and musical series, gives a wide variety of facilities for continuing education. The new Center will attempt to supplement, not supplant, these various services.

Work of the Center

The Center will operate through a series of schools and institutes, organized and directed by the University, and designed to serve the interests of professional, occupational, civic, and cultural groups. Instructors in the courses will aim to present information accurately, discuss issues impartially, and examine theories critically. Every attempt will be made to avoid the lopsided presentation of evidence and the specious variety of argument commonly associated with propaganda and used for doctrinaire purposes.

While groups desiring courses of a professional, technological, or cultural nature are invited to confer with the director of the Center concerning their needs, the University on its own initiative will announce courses from time to time. In every instance the University will engage the faculty, prepare the plan, and assume full and complete responsibility for the conduct of the course.

Each school in the Center will be unique. It will have its own name, its own time schedule, its own curriculum, its own faculty, and its own life. An institute of three days or a school of three weeks or more; a one-day conference or a one-week seminar; a student body of professional leaders in medicine, dentistry, pharmacy, engineering, or education; an institute for editors, social workers, or county agents; an institute on banking, insurance, or legislation; programs for civic club members who wish to study economics, international relations, civil service, or some aspect of government—these and many other combinations will be possible.

The aim of the Center will be organizational flexibility in the interest of having men and women learn what they need to learn. While the programs in every instance will be organized to serve the needs of the group, the work itself will call for study—serious study—class discussion, seminar work, and, it is hoped in most instances, the preparation of papers.

Facilities of the Center

The new building of the Center contains dormitory facilities for seventy-eight persons, dining room, lounge, library, chapel, classrooms, seminar rooms, and offices. A connected garage is available for use of students of the Center.

The cost of room and board per week per person is given below :

Double room, without bath	\$13.50
Single room, without bath	15.00
Double room, with bath	15.00
Large bay-window double room, with bath	16.00
Suite for four persons (two bedrooms, living room, and bath)	17.00
Suite for two persons (bedroom, living room, and bath)	18.00
Special suite for two persons (bedroom, living room, and bath)	19.00

Registration and Tuition Fees

Altho the exact tuition charges will vary with the length of a school and the expenses of securing instructors, the following may be taken as a usual scale of fees :

Registration fee (for school of any length)	\$3.00
Tuition fee, per week	5.00

Proposals for Schools

The Center will be glad to receive proposals for schools under the above conditions from any interested persons or organizations. Inquiries and suggestions should be addressed to the Director, Center for Continuation Study, University of Minnesota, Minneapolis.

The Bulletin
of the University of
Minnesota

School of Nursing
Announcement for the Year
1936-1937



Vol. XXXIX No. 46 September 12 1936

Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota

Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918

UNIVERSITY CALENDAR

1936-37

Fall Quarter

1936			
September	14	Monday	Extension registration first semester begins
September	17	Thursday	Payment of fees closes, except for new students ¹
September	21	Monday	Entrance tests
September	21-22		Registration for Freshman Week for all new students entering the freshman class
September	21-25		Examinations for removal of conditions Physical examinations
September	23-26		Freshman Week
September	24-25		Registration period ¹
September	25	Friday	Payment of fees for new students closes ⁴ at 4:30 p.m.
September	28	Monday	Fall quarter classes begin 8:30 a.m. ² First semester extension classes begin ³
October	3	Saturday	Last day for extension registration without penalty
October	15	Thursday	Senate meeting, 4:30 p.m.
November	3	Tuesday	Election Day; a holiday (except for extension)
November	7	Saturday	Homecoming Day
November	11	Wednesday	Armistice Day Convocation
November	14	Saturday	Dad's Day
November	26	Thursday	Thanksgiving Day; a holiday
December	3	Thursday	State Day Convocation
December	14-19		Final examination period
December	17	Thursday	Commencement Convocation Senate meeting, 4:30 p.m.
December	19	Saturday	Fall quarter ends, 6:00 p.m.

Winter Quarter

December	24	Thursday	Payment of fees closes for all students in residence fall quarter ⁴
1937			
January	2	Saturday	Entrance tests
January	2, 4		Registration ¹ and payment of fees ⁴ for new students Registration and payment of fees close at 4:30 p.m. on January 4
January	5	Tuesday	Winter quarter classes begin 8:30 p.m. ²
January	25	Monday	Extension registration second semester begins
February	6	Saturday	First semester extension classes close
February	8	Monday	Second semester extension classes begin ³
February	12	Friday	Lincoln's Birthday; a holiday (except for extension)

February	13	Saturday	Last day for extension registration without penalty
February	18	Thursday	Charter Day Convocation Senate meeting, 4:30 p.m.
February	22	Monday	Washington's Birthday; a holiday
March	15-20		Final examination period
March	18	Thursday	Commencement Convocation Payment of fees closes for all students ⁴ in residence winter quarter
March	20	Saturday	Winter quarter ends, 6:00 p.m.

Spring Quarter

March	27	Saturday	Entrance tests
March	27, 29		Registration ¹ and payment of fees ⁴ for new students Registration and payment of fees close at 4:30 p.m. on March 29
March	30	Tuesday	Spring quarter classes begin, 8:30 a.m. ²
May	8	Saturday	Mother's Day
May	13	Thursday	Cap and Gown Day Convocation
May	20	Thursday	Senate meeting, 4:30 p.m.
May	31	Monday	(Sunday, May 30, Memorial Day) a holiday
June	4	Friday	Second semester extension classes close
June	4-5 & 7-11		Final examination period
June	12	Saturday	Spring quarter ends, 6:00 p.m.
June	13	Sunday	Baccalaureate service
June	14	Monday	Sixty-fifth annual commencement

Summer Session

June	14-15		Registration, first term
June	16	Wednesday	First term Summer Session classes begin 8:00 a.m.
July	5	Monday	(Sunday, July 4, Independence Day) a holiday
July	22	Thursday	Commencement Convocation
July	24	Saturday	First term closes Registration and payment of fees for second term close at 12 m.
July	26	Monday	Second term classes begin 8:00 a.m.
August	28	Saturday	Second term closes

¹ Registration subsequent to the date specified will necessitate the approval of the college concerned. See also late fees for late registration, Bulletin of General Information, page 50. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

² First hour classes begin at 8:15 a.m. at University Farm.

³ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁴ New students must pay fees on dates announced for registration. Fees of graduate students are due one week after their registration is approved by the dean of the Graduate School.

FACULTY

Lotus D. Coffman, Ph.D., LL.D., President
Harold S. Diehl, M.A., M.D., Dean of Medical Sciences
Katharine J. Densford, M.A., R.N., Director of the School of Nursing and
Professor of Nursing
Rodney M. West, B.A., Registrar
Eula B. Butzerin, R.N., M.A., Assistant Professor of Preventive Medicine
and Public Health and Director of Course in Public Health Nursing
Dorothy S. Kurtzman, R.N., Superintendent of Nursing Projects (a)* and
Assistant Professor of Nursing
Lucile Petry, R.N., M.A., Assistant Professor of Nursing
Cecelia Hauge, B.S., R.N., Superintendent of Nurses (a) and Assistant
Professor of Nursing
Julia Miller, R.N., B.S., Superintendent of Nurses (c) and Assistant Pro-
fessor of Nursing
Phoebe Gordon, M.S., Instructor in Nursing
Thelma Dodds, R.N., Acting Superintendent of Nurses and Instructor in
Nursing (b)
Margaret Keeler, R.N., B.S., Instructor in Nursing (a)
Mildred Montag, R.N., B.A., B.S., Instructor in Nursing (a)
Blodwen Morgan, R.N., B.S., Instructor in Nursing (a)
Charlotte Molstad, R.N., B.S., Instructor in Nursing (b)
Gladys Scheibe, R.N., Instructor in Nursing (b)
Louise Waagen, B.S., R.N., Instructor in Nursing (b)
Margaret Benson, R.N., B.S., Instructor in Nursing (c)
Gladys Bratholt, R.N., B.S., Instructor in Nursing (c)
A. Langdon Gill, R.N., M.A., Instructor in Nursing (c)
Myrtle P. Hodgkins, R.N., B.A., Instructor in Nursing (c)
Ida McDonald, R.N., B.S., Instructor in Nursing (c)
Florence Parisa, R.N., M.A., Instructor in Nursing (c)
Jean Taylor, B.A., R.N., Instructor in Nursing (c)
Gertrude I. Thomas, Instructor in Dietetics (a)
Mabel Netz, B.S., Instructor in Dietetics (a)
Eva Gregerson, Instructor in Dietetics (b)
Lydiamae Everett, B.S., Instructor in Dietetics (c)
Emma Einerson, R.N., B.S., Instructor in Nursing (Glen Lake Sanatorium)
Eva Burggren, R.N., Assistant (b)
Gertrude Carlsrud, R.N., Assistant (a)
Emma Fischer, R.N., Assistant (c)
Agnes Fleming, R.N., Assistant (a)
Lucile Halverson, R.N., Assistant (a)
Jane Irvine, R.N., B.S., Assistant (a)

* The letters in parentheses indicate the particular hospital in which the instructor serves: (a) University of Minnesota Hospitals; (b) Charles T. Miller Hospital; (c) Minneapolis General Hospital.

Helen McHale, R.N., Assistant (b)
 Ellene Melstad, B.S., R.N., Assistant (c)
 Katherine Noble, B.S., R.N., Assistant (c)
 Dorothy Petsch, R.N., Assistant (c)
 Jennie Schey, R.N., Assistant (a)
 Lois Shaffer, R.N., Assistant (c)
 Ella Smitka, R.N., Assistant (a)
 Catherine Withrow, R.N., Assistant (b)

COMMITTEES

ADMINISTRATIVE COMMITTEE

Lotus D. Coffman, Ph.D., LL.D., President
 Harold S. Diehl, M.A., M.D., Dean of Medical Sciences
 Katharine J. Densford, M.A., R.N., Director of the School of Nursing and
 Professor of Nursing
 Jennings C. Litzenberg, M.D., F.A.C.S., Professor of Obstetrics and Gynecology
 Dorothy S. Kurtzman, R.N., Superintendent of Nursing Projects, University
 of Minnesota Hospitals, and Assistant Professor of Nursing
 Eula B. Butzerin, R.N., M.A., Assistant Professor of Preventive Medicine
 and Public Health and Director of Public Health Nursing Course

STUDENTS' WORK COMMITTEE

Katharine J. Densford, M.A., R.N., Director of the School of Nursing
 Dorothy S. Kurtzman, R.N., Superintendent of Nursing Projects, University
 of Minnesota Hospitals
 Cecelia Hauge, B.S., R.N., Superintendent of Nurses, University of Minnesota
 Hospitals
 Julia Miller, R.N., B.S., Superintendent of Nurses, Minneapolis General
 Hospital
 Thelma Dodds, R.N., Superintendent of Nurses, Charles T. Miller Hospital
 Ruth E. Boynton, M.S., M.D., Associate Professor of Preventive Medicine
 and Public Health
 Anne D. Blitz, M.A., LL.D., Dean of Women
 Edward E. Nicholson, M.A., Dean of Student Affairs

ADVISORY COMMITTEE

Ray M. Amberg, Superintendent of University of Minnesota Hospitals
 Charles Remy, M.D., Superintendent of the Minneapolis General Hospital
 Peter D. Ward, M.D., Superintendent of the Charles T. Miller Hospital
 Administrative Committee
 Students' Work Committee

GENERAL INFORMATION

HISTORICAL STATEMENT

The University of Minnesota School of Nursing, authorized by the Board of Regents October 1, 1908, was actually established March 1, 1909, as a result of the efforts of Dr. Richard Olding Beard. It was the first university school of nursing in the world and, as such, led the way for other university schools which followed. The first university school carried a three-year undergraduate curriculum leading to the degree of graduate in nursing until June 9, 1919, at which time it established a five-year program leading to the degree of bachelor of science and graduate in nursing. Since that time it has carried both a three- and a five-year course, and, up to July 1, 1936, has graduated 1,288 with a diploma in nursing, of which 184 have also received a bachelor of science degree. A distinctive feature of the five-year course has been the requirement of seventy-five university credits before the student matriculates in the School of Nursing proper. As a result, the entire clinical program is made more meaningful than would otherwise be possible.

Another first step was taken December 14, 1920, when the plan of a central school was approved by the University. From the beginning, the University had felt that it should offer the courses it was developing for its own nursing students to other hospitals. The hospitals wishing to take part in such a venture were the Minneapolis General Hospital, the Charles T. Miller Hospital, and the Northern Pacific Beneficial Association Hospital of St. Paul. It was felt that the inclusion of these hospitals would introduce desirable practice fields for the University School of Nursing and would make possible a uniform standard of preparation for the nurses in these hospitals of a higher level than they could achieve individually. The arrangements were completed, therefore, in 1921. Tho no formal contract was made, a memorandum of agreement was drawn and agreed upon by the University and the allied hospitals. On March 30, 1921, the first students in this first central school of nursing were admitted to the University.

On February 19, 1925, the curriculum of clinical experience was further enriched by means of an agreement with the Hennepin County Sanatorium Commission whereby university nurse students were to receive six weeks' clinical experience at the Glen Lake Sanatorium in the care and treatment of tuberculous patients. The arrangement is still continued in the school.

On January 1, 1933, the Northern Pacific Beneficial Association Hospital arranged to staff its entire nursing service with graduate nurses and subsidiary workers, thereby aiding in the problem of unemployment among graduate nurses.

Since June, 1934, the Charles T. Miller Hospital has accepted no freshman students for assignment in that hospital. It has instead replaced freshman students with graduate nurses and subsidiary workers.

Beginning March, 1934, all students in the School of Nursing have had six weeks' field experience in public health nursing in what is now known

as the Community Health Service in Minneapolis and the Family Nursing Service in St. Paul.

From its inception, the school has maintained high standards for the professional and personal preparation of its students and for the nursing care of patients in its charge. Graduates of the school have made fine contribution not only to their own school, but also to the profession of nursing both in this country and abroad.

The earlier years of the school's existence were devoted to the establishment of this new type of university education while the later ones have been used for the perfecting of the plan made necessary by the merging of the University with other schools of nursing. Future years should see continued utilization of these early foundations with increasing emphasis on the preventive phases of the nurse's preparation that she may continue to meet adequately the ever increasing and ever broadening demands made upon her.

ORGANIZATION

The School of Nursing functions in the field of medical sciences, the director of the school being responsible to the dean of medical sciences. The administration of the school is conducted largely through three committees, as follows:

1. The Administrative Committee (see page 5), decides all matters of educational policy and general conduct of the School of Nursing.

2. The Students' Work Committee (see page 5), determines the policy as regards the individual student, her acceptance into the school, continuance, discipline, graduation, etc.; and makes recommendations concerning the curriculum and general conduct of the school.

3. The Advisory Committee, (see page 5) composed of the Administrative Committee, the Students' Work Committee, and the superintendent or executive officer of each associated hospital, decides matters involving the expenditure of hospital funds.

UNIVERSITY PRIVILEGES

Nurse students enjoy the same university privileges in so far as their nursing practice will permit as do other students.

They have free access to the University Library which is located in the main quadrangle of the University. In this library are about 833,000 volumes of books and some 10,000 current serials. The nursing library proper is located on the second floor of the building as a part of the biological-medical library. Library hours are from 8:00 a.m. to 10:00 p.m. on week days.

Shevlin Hall, the center of women's activities on the campus, is open to nurse students as to others. Its recreation rooms are frequently reserved by the nurses for parties, dances, or entertainments.

Nurse students are entitled to make use of university tennis courts, golf course, and swimming pool and may buy student tickets at reduced rates for all athletic events.

Perhaps the greatest privilege accorded the students is that of attending lectures and concerts in the University either free or at markedly reduced student rates. Among these are the symphony concerts given by the Minneapolis Symphony Orchestra in the Cyrus Northrop Auditorium; the University Artists Course; and the Thursday morning convocation lectures as well as special lectures in the various departments. Student dramatic organizations present several worth-while plays on the campus each year.

SCHOLARSHIPS, LOANS, PRIZES

Students in either the five- or three-year course are eligible, after two quarters of satisfactory work in the University, to apply for loans from the university loan funds. Graduate nurses working for their degrees are also eligible for the loan after two quarters of satisfactory work. For information regarding the loans see bulletin "University Aids for Student Expenses."

The following special awards are made to students in the graduating classes of the School of Nursing:

LOUISE M. POWELL PRIZE

A gift of \$50 annually from the Alumnae Association of the School of Nursing for the establishment of the Louise M. Powell Prize of \$25 to be awarded to that member of the March and June graduating classes in the School of Nursing of the University of Minnesota who has attained the highest degree of efficiency in practical work.

MARION L. VANNIER SCHOLARSHIP

A gift of \$100 annually from the Nurses' Self-Government Association of the University of Minnesota for the establishment of the Marion L. Vannier Scholarship. The recipient of this scholarship must be a graduate of the School of Nursing of the University of Minnesota. The scholarship is to be used for the purpose of higher education only, within two years after her graduation.

RICHARD OLDING BEARD LOAN FUND

The alumnae of the school have made available through the Endowment Fund a sum of \$150 to be used as a loan to graduates of the school for further academic study. The recipient must have had one year of successful nursing experience following graduation.

ALPHA TAU DELTA SCHOLARSHIP

The Alpha Tau Delta, national scholarship society of the five-year nursing course, grants an annual scholarship of \$50 in honor of Esther M. Thompson, class of 1925, to a senior member of Alpha Tau Delta ranking high in theoretical and practical work. This scholarship is awarded for purposes of study within two years after graduation.

OTHER SCHOLARSHIPS AND LOANS FUNDS

Many of the district and state nursing associations have established scholarships and loan funds for graduate nurses wishing to take up university work. Certain graduate nurses are also eligible for scholarships of the national nursing organizations.

NURSES' RESIDENCES

Nurse students in the three-year course are housed in the various hospital residences after the first quarter. (A limited number may be accommodated in the Nurses' Hall during the first quarter at their own expense.) The Charles T. Miller Hospital has an attractive residence housing 135 persons, all in single rooms. The University of Minnesota Hospitals houses its students in the Nurses' Hall built near the University of Minnesota Hospitals on ground overlooking the Mississippi River. This building houses approximately 300 persons. Students at the Minneapolis General have a residence adjoining, but apart from, the hospital. The students take their meals in the nurses' dining rooms which are under the direction of trained dietitians.

Students in the five-year course provide their own maintenance during the first six quarters. They may secure rooms in Sanford Hall, the girls' dormitory, or in approved rooming houses near the University by request to the Housing Bureau, Shevlin Hall, University of Minnesota. During the time that the student carries clinical experience in the school she has maintenance provided for her on the same basis as the three-year student. In her last three quarters of combined academic and nursing work she provides her own maintenance as in the first six quarters.

Assignment of students in the three- and five-year courses for residence in the various hospitals is made by the Students' Work Committee. Approximately one half of the students are assigned by the committee for residence in the Minneapolis General Hospital for the major portion of the course, the other being assigned to the University of Minnesota Hospitals.

Students in affiliating and postgraduate courses are provided maintenance in the nurses' residences during their period of enrolment in the school.

The rules governing the residences are made in accordance with university policies and carried out with the joint approval of the faculty of the School of Nursing and the Council of the Nurses' Self-Government Association.

STUDENT ACTIVITIES

The leading student organization of the School of Nursing is the Nurses' Self-Government Association. This organization assists the faculty in practically all such student affairs as pertain to off duty hours. Nurse students are admitted to membership at the end of the first six months in the school by passing an examination conducted by the association on their constitution, a copy of which is furnished every student when she enters.

Students continue in membership so long as they remain in good standing in the school and pay the very nominal dues of the organization. They elect a president and governing council of officers so chosen that there are representatives of the council in each of the hospitals. This organization usually sends a representative to the meetings of the American Nurses' Association, the National League of Nursing Education, and the Minnesota State Registered Nurses' Association.

One of the activities of the student government is to appoint upper classmen to act as "big sisters" for all entering students to assist them in adjusting themselves to their new environment.

The hospitals have frequent informal teas and parties for the students and the students themselves are encouraged to plan any form of recreation that they are interested in and that can be wisely undertaken in addition to their nursing duties.

The school is nonsectarian tho students are urged to form church affiliations in accordance with their choice and custom. Churches of various denominations are within walking distance of the residences so that it is possible for all students to attend either morning or evening service.

Chapel service (nonsectarian in character) is held in the respective hospitals.

The Y.W.C.A. of the University is open to all women students and there are student religious organizations sponsored by churches of different denominations.

Affiliating and postgraduate students are urged to participate in student activities. Both of these groups make "big sister" appointments to assist incoming students. The postgraduate students have a form of organization for their group.

ORIENTATION PROGRAM

A definitely planned orientation program for freshman students has been developed and is carried on under the direction of a member of the faculty.

SCHEDULE OF HOURS

During the first quarter of residence in the School of Nursing proper, regular undergraduate students carry approximately twenty-four hours of class but have no practical experience in the nursing care of patients. With the beginning of the second quarter they receive approximately nineteen hours of clinical experience weekly and carry approximately an average of nineteen hours of class. From the beginning of the third quarter and throughout the remainder of the three years (in the case of five-year students, two and one-half years) the hours of clinical experience are forty-eight per week. The hours of class during this same period are approximately six per week with the exception of the Summer Sessions when the class program is either reduced or omitted. Except in the case of emergencies, the time of the students on full-time duty does not exceed an eight-hour day or an eight-hour night. Assignment of night duty for regular

students is for approximately four months (of not more than one month consecutively) during the entire course.

Affiliating students carry forty-eight hours per week of clinical experience (as do the undergraduate students) and from four to six hours of correlating class work.

Postgraduate students carry forty-two hours of clinical experience in all services except that of the operating room in which they have a thirty-hour week during three quarters and a forty-eight hour week at other periods (the students in the operating room do not receive the allowance given the other postgraduate students). Hours of class carried depend upon the individual student, ranging usually, however, from five to ten per week.

VACATION

Nurse students in the three-year course receive a little over nine weeks of vacation at their own living expense. Students entering at the beginning of the fall quarter will have one to two weeks at Christmas time, two weeks during the succeeding summer, four weeks the following summer, and two weeks during the last summer. Students entering at the beginning of the spring quarter will have two weeks the first summer, four weeks during the second summer, and four weeks during the third year.

Five-year students have vacations as do other university students during their first five quarters and during the last three quarters. During their hospital residence their vacation schedule is practically the same as that of the three-year students.

Affiliating students enrolled for less than one year and postgraduate students receive no vacation.

Affiliating students enrolled for one year receive two weeks' vacation.

SUGGESTED HIGH SCHOOL SUBJECTS

Students in high school who are considering the study of nursing are required so to arrange their high school subjects that they meet the entrance requirements of the College of Science, Literature, and the Arts of the University of Minnesota whether they elect the three- or five-year course. By meeting these requirements, students who take the three-year course may later apply their credits in nursing toward a Bachelor's degree, a privilege not open to students who meet only the minimum university requirements.

In the matter of elective subjects students should choose subjects in which they are particularly interested, with the guidance of high school advisers. It is well to avoid "vocational units" so far as possible. Students intending to enter the three-year course are advised to take chemistry in high school. Students planning on entering the five-year course are advised to elect other sciences in high school as their university program will include a chemistry course. *Mathematics is desirable as it is essential that the students have a good working knowledge of arithmetic.* English, history, and social science subjects are all to be recommended, and a foreign language, provided two units can be completed.

PREPARATION AND OPPORTUNITIES

The profession of nursing entails much the same type of requirements and preparation for successful practice as do other professions. Like other professions, only in greater degree, nursing is at present overcrowded. To a greater extent than in other professions the overcrowding is mostly in the lower level positions, whereas in fields requiring advanced preparation it is extremely difficult to find well-qualified personnel. To the good student who is willing to prepare herself rightly, many satisfying opportunities are open in the various fields. Some of these opportunities are for the positions of general duty, head nurse, supervisor, instructor, private duty, industrial nurse, visiting nurse, infant welfare nurse, and school nurse. Graduates of the School of Nursing now hold important positions in all these fields both in this and in foreign countries.

GENERAL REGULATIONS

NOTE.—Due to the social and economic conditions, the University of Minnesota reserves the right to alter any program or policy outlined in this bulletin.

ADMISSION

Each student who wishes to enter the University, either as a freshman or with credits from another institution, must fill out the information called for on pages 1 and 2 of the official application blank. This blank can be obtained from the registrar or from any Minnesota state high school.

The applicant for admission from high school should then give the application blank to the high school principal or superintendent with the request that it be completed and forwarded to the registrar of the University.

The applicant for admission from another college may send the information on pages 1 and 2 direct to the registrar, and in addition, she should request the college last attended to forward to the University of Minnesota an "official transcript of record" and an "honorable dismissal."

The applicant for admission by examination should submit the information on pages 1 and 2 direct to the registrar who will issue an authorization for the entrance examination.

ADMISSION FROM HIGH SCHOOL

Admission to the freshman class is either by examination or by certificate.

Most students entering the freshman classes of the University are high school graduates. In order to enter without entrance examinations the applicant must be a graduate of an accredited high school of Minnesota, or of a high school on the approved list of some other recognized state or regional accrediting institution.

For admission to any college of the University which accepts students without preliminary college training an applicant must present a record of at least twelve units completed in Grades X, XI, and XII (senior high school). For definition of units and groups see the Bulletin of General Information, pages 29 to 33.

At least nine of these twelve units must be subjects listed in Admission Groups A, B, C, D, and E. The other three units may be in Group F.

The nine units from Admission Groups A, B, C, D, and E must include a major and two minors, or preferably, two majors and one minor from at least three different admission groups.

Either one major or one minor must be in Admission Group A (English).

From either Admission Group B (foreign languages) or Admission Group D (mathematics), *but not from both*, one unit completed in Grade IX may be used to make a major or a minor. If this is done, however, the unit completed in Grade IX may not be counted as a part of the minimum of twelve units required from Grades X, XI, and XII.

In addition to the above requirements, the individual colleges have specified certain group and subject-matter requirements. Those for the School of Nursing are as follows:

Major in Group A

Major or minor in Group D

Major or minor in Groups B, C, D, E

Those for the College of Education special curricula (required for graduate nurses working for the B.S. degree in nursing education or public health nursing) are as follows:

Major in Group A

Major or minor in each of two of the Groups B, C, D, E

ADMISSION BY EXAMINATION

Applicants who are not graduates of accredited high schools may meet the admission requirements in one of the following ways:

1. By presenting Minnesota State High School Board certificates in the necessary subjects;
2. By presenting similar certificates from examining boards of other states;
3. By presenting certificates representing examinations given by the College Entrance Board; or
4. By passing successfully the University of Minnesota entrance tests as described below.

UNIVERSITY OF MINNESOTA ENTRANCE TESTS

These tests may be taken by any high school graduate whose high school credits do not meet the special requirements of the college she wishes to enter.

They may be taken also by any individual who is not a high school graduate provided she is nineteen years of age or older.

Any applicant who passes these tests will be admitted provisionally subject to one year of satisfactory work at the University.

Most graduates of Minnesota high schools will have taken these tests in connection with the state testing program conducted in the high schools throughout the state each year.

In order to take the tests at the University, the official application blank should be filed with the registrar according to the instructions on page 13.

Detailed information as to where and when to report for the tests and an authorization for the tests will then be forwarded.

In special cases, arrangements will be made to have the tests given near the applicant's home in order to save the expense of travel to the University. In such cases a \$5 fee is charged. There is no fee if the tests are taken at the University.

These tests are of the objective type, intended to measure aptitudes for college work rather than specific information in high school fields. No special preparation for the tests is practicable.

Each applicant for admission by means of the university entrance tests will be required to take the college aptitude test and an English placement test.

REGULATIONS GOVERNING ADMISSION

THREE-YEAR COURSE

Applications for admission to the School of Nursing should be made in writing to the registrar, University of Minnesota. Information and application blanks may be had upon request from the registrar. *Application blanks and educational credentials must be on file in the registrar's office before the applicant can be given consideration.*

Applicants must meet entrance requirements as stated above. Students whose high school records were not good are not advised to enter the field of nursing. In considering the applicants the Enrolment Committee gives preference to those students who ranked in the upper fourth of their high school class. Preference is also given to applicants holding a Bachelor's degree, for whom it is possible to plan a special program of advanced study in their senior year in the School of Nursing. For requirements of physical fitness see Health Regulations, page 17.

To be eligible for registration in the state of Minnesota the nursing school graduate must be twenty-one years of age. Therefore, applicants under eighteen years of age are especially urged to elect the five-year course.

Final acceptance is made at a meeting of the Enrolment Committee of the School of Nursing at which time the general fitness of the applicant for the field of nursing is considered. The committee reserves the right to reject any candidate who seems to the faculty unsuited for the nursing profession. Meetings of the committee are held at the beginning of the *fall and spring quarters, at which time students are admitted to the school.* Applicants may meet the committee at its meeting six months prior to the date they intend to enter if they wish, but ordinarily they meet the committee on the date they wish to enter the school. Every precaution is taken to warn applicants in advance if their records seem to indicate that they are not suited to enter the field of nursing.

FIVE-YEAR COURSE

Applicants for admission to the five-year course must meet the entrance requirements of the College of Science, Literature, and the Arts, as given on page 31 of the Bulletin of General Information, and will register in the College of Science, Literature, and the Arts during the first 5 quarters of the course.

Acceptance into the School of Nursing is not made until the 75 credits of pre-nursing subjects have been completed (see outline of the five-year course, page 25). Students who have taken work in another college or university may apply the credits toward the five-year course. Official transcripts of such credits should be submitted to the university registrar for evaluation. Students may begin the five-year course at the beginning of any quarter, altho the fall quarter is the most satisfactory time to enter.

DEGREE COURSE FOR GRADUATE NURSES

Applicants for admission to this course must meet the entrance requirements of the College of Education special curricula (see page 14) and submit evidence of graduation from an accredited school of nursing.

POSTGRADUATE COURSES

Applicants for admission to postgraduate courses must be graduates of accredited schools of nursing and meet the minimum entrance requirement for admission to the University of Minnesota, as described above. They should write to the registrar, University of Minnesota, for application blanks. These should be filled out and placed on file in the registrar's office at least one month in advance of the quarter in which the applicant wishes to enter.

Postgraduate students are admitted quarterly, except summer,* usually one week before each regular university registration day in order that adjustment to clinical experience in the hospital may be made before university classes begin. Only a limited number of applicants may be accepted in any one quarter.

Proper blanks on which the nursing school credits and high school credits should be sent in may also be had by request to the registrar, University of Minnesota.

COURSES FOR AFFILIATING STUDENTS

By special arrangements with other schools of nursing, approved by the State Board of Nurse Examiners, their students are admitted at stipulated times for additional experience and instruction. Such students must meet the requirements of their own school, and must meet also the requirements of high school graduation or its equivalent.

ADMISSION WITH ADVANCED STANDING

The state law of Minnesota (as that of many other states) requires the nursing course to be three years in length. Hence it is not possible to grant credit in point of time to applicants with advanced university or college credit or even with degrees. It is possible, however, to allow such students marked advantages which are tantamount to time credit. For required courses in which such students have already received credit they may make substitution and so work toward their degree or in case of those already having a Bachelor's degree they may work toward a Master's degree. Also, for those already having a Bachelor's degree the school grants the last six months for electives. This time the student may (and usually does) elect to spend in some special field such as that of psychiatric nursing, nursing education, or public health nursing. She may, also, if she desires, utilize the major portion of this period of six months for work toward her Master's degree.

* Postgraduate students in the fields of operating room and surgical nursing services are also admitted in the Summer Session.

ADMISSION FOR TRANSFERRING STUDENTS

It is not the policy of the School of Nursing to accept students wishing to transfer from other schools of nursing. In almost every case the first two quarters must be repeated and a great deal of time is lost for the student in transfer.

ESTIMATE OF EXPENSES OF THREE-YEAR COURSE IN NURSING*

Year	Board and Room	Books	Univ. Fees††	Uniforms (Inc.Cape)	Misc. Expense‖	Grad. Fee	Total
First							
1st quarter	\$115.00‡	\$15.00	\$37.50	\$55.00	.....	.....	\$222.50
2nd quarter	.....	10.00	.....	.....	.....	.....	10.00
3rd and 4th quarters	.....	5.00	.....	.....	\$5.00	.....	10.00
Second	.....	10.00	.....	.....	10.00	.....	20.00
Third	.....	10.00	.....	.....	20.00	\$7.50	37.50
Total	.....	.....	.....	.....	.....	.....	\$300.00

Tuition is due on date of entrance and fee for uniforms within one month thereafter.

ESTIMATE OF EXPENSES OF FIVE-YEAR COURSE IN NURSING*

Year	Board and Room	Books	Univ. Fees††	Uniforms (Inc.Cape)	Misc. Expense‖	Grad. Fee	Total
First	\$345.00	\$35.00	\$83.00	.....	.....	.....	\$463.00
Second	345.00	35.00	88.00	\$55.00	.....	.....	523.00
Third	.....	15.00	.....	.....	\$5.00	.....	20.00
Fourth	.....	15.00	.....	.....	10.00	.....	25.00
Fifth	345.00	35.00	83.00	50.00	20.00	\$15.00	548.00
				(Pub.H.)			
Total	.....	.....	.....	.....	.....	.....	\$1,579.00

Affiliating students pay no tuition and complete maintenance is furnished them. Books amount to about \$20 for the year. Personal expenses can be determined best by the individual student.

For fees in postgraduate courses, see page 30.

HEALTH REGULATIONS§

The University School of Nursing requests each student *before entering* to be vaccinated against smallpox and to be immunized against typhoid fever, diphtheria, and scarlet fever. Compliance with this requirement prevents the

* This does not include clothing, incidentals, traveling, and vacation expenses.

‡ Depends on individual—range is from \$85 to \$115. Students may live at home or with relatives in the Twin Cities if they wish.

†† Special laboratory and course fees are, for electives, additional.

§ The regulations given here apply to postgraduate, as well as undergraduate, students except where otherwise indicated.

‖ Miscellaneous expense includes transportation cost to and from classes at the University and to and from the field when assigned to public health nursing.

necessity of immunizing the student during her first three months which frequently involves discomfort and loss of time for the student in the period when she most needs to be at her best physically. (Detailed instructions as prescribed by the University Health Service regarding immunization may be secured from the School of Nursing if desired by the applicant's physician.)

Upon entrance the applicant must pass satisfactorily the physical examination given by the University Health Service. Students whose condition needs further observation may be admitted tentatively but must cancel if later findings prove them physically unfit for nursing. The increasing emphasis on maintenance of health and prevention of disease is bringing an equal demand that the nurse herself be physically fit.

All students receive in the respective hospitals an annual physical examination. In addition (a) a Mantoux test is made of all students on entrance and a chest X ray is taken in case of positive reaction. (b) One week preceding the tuberculosis service, a Mantoux test is also taken of students whose Mantoux tests were negative on entrance. All students having a positive reaction are given a chest X ray. (c) Three months after returning from the tuberculosis service, those whose Mantoux tests were negative before entering the tuberculosis service are given another Mantoux test. Those students with positive reactions receive a chest X ray at that time. A complete physical examination is given on completion of the course, including chest X ray for students having positive Mantoux reaction. Mantoux tests and chest X rays are made routinely for postgraduate students on entrance only. However, any student will receive a chest X ray as often as necessary for the protection of the students and the hospitals. Through the University Health Service a special examination of feet of students is made and recommendation given for desirable types of shoes and, when indicated, for corrective foot exercises.

A regular student in the School of Nursing who is disabled by continued illness shall be referred to her home or family as soon as she may be safely discharged from the hospital and permitted to travel; and shall thereafter be eligible for reinstatement under the same rules as apply to any other student. In any case, her registration as a first year student shall be terminated at the end of thirty days; if a second year student, at the end of sixty days; and if a third year student, at the end of ninety days; and thereafter such students shall meet their own cost of hospital care on the same basis as regular patients under the established rules and regulations of the hospital concerned. In the case of affiliating and postgraduate students, they must meet the cost of hospital care which is in excess of one month for any one year of residence in the school.

GRADES

Nurse students receive grades in accordance with the general university plan. The passing grades used are A, B, C, D, in order of excellence. A grade of I (incomplete) is given when work is not completed on time, through no fault of the student and must be made up within 30 days unless the time

is extended by permission of the Students' Work Committee. A grade of E is a temporary grade which may be removed by satisfactorily passing a second examination, for which a fee of \$1 is charged. A grade of F in any class can be removed only by repeating the course. Students receiving a grade of F (failure) in any part of the clinical experience must repeat enough of the service to secure a passing grade.

Students in the five-year course are governed during the first five quarters by the regulations of the College of Science, Literature, and the Arts, and during the last three quarters by the regulations of the College of Education, in regard to grades, credits, honor points, and so forth.

CONTINUATION IN SCHOOL

Because of the complicated schedules of clinical experience it is impossible to arrange irregular class schedules for students. For that reason, no student is allowed to register for the second quarter in the School of Nursing who has not satisfactorily completed the work of the first quarter; and no student may register for the third quarter who has not satisfactorily completed the second.

The faculty of the School of Nursing reserves the right to cancel the registration of any student who seems to them unsuited for the nursing profession or to remove any student connected with the school when, in their judgment, the interest of the school requires it.

READMISSION

All students who miss more than a month of their work through illness or leave of absence will have to remain out of the school until such time as the class or clinical schedule can be adjusted to their needs. *Special permission cannot be granted students to remain away for the purpose of caring for sick relatives.*

REQUIREMENTS FOR GRADUATION

The Board of Regents of the University of Minnesota upon recommendation of the faculty of the School of Nursing, confers degrees and certificates as specified below.

GRADUATE IN NURSING

The degree of graduate in nursing will be granted to those who have completed satisfactorily the requirements of the three-year professional nursing course as outlined on pages 21 to 24.

Students receiving the degree of graduate in nursing must have credit for the satisfactory completion of three full years in the nursing curriculum selected by them. In the case of students enrolled in the five-year course, they must meet all requirements for the B.S. degree before they may count the two quarters in the College of Education in their senior year as contributing toward this time credit. In other words, five-year students *are not*

eligible for the graduate in nursing degree until they are eligible for the B.S. degree. Students who take the five-year curriculum but do not complete its requirements may change their status to three-year students and receive the graduate in nursing degree upon satisfactory completion of the requirements of the three-year course.

Students who enter as three-year students holding a B.S. or B.A. degree before entering, may count a part of two quarters in the College of Education or Graduate School as a part of this time credit, provided the courses they select have the approval of the Students' Work Committee of the School of Nursing.

BACHELOR OF SCIENCE DEGREE AND GRADUATE IN NURSING

The degree of bachelor of science and of graduate in nursing will be granted those students who have completed satisfactorily the requirements of the five-year course as outlined on pages 24 to 27.

BACHELOR OF SCIENCE DEGREE

The bachelor of science degree will be granted those graduate nurses who have completed satisfactorily the requirements for this degree as outlined on pages 27 to 29.

STATE REGISTRATION

Nurse students completing either the three- or five-year course are eligible at the age of twenty-one years to take the state board examination given by the Minnesota State Board of Nurse Examiners. Successful passing of this examination entitles the nurse to registration in Minnesota and makes her eligible for membership through her alumnae, district, and state association, in the national nursing organizations and the Red Cross Nursing Service. Graduates from the University of Minnesota School of Nursing are also eligible for registration in New York State.

CURRICULA

The School of Nursing administers, with the assistance of certain other schools and departments in the University, curricula for the following courses, except for the Public Health Nursing courses:

1. Three-year course
2. Five-year course
3. Degree course for graduate nurses
4. Affiliating courses
5. Postgraduate courses

THREE-YEAR COURSE

The three-year course leads to the degree of graduate in nursing. (Graduates of this course receive 60 blanket credits toward a bachelor of science degree in nursing education or public health nursing.) Candidates for the degree of graduate in nursing must complete the curriculum of class work and clinical experience as given on the following pages, any changes therefrom to have the approval of the Students' Work Committee of the School of Nursing.

CLASS CURRICULUM—FIRST SIX MONTHS

First Quarter

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Anat. 3	Elementary Anatomy (Human)	22	22	44
Physiol. 1	Elements of Physiological Chemistry.....	33	11	44
Physiol. 2	Elements of Physiology (Human).....	44	22	66
Bact. 1	Elementary Bacteriology	33	33	66
P.M.&P.H. 3	Personal Health	22	.....	22
Nurs. 10	Introduction to Nutrition	11	.....	11
Pharm. 6	Metrology	11	.....	11
	Total	176	88	264

Second Quarter

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Pharm. 7	Metrology Laboratory .....	.....	11	11
Pharm. 8	Elementary Pharmacology	22	11	33
Nurs. 2	Ethics	11	.....	11
Nurs. 11	Foods and Nutrition	11	44	55
Nurs. 15	Nursing Arts (including lettering and hospital economy)	66	30	96
Nurs. 18	Principles of Medical and Surgical Nursing	44	.....	44
	Total	154	96	250

SCHOOL OF NURSING

CLASS CURRICULUM AFTER FIRST SIX MONTHS*

Freshman One-half Year

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 16	Advanced Nursing Arts (including bandaging and massage)	33	11	44
Nurs. 19	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 41	Principles of Pediatrics and Pediatric Nursing	33	.....	33
Total		110	11	121

Junior Year

Courses No.	Title	Class Hrs.	Total Hrs.
Med. 15	Diet Therapy	11	11
Med. 16	Dermatology	11	11
Med. 17	Nervous and Mental Diseases	11	11
Nurs. 1	History of Nursing	11	11
Nurs. 25	Principles of Orthopedics and Orthopedic Nursing	11	11
Nurs. 35	Principles of Communicable Disease Nursing	11	11
Nurs. 39	Principles of Gynecology and Gynecological Nursing	11	11
Nurs. 43	Principles of Obstetrics and Obstetrical Nursing	22	22
Nurs. 48	Principles of Care in Eye, Ear, Nose, and Throat Conditions and of Oral Hygiene	22	22
Path. 3	Principles of Pathology (including introduction to medical science)	22	22
Total		143	143

Senior Year

Courses No.	Title	Class Hrs.	Total Hrs.
Nurs. 36	Principles of Tuberculosis and Tuberculosis Nursing	11	11
Nurs. 50-51	Survey of Professional Field†	22	22
Gen.Col. 2	The Practical Applications of Psychology	66	66
Total		99	99

* Alterations in the following program may be necessary as a result of the revision of the curriculum which is being made by the National League of Nursing Education.

† Given for certain groups in junior year.

CLINICAL CURRICULUM AFTER FIRST SIX MONTHS (FALL CLASS)*†

Freshman Year

GROUP 1		GROUP 2		GROUP 3		GROUP 4		GROUP 5		GROUP 6		GROUP 7		GROUP 8	
Title	Mo.	Title	Mo.	Title	Mo.	Title	Mo.	Title	Mo.	Title	Mo.	Title	Mo.	Title	Mo.
Surg. Nurs.	1½	Med. Nurs.	1	Surg. Nurs.	1½	Surg. Nurs.	2	Med. Nurs.	1½	Surg. Nurs.	2½	Med. Nurs.	½	Med. Nurs.	2
Oper. Room	2½	Diet. K.	1	Med. Nurs.	2	Vac.	½	Surg. Nurs.	3½	Vac.	½	Surg. Nurs.	4	Surg. Nurs.	3½
Vac.	½	Surg. Nurs.	1	Diet. K.	1	Med. Nurs.	2½	Med. Nurs.	½	Pri. Pat. §	3	Vac.	½	Vac.	½
Ped. Nurs.	1½	Vac.	½	Vac.	½	Diet. K.	1	Vac.	½	Pri. Pat. §	1½	Pri. Pat. §	1½		
		Oper. Room	2½	Oper. Room	1										

Junior Year

Ped. Nurs.	1½	Ped. Nurs.	3	Oper. Room	1½	Oper. Room	3	Med. Nurs.	½	Med. Nurs.	2	Pri. Pat. §	1½	Pri. Pat. §	3
Obst. Nurs.	3	Obst. Nurs.	3	Ped. Nurs.	3	Ped. Nurs.	3	Diet. K.	1	Diet. K.	1	Med. Nurs.	2	Surg. Nurs.	2
Com. Dis.	1½	Com. Dis.	1½	Obst. Nurs.	3	Obst. Nurs.	3	Oper. Room	3	Oper. Room	3	Diet. K.	1	Diet. K.	1
Med. Nurs.	1½	Med. Nurs.	1½	Com. Dis.	1½	Com. Dis.	1½	Ped. Nurs.	3	Ped. Nurs.	3	Oper. Room	3	Oper. Room	2
Dispen.	1	Dispen.	1	Med. Nurs.	½	Med. Nurs.	½	Obst. Nurs.	2	Obst. Nurs.	2	Ped. Nurs.	2	Vac.	1
Gyn. Nurs.	1	Gyn. Nurs.	1	Vac.	1	Vac.	½	Med. Nurs.	1½	Vac.	½	Vac.	1	Ped. Nurs.	3
Vac.	1	Vac.	1	Dispen.	1			Vac.	1			Obst. Nurs.	½		
Tbc. Nurs.	1½			Surg. Nurs.	½										

Senior Year

P. H. Nurs.	1½	Tbc. Nurs.	1½	Surg. Nurs.	½	Dispen.	1	Com. Dis.	1½	Com. Dis.	1½	Obst. Nurs.	1½	Obst. Nurs.	3
Pri. Pat. §	3	P. H. Nurs.	1½	Gyn. Nurs.	1	Med. Nurs.	1	Dispen.	1	Med. Nurs.	1½	Med. Nurs.	1½	Com. Dis.	1½
Diet. K.	1	Pri. Pat. §	3	Tbc. Nurs.	3	Gyn. Nurs.	1	Obst. Nurs.	1	Obst. Nurs.	1	Com. Dis.	1½	Med. Nurs.	1½
Med. Nurs.	2½	Med. Nurs.	1½	P. H. Nurs.	1½	Tbc. Nurs.	1½	Gyn. Nurs.	1	Dispen.	1	Dispen.	1	Dispen.	1
Surg. Nurs.	3½	Vac.	½	Pri. Pat. §	3	P. H. Nurs.	1½	Tbc. Nurs.	1½	Gyn. Nurs.	1	Gyn. Nurs.	1	Gyn. Nurs.	1
Vac.	½	Surg. Nurs.	4	Med. Surg.	1½	Pri. Pat. §	3	P. H. Nurs.	1½	P. H. Nurs.	1½	Ped. Nurs.	1	Vac.	½
				Surg. Nurs.	2½	Vac.	½	Pri. Pat. §	3	Tbc. Nurs.	1½	P. H. Nurs.	1½	Med. Nurs.	½
				Vac.	½	Surg. Nurs.	2½	Vac.	½	Surg. Nurs.	2	Tbc. Nurs.	1½	P. H. Nurs.	1½
								Surg. Nurs.	1	Vac.	½	Vac.	½	Tbc. Nurs.	1½
										Med. Nurs.	½	Surg. Nurs.	1		

NOTE.—In the shorter services certain rotation of students takes place which results in slight variation from the schedule—for instance in a three-month period including Gynecology, Diet Kitchen, and Surgical Nursing. Other variations may be made necessary by illness of students, or other emergencies but the above schedule is followed as closely as possible.

* The class and clinical curriculum for the class entering the beginning of the spring quarter is similar to that for the class in the fall quarter with the exception of vacations which consist of one month in the junior and one in the senior year.

† October to December—classes only; January to March—part-time practice in medical and surgical nursing.

§ Clinical experience in the care of private patients will be in the departments of medical and surgical nursing.

CLINICAL EXPERIENCE

The clinical experience of the students begins in their second quarter in the school. They are assigned to the hospitals in the school in the order of their scholarship rank during the first quarter, the number assigned to each hospital being determined by the daily average of patients in the hospitals during the preceding six months. The hospitals in which the students receive their clinical experience are as follows:

The University of Minnesota Hospitals, situated on the University campus, include the Elliot Memorial Hospital, the Cancer Institute, the Todd Memorial, and the Eustis Children's Hospital. They are supported by state funds and endowments. They care for patients sent in from all parts of the state. The daily average of patients from July to December, 1935, was 336.

The Minneapolis General Hospital is supported by taxation and cares principally for the indigent sick of the city of Minneapolis. It has a large number of accident and emergency cases and a wide variety of acute diseases. The daily average of patients July to December, 1935, was 485.

The Charles T. Miller Hospital is situated in St. Paul, having 50 beds for free patients and 150 beds for private and semi-private patients. The daily average of patients July to December, 1935, was 127.

The Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of over 700 beds, caring for all types of tuberculosis is affiliated with the School of Nursing to give the students experience in the care of tuberculous patients. Students are assigned for one and one-half months experience there in the latter half of this course.

Students are rotated from one hospital to another in order to give them as complete clinical experience as the school has to offer. For instance, all students go to the Minneapolis General Hospital for experience in communicable disease nursing.

FIVE-YEAR COURSE

The five-year combined Nursing and Arts Course leads to a bachelor of science degree and a degree of graduate in nursing. Wherever possible, students should elect the five-year in preference to the three-year course, because the preparation given is broader and better, and graduates of the five-year course are in much greater demand than are those from the three-year course. The course is planned to prepare the student for such public health nursing positions as visiting nursing, school nursing, health teaching, infant welfare, rural and industrial nursing; for administrative, supervising, and teaching positions in schools of nursing and hospitals; and for combined positions in secondary schools involving both nursing and teaching.

CURRICULA

Part A. During the first five quarters of the five-year Nursing and Arts Course the student is registered in the College of Science, Literature,

and the Arts during which time she must complete required subjects as follows:

English A-B-C or Composition 4-5-6 or exemption from the requirement.

Sociology 1

Psychology 1-2

Human Physiology 2 or 4*

Electives to make a total of 75 credits exclusive of physical education.

(For each five honor points in excess of one honor point per credit the number 75 is diminished by one.) Recommended electives are chemistry, zoology, botany, history, nutrition courses and more natural science. Ten credits of zoology, and 10 credits of botany are required for those who wish to obtain a high school teacher's certificate in their senior year.

Physical Education, six quarters. One quarter of this requirement may be completed after registering in the School of Nursing. No credit is granted for physical education courses in the College of Science, Literature, and the Arts; but upon transfer to the College of Education, the student will receive the credits and honor points earned in those courses.

Part B. During the next ten quarters the student is registered in the School of Nursing. She carries the same class and clinical curricula as does the three-year student with the following exceptions. In her first quarter in the School of Nursing she takes Soc. 49, Social Pathology, 3 credits, in place of physiology which she has already taken.† She carries a curriculum of clinical experience covering two and one-fourth years (nine quarters) instead of the two and three-fourths years required of the three-year student. This adjustment is made by shortening her time spent in surgical nursing and private patient care and extending her experience in other nursing fields. In her senior year the clinical curriculum is so arranged as to permit her to register for Ed. 51A before returning to the College of Education. Sixty credits are granted for successful completion of Part B.

For outline of class and clinical curriculum during residence in the School of Nursing see pages 21 to 24.

Part C. During the last three quarters the student is registered in the College of Education, majoring either in nursing education or in public health.

Major Adviser: Nursing Education, Katharine J. Densford

Major Adviser: Public Health Nursing, Eula B. Butzerin

* Course 2, Elements of Physiology, has no prerequisite. Course 1, Elements of Physiological Chemistry, is recommended as an elective to be taken with Course 2. Course 4, Human Physiology, has zoology and chemistry as prerequisites. It is regularly offered in the Summer Session for those who cannot get Course 2 or 4 during the regular year.

† The hours for physiology and social pathology conflict and, therefore, cannot be taken in the same quarter, except in special cases where permission is given to carry social pathology by correspondence study.

SCHOOL OF NURSING

1. The Nursing Education curriculum is as follows :

No.	Title	Credits
Ed. 51B,C	Introduction to Secondary School Teaching	6
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing.....	3
Ed.T. 51B	Practice Teaching in Schools of Nursing.....	5
Nurs. 60	Ward Administration	4
Nurs. 61	Survey of Hospital Relationships	2
Nurs. 69	Survey of Conditions and Trends in Nursing.....	3
Nurs. 71	Curriculum Making in Schools of Nursing.....	3
	Electives*	19
	Total	45

Suggested alternatives in the nursing education curriculum :

a. For those interested in child health :

No.	Title	Credits
Nursing Courses		
Nurs. 60	Ward Administration	4
Nurs. 61	Survey of Hospitals Relationships	2
Nurs. 69	Survey of Conditions and Trends in Nursing.....	3
Nurs. 71	Curriculum Making in Schools of Nursing.....	3
Education Courses		
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing.....	3
Ed. 51B,C	Introduction to Secondary School Teaching.....	6
Nursery School Courses		
Ed.T. 55	Principles of Kindergarten and Nursery School Education.....	3
Ed.T. 56	Permanent Play Materials	2
Ed.T. 57	Plastic Materials	3
Ed.T. 58	Rhythms, Games, and Music	2
Ed.T. 59	Story Telling for Young Children	2
Ed.T. 76A-76B- 76C	Methods and Observation	3
Ed.T. 77A-77B- 77C	Practice Teaching in Kindergarten or Nursery School.....	9
	Total	45

b. For those interested in diet therapy :

Students taking this curriculum must have completed Home Economics 30, 2 cred., before entering the School of Nursing.

No.	Title	Credits
Nursing Courses		
Nurs. 60	Ward Administration	4
Nurs. 69	Survey of Conditions and Trends in Nursing.....	3
Nurs. 71	Curriculum Making in Schools of Nursing.....	3
Education Courses		
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing.....	3
Ed.T. 51B	Practice Teaching in Schools of Nursing.....	5
Ed. 51B,C	Introduction to Secondary School Teaching.....	6
	Controlled electives in Education courses.....	6
Home Economics Courses		
Agr.Biochem. 4	Introduction to Organic and Biochemistry.....	5
Home Ec. 34	Nutrition Problems	4
Home Ec. 170	Nutrition of the Family	3
Home Ec. 173	Nutrition in Disease	3
	Total	45

* Electives must be chosen so as to complete the professional requirement of 26 quarter credits for the teacher's certificate. See College of Education Bulletin, page 18.

2. The Public Health Nursing curriculum is as follows:

No.	Title	Credits
P.M.&P.H. 53	Elements of Preventive Medicine	3
P.M.&P.H. 58	Maternal and Child Hygiene	2
P.M.&P.H. 60	Tuberculosis and Its Control	2
P.M.&P.H. 61	Mental Hygiene	3
P.M.&P.H. 62	Principles of Public Health Nursing	3
P.M.&P.H. 63	Special Fields in Public Health Nursing	3
P.M.&P.H. 65	Field Practice in School Nursing	} Minimum
P.M.&P.H. 66	Field Practice in County Nursing	
P.M.&P.H. 76	Field Practice in Family Health Agency	
Soc. 129*	Principles of Social Case Work	5
Soc. 153*	Field Training in Case Work	2-5
Soc. 60	Social Protection of the Child	}
or	Child Training	
H.E.Ed. 90	Child Training	3
Ed. 51B,C	Introduction to Secondary School Teaching	6
Total		41-50‡

3. Program for Students Desiring High School Teacher's Certificate.

Students majoring either in Nursing Education or Public Health Nursing may secure the high school teacher's certificate for secondary school education if they include the following courses in their programs in addition to the required courses in their major:

No.	Title	Credits
Zool. 1-2-3	Zoology	10
	Botany	10
Ed.T. 68A-68B-68C	Practice Teaching in General Science	9§
Electives chosen to complete the professional requirement of 26 quarter credits as listed on page 18 of the Bulletin of the College of Education.		
Nursing 71, 3 credits, may be counted in this group of electives.		

The following suggested minor in general science is strongly recommended for students desiring to take this program:

	Credits		Credits
Zoology	10	Astronomy 11	5
Botany	10	Geology 8	5
Gen. Inorg. Chemistry	10		

DEGREE COURSE FOR GRADUATE NURSES

CURRICULA FOR STUDENTS WHO ARE GRADUATES OF ACCREDITED SCHOOLS OF NURSING

Open to those who meet entrance requirements for specialized curricula of the College of Education (see page 14). Advanced credit for the professional nursing courses will be determined by the Nursing Committee who will indicate any additional hospital services to be completed before credit

* Public health nursing students having credit in Soc. 1 and Soc. 49 are eligible to enter these courses.

‡ Additional time beyond the usual three quarters (45 credits) may be necessary for some students to complete these credits.

§ Students in nursing education who choose to take Ed. 68A-68B-68C may be exempt from Ed.T. 51A,B.

is granted. Forty-five credits represent approximately the average advanced standing granted for a satisfactory course of study in a school of nursing.

Candidates must conform to the College of Education regulation relative to total credits and honor points and are entitled to privilege of quality credit rule. Candidates must also meet the physical education requirements of the College of Education.

To secure a degree in the College of Education students must earn 185 credits and 185 honor points, and in addition must earn 1½ honor points for each credit in a major field.

Graduate work may be carried and a Master's degree earned by students who meet the requirements of the Graduate School. Programs should be made out in consultation with a major adviser in the department.

The amount and type of college courses to be required of each candidate is to be decided by her major adviser after consideration of a candidate's general education and experience. All programs must also be approved by the Students' Work Committee and the dean of the College of Education. As a rule, however, the following curricula meet the needs of the majority of students. Substitutions may be made by petition upon the recommendation of the major adviser and Students' Work Committee of the College of Education.

A. Nursing Education

Major Adviser: Katharine J. Densford

Courses will correspond in general to Part A and to Part C 1 of the five-year curriculum (as given on pages 25 and 26) plus Education 51A and Sociology 49 and electives as recommended by the major adviser as may be needed to fulfill the total credit and honor point requirement.

B. Public Health Nursing

Major Adviser: Eula B. Butzerin

Curriculum leading to a bachelor of science degree with a major in Public Health Nursing. In addition to the courses listed in Part C 2 of the five-year course (page 27) the following courses are required:

a. Included in major sequence:

No.	Title	Credits
P.M.&P.H. 2	First Aid	1
P.M.&P.H. 67	Tuberculosis Nursing*	2
P.M.&P.H. 71	Supervision in Public Health Nursing	3
Soc. 119	The Family	3
	or	
H.E. 89	Home Management with Special Reference to Low Income Families	3

A minimum of 15 credits in Public Health Field Courses or accepted substitutes.

* For students who have not had acceptable theory and practice in the care of tuberculosis patients.

b. Other requirements:

No.	Title	Credits
Hist. 1-2	Modern World	10
Zool. 1-2-3	General Zoology	10
Physiol. 1	Elements of Physiological Chemistry	3
Physiol. 2	Elements of Physiology	5
Bact. 41	General Bacteriology	5
Psy. 1-2	General Psychology	6
Soc. 1	Introduction to Sociology	5
Soc. 49	Social Pathology	6
Ed. 51A	Introduction to Secondary School Teaching.....	3
	English, or exemption according to English placement tests.....	0-15
	Electives as recommended by major adviser.	

C. Program for Students Desiring High School Teacher's Certificate

See page 27.

AFFILIATIONS

Because of the large number of patients and the wide variety of illness manifested in these patients the school is able to offer affiliation in certain services to other schools of nursing desiring additional practice for their students.

Services in which other schools may receive affiliations are medical, surgical, pediatric, and obstetric. To schools sending students for a period of one year it is possible to include certain additional elective services.

The terms of affiliation are agreed upon between the university school and the school sending students. A copy of the conditions of affiliation will be sent to any school interested upon request to the director, School of Nursing, University of Minnesota. The length of affiliation varies from three months in the city of Minneapolis to six months and one year for schools outside the city. Schools desiring affiliation must be accredited schools and be connected with hospitals which are approved by the American College of Surgeons as well as by the American Hospital Association.

POSTGRADUATE COURSES

Among the opportunities offered through postgraduate courses are the following:

1. To prepare for head nurse combined teaching and administrative positions.
2. To become a proficient bedside nurse in a chosen field.
3. To become acquainted with the preventive aspects of nursing in this field.
4. To carry related university courses giving credit toward a degree.
5. To supplement deficient undergraduate preparation.

A program of academic study in the University is arranged for each field of postgraduate work, but may be modified by petition to meet the needs of the individual student and to take into consideration her interests and lines of development. All clinical subjects in the School of Nursing are also available for election.

The clinical experience of the postgraduate students is planned so as to include all available subdivisions of the various fields. The University and Minneapolis General Hospitals are available as fields for clinical experience. Students taking surgical nursing and operating room technique and administration courses receive their clinical experience in the University of Minnesota Hospitals; those in the medical and obstetrical courses receive their clinical experience in the Minneapolis General Hospital; those in the pediatric course are assigned by the Students' Work Committee, half going to the University of Minnesota Hospitals and the other half to the Minneapolis General Hospital. Only a limited number of applicants can be accepted in any one quarter.

Postgraduate students receive full maintenance and a \$10 monthly allowance with the following exceptions:

1. Operating Room Technique, Teaching, and Administration. Because of the shorter hours of clinical experience, no allowance is granted, but full maintenance is provided.
2. Medical, Surgical, Communicable Disease, Pediatric, and Obstetrical Nursing. During any portion of the course when students are not giving nursing care in the hospital (as for instance public health field work or nursery school observation) the hospital does not provide maintenance or allowance. Such periods are clearly indicated in the outlines of the separate courses. During these periods the students may pay the hospital \$10 weekly for maintenance or live elsewhere if they prefer.

Students wear their own graduate nurse uniforms while in the hospital. The students must provide themselves with the necessary blue uniforms suitable for experience in public health nursing. Laundry is included in maintenance. As registrants in the School of Nursing, postgraduate students pay no tuition fee but do pay a deposit fee of \$5 on entrance, to be refunded at completion of course if there are no charges against it. Postgraduate students who are desirous of transferring such academic credits as may be counted for the bachelor of science degree pay the College of Education tuition fee (i.e., \$1.75 to \$2.50 per credit) at the time they transfer their credits from the School of Nursing to the College of Education, which college grants the degree. The following curricula do not provide for courses during the second summer term. In cases of students whose clinical curriculum allows, a course may be taken during the second term of the Summer Session by paying the required fee. Students in residence at the Minneapolis General Hospital pay carfare to and from university classes.

CURRICULA

MEDICAL NURSING—TWELVE MONTHS

Class Curriculum		Clinical Curriculum		
Subject	Hrs. Wkly. per Qtr.	Credits	Type of Service	Approx. Weeks in Service
Phys. 2, Elements of Physiol.	6	5*	Women's Medicine	6‡
or Bact. 41†, Gen. Bact.	9		Men's Medicine	7
Elective	3		Communicable Disease	4
and P.M.&P.H. 60, Tuberculosis and Its Control	2	5*	Neurology	2
or Soc. 1, Introd. to Soc.	5		Receiving Department	2
Nurs. 60, Ward Administration	4		Diet Kitchen	3
Nurs. 72, Teaching and Supervision	5	4*	Tuberculosis	2||
Nurs. 18a-19a, Principles of Medicine and Medical Nursing	4		Laboratory and X-ray Observation	5
Nurs. 36, Principles of Tuberculosis and Tuberculosis Nursing	1	1	Physical Therapy		4‡||
P.M.&P.H. 76, Field Practice in Family Health Agency	—	4*‡	Field Practice in Public Health Nursing or Elective	8
			Ward Administration		4
			Elective in hospital service	4
			Medical Clinics in Out-Patient Department		4
			Number of hours of clinical experience weekly = 42.	
			‡ Neither allowance nor maintenance provided by hospitals during three weeks of this period.	
			|| At Glen Lake Sanatorium. Maintenance but not allowance provided.	
Total*		24*		

* Credits transferable to College of Education.

† Bacteriology may be elected if grade made in physiology examination (given to those who desire it during registration week) is passed with sufficiently high score.

‡ Omitted from required curriculum if student does not carry public health field practice.

SURGICAL NURSING--TWELVE MONTHS

Class Curriculum		Clinical Curriculum		
Subject	Hrs. Wkly. per Qtr.	Credits	Type of Service	Approx. Weeks in Service
Anat. 3, Elementary Anatomy	4	5*	Eye, Ear, Nose, and Throat Surgery	4
Elective	2			
or		9	Tuberculosis Surgery	4
Bact. 41, Gen. Bact.	9			
Nurs. 60, Ward Administration	4	4*	Gynecology Wards	4
	4			
P.M.&P.H. 50, Public and Personal Health	3	3*	Operating Room	3
or				
P.M.&P.H. 53, Elements of Preventive Medicine	3	5*	Orthopedic Surgery, including Physical Therapy	3
	3			
Nurs. 72, Teaching and Supervision	5	4*‡	Out-Patient Department	2
	5			
P.M.&P.H. 76, Field Practice in Family Health Agency.	1	1	Surgical Supply Room	1
	1			
Nurs. 23, Massage	2	2	Administration	6
Nurs. 31, Advanced Surgical Nursing	2			
Elective	2	2*	Urology	3
	2			
			Field Practice in Public Health	
			Nursing or Elective	4½‡
			General Surgery	17‡
			Women's surgery	
			Men's surgery	
			Tumor surgery	
Total*		23*		

‡ Neither allowance nor maintenance provided by hospitals.

* Credits transferable to College of Education.

‡ Omitted from required curriculum if student does not carry public health field practice.

OPERATING ROOM TECHNIQUE, TEACHING, AND ADMINISTRATION

Class Curriculum†		Clinical Curriculum		
Subject	Hrs. Wkly. per Qtr.	Credits	Type of Service	Approx. Weeks in Service
Nurs. 72, Teaching and Supervision	5	5*	General Surgery and Urology	17
Bact. 41, Gen. Bact.	9	5*	Dressing and Supply Room	1
Physiol. 2 Elements of Physiol.	6	5*	Ward and Surgical Dispensary	6
or				
Anat. 3, Elementary Anat.	4	5*	Eye, Ear, Nose, and Throat Surgery	9
and				
Electives	2	1	Gynecological and Orthopedic Surgery	9
	2			
Nurs. 55, Operating Room Technique	1	1	Administration	8
Nurs. 60, Ward Administration	4	4*	Elective	2
Elective	2	2*		
Total*		21*		

During 9 months the students have 30 hours of clinical experience per week. During approximately 3 months they have 48 hours weekly.

* Credits transferable to College of Education.

† Students may carry an additional elective when the schedule permits.

PEDIATRIC NURSING

Class Curriculum		Clinical Curriculum		
Subject	Hrs. Wkly. per Qtr.	Credits	Type of Service	Approx. Weeks in Service
Psychology 1-2	6	6*		
Nurs. 60, Ward Administration	4	4*	Medical Children, including Nutrition Work and Out-Patient Department	8
Nurs. 72, Teaching and Supervision	5	5*	Infants, including Milk Laboratory and Newborn Infants	8
Nurs. 41, Principles of Pediatrics and Pediatric Nursing	3	3	Communicable Disease	4½
P.M.&P.H. 76, Field Practice in Family Health Agency.		4*†	Field Practice in Public Health Nursing or Elective	4½
P.M.&P.H. 50, Public and Personal Health	3	5*	Surgical Children, including Treatment Room	8
and			Orthopedics with Physiotherapy	4
Elective	2		Nursery School	4½
or			Administration	8
P.M.&P.H. 60, Tuberculosis and Its Control	2		Elective in hospital service	3
and			Number of hours of clinical experience weekly = 42.	
Elective	3		‡ Neither allowance nor maintenance provided by hospitals.	
Total*		24*		

* Credits transferable to College of Education.

† Omitted from required curriculum if student does not carry public health field practice.

OBSTETRICAL NURSING

Class Curriculum		Clinical Curriculum		
Subject	Hrs. Wkly. per Qtr.	Credits	Type of Service	Approx. Weeks in Service
Psychology 1-2	6	6*		
P.M.&P.H. 58, Maternal and Child Hygiene	2	2*	Obstetrics, including Normal and Abnormal Cases	8
Nurs. 43, Principles of Obstetrics and Obstetrical Nursing	2	2	Nursery	8
Nurs. 60, Ward Administration	4	4*	Delivery Room§	10
Nurs. 72, Teaching and Supervision	5	5*	Gynecological Wards and Clinics	4
Anesthesia (7 lectures)	3	3*	Gynecological Operating Room	4
Elective	3	3*	Premature Infants	2
			Prenatal Clinic, including home visiting	4
			Administration	8
			Elective	4
Total*		20*	Number of hours of clinical experience weekly = 42.	

* Credits transferable to College of Education.

§ Including experience in administration of ether.

‡ Neither allowance nor maintenance provided by hospitals.

COMMUNICABLE DISEASE NURSING—TWELVE MONTHS

Class Curriculum		Clinical Curriculum		
Subject	Hrs. Wkly. per Qtr.	Credits	Type of Service	Approx. Weeks in Service
Bact. 41, General Bacteriology	9			
P.M.&P.H. 53, Elements of Preventive Medicine	3	5*	Communicable Disease and Isolation including pediatric out-patient service and laboratory observation	26
or				
P.M.&P.H. 50, Public and Personal Health	3	3*	Venereal and dermatological service including Out-Patient Department	8
P.M.&P.H. 60, Tuberculosis and Its Control	2	2*		
Nurs. 72, Teaching and Supervision	5	5*	Tuberculosis	2‡
Nurs. 60, Ward Administration	2	2*	Field practice in Public Health Nursing or elective	4‡§
P.M.&P.H. 76, Field Practice in Family Health Agency† or elective		4*	Administration	8‡
Elective		2*	Elective in hospital service	3
			Number of clinical hours weekly	42
Total*		23*		

* Credits transferable to College of Education.

† Omitted from required curriculum if student does not carry public health field practice.

‡ At Glen Lake Sanatorium. Maintenance but not allowance provided.

§ Neither maintenance nor allowance provided.

SUMMER COURSES

Summer courses for graduate nurses are offered during the first term (six weeks) of the Summer Session in the School of Nursing in co-operation with the Department of Preventive Medicine and Public Health. Whenever possible guest instructors outstanding in their respective fields are added to the regular faculty for these courses. Courses offered cover such subjects as ward administration, teaching, supervision, administration in schools of nursing, and public health nursing in its various phases.

A special summer announcement describing these courses may be had upon request to the director.

DESCRIPTION OF COURSES

- Anat. 3f,s. Elementary Anatomy. Brief resumé of cytology and embryology. More detailed study of the gross anatomy and histology of the organ system by means of lectures, laboratory studies, and demonstrations. (3 cred.; 44 hrs.)
- Bact. 1f,s.‡ Elementary Bacteriology. Principles of bacteriology, general survey of pathogenic bacteria, molds, protozoa, and viruses. Elements of immunity. Sanitary analysis of water and milk. Germicides. Bacterial food poisoning. (4 cred.; 66 hrs.)
- Ed.T. 51Aw.‡‡ Special Methods of Teaching in Schools of Nursing. Principles underlying clinical and classroom teaching in schools of nursing. Planning and evaluating instruction. (3 credits.)
- Ed.T. 51Bs.‡‡ Practice Teaching in Schools of Nursing. Observation and study of principles of teaching applied in the nursing school situation. Supervised practice in teaching of nursing subjects. (5 credits.)
- Gen.Col. 2f,s. The Practical Applications of Psychology. The aim of this course is to present a picture of the ways in which the human being meets the problems of his environment and develops the many traits which are called personality. (6 cred.; 66 hrs.)
- Med. 15f. Diet Therapy. This course deals with the diseases which demand dietary treatment and with the scientific principles underlying diet therapy. (1 cred.; 11 hrs.)
- Med. 16w. Dermatology. This course reviews the anatomy and physiology of the skin and stresses the etiology, symptomatology, and management of syphilis and of the more common and important skin disorders. Lantern slides, demonstrations, and clinics are included in the course. (1 cred.; 11 hrs.)
- Med. 17w. Nervous and Mental Diseases. Lectures on organic and functional mental diseases, methods of diagnosis, treatment, and nursing care. The mental defective. The relation of mental illness to the general public health and possibilities of prevention. The bearing of mental health upon physical disorders. (1 cred.; 11 hrs.)
- Nurs. 1f,s. History of Nursing. A brief historical survey of nursing from ancient times to the present day. (1 cred.; 11 hrs.)
- Nurs. 2w,su. Ethics. A course aiming to assist the student in the formation of a sound ethical basis for her practice of nursing. (1 cred.; 11 hrs.)
- Nurs. 10f,s. Introduction to Nutrition. A course dealing with food and its relation to the human body; the processes by which the body utilizes food; the study and classification of the various foods together with the caloric index. The normal diet and routine hospital diets are given with directions for modification under special circumstances. (1 cred.; 11 hrs.)

‡ Microscope required. Student (except medical) may obtain use of microscope by purchasing \$1.50 microscope card from bursar.

‡‡ A fee of \$1 per credit is charged for this course.

- Nurs. 11w,su. Foods and Nutrition. Laboratory and lecture course in practical dietetics, food preparation together with methods of cookery; definite instruction in carrying out the dietary prescription is given. (3 cred.; 55 hrs.)
- Nurs. 15w,su-16f,s. Nursing Arts. A course presenting the principles of fine nursing, demonstrating their application in the care of the patient, showing the relation between these principles and foundation sciences, developing through supervised practice a high degree of skill in caring for patients and judgment in observing symptoms and conditions. Nursing 15 includes lettering and hospital economy and covers a total of 96 hours. Nursing 16 includes bandaging and massage and covers a total of 44 hours. (10 cred.; 140 hrs.)
- Nurs. 18w,su-19f,s. Principles of Medical and Surgical Nursing. A course designed to give a knowledge of the causes, symptoms, treatment, and prevention of abnormal medical and surgical conditions including the nursing aspects and nursing care of patients with these conditions. Nursing 18 includes conditions of the body as a whole, of the skin, of the circulatory system, of the respiratory system and allergic conditions, 44 hours. Nursing 19 is devoted to a study of conditions of the gastrointestinal system, of the urinary system, and of the endocrine glands, 44 hours. Lectures, clinics, classes, and demonstrations. (8 cred.; 88 hrs.)
- Nurs. 18aw,su-19af,s. Principles of Medical Nursing. See description of courses, Nursing 18-19. For postgraduates. (4 cred.; 44 hrs.)
- Nurs. 23w,su. Massage. Demonstrations and class practice in the general manipulation of the body tissues and in those general movements which have the value of passive exercise for the sick or convalescent. For postgraduates. (1 cred.; 11 hrs.)
- Nurs. 25. Principles of Orthopedics and of Orthopedic Nursing. Lectures, classes, and clinics dealing with orthopedic conditions including fractures and amputations. Emphasis is laid upon the preventive, economic and social aspects of these conditions. Treatment (including physical therapy) and nursing care are stressed. (1 cred.; 11 hrs.)
- Nurs. 31w. Advanced Surgical Nursing. Lectures, classes, and demonstrations dealing with the more important surgical conditions, recent research, new literature, and treatments used in modern practice of general surgery. (2 cred.; 22 hrs.)
- Nurs. 35f,w,s,su. Principles of Communicable Disease Nursing. Lectures, classes, and demonstrations on the etiology, symptoms, treatment, and nursing care of communicable diseases with immunization and relation to public health. (1 cred.; 11 hrs.)
- Nurs. 36f,w,s,su. Principles of Tuberculosis and Tuberculosis Nursing. A course designed to give the distribution of tuberculosis, theories of invasion, pathology and bacteriology of tuberculosis, principles of treatment and care of tuberculous patients with emphasis on the preventive work in this field. Lectures, clinics, classes, and demonstration. (1 cred.; 11 hrs.)

- Nurs. 39f. Principles of Gynecology and Gynecological Nursing. This course consists of lectures on etiology, symptoms, treatment, and prevention of gynecological conditions. Psychological aspects of this branch of nursing are considered. Demonstrations, classes, and clinics form a part of the course.
- Nurs. 41f,s. Principles of Pediatrics and Pediatric Nursing. Lectures, classes, clinics, and demonstration on the development, mental and physical, of the normal child, on the diseases of infancy and childhood, on treatment, care, feeding, and guidance of the child. Movements for the promotion of child health. (3 cred.; 33 hrs.)
- Nurs. 43f,s. Principles of Obstetrics and Obstetrical Nursing. This course gives instruction in the physiology, pathology, and hygiene of pregnancy, labor, puerperium, and care of newborn infants. Emphasis is placed on the relation of this field to the public health. Lectures, classes, clinics, and demonstrations. (2 cred.; 22 hrs.)
- Nurs. 48w. Principles of Care in Eye, Ear, Nose, and Throat Conditions and of Oral Hygiene. This course consists of lectures, classes, clinics, and demonstrations. It deals with medical and nursing care, pathological conditions of the eye, ear, nose, and throat and of oral hygiene. (2 cred.; 22 hrs.)
- Nurs. 50-51f. Survey of Professional Field. A course dealing with present-day problems of nursing—legal, economic, civic, legislative. A survey of fields open for nurses and of related health movements. (2 cred.; 22 hrs.)
- Nurs. 55f,w,s,su. Operating Room Technique. A course dealing with the personnel of the operating room; the care and use of equipment; anti-septics and methods of sterilization; problems of co-ordination with other hospital departments; and management of operating room schedule. Taught by lectures, demonstration, discussion, and field types. For postgraduates. (1 cred.; 11 hrs.)
- Nurs. 60f,w,s,su. Ward Administration. Principles underlying effective ward management and administration. Lectures, classes, and field visits. (4 cred.; 44 hrs.)
- Nurs. 61s. Survey of Hospital Relationships. Study of hospital personnel, departments and interrelationships. (2 cred.; 22 hrs.)
- Nurs. 65w. Comparative Nursing Procedures. A study of comparative nursing procedures including individual projects. (2 cred.; 22 hrs.)
- Nurs. 69w. Survey of Conditions and Trends in Nursing. A study of conditions existing in nursing as revealed in literature and various reports. An attempt to define tendencies in nursing with a view to designating those which appear most favorable to social progress. (3 cred.; 33 hrs.)
- Nurs. 71s. Curriculum Making in Schools of Nursing. General principles of curriculum making; study of the functions of the graduate nurse in the community as determinants of the clinical and classroom curricula of the professional school. Integration of materials into curricula preparing nurses as community health agents. (3 cred.; 33 hrs.)
- Nurs. 72su. Teaching and Supervision in Schools of Nursing. Principles of teaching applicable in schools of nursing. Planning of class work.

- Use of case studies, ward clinics and demonstrations, and assignment of practice, as methods of clinical teaching. Methods of evaluating students' work. Principles of supervision and their application for the improvement of nursing practice. (5 cred.)
- Path. 3w. Principles of Pathology. This introductory course to medical science presents pathological aspects of various diseases showing relationship between pathological changes and the clinical course of disease, presenting principles which are fundamental in preventive work. Laboratory tests. Roentgenology. (2 cred.; 22 hrs.)
- Pharm. 6f,s.* Metrology. Systems of weights and measures; equivalents; preparation of percentage solutions; dosage; together with appropriate laboratory exercises and problems. (1 cred.; 11 hrs.)
- Pharm. 7w,su.* Metrology Laboratory. Metrology laboratory exercises and problems. ($\frac{1}{2}$ cred.; 11 hrs.)
- Pharm. 8w,su. Elementary Pharmacology. A study of the history, uses, classification, and preparation of drugs; definition of descriptive terms; systems of weights and measures; methods of administration; principles of dosage, etc., together with appropriate laboratory exercises. ($2\frac{1}{2}$ cred.; 33 hrs.)
- Physiol. 1f,s. Elements of Physiological Chemistry. (a) A brief study of physical and chemical laws; of the composition of matter, chemical compounds, chemical and energy changes; of the ionic theory; of gases and solutions. (b) The physiological chemistry of gases, water, salts, carbohydrates, fats, and proteins; of the nutritive media, of digestive fluids and digestion, of metabolism, of excretion and excretory products. (3 cred.; 44 hrs.)
- Physiol. 2f,s. Elements of Physiology. Functional properties of tissue cells; the material bases of the body; the nutritive media; the physiology of nerve and muscle, of the nervous system; the vascular mechanism; respiration, digestion, excretion, and metabolism. (5 cred.; 66 hrs.)
- P.M.&P.H. 3f,w,s. Personal Health. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred.; 22 hrs.)

CLINICAL EXPERIENCE†

COMMUNICABLE DISEASE NURSING

Experience in nursing care of communicable diseases. Preventive and public health aspects are emphasized. $1\frac{1}{2}$ months.

GYNECOLOGICAL NURSING

Nursing care of gynecological patients. Examinations, pre- and post-operative care, including surgical dressing room technique. 1 month.

* To receive credit for either Pharm. 6 or 7 School of Nursing students must complete both courses.

† A slight variation of clinical experience is allowed for illness, absence, and vacation adjustments.

MEDICAL NURSING

Clinical experience in the application of principles of medical nursing to the care of medical patients. The care of patients with neurological disorders is included in this period. 4 to 6 months.

OBSTETRICAL NURSING

Clinical experience in the care of obstetrical patients, both mothers and newborn infants, including the instruction of mothers. Practice in assisting at both normal and abnormal deliveries. 3 months.

OPERATING ROOM

The students learn and apply in practice the principles of sterile technique and the care of operating room equipment and supplies. They give assistance at a number of operations of varied types including general surgical, orthopedic, ear, eye, nose, and throat, gynecological and urological, as well as assistance with cystoscopic treatments. 2 to 3 months.

OUT-PATIENT DEPARTMENT

Experience in the management of clinics, assisting with examination and treatment of patients. A study of the dispensary as a community health center. 1 month.

PEDIATRIC NURSING

Observation of the normal child, preparation of formulae, clinical experience in the care of convalescent and sick infants and children. 3 months.

PRIVATE PATIENT NURSING

A period of clinical experience in the nursing care of private patients, usually in the medical and surgical services. 2 to 3 months.

PUBLIC HEALTH NURSING

Supervised field experience with community public health nursing agencies. 1½ months.

SPECIAL DIET KITCHEN

Supervised practice in preparing, planning, and calculating therapeutic diets. Two classes a week are held, covering diet therapy for the patient under treatment at the time. 1 month. Students also have ½ month of pediatric diet preparation while in the Pediatric Department.

SURGICAL NURSING

Application of principles of surgical nursing to the care of surgical patients including those affected by urological, orthopedic, and ear, eye, nose, and throat conditions. 4 to 6 months.

TUBERCULOSIS NURSING

Clinical experience in nursing care of all types of tuberculosis. Preventive and educational aspects are emphasized. 1½ months.

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The Bulletin *of the University of* **Minnesota**

The College of Education
Announcement of Program of Late
Afternoon and Saturday
Morning Classes
1936-1937



Vol. XXXIX *No. 47* *September 19 1936*

Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota

Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918

UNIVERSITY CALENDAR

1936-37

Fall Quarter

1936			
September	21-25		Examinations for removal of conditions
September	23-26		Freshman Week
September	24-25		Registration, College of Education
September	24-25	}	Registration days for teachers in service*
Sept.	28-Oct. 3		
September	28	Monday	Fall quarter classes begin
November	7	Saturday	Homecoming Day
November	14	Saturday	Dad's Day
November	26	Thursday	Thanksgiving Day; a holiday
December	14-19		Final examination period
December	17	Thursday	Commencement Convocation
December	19	Saturday	Fall quarter ends, 6:00 p.m.

Winter Quarter

1937			
January	2, 4		Registration, College of Education
January	2, 4	}	Registration days for teachers in service*
January	5-9		
January	5	Tuesday	Winter quarter classes begin
February	12	Friday	Lincoln's Birthday; a holiday
February	22	Monday	Washington's Birthday; a holiday
March	15-20		Final examination period
March	18	Thursday	Commencement Convocation
March	20	Saturday	Winter quarter ends, 6:00 p.m.

Spring Quarter

March	27, 29		Registration, College of Education
March	27, 29	}	Registration days for teachers in service*
Mar.	30-April 3		
March	30	Tuesday	Spring quarter classes begin
May	8	Saturday	Mother's Day
May	13	Thursday	Cap and Gown Day Convocation
May	31	Monday	(Sunday, May 30, Memorial Day) a holiday
June	4-5 & 7-11		Final examination period
June	12	Saturday	Spring quarter ends 6:00 p.m.
June	13	Sunday	Baccalaureate service
June	14	Monday	Sixty-fifth annual commencement

Students carrying less than the complete schedule of work may pay fees on a credit hour basis; \$1.75 per credit hour for resident students and \$2.50 per credit hour for nonresident students.

* Teachers in service will be allowed to register in the College of Education during the first week of classes without penalty. After that period a late fee of \$2 will be charged.

DIRECTORY OF ADMINISTRATIVE OFFICERS

	Room
M. E. Haggerty, Dean of the College of Education	204Bu
A. C. Eurich, Assistant Dean of the College of Education	204Bu
H. J. Smith, Chairman, Students' Work Committee	222Bu
C. W. Boardman, Director of Student Teaching	103Ed

MAJOR ADVISERS

1936-37

Subject	Name of Instructor	Room
Administration and Supervision	L. J. Brueckner	220Bu
	Fred Engelhardt	224Bu
	H. R. Douglass	218Bu
Agricultural Education	A. M. Field	207Ad(F)
Art Education	Ruth Raymond	200J
	R. S. Hilpert	201J
Commercial Education	Agnes Kean	102Ed
Directed Teaching	C. W. Boardman	103Ed
Educational and Vocational Guidance	M. E. Haggerty	204Bu
	Marcia Edwards	206Bu
Educational Psychology	W. S. Miller	113Psy
	A. C. Eurich	204Bu
Elementary Education	L. J. Brueckner	220Bu
	W. E. Peik	216Bu
History and Philosophy of Education	Jean H. Alexander	206Bu
	E. B. Wesley	226Bu
Home Economics Education	W. B. McNeal	215HE(F)
	Clara M. Brown	101HE(F)
Industrial Education	Homer J. Smith	222Bu
Library Training	Frank K. Walter	107Lib
Nursery School and Kindergarten Edu- cation	John E. Anderson	205aPt
	Josephine C. Foster	100CWI
Nursing Education	Katharine J. Densford	123MeS
Physical Education for Men	L. F. Keller	207Ath
Physical Education for Women	M. S. Kissock	102WGm
Professional Education of Teachers	W. E. Peik	216Bu
Public School Music	Alton O'Steen	213Mu
School Health Work	H. S. Diehl	127MeS
Theory and Practice of Teaching	Dora V. Smith	206Bu
Anthropology	W. D. Wallis	106WeH
Astronomy	W. J. Luyten	123F
Botany	C. O. Rosendahl	302Bo
Chemistry	Shailer Peterson	15Ed
Economics	E. A. Heilman	300B
English	Dora V. Smith	206Bu
	C. W. Nichols	319F
Geography	D. H. Davis	101Bu
German	S. Kroesch	208F

Subject	Name of Instructor	Room
History	E. S. Osgood	109Bu
	E. B. Wesley	212Bu
Latin	R. Cram	118F
Mathematics	A. L. Underhill	100F
Natural Science	H. A. Erikson	147Phys
	Shailer Peterson	15Ed
Physics	H. A. Erikson	147Phys
Political Science	O. P. Field	213Bu
Preventive Medicine and Public Health	H. S. Diehl	127MeS
Psychology	R. M. Elliott	112Psy
Public Health Nursing	Eula Butzerin	121MH
Romance Languages	F. B. Barton	228F
Scandinavian	A. A. Stomberg	13F
Social Studies	E. B. Wesley	212Bu
	E. S. Osgood	109Bu
Sociology and Social Work	F. S. Chapin	108J
Speech	R. M. Rarig	309F
Visiting Teachers	E. B. Wesley	226Bu
Zoology	J. E. Wodsedalek	9Z

The following program of late afternoon and Saturday classes is arranged by the College of Education for teachers in service. Many of the offerings are required subjects in the regular course of training for high school teachers or in the specialized curricula. Students expecting to qualify for a degree should secure a copy of the College of Education Bulletin Announcement of Courses, which contains a statement of general requirements for graduation, of required courses in majors and minors and the specialized curricula. Students should consult a major adviser as early in their course as possible. Failure to do so often delays graduation and makes extra work necessary.

The small letter f after a course number indicates that that course is taught in the fall quarter; w indicates winter quarter; s indicates spring quarter.

Bulletin changes and room schedules will be posted each quarter on the official bulletin board outside the door of Room 208 Burton Hall.

QUALIFYING EXAMINATION SCHEDULE

FALL QUARTER:

September	30	Wednesday	Major 1B	4:30-6:30 p.m.
October	1	Thursday	Major 1A	4:30-6:30 p.m.
October	2	Friday	English	4:30-6:30 p.m.
October	3	Saturday	Education	1:30-3:30 p.m.
December	2	Wednesday	Major 1B	4:30-6:30 p.m.
December	3	Thursday	Major 1A	4:30-6:30 p.m.
December	4	Friday	English	4:30-6:30 p.m.
December	5	Saturday	Education	1:30-3:30 p.m.

WINTER QUARTER:

March	3	Wednesday	Major 1B	4:30-6:30 p.m.
March	4	Thursday	Major 1A	4:30-6:30 p.m.
March	5	Friday	English	4:30-6:30 p.m.
March	6	Saturday	Education	1:30-3:30 p.m.

SPRING QUARTER:

May	13	Thursday	English	4:30-6:30 p.m.
May	14	Friday	Major 1B	4:30-6:30 p.m.
May	15	Saturday	Major 1A	1:30-3:30 p.m.
May	28	Friday	Education	4:30-6:30 p.m.

PROGRAM

1936-37

GENERAL COURSES

No.	Title	Hour	Day	Bldg.	Instructor
Ed.133f	Guidance in Secondary Schools (2 cred.; sr., grad.; prereq. 9 hrs. in education)	III-IV	S	PtAud	Miss Edwards
Ed.135w	Teaching of Occupations (2 cred.; sr., grad.; prereq. 9 hrs. in education)	III-IV	S	PtAud	Ar
Ed.200f,w,s	Colloquium in Education (Cred. ar.)	Ar	Ar		Ar
Ed.208w	Methods in Educational Research (2 cred.; grad.)	IX-X	M	114Ed	Mr. Johnson
Ed.227s	Current Readjustments in High- er Education (3 cred.; grad.)	VIII	MWF	Ar	Mr. Eurich

ADMINISTRATION AND SUPERVISION

Major advisers in the College of Education.—Professors Brueckner, Douglass, Engelhardt, and Peik.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.113w	High School Curriculum (2 cred.; sr., grad.; prereq. 10 hrs. in education including Ed. 51)	IX-X	T	210Bu	Mr. Peik
Ed.Ad.115w	Organization of the Elementary School (2 cred.; jr., sr., grad.; prereq. 10 hrs. in education)	I-II	S	111Ed	Mr. Engelhardt
Ed.Ad.124f	Public School Administration (3 cred.; sr.; grad.; prereq., 10 hrs. in education)	IX	MWF	210Bu	Mr. Engelhardt
Ed.Ad.125w	Techniques in Administration (3 cred.; sr., grad.; prereq. Ed. 124)	IX	MWF	210Bu	Mr. Engelhardt
Ed.Ad.128w,s	Special Problems in Educational Administration (1 or 2 cred.; prereq. Ed. 124, 125)	III-IV	S	224Bu	Mr. Engelhardt
Ed.Ad.154s	Supervision and Teaching of the Social Studies (2 cred.; sr., grad.; prereq. Ed. 63 or equiv.)	III-IV	S	205aEd	Mr. Wesley
Ed.Ad.157f,w,s‡	Practice in Supervision (3 cred. a quarter; sr., grad.; prereq. consent of instructor)	Ar	Ar	Ar	Mr. Brueckner (w,s) Mr. Cooper (f) Mr. Soderquist (f)
Ed.Ad.159w	The Supervision and Teaching of Reading (2 cred.; sr., grad.; prereq. 15 hrs. in education)	I-II	S	PtAud	Mr. Peik

‡ A fee of \$1 per credit is charged for this course.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.161w,s	Special Problems in School Supervision (2 cred.; sr., grad.; prereq. 10 hrs. in education including Ed. 51)	I-II	S	204bEd	Mr. Brueckner
Ed.Ad.164s	Recent Research in Educational Diagnosis (2 cred.; sr., grad.; prereq. 151 or equiv.)	IX-X	T	204bEd	Mr. Brueckner
Ed.Ad.167f	Junior High School (2 cred.; sr., grad.; prereq. 10 hrs. in education including Ed. 51)	I-II	S	Ar	Mr. Douglass
Ed.Ad.172s	Curriculum and Course of Study Construction (2 cred.; sr., grad.; prereq. 15 hrs. in education)	IX-X	T	112Bu	Mr. Peik
Ed.Ad.173s	Recent Research and Literature in Reading (2 cred.; sr., grad.; prereq. previous training in reading such as Ed.Ad. 159 or equiv.)	III-IV	S	Ar	Mr. Peik
Ed.Ad.175s	Financial Aspects of Public School Business Administration (3 cred.; sr., grad.; prereq. Ed. 124, 125)	I-II 1 hr. ar.	S	224Bu	Mr. Engelhardt
Ed.Ad.178f	School Surveys (3 cred.; sr., grad.)	I-II 1 hr. ar.	S	224Bu	Mr. Engelhardt
Ed.Ad.180f,w,s‡	Practice in High School Administration (6 cred.; sr., grad.; prereq. 10 hrs. in education including Ed.Ad.65)	Ar	Ar	Ar	Mr. Boardman
Ed.Ad.184f	Supervision of Student Teaching (2 cred.; sr., grad.)	III-IV	S	111Ed	Mr. Boardman
Ed.Ad.186w,s	Special Problems in Teacher Training (2 cred. a qtr.; sr., grad.; prereq. 15 cred. in education including Ed.Ad. 185 or permission of instructor)	Ar	Ar	Ar	Mr. Peik
Ed.Ad.187s	Instruction and Administration in Teacher Training Institutions (2 cred.; sr., grad.; prereq. 15 cred. in education)	I-II	S	205bEd	Mr. Peik
Ed.Ad.205f-206w-207s	Seminar in Educational Administration	IX-X	Th	224Bu	Mr. Engelhardt
Ed.Ad.218f-219w-220s	Seminar in Secondary School Problems	IX-X	Th	204Ed	Mr. Boardman, Mr. Douglass
Ed.Ad.223f	Special Problems in Supervision of Secondary Schools (2 cred. a qtr.; grad.)	Ar	Ar	Ar	Mr. Boardman
Ed.Ad.225f-226w-227s	Seminar in Elementary School Problems	IX-X	Th	209Bu	Mr. Brueckner, Mr. Peik
Ed.Ad.264f-265s*	High School Administration (2 cred. a qtr.; grad.)	IX-X	W	111Bu	Mr. Douglass

* Students may register for either quarter.

‡ A fee of \$1 per credit is charged for this course.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Ad.270f,w,s	Special Problems in Secondary Education (2 cred.)	Ar	Ar	Ar	Mr. Boardman, Mr. Douglas

ART EDUCATION

Major advisers in the College of Education.—Professor Raymond; Assistant Professor Hilpert.

No.	Title	Hour	Day	Bldg.	Instructor
Art Ed.29,30f,w,s	Experiences with Human Bodies in Motion (2 cred.; no prereq.)	III-IV	S	203aJ	Miss Raymond
Art Ed.66,67,68-f,w,s	Painting and Sculpture (Continuation of 61,62,63) Sec. 1.....	I-IV	S and Ar	Ar	Mr. Harmes

EDUCATIONAL PSYCHOLOGY

Major advisers in the College of Education.—Dean Haggerty; Professors Eurich, Miller.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.56Tf-57Tw	Educational Psychology for Elementary School Teachers (4 cred.; jr., sr.; prereq. 6 cred. in psychology)	I-II	S	205bEd	Mr. VanWagenen
Ed.Psy.60f	Introduction to Statistical Methods (2 cred.)	I-II	S	PtAud	Mr. Patterson
Ed.Psy.113f-114w-115s	Psychology of Elementary School Subjects (2 cred. per qtr.; jr., sr., grad.; prereq. 10 cred. in psychology and education)	IX-X	W	109Psy	Mr. VanWagenen
Ed.Psy.116w-117s	Statistical Methods in Education (4 cred.; sr., grad.)	IX-X	T	115Psy	Mr. VanWagenen
Ed.Psy.120w	Basic Principles of Measurement (2 cred.; sr., grad.; prereq. Ed.51A or equiv.)	III-IV	S	Ar	Ar
Ed.Psy.135w-136s	Problems in Mental Testing (4 cred.; sr., grad.; prereq. Ed.51A and 60 or equiv. and Ed.Psy. 134)	VIII-IX	MW	212Bu	Mr. Eurich
Ed.Psy.138f-139w†	Experimental Educational Psychology (4 cred.; sr., grad.; prereq. Ed.51A or equiv. and Ed.Psy.-134)	IX-X	WF	115Psy	Ar
Ed.Psy.141w	Construction and Use of Group Aptitude Tests (3 cred.; sr., grad.; prereq. 120 or equiv.)	IX-X	T	Ar	Ar
Ed.Psy.142s	Construction and Use of Individual Aptitude Tests (3 cred.; sr., grad.; prereq. 120 or equiv.)	IX-X	T	Ar	Ar

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.Psy.145s	Special Problems in the Field of Individual Mental Testing (2 cred.; sr., grad.; prereq. Ed. Psy. 143-144)	Ar	Ar	357Psy	Mr. Sorenson
Ed.Psy.146w-147s†	Child Guidance..... (4 cred.; jr., sr., grad.; prereq. 15 cred. in psychology and education)	I-II	S	100Pt	Mr. Challman
Ed.Psy.149f-150w†-151s	Psycho-Educational Clinic (2 to 6 cred.; sr., grad.; permission of instructor; prereq. Ed. Psy. 120, 140 and 141 or 142)	Ar	Ar	Ar	Mr. Sorenson
Ed.Psy.153f-154w-155s	Research Problems (Ar.; sr., grad.; prereq. consult instructor)	Ar	Ar	Ar	Mr. Haggerty, Mr. Eurich, Mr. McConnell, Mr. Miller, Mr. Van Wagenen
Ed.Psy.181f,w,s	Practice in Personnel Work..... (2 cred.; sr., grad.; prereq. satisfactory preparation in psychology and education and approval of adviser)	Ar	Ar	Ar	Mr. Haggerty, Miss Edwards
Ed.Psy.184s	Mental Deficiency (2 cred.; jr., sr., grad.; prereq. Ed. 51 or equiv.)	III-IV	S	109Psy	Ar
Ed.Psy.240f,w,s	Problems in Measurement..... (2 cred. a qtr.; grad.)	Ar	Ar	Ar	Mr. Eurich

HISTORY AND PHILOSOPHY OF EDUCATION

Major advisers in the College of Education.—Professor Krey; Associate Professor Wesley; Instructor Jean H. Alexander.

No.	Title	Hour	Day	Bldg.	Instructor
H.Ed.140f-141w-142s	Problems in the History of Education (2 cred. a quarter; sr., grad.; prereq. permission of instructor)	Ar	Ar	Ar	Mr. Krey, Mr. Wesley

HOME ECONOMICS EDUCATION

For courses in Home Economics Education available to teachers in service consult one of the major advisers, Wylie B. McNeal, Clara M. Brown, or Ella J. Rose.

INDUSTRIAL EDUCATION

Major adviser in the College of Education.—Professor Homer J. Smith.

No.	Title	Hour	Day	Bldg.	Instructor
Ind.11f,w,s*‡	Special-Class Woodwork (2 cred.; no prereq.†) (Limited to 24)	I-IV	S	6Pt	

* Not a part of the four-year curriculum.

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per credit hour is charged for this course.

§ Not open to those who have credit in bench woodwork or cabinet making; for teachers of art, subnormal, and primary grade work.

No.	Title	Hour	Day	Bldg.	Instructor
Ind.40f	Analysis (2 cred.; no prereq.)	IX-X	Th	112Bu	Mr. Fryklund
Ind.44s	Equipment and Management (2 cred.; prereq. Ind. 40,42)	IX-X	Th	112Bu	Mr. Fryklund
Ind.50Af-50Bw- 50Cs‡§	Practice Teaching (6 cred.; sr.; prereq. Ind. 70, 75, 80) (Formerly Course 50-51- 52)	Ar	Ar	6Pt	Mr. Fryklund
Ind.60f	Philosophy of Vocational Educa- tion (2 cred.; no prereq.)	IX-X	M	112Bu	Mr. Smith
Ind.61w	Practices in Vocational Educa- tion (2 cred.; prereq. Ind. 60)	IX-X	M	112Bu	Mr. Smith
Ind.66s‡	Related Subjects (2 cred.; prereq. Ind. 40, 42)	IX-X	M	112Bu	Mr. Smith
Ind.75w‡§	Methods in Drawing (2 cred.; prereq. 10 credits in drawing or consent of instruc- tor)	IX-X	Th	112Bu	Mr. Fryklund
Ind.101f	Tests in Industrial Subjects (2 cred.; prereq. Ed. 51 or Ed.Psy.'55)	III-IV	S	114Ed	Mr. Fryklund
Ind.103w	Instructional Aids (2 cred.; sr., grad.; prereq. 40, 42)	III-IV	S Ar		Mr. Fryklund
Ind.105w*	Industrial Education (3 cred.; jr., sr., grad.)	IV	MWF	112Bu	Mr. Smith
Ind.110f	Guidance in the Schools (2 cred.; jr., sr., grad.; prereq. Ed. 51; see Ed. 133)	IX-X	W	112Bu	Mr. Smith
Ind.115s	Supervision of Industrial Prob- lems (2 cred.; sr., grad.; prereq. Ind. 60, 80, Ed.Ad. 124)	III-IV	S Ar		Mr. Fryklund
Ind.150f,151w, 152s*	Problems in Vocational Educa- tion (6 cred.; grad. only. Plan for full year)	I-II	S	114Ed	Mr. Smith
Ind.170f	Day Industrial Schools (2 cred.; jr., sr., grad.; prereq. Ind. 60, 61)	IX-X	T	112Bu	Mr. Craigo
Ind.171w	Evening Industrial Schools (2 cred.; jr., sr., grad.; prereq. Ind. 170)	IX-X	T	112Bu	Mr. Bass
Ind.172s	Part-time Education (2 cred.; jr., sr., grad.; prereq. Ind. 170, 171)	IX-X	W	112Bu	Mr. Smith

Shop and drawing courses are to be arranged by Mr. Smith. Such courses are available in wide variety in the Institute of Technology, University campus, and the Division of Agricultural Engineering, Farm campus. Students may elect to pursue courses, day or evening, at the William Hood Dunwoody Industrial Institute without fees other than those paid to the University, except a deposit of \$1. All shop and drawing courses should be taken under special advice and may be either extensive or intensive in resultant preparation for teaching. Degree candidates, especially those transferring from other institutions, should bear in mind the maximum of forty-five quarter credits, of shop-work and drawing combined, which is enforced in this department.

* Not a part of the four-year curriculum.

‡ A fee of \$1 per credit hour is charged for this course.

§ Passing the Qualifying Examination is prerequisite to registration in this course.

PUBLIC SCHOOL MUSIC

Major advisers in the College of Education.—Professor Scott; Assistant Professor O'Steen.

No.	Title	Hour	Day	Bldg.	Instructor
Mu.Ed.60f-61w-62s†‡§	Supervision and Teaching (9 cred.; sr.; prereq. Ed. 51-52-53)	III-IV	S	4Mu	Mr. O'Steen

THEORY AND PRACTICE OF TEACHING

Major Advisers in the College of Education.—Professors Boardman and Brueckner; Associate Professor Dora V. Smith.

Statement of fees.—For all courses in special methods, practice teaching, and special methods and practice teaching combined, a fee of \$1 per credit is charged. Passing the Qualifying Examination is prerequisite to all special methods and student teaching courses.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.T.52f,w,s†§	Practice Teaching (5 cred.; sr.; prereq. Special Methods Course) (Formerly Course 16)	Ar	Ar	Ar	Mr. Boardman
Ed.T.53s†§	Practice Teaching of Subnormal Children (5 cred.; sr.) (Formerly Course 17)	Ar	Ar	Ar	Mr. Boardman
Ed.T.63f	Children's Literature (2 cred.; jr., sr.) (Formerly Course 44)	I-II	S	PTAud	Miss Smith
Ed.T.68Af-68Bw-68Cs†‡§	Teachers' Methods Course and Practice Teaching in Secondary School Science (9 cred.; sr.; prereq. consent of instructor) (Formerly Course 62-63-64)	IX	MW	6aPt	Mr. Peterson
Ed.T.68Amf-68Bmw†‡§	The Teaching of Secondary School Science (4 cred.; sr.; prereq. consent of instructor) (Formerly Course 62a-63a)	IX	MW	6aPt	Mr. Peterson
Ed.T.70Af-70Bw-70Cs†‡§	Teachers' Course and Practice Teaching in German (9 cred.; sr.; prereq. German Comp. 50-51-52, German Conversation 53-54-55 (Formerly Course 70-71-72)	IX	TTh	114Ed	Miss Will
Ed.T.71Af-71Bw-71Cs†‡§	Teachers' Course and Practice Teaching in Latin (9 cred.; jr., sr.; prereq. any two of Latin courses 51-53 or equiv., 73 (Formerly Course 73-74-75)	IX	MW	112Ed	Miss Marlowe

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per credit hour is charged for this course.

§ Passing the Qualifying Examination is prerequisite to registration in this course.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.T.72Af-72Bw- 72Cs†‡§	Teachers' Course and Practice Teaching in the Romance Lan- guages	IX	TTh	111Ed	Miss Walker
	(9 cred.; jr., sr.; prereq. French 49, 50-51-52, 53-54-55 (or 20), 63) (Formerly Course 76-77-78)				

COURSES OPEN TO GRADUATE STUDENTS

No.	Title	Hour	Day	Bldg.	Instructor
Ed.T.122s	Literature for Adolescents..... (2 cred.; jr., sr., grad.; prereq., Ed. 53 or junior-senior high school teaching experience)	I-II	S	UHSLib	Miss Smith
Ed.T.148w	The Teaching of Primary Arith- metic	I-II	S	204bEd	Mr. Brueckner
	(2 cred.; sr., grad.; prereq. Ed. 61-62-63 or equiv.) (Not open to students who have had Ed.T. 54B)				
Ed.T.149s	The Teaching of Intermediate Grade Arithmetic	I-II	S	204bEd	Mr. Brueckner
	(2 cred.; sr., grad.; prereq. Ed. 61-62-63 or equiv.) (Not open to students who have had Ed.T. 54B)				
Ed.T.168f	Current Developments in the So- cial Studies	III-IV	S	205aEd	Mr. Wesley
	(2 cred.; grad. only)				
Ed.T.188s†	Advanced Course in Methods of Teaching Modern Languages.....	Ar	Ar	Ar	Miss Walker
	(2 cred.; sr., grad.; prereq. Ed.T. 72A,B,C or experience in teaching the modern lan- guages)				
Ed.T.191s†	Advanced Course in the Teach- ing and Supervision of Second- ary School Mathematics	I-II	S	115Ed	Mr. Kinney
	(2 cred.; prereq. Ed. 51C or per- mission of instructor)				
Ed.T.193s	Foundations of Secondary School Methods	IX-X and 1 hr. ar	T	202Ed	Mr. Johnson
	(3 cred.; sr., grad.; prereq. Ed. 51C)				
Ed.T.194f†	Advanced Course in Methods of Teaching English	III-IV	S	204bEd	Miss Smith
	(2 cred.; sr., grad.; prereq. Ed.T. 66A,B,C or equivalent)				
Ed.T.196w- 197s†	Special Problems in Techniques of Secondary School Instruc- tion	III-IV	S	206Bu	Miss Smith, Mr. Johnson, Mr. Kinney
	(2 cred. a quarter; sr., grad.; prereq. Ed. 51C)				

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per credit hour is charged for this course.

§ Passing the Qualifying Examination is prerequisite to registration in this course.

No.	Title	Hour	Day	Bldg.	Instructor
Ed.T.201f-202w- 203s†‡	Advanced Course in Methods of Teaching History and Social Studies (2 cred. a quarter; grad. and teachers; prereq. consent of in- structor)	Ar	Ar	Ar	Mr. Krey, Mr. Wesley
Ed.T.222f-223w- 224s	Seminar in the Technique of High School Instruction (No cred.; grad.; prereq. Ed. 51C and Ed.Ad. 113)	IX-X	Th	204bEd	Miss Smith, Mr. Wesley, Mr. Johnson

† To receive credit for any part of this course a student must complete the parts preceding the dagger.

‡ A fee of \$1 per credit hour is charged for this course.

The Bulletin
of the University of
Minnesota

Military Science and Tactics
Announcement for the Year
1936-1937



Vol. XXXIX No. 48 September 24 1936

Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota

Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918

FACULTY

- Lotus D. Coffman, Ph.D., LL.D., President
Adam E. Potts, Lieutenant Colonel, Coast Artillery Corps, Professor of Military Science and Tactics
Coburn L. Berry, Major, Coast Artillery Corps, Assistant Professor of Military Science and Tactics
Edwin L. Brackney, Major, Medical Corps, Assistant Professor of Military Science and Tactics
Thomas H. Maddocks, Captain, Signal Corps, Assistant Professor of Military Science and Tactics
Layton A. Zimmer, Captain, Coast Artillery Corps, Assistant Professor of Military Science and Tactics
John E. Seay, Technical Sergeant, Coast Artillery Corps, Instructor in Military Science and Tactics
Roy Cunningham, Staff Sergeant, Coast Artillery Corps and Signal Corps, Instructor in Military Science and Tactics
Ernest R. Mylke, Staff Sergeant, Coast Artillery Corps, Instructor in Military Science and Tactics
Kenneth Cruse, Sergeant, Coast Artillery Corps and Signal Corps, Instructor in Military Science and Tactics

GENERAL INFORMATION

The Department of Military Science and Tactics is a federally subsidized and supervised part of the Reserve Officers' Training Corps. Satisfactory completion of the four-year course qualifies for a reserve commission in the Army of the United States.

Courses in all units are elective.

Three units will be maintained:

- Coast Artillery Corps (Anti-Aircraft)
- Signal Corps
- Medical Corps

BASIC COURSE

The Basic Course consists of the first two years of instruction and is a prerequisite to the Advanced Course.

The University allows one credit per quarter for the Basic Course: total, six credits. These credits may be applied as elective credits in qualifying for a degree.

ADVANCED COURSE

Advanced Course students are required to sign an agreement with the government to continue the two-year course to completion. This includes attendance for six weeks at a training camp, held normally during the

summer following the first year's advanced work. The camp is conducted free of cost to the student, and in addition, while actually at camp, the student receives pay. Students pursuing the Advanced Course receive a fixed allowance per day and are also furnished the regulation uniform of an Army officer, which they may retain after graduation. The total government compensation received by an Advanced Course student during his two years of training amounts to approximately two hundred dollars.

The University allows three credits per quarter for the Advanced Course: total, eighteen credits. These credits may be applied towards graduation.

EQUIPMENT

All instructional equipment is furnished gratis, including the basic uniform. Textbooks, furnished at a nominal cost, represent the only expense involved.

HOURS OF INSTRUCTION

The Basic Course consists of three hours of instruction per week; the Advanced Course, five hours per week. The Combined Class Schedule contains the hours scheduled for the Reserve Officers' Training Corps course. Other hours, for groups of ten or more, may be arranged at the Department of Military Science and Tactics in the Armory.

DESCRIPTION OF COURSES

COAST ARTILLERY CORPS

Open to *all* physically fit male students enrolled in *any* college of the University.

Prerequisites.—Higher algebra, geometry, and plane trigonometry. Students who do not possess these prerequisites at the time of registration may be accepted if they agree to complete these subjects sometime during their freshman year.

Objective.—To train qualified battery officers for the direction of anti-aircraft fire.

SUBJECTS

First Year Basic Course.—Leadership, artillery subjects, army organization, military history and policy, national defense, obligations of citizenship, military courtesy and discipline, military sanitation and first aid, international situation.

Second Year Basic Course.—Leadership, fire control and position finding, identification of aircraft, naval targets, signal communications, defense against chemical warfare, sketching.

First Year Advanced Course.—Map and aerial photograph reading, leadership, position finding, analysis of drill, conduct of fire, gunnery for anti-aircraft artillery, combat orders.

Second Year Advanced Course.—Military law, military history, administration and supply, leadership, field engineering, motor transportation, artillery materiel, artillery tactics, orientation.

SIGNAL CORPS

Open to physically fit male students enrolled in the Department of Electrical Engineering.

Objective.—To train qualified communications officers.

SUBJECTS

First Year Basic Course.—Leadership, map reading, Army organization, military history and policy, national defense, obligations of citizenship, military courtesy and discipline, military sanitation and first aid, international situation.

Second Year Basic Course.—Aerial photograph reading, leadership, radio communication, wire communication.

First Year Advanced Course.—Company administration and supply, mechanization, leadership, training management, wire communication, signal communication, message centers, radio communication, combat orders and solution of problems, organization of infantry division, signal company and troop combat orders, tactical signal communications for infantry and cavalry divisions.

Second Year Advanced Course.—Military law, organization of infantry division, training management, O.R.C. regulations, mobilization, military history and policy, leadership, communication engineering, signal corps staff duties, tactical signal communications for infantry and cavalry divisions, defense against chemical warfare.

MEDICAL CORPS

Open to physically fit male students enrolled in the Medical School.

Objective.—To train qualified officers of the Medical Reserve Corps.

SUBJECTS

First Year Basic Course.—Military fundamentals, leadership, map and aerial photograph reading, technical medical instruction.

Second Year Basic Course.—Combat training, military sanitation and first aid, technical medical instruction.

First Year Advanced Course.—Military preventive medicine, administration, supply and mess management, property, emergency procurement and funds, technical medical instruction.

Second Year Advanced Course.—Military law and the Officers' Reserve Corps, military hospitals, medical and surgical diseases peculiar to war, the medical service of large forces, defense against chemical warfare, technical medical instruction.

The Bulletin
of the University of
Minnesota

Course in Medical Technology
1936-1937



Vol. XXXIX *No. 50* *September 30 1936*

Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota

Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918

COURSE IN MEDICAL TECHNOLOGY

GENERAL INFORMATION

A four-year course in Medical Technology is offered by the College of Science, Literature, and the Arts and the Medical School. No short course is offered. The first two years are spent in the College of Science, Literature, and the Arts, the third year in the Medical School, and the fourth year in practical training in the University of Minnesota or affiliated hospital laboratories. Opportunities for practical training are limited to regularly enrolled students who have completed the first three years of the course in Medical Technology, as outlined in this bulletin. Radiological technique is included in the practical training year.

Entrance regulations.—Graduates of accredited high schools may enter at the beginning of any quarter but the following program is based on registration in the fall quarter only. Students entering in the winter or spring quarters will find it difficult to register for the regular program. Students desiring advanced standing should send an official transcript of their record to the registrar of the University of Minnesota for evaluation before registering. Nursing credits of college grade may be used for advanced standing. For matters relating to admission, consult the General Information Bulletin.

Credits and honor points.—At least 90 credits with an average of one honor point per credit must be earned in the first two years in the College of Science, Literature, and the Arts. For each five honor points in excess of one honor point per credit, the required number of credits (90) will be diminished by one.

Ninety credits and 90 honor points are required in the last two years in the Medical School. For each five honor points in excess of one honor point per credit, the required number of credits (90) will be diminished by one providing the required courses are completed.

Degrees.—Upon satisfactory completion of the prescribed course, the degree of bachelor of science in medical technology will be conferred by the Board of Regents. Students completing the prescribed course with an average of two honor points for each credit may receive the degree of bachelor of science in medical technology *cum laude* upon recommendation of the Committee on Honors.

Qualifications.—As a general rule, a student who is able to do things with her hands, likes routine work, and excels in scientific subjects will make a good medical technologist. Men are not advised to take the course because of limited opportunities for employment at the present time. The regular course in Medicine, followed by graduate study, is advised for men or women who wish to become pathologists. Students desiring to specialize in anatomy, bacteriology, chemistry, hematology, or parasitology are advised to register in the Graduate School after completion of the course in Medical Technology (see Bulletin of the Graduate School).

Opportunities.—Well-trained laboratory technologists are in demand. Positions may be secured in physicians' offices, clinics, hospitals, research laboratories, and colleges. The course is so arranged that theoretical training and practical experience are obtained in the various branches of clinical laboratory science. This broad training enables the student to qualify for positions requiring general laboratory experience or in specialized fields.

Registration.—All prospective students are urged to consult the special advisers in the main laboratory on the fourth floor of the Elliot Memorial Hospital of the University of Minnesota Hospitals. This should be done in person if possible. During the first year, students in this course may consult advisers in the Junior College office (Room 106 Folwell Hall). After the freshman year, all students must submit their registration for approval to the special advisers in the hospital laboratory.

Student aid.—Students with insufficient funds to finance their education should not plan on earnings from part-time laboratory work, but should apply to the registrar's office for the bulletin on University Aids for Student Expenses. Medical technology students do not live in the hospital, nor are they supplied with books, meals, or uniforms. These must be furnished by the student herself.

Scholarship.—Only those students for whom a reasonable prediction of success in college work can be made should register in the course in Medical Technology. Students who have not excelled in scientific subjects in high school or college should apply to the hospital advisers for guidance before registering in this course. Students with physical handicaps must have their registration approved in the same way.

Limited enrolment.—The number of students who may complete the course is limited by the opportunities for practical training in the fourth year. Preference will be given to students who have completed the necessary prerequisites and have the required number of honor points. All students registered in the College of Science, Literature, and the Arts must complete the requirement of the first two years before enrolling in the Medical School or taking practical work.

Fees.—Consult the General Information Bulletin for information regarding fees.

Information.—The course in Medical Technology is in charge of a special committee of the Medical and Graduate Schools, consisting of W. A. O'Brien, chairman, W. P. Larson, N. H. Lufkin, L. G. Rigler, and A. H. Sanford. For further information, address the chairman at the University of Minnesota Hospitals, Minneapolis, Minnesota.

High school students.—For those entering without high school chemistry, French, or German, the required courses and their sequences are listed below. Be sure to note prerequisites before registering. High school students who anticipate taking the course in Medical Technology at the University of Minnesota should take either French or German and chemistry.

Curriculum.—Students should follow the prescribed curriculum if they wish to finish this course in the usual time. For detailed information about the individual subjects in this curriculum, students should consult the Combined Class Schedule Bulletin which is issued at the time of registration in the College of Science, Literature, and the Arts.

DESCRIPTION OF COURSES

FRESHMAN YEAR

- Ger.1f-2w-3As.† Beginning German. (15 cred.; no prereq.)
Inorg.Chem.1f-2w-3s.* General Inorganic Chemistry. (12 cred.; primarily for premedical and pre dental students; no prereq.)
Phys.1f-2w. Introduction to Physical Science. Laboratory work may be obtained by registration in Course 4 (with or after Course 1) and for one or more of Courses 24, 34, 44 (after Course 4 and with or after Course 2). (8 cred.; no prereq.)
Zool.1f-2w-3s. General Zoology. (10 cred.; no prereq.)

SOPHOMORE YEAR

- Anal.Chem.7s. Quantitative Analysis. (4 cred.; primarily for premedical students; prereq. any course in qualitative chemistry.)
Bact. and Immun.41f,w,s. General Bacteriology or 101w,su. Medical Bacteriology. (5 cred.; prereq. 10 credits in chemistry and 10 credits in zoology.)
Bact. and Immun.102s.§ Medical Bacteriology. (4 cred.; prereq. Gen. Bact. 41 or Med. Bact. 101.)
Engl.4f-5w-6s. Freshman Composition. (9 cred.; prereq. placement test or English A-B-C or exemption from requirement.)
Ger.30f-31w-32s. Medical German. (9 cred.; premedical students; prereq. Ger. 3As.)
Inorg.Chem.11f. Qualitative Chemical Analysis. (4 cred.; primarily for premedical and pre dental students; prereq. Inorg. Chem. 3 or 5.)
Org.Chem.1f-2w. Elementary Organic Chemistry. (8 cred.; primarily for premedical and pre dental students; prereq. Inorg. Chem. 11.)
Zool.21f.§ Histology. (5 cred.; prereq. Zool. 1-2-3.)
Zool.51f.§ Histology. (5 cred.; prereq. Zool. 1-2-3.)

JUNIOR YEAR

- Anat.165f-166w. Hematology. (8 cred.; written permission by instructor required before registering; prereq. Zool. 21f.)
Anat.3f,s. Elementary Anatomy. (3 cred.; primarily for nurses; no prereq.)

* Students entering with high school chemistry credits should take General Inorganic Chemistry 4f-5w (8 credits) and Qualitative Chemical Analysis 11s (4 credits) in the freshman year.

† Those entering with high school German credits should consult the Junior College adviser, Room 106 Folwell Hall, before registering in the language course. Altho German is recommended for all students starting a foreign language. French may be completed at the University if the student enters with high school or college French credits.

§ May be taken in the sophomore or junior year.

¶ Written permission must be obtained from the Junior College office, 106 Folwell Hall, before registering.

- Bact. and Immun.116w.* Immunity. (3 cred.; prereq. Bact. and Immun. 101 or special arrangement with head of department.)
- Med.Tech. Clinical Diagnosis. (Cred. ar.; written permission of hospital adviser required before registering.)
- Med.Tech. Radiological Technique. (Cred. ar.; written permission of hospital adviser required before registering.)
- Med.Tech. Practical Work. (Cred. ar.; written permission of hospital adviser required before registering; see senior schedule.)
- Physiol.100f,101w. Physiological Chemistry. (13 cred.; prereq. Inorg. Chem. 1-2-3 or 4-5, 11 and 7, Org. Chem. 1-2, and Zool. 1-2-3.)
- Physiol.4f,s or 51w. Human Physiology. (4 cred.; primarily for nurses and physical education students; prereq. Zool. 1-2-3, Inorg. Chem. 1-2-3 or equiv.)
- Physiol.156w-157s. Pathological Chemistry. (2 cred.; prereq. Physiol. 100-101.)

SENIOR YEAR

Med.Tech. Practical Work (45 cred. minimum). Rotating service in all the clinical laboratories of the University of Minnesota Hospitals, Minneapolis General Hospital, or Ancker Hospital, St. Paul. Service includes blood, urine, feces, gastric contents, blood chemistry, bacteriology, serology, basal metabolism, electrocardiography, tissue technique, radiology, etc. Registration in senior year should bring total number of calendar months to at least fifteen. Final grade will not be given until student passes senior comprehensive examination satisfactorily.

ELECTIVES

The following electives are suggested, but others may be taken:

- P.M.&P.H.3f,w,s. Personal Health. (2 cred.; fr., soph.; no prereq.)
or
- P.M.&P.H.50f,s. Public and Personal Health. (3 cred.; note registration requirement; no prereq.)
- Psy.1f-2w. General Psychology. (6 cred.; note registration requirement; no prereq.)
- Soc. and Soc. Work 1f,w. Introduction to Sociology. (5 cred.; note registration requirement; no prereq.)
- Zool.22w. Comparative Anatomy. (5 cred.; note registration requirement; prereq. Zool. 1-2-3.)

SPECIAL NOTICE

A modification of this program will be made for transfer students according to approved credits.

Students may secure advanced standing by registration in the Summer Session. A course in Hematology is offered during the first quarter of the Summer Session. Medical technology students who take this course may

* May be taken in junior or senior year.

substitute it for Anatomy 165-166, Hematology. This will enable them to take Bacteriology and Immunology 116 during their junior year and clear their senior year of all class work, which is very desirable.

For those students entering with high school credits in chemistry and French or German, the above schedule is essentially the same except that they will take Inorganic Chemistry 4f-5w and 11s in the freshman year and complete their language requirement according to their high school credits. This allows them to take Bacteriology and Immunology 116 in the sophomore year and leaves their senior year free for practical work.

*The Bulletin
of the University of
Minnesota*



*A
Radio Course
in
Music Appreciation*

By Burton Paulu



PRESENTED BY
THE GENERAL EXTENSION DIVISION
RADIO STATION WLB

THURSDAY MORNINGS, 10:45 to 11:15
SEPTEMBER 24 TO JUNE 10, 1936-1937

Vol. XXXIX

No. 51

October 7 1936

Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minn.
Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918

MMUSIC, O Music! Now create a land
Of lovely chords where life no longer jars,
Nor jolts, nor frets, but glides.
—Stephen Phillips

Announcement

THE University of Minnesota takes pleasure in announcing the Radio Course in Music Appreciation which will for the sixth year be broadcast over its radio station WLB during the coming school year of 1936-1937.

The lessons of the course will be broadcast on Thursday mornings from 10:45 to 11:15, beginning September 24 and continuing for thirty-eight weeks until June 10. Station WLB broadcasts on its assigned frequency of 1250 kilocycles, or equivalent wave length of 239.9 meters.

Mr. Burton Paulu, assistant director of broadcasting, who has prepared the lessons since the inception of the course, will again conduct the broadcasts. The response given to his efforts during the past five years has been most appreciative, and has confirmed the belief that these lessons have served a distinct purpose. While originally designed to assist schools in their efforts to give to their pupils a wider contact with good music, the course has been adapted to those who find it possible to listen in their homes. To these will come, it is believed, an increased enjoyment of music, because the course enables them to combine their listening with an understanding of the substance and form of music.

Copies of this bulletin, which is designed to assist in preparing for and following the broadcasts, will be sent free as long as the edition lasts, to all who ask for them. Inquiries and suggestions for the course will be welcome at all times.

THE GENERAL EXTENSION DIVISION
of the

UNIVERSITY OF MINNESOTA

RICHARD R. PRICE, Director

RADIO STATION WLB

Haldor B. Gislason, Director of Programs

Burton Paulu, Assistant Director of Broadcasting

RADIO COURSE IN MUSIC APPRECIATION

INTRODUCTION

The thirty-eight lessons of this radio course in music appreciation are the development of a very simple theory: it is the belief of the organizer that in order to understand and enjoy fine music a listener must master a few elementary principles and learn a number of simple facts, and then apply these during frequent hearings of fine compositions. The enjoyment of such popular and universal amusements as reading, conversing, dancing, card playing, and swimming, depends upon the acquisition of some elementary skills; similarly the enjoyment of fine music requires the mastery of a few basic principles. Furthermore, just as the development of proficiency in the popular amusements mentioned above requires repeated practice, so does the enjoyment of a great musical work come only after a number of hearings. True appreciation depends largely upon familiarity, and a satisfactory stage of familiarity is attained much more quickly by those who know how to listen.

In the six years that this series of programs has been broadcast, several fundamental procedures have been consistently followed. (1) Almost every important composition used on the broadcasts is played twice during the season. By repeating a few significant works by outstanding composers instead of following the plan of giving single performances of many compositions by musicians of varying merit, these worthwhile works are impressed upon the listeners. (2) The selections played are to be found on the programs of the world's best orchestras and artists; the broadcasts purposely omit the very familiar pieces which great musicians never perform—except, perhaps, as encores, in order to give attention to music which first rank performers play without hesitation on their best programs. To the uninitiated some of these pieces may appear formidable at first, but this impression will disappear when acquaintance with the music has been made. (3) Representative music of all types is chosen, ranging from vocal solos to works for symphony orchestra, and from the thirteenth century rota *Sumer is Icumen In*, to music by such twentieth century figures as Sibelius, Elgar, and Rachmaninoff. (4) The recordings which illustrate these compositions are made by world famous artists, so that listeners have an opportunity to get acquainted with the playing of the outstanding performers of the day.

These broadcasts consist of recordings of fine music supplemented by nontechnical explanations, designed, not to give information for its own sake, but to increase the listener's enjoyment of this music and of all fine music. This bulletin, copies of which will be sent gratis to those who request it, contains a set of program notes for the music to be played.

THE USE OF THESE PROGRAMS IN CLASSROOMS

When first presented, during the year 1931-32, this course was intended primarily for use in schoolrooms, but the tremendous interest displayed by listeners above school age has influenced the planning of the course, tho never to the point of sacrificing the interests of school listeners. When used in schools these broadcasts are intended for students of high school age rather than for those in the elementary grades; in some communities pupils in the upper grades may be able to follow the programs with profit, but it is not expected that very young pupils will be able to understand either the music or the explanations.

When these programs are used in schools the pupils should have the benefit of class discussion of the music before they hear the broadcasts. The nature of this discussion will vary tremendously from group to group, and will depend upon such things as the age of the listeners, and the amount of music appreciation work and other musical training they have had before. Since no suggestions for class preparation are given in the course of these lessons, a few general recommendations are outlined here.

The program notes in this booklet will have to serve as the basis for class preparation in all except those schools which are fortunate enough to possess libraries

giving information on the variety of music played on these broadcasts. Whenever a unit of the course dealing with some point such as variations on a theme (Lessons 1 to 3), the instruments of the orchestra (Lessons 16 to 23), or music in movements (Lessons 32 to 38), is used, the teacher should arrange to present to the class some information on these topics so that the music played on the programs will mean more to the pupils. In the first instance, this would consist of an explanation of what a variation is, and perhaps some illustrations if any are available. In the case of the orchestral instruments, the best preparation would be a demonstration of the tone quality of the various instruments, either through the use of records or the playing of the instruments themselves. When the themes for the pieces played are available, either from this bulletin or elsewhere, it would be an excellent plan to play them over for the students until they become familiar. When groups of students are to hear any of the programs of songs in this series, additional copies of the bulletin should be secured so that each student may have the texts of the songs before him. It is difficult to make suggestions more specific than this, since conditions are bound to vary so greatly from school to school.

In past seasons bulletins for this course have listed definite textbook assignments for each program, but this procedure is dropped this year. The bulletin is in itself the textbook for these programs, since no single book contains information in convenient form to cover the wide choice of pieces used in this series. There are, however, several books which may be useful to teachers, and these are listed below; it is left to the teachers in charge to select assignments appropriate to each listening group. For general reading on the various composers represented Ewen's *From Bach to Stravinsky* is recommended. This volume is a collection of essays and articles from various sources, all written by experts, but of nontechnical nature. Faulkner's *What We Hear in Music* is one of the best all around books for use in music appreciation classes. It contains material on almost all the phases of music taken up in high school classes. For information on orchestral instruments home listeners and teachers alike are referred to the booklet by Johnstone listed below. This contains pictures of the instruments held in playing position as well as some interesting material about each one.

For all of these broadcasts articles in general encyclopedias or musical reference works may be consulted. The standard reference work in music is *A Dictionary of Music and Musicians*, edited by Sir George Grove. This work, which may be used in any one of its various editions, contains more material on more phases of music than any other similar work in English. For many nonmusicians, however, the articles on music in the more comprehensive general encyclopedias may be preferable to those in Grove's since they tend to be slightly less technical, while complete enough for practical purposes. It should be noted that the articles on musical subjects in these encyclopedias are usually just as reliable as those in the musical dictionaries since they are written by scholars of the same caliber. Among the works in this class recommended are the *Encyclopedia Americana*, the *New International Encyclopaedia*, and the *Encyclopaedia Britannica*. There are, of course, many other reference works too numerous to be mentioned here which may be consulted if available.

Ewen, David, ed., *From Bach to Stravinsky. The History of Music by Its Foremost Critics*. W. W. Norton and Company, Inc., New York. 1933. \$3.75.

Faulkner, Anne Shaw, *What We Hear in Music*. Ninth revised edition. RCA Victor Company, Inc., Camden, New Jersey. 1933. \$2.75.

Johnstone, Edward Albert, *The Instruments of the Modern Symphony Orchestra*. Revised edition. Carl Fischer, Inc., New York. 1930. \$0.50.

THE LESSONS

THE USE OF THEMES IN MUSIC

Lessons 1, 2, and 3. Listening to Melodies.
September 24 and October 1 and 8, 1936

Purpose: Of the many criticisms of fine music made by untrained listeners, the most common is that it has no attractive melodies, or, to use the customary form of the complaint, "It doesn't have any tunes." Regardless of what musical scholars may think, there is hardly room for debating the fact that most listeners want to hear music which will impress them as having attractive melodies. In many cases the selections held to be without melodies by nonmusicians are really very tuneful, but demand of their hearers a certain amount of training in listening before they will

yield their full measure of enjoyment. For this reason these first three broadcasts are devoted to a study of some of the devices used by great composers in writing and developing their melodies.

Program Notes: During the three programs of this unit we shall hear four compositions based upon the same theme; in its original form as conceived by Paganini, this melody served as the basis for a set of variations for an unaccompanied violin. Liszt transcribed Paganini's piece so that it became a piano solo. Later Brahms wrote a set of variations of his own on this melody, while within the last few years Rachmaninoff composed a rhapsody for piano and orchestra upon Paganini's theme. It is remarkable how much the theme from Paganini's caprice has fascinated these other composers, especially in view of the fact that every one of them has attained much more fame as a composer than did the author of the melody they saw fit to borrow.

Niccolò Paganini (1782-1840) is remembered today principally as a phenomenal executant upon the violin. When on his concert tours he dazzled Europe, and by a combination of trickery and legitimate technical mastery, was an important factor in the development of virtuoso violin playing. His compositions, none of which are noted for their musical depth, were written by Paganini to give himself a means of displaying his incomparable skill as a performer. He published as his Opus 1 a set of twenty-four caprices for violin without accompaniment. It is reported that Paganini himself had to practice unexpectedly long hours before he was able to play these caprices, so difficult did they prove to be. The caprice under consideration here is the twenty-fourth of the group, in A minor, and it bears no descriptive title. It consists of a theme followed by eleven variations. Since this theme forms the basis of four compositions used on these programs, it is reproduced in full:



The theme and variations is a device frequently encountered in music; altho great skill may be displayed by composers in writing variations, the general idea underlying their construction is simple, and may be easily grasped by any person who will devote a few minutes consideration to the matter. In its simplest form a variation is a repetition of a theme with change; that is, when a theme is "varied" we have a "variation." Thus, in the case of this Paganini caprice, we hear first the theme itself, and then eleven repetitions of the theme with new changes and elaborations introduced each time; it is these repetitions which constitute the variations. In an orchestral work a variation may consist of an exact repetition of the theme assigned to a different instrument than originally played it. Sometimes a variation will present the theme in one instrument or part while other instruments play an elaboration of it which "fits" the original. Sometimes a variation consists of the harmonies for the theme, without the presence of the melody itself. Usually a variation matches the theme, measure for measure, but sometimes it consists of an intensive development of one phrase or part of the theme; this procedure is not customary in sets of variations, being a treatment employed more often in the development sections of sonatas. Usually as the variations on a theme progress they become more and more elaborate, and depart farther and farther from the original melody; frequently the more highly developed types of variations depart so far from the theme that the resemblance is merely theoretical, and can be observed only from a study of the music. For the most part, however, the several sets of variations which we are to hear on these programs adhere closely to the melody and are not difficult to follow.

The astonishing technical exploits of Paganini were a major factor in influencing Franz Liszt (1811-1886) to follow the career of a piano virtuoso, and it became Liszt's avowed intention to duplicate on his instrument the brilliance Paganini had brought to the violin. His success in this ambition was attested by his winning the name, "The Paganini of the Piano." Included among Liszt's bravura piano compositions is a set

of six *Grand Etudes after Paganini*, based upon sections from Paganini's works. The best known of these is the third, "La Campanella," derived from the second movement of Paganini's second violin concerto. The one to be heard on these programs is number six of the group. This is not a new treatment of Paganini's theme as are the Brahms and Rachmaninoff versions, but a brilliant transcription of it for the piano, which follows the original very closely. Inasmuch as Paganini wrote for one violin unaccompanied, whereas Liszt's transcription was for piano solo, the piano version is necessarily more elaborate, but musically and thematically, Liszt's transcription closely follows Paganini's caprice. (Robert Schumann also made piano versions of a number of these Paganini caprices, but did not include the one under consideration among those he treated.)

Johannes Brahms (1833-1897) wrote an imposing and formidable set of variations upon Paganini's theme which are more than a transcription of the original, even though some of Brahms' variations are obviously influenced by Paganini's. The Brahms treatment is the most notable and famous of the several versions we are to hear, but it is not so elaborate or significant as are some of his other sets of variations—notably the variations on a theme of Handel, for piano solo, or the variations on a theme of Haydn, scored both for orchestra and for two pianos. The Brahms variations depart from the melody more than do those by either Paganini or Rachmaninoff, so that the connection between the theme and its variations is not so readily apparent; during the broadcasts, however, this difficulty will be surmounted by the presentation of a discussion of the music.

The most recent treatment of this theme is that by Sergei Rachmaninoff (1873—), a composer alive today, who, in fact, appeared in the solo rôle when his version was played by the Minneapolis Symphony Orchestra last November. Rachmaninoff's composition bears the title *Rhapsody on a Theme of Paganini*, Opus 43. It is an original composition, only the theme being borrowed, and Rachmaninoff appears to have been even less influenced by Paganini's variations than was Brahms, and not at all by the classic Brahms treatment. Rachmaninoff's rhapsody, like the other versions, is a theme and variations, and is the longest of them all, running to twenty-four variations, taking almost twenty-five minutes to perform. From the standpoint of the listener it is probably the most melodious and attractive of the group.

Records: Brahms: *Studies for the Piano: Variations on a Theme by Paganini*, Opus 35, played by Wilhelm Bachaus (piano); Paganini: *Caprice in A Minor*, Opus 1, No. 24, played by Yehudi Menuhin (violin); Liszt: *Grand Etude after Paganini*, Number 6 in A Minor, played by Claudio Arrau (piano); Rachmaninoff: *Rhapsody on a Theme of Paganini*, Opus 43, played by Sergei Rachmaninoff (piano) with the Philadelphia Symphony Orchestra conducted by Leopold Stokowski.

STORIES AND MOODS IN MUSIC

Lesson 4. Scenes from Childhood, by Robert Schumann. October 15, 1936

Purpose: The first three broadcasts in this year's series were offered in answer to the question so often put to the musician by the casual listener—"Where is the tune?" The same people who are reluctant to admit that serious (in the vernacular, "classical") music is melodious, are also inclined to another mistake—that of trying to read into compositions which do not possess them, programs or "stories." While it is true that most serious instrumental works do not have programs, and that most of them have no connection with external things such as landscapes or national sentiments, yet some such pieces are to be found in the works of the best composers. The five compositions in this unit are of this type.

Program Notes: There is no more famous romance in all music than that between Robert Schumann (1810-1856) and Clara Wieck. Clara was the daughter of a piano instructor with whom Schumann studied as a young man, and altho she and Robert held each other in great esteem, father Wieck bitterly opposed their marriage plans for several years. In one of the letters written to his beloved fiancée shortly before their marriage, Schumann gives us a clue to the *Kinderscenen* (*Scenes from Childhood*):

I have discovered that suspense and longing are the best spurs to the imagination. I have had my full share of these the last few days, as I sat waiting for your letter and writing whole volumes of wonderful, crazy, gay compositions, which will make you open your eyes when you play them. Indeed, I sometimes feel as if I should burst with music. Before I forget, let me tell you what I have written. Whether or no in response to some words you once wrote saying I sometimes seemed to you like a child, I took flight and amused myself with working out thirty droll little pieces, twelve of which I have selected and christened *Kinderscenen*. You will like them, although you will have to forget you are a virtuoso for the time being. . . . They are descriptive enough, you see, and as easy as winking.

As a small boy Schumann had revealed his ability to characterize people and things in music, and a number of his works, especially for the piano, were contrived to present scenes and pictures of various sorts. His remarkable way of describing little incidents is revealed very charmingly in the *Scenes from Childhood*. It is difficult to translate the German titles of the twelve sections of this work, but for the benefit of readers who do not understand German, an attempt is made to supply translations: Von fremden Ländern und Menschen—About Foreign Lands and People; Curiose Geschichte—A Strange Story; Hasche-Mann—Playing Tag; Bittendes Kind—The Pleading Child; Glückes Genug—Satisfaction; Wichtige Begebenheit—Important Event; Träumerei—Dreaming; Am Camin—By the Fireside; Ritter von Steckenpferd—Knight of the Hobby Horse; Fast zu ernst—Almost too Serious; Fürchtenmachen—Playing Bogey Man; Kind im Einschlummern—Child Falling Asleep; Der Dichter spricht—The Poet Speaks.

In listening to these pieces it may be well to bear in mind a comment from another of the composer's letters: "I will not deny that a vision of children's heads haunted me as I wrote [this music]. The inscriptions arose, of course, afterwards, and are really nothing more than tiny finger-posts to the interpretation and conception."

Records: Schumann: *Kinderszenen (Scenes from Childhood)*, Opus 15, played by Alfred Cortot (piano).

Lesson 5. The Twenty-four Preludes for Piano, by Chopin October 22, 1936

Program Notes: The music of François Frédéric Chopin (1810-1849) finds its way to these programs for the first time since the series was started, with the twenty-four preludes which form his Opus 28. Almost all of Chopin's music was for the piano, and most of this was written for piano solo. Up to his time no one had ever composed for this instrument with an understanding so intimate as his; Chopin's music is piano music to the degree that most of it does not sound good when played on any other instrument, while much of it cannot be transcribed at all. In his hands the piano assumed a place all its own; he did not write for it from the viewpoint of choral, orchestral, or chamber music, but in terms of the piano itself.

When Chopin employed the title "prelude," he did not refer to an introductory movement for a play, an opera, or a longer instrumental work, but to a short piece in rather free style of more or less imaginative and poetical nature. The twenty-four preludes in this set probably began as sketches which Chopin made from time to time with the idea of developing them later into larger works. On the whole they are like improvisations in character; that is, they are a collection of incompleted ideas rather than long compositions carefully worked out, as is the case with most musical works of anything like equal fame. Frederick Niecks, in his study of *Frederick Chopin As a Man and Musician*, accounts for them by saying:

This heterogeneous collection of pieces reminds me of nothing so much as of an artist's portfolio filled with drawings in all stages of advancement—finished and unfinished, complete and incomplete compositions, sketches and mere memoranda, all mixed indiscriminately together. The finished works were either too small or too slight to be sent into the world separately, and the right mood for developing, completing, and giving the last touch to the rest was gone, and could not be found again.

Alfred Cortot, the French artist who has made the records to be played on these programs, has supplied a set of imaginative titles. Since these reveal to us the conception of the music held by the performer, they are quoted below. It must be remembered, however, that these descriptions were in no way sanctioned by Chopin.

1. Waiting feverishly for the beloved one.
2. Sad meditations: In the distance, a deserted sea.
3. The song of the brook.
4. Beside a tomb.
5. A tree full of song.
6. Homesickness.
7. Delicious recollections float like perfume through the memory.
8. The snow falls, the wind howls, the tempest rages, but in my sad heart there is a more terrible storm.
9. The end of Poland.
10. Falling rockets.
11. A young girl's wish.
12. The rider in the night.
13. In a strange land, under a starry sky, thinking of the beloved one, far away.
14. A stormy sea.
15. A young mother rocking her child. She herself is half asleep. A frightful dream shows her the scaffold that is the destiny of her son. The dream is banished by a sudden return to consciousness, but the mother is still disquieted.
16. The road to the abyss.
17. She told me that she loved me.
18. Imprecations.
19. Had I but wings, I would fly to you, my beloved.
20. A funeral procession.
21. Returning solitary to the spot where vows were made.
22. Revolution.
23. Naiads playing.
24. Blood, voluptuousness and death.

Records: Chopin: *Twenty-four Preludes*, Opus 28, played by Alfred Cortot (piano).

Lesson 6. Sir Edward Elgar's Musical Portrait of Falstaff. October 29, 1936

Program Notes: Sir Edward Elgar and Jean Sibelius—whose music is heard elsewhere on these programs—have a number of points in common. Both are among the foremost modern composers; Sibelius still lives at seventy while Elgar died two years ago at the age of 77 (1857-1934). Both composers have their admirers who claim for them the distinction of rank among the musical immortals. And, less fortunately, both are widely known through lesser works, while their major contributions to musical literature are overlooked except by a limited group of listeners. In the case of Sibelius, these familiar works are *Finlandia* and *Valse Triste*, and with Elgar they are his *Salut d'Amour*, *The Crown of India*, and the *Pomp and Circumstance Marches*. In both instances the reason for regret is not that the familiar works are in themselves not good, but that while they are widely known, other music of greatly superior quality by these men is passed by.

Probably Elgar is the less capable of these two men, altho in his native country of England his music has attained a wide popularity not accorded it elsewhere. His *Enigma Variations* are frequently played at concerts in the United States, and through concerts and recordings opportunities have been afforded to hear his two symphonies, his concertos for violin and cello with orchestra, and his oratorio, *The Dream of Gerontius*. Elgar was an able conductor and he left some excellent recordings of his major works; only Richard Strauss and Igor Stravinsky are as well represented in recorded versions of their own works as is Elgar. The performance of *Falstaff* used on these programs was recorded under the composer's direction.

The full title of *Falstaff* is as follows: *Symphonic Study for Orchestra, in G Minor, with Two Interludes in A Minor, "Falstaff."* ("King Henry IV." and "King Henry V."—*Shakespeare*.) It is the composer's Opus 68. For the first performance of the work in England in 1913 Elgar supplied a set of program notes which are drawn upon for the following description. Elgar stated that:

As the work is based solely on the Falstaff of the historical plays (1 and 2 *Henry IV.* and *Henry V.*), in examining it or listening to it, the caricature of *The Merry Wives of Windsor* . . . must be forgotten. . . . The musical interpretation, or, as it is preferably called, *Study of the Character of Falstaff*, is practically in one movement, with two interludes . . . and falls naturally into four principal divisions which run on without break.

I. Falstaff and Prince Henry. The composer commented as follows (the quotations which he makes are taken from various studies of the literary Falstaff, as well as from the Shakespeare plays):

"An apartment of the Prince's," at Court. "Enter Sir John Falstaff": we see him "in a green old age, mellow, frank, gay, easy, corpulent, loose, unprincipled, and luxurious."

This, the chief *Falstaff* theme, appears in varied *tempi* throughout the work. . . . As the scene is mainly a conversation the music consists of a presentation and variation of these themes ending with an impetuous rush—the persuasive Falstaff has triumphed, the dominating Sir John is in the ascendant.

II. Eastcheap, Gadshill, The Boar's Head, Revelry and Sleep.

We are in Eastcheap and plunge into a quicker *tempo* commencing with a theme made up of short, brisk phrases, all of which, used largely in the construction, should chatter, blaze, glitter and coruscate; no particular incident is depicted, but the whole passage was suggested by the following paragraph:

"From the coldness, the caution, the convention of his father's court, Prince Henry escapes to the teeming vitality of the London streets and the Tavern where Falstaff is monarch. There, among ostlers and carriers, and drawers, and merchants, and pilgrims, and loud robustious women, he at least has freedom and frolic."

There follows presently the midnight exploit at Gadshill. "A strenuous passage depicts the short struggle for the twice-stolen booty. . . ." At length Falstaff, upon returning to the Boar's Head, falls asleep, and the sleep theme leads into the first interlude.

This, a dream-picture, is scored for a small orchestra; simple in form and somewhat antiquated in mood, it suggests in its strong contrast to the immediately preceding riot, "what might have been."

III. Falstaff's March, The Return through Gloucestershire, The New King, The Hurried Ride to London.

[Falstaff] does not long dream of the courtly period of his youth. The music, now *fortissimo* [very loud] shows a sudden awakening; a *fanfare* is heard (muted brass). . . . All is bustle and preparation for the route. . . . Out of the hurry and confusion Falstaff emerges "to take soldiers up in counties as he goes." The march follows. . . . On the edge of the battle the light-hearted knight . . . jokes in the face of danger with John of Lancaster.

When the army is "discharged all and gone," he decides "I'll through Gloucestershire: there will I visit Master Robert Shallow, Esquire." The march, as we approach the fields and apple-trees, assumes a song-like character, until we rest in Shallow's orchard. Here we have a second interlude . . . for small orchestra, and again with an Old English flavour and as simple in form.

This mild, bucolic entertainment is suddenly interrupted by Pistol announcing, "Thy tender lambkin now is King—Henry the Fifth's the man." A large and agitated presentation shows Falstaff glorying in the news. . . . The march theme is resumed rapidly. . . .

IV. King Henry V's Progress, The Repudiation of Falstaff, and His Death.

Near Westminster Abbey the new King is to pass with his train, Falstaff and all his company await his coming among the shouting populace. . . .

The music takes the form of a triumphal march, founded on the King's military theme with several additional sections. Into them the Falstaff themes are expectantly thrown; the King's approach is suggested by recalling the merry times of Gadshill, but now the orchestration is heavier and the import serious.

The climax comes, fully harmonized and extended, when the King appears "glittering in golden coat." . . . then with a rush . . . the Falstaff theme is given *fortissimo*, and the King halts. A brief parley ensues, but Falstaff is inexorably swept aside by the King's brazen motto, and the last pitiful attempt at cajolery is rudely blasted by the furious *fanfare*:

"How ill white hairs become a fool and jester—I banish thee on pain of death."

Immediately the royal march is resumed, and dies away; the King has looked on his ancient friend for the last time.

In short phrases the decay of the merry-hearted one is shown. The broken man weakens until, with a weird, final attempt at humour we enter upon the death scene: "He is so shaken that it is most lamentable to behold." The incomparable description has been quoted already; the music is founded on the orchard theme. With many changes of harmony, faltering and uncertain, it goes to the end as if "he played with flowers and babbled of green fields." . . . Softly, as intelligence fades, we hear the complete theme of the gracious Prince Hal, and then the nerveless final struggle and collapse; the brass holds *pianissimo* [very softly] a full chord of C major, and Falstaff is dead.

In the distance we heard the veiled sound of a military drum; the King's stern theme is curtly thrown across the picture, the shrill drum roll again asserts itself momentarily, and with one *pizzicato* [plucked, on the strings] chord the work ends; the man of stern reality has triumphed.

Records: Elgar: *Falstaff—Symphonic Study with Two Interludes*, Opus 68, played by the London Symphony Orchestra conducted by Sir Edward Elgar.

Lesson 7. The Italian Symphony, by Felix Mendelssohn. November 5, 1936

Program Notes: Most people have a highly conventionalized idea of the life of a musician, and this stereotyped pattern is frequently the correct one; all too often a great genius has starved in a garret while producing masterpieces from which recognition was withheld. Thus, the great Johann Sebastian Bach, altho not poverty stricken, was never recognized at anything like his true worth while alive, Beethoven's best music was not evaluated as such during his lifetime, and Richard Wagner led a long bitter struggle for recognition as a great opera writer. But Felix Mendelssohn (1809-1847) had entirely different experiences. He was born into a family both rich and famous, he displayed remarkable precocity as a child, and his family possessed both the intelligence and the means to procure for him the finest instruction; his wit, brilliance, and social charm, added to his easily won fame as a composer and piano virtuoso, resulted in his universal acceptance as a great composer.

Yet this life of ease and success may have, in the long run, diminished Mendelssohn's chances for a place among musicians of the first rank. Unquestionably he is not so well thought of today as he was in 1850; in fact it is now fashionable in many musical circles to sneer at his music for its tendency to superficiality, and its quality of pleasant brilliance rather than of profundity. And yet much that Mendelssohn wrote displays undeniable genius, and if his contemporaries were in error in ranking him too high, certainly many people today go to the equally undesirable extreme of underrating his achievements. Sir George Grove, himself the author of the article on Mendelssohn in his famous *Dictionary of Music and Musicians*, states the case very well:

Few instances can be found in history of a man so amply gifted with every good quality of mind and heart; so carefully brought up amongst good influences; endowed with every circumstance that would make him happy. . . .

Is there any drawback to this? or, in other words, does his music suffer at all from what he calls his "habitual cheerfulness?" . . . [Mendelssohn's undeniable] genius had not been subjected to those fiery trials which seem necessary to ensure its abiding possession of the depths of the human heart. . . . Mendelssohn was never more than temporarily unhappy. He did not know distress as he knew happiness . . . he was never tried by poverty, or disappointment, or ill-health, or a morbid temper, or neglect, or the perfidy of friends, or any of the other great ills which crowded so thickly around Beethoven, Schubert, or Schumann. . . .

But let us take the man as we have him. Surely there is enough of conflict and violence in life and in art. When we want to be made unhappy we can turn to others. . . . For the enjoyment of such shining heights of goodness we may well forego for once the depths of misery and sorrow.

The *Italian Symphony* was composed over a period of several years, and was completed in March, 1833, in Berlin. Since it was not published until after Mendelssohn's death, it is listed as his fourth symphony, but actually it was written almost a decade before the *Scotch Symphony* which is known as number three. Mendelssohn commenced work on it in 1830 when he was living in Italy, and since he was somewhat influenced by Italian surroundings in writing it, particularly in its last movement, the work is known as the *Italian Symphony*. (It is amusing to notice, however, that Robert Schumann once confused the *Italian* with the *Scotch Symphony*, and wrote of the latter that "It can . . . cause you for a moment to forget the sorrow of not having seen that heavenly country.") He did not finish the work, however, until he left Italy. After its initial performance in London, shortly after its completion, Mendelssohn worked on a revision of it, finishing the new edition by the end of 1837. It appears likely that this revised version was never performed during the lifetime of the composer; at any rate it is quite certain that it was never heard on the European continent until the end of 1849.

In listening to the music it is well to remember that this symphony was the work of a young man in his twenties, who was leading a happy and pleasant—tho not necessarily riotous—existence. Letters written during his Italian sojourn, when the music was conceived, if not entirely finished, revealed his satisfaction with Italian life, and the symphony is Italian not so much because it is a reflection of the Italian scene as of Mendelssohn's personal enjoyment of the Italian life he encountered. It would be difficult to find any music more expressive of the exuberance of youth than the irrepressible first theme, which enters after a pulsating accompaniment figure is stated:



The secondary theme possesses less exuberance than the first subject, but is still decidedly on the bright side:



The middle section of the first movement—known technically as the "development section" treats at length a new theme, in addition to the two principal melodies:



The second movement opens with an introductory phrase of two measures. It is quoted here since it has an important place later in the movement:



The main theme itself is marchlike, and since it partakes of the style of a hymn, the entire movement is often referred to as the "Pilgrims' March:"



The graceful third movement is much like an old minuet. Its gentle, appealing melodies are so easily grasped as to require no quoting.

The last movement—the most Italian of the four—is marked *Saltarello*, which is a native Italian dance. It is fast, and gradually increases in speed, becoming quite breathtaking. Mendelssohn wrote that this last movement would be the “most mature thing” he had composed up to that time. (He was, however, only 21 years old when he made this comment.) The opening theme of this movement is quoted below:



After a second theme of similar character, a third theme enters; whereas the first and second were *staccato* themes (the notes were played short and detached), this figure is a flowing *legato* (played smoothly, with the notes connected):



Records: Mendelssohn: *Symphony No. 4 in A Major*, Opus 90, (“Italian” Symphony), played by the Boston Symphony Orchestra conducted by Serge Koussevitzky.

Lesson 8. The Violin Concerto in D Minor, by Jean Sibelius.

November 12, 1936

Program Notes: Jean Sibelius (1865-), the great Finnish musician, is one of the outstanding composers of today, yet to most people he is the man who wrote *Finlandia* and *Valse Triste*, which are among his relatively inferior works, rather than the composer of seven fine symphonies, this violin concerto, and many other works of the first magnitude. His violin concerto is included on these programs partly because it is fine music, and partly in order to present the less well known, but greater side of a familiar musician of this era.

There are many people who understand the adjective “modern” as applied to music, to refer to popular music—the music of the dance hall, the night club, and the ordinary radio program. Recalling that the great composers of the past—Beethoven, Berlioz, Wagner, etc.—were slow to win recognition from the established musicians of their time, and observing that serious musicians now indignantly refuse to accept suggestions that today’s popular music is great music, these persons often conclude, from their imperfect knowledge of the situation, that there is an exact parallel between the music of a great composer of a hundred years ago, and the products of the tune smiths of Tin Pan Alley. In making these faulty deductions they overlook entirely the fact that there are serious composers now just as there were a century ago, and that it is the music of some of these men which will eventually be remembered as great, rather than that of the popular song writers. There is, in fact, a considerable body of fine serious music by recent composers; pre-eminent among these musicians are Ravel, Stravinsky, Sibelius, Schönberg, Strauss, and others, and among these none has a better outlook for high rank from the critics of the distant future than has Jean Sibelius.

A serious listener can do himself a real service in hearing significant modern works. For one thing, he will thus acquaint himself with them, and will enlarge his “listener’s repertoire”—those pieces with which he is sufficiently familiar to hear them with the relaxed enjoyment possible only after a certain stage of familiarity has been attained. But there are other considerations of even greater importance. Very likely a new listener to modern music will find in it certain harmonies and musical devices strange to him, things which he is not accustomed to hear since they are new to his stage of musical experience. Everyone has read of the oftentimes violent reactions of the audiences which heard the initial performances of various masterpieces of the past; accounts of such premiers are often interesting and in many cases amusing, but since the features of those compositions which produced such reactions are commonplace now, we are apt

to be puzzled over the effects they had on their first audiences. Only when we ourselves hear music which is new to us, in the same degree to which those now long-established classics were to their hearers years ago, can we place ourselves in the psychological and emotional state of those early audiences. And even tho it will require the judgment of many decades to evaluate properly the music of today, we may always form our own opinions as best we can, and at any rate we shall be able to reconstruct in ourselves the feelings of the critics of Beethoven, Wagner, Strauss, and all the rest, regardless of how the pieces we use to that end are ranked fifty years hence.

The Sibelius concerto for violin was finished some thirty years ago; two or three months may be the life span of a popular tune, but for music like this concerto, this is not such a long time. And yet it is long enough so that this music will prove pleasant and attractive to most listeners. Sibelius worked over revisions of this concerto for a long time before bringing it to its final form in 1905, but it is not a labored work. Altho the concerto has no program or story associated with it, it is cast in a somber, brooding mood, suggesting forest shadows in the moonlight, and nocturnal reveries.

Records: Sibelius: *Concerto in D Minor*. Opus 47, played by Jascha Heifetz (violin) and the London Philharmonic Orchestra conducted by Sir Thomas Beecham.

LISTENING TO VOCAL MUSIC

Lesson 9. Sumer is Icumen In, by Fornsete. November 19, 1936.

Purpose: The seven programs of this unit illustrate three different types of vocal music: the first program presents some very early compositions, the next four deal with art songs or *lieder*, and the last two consist of a complete opera.

Program Notes: One of the most famous vocal works in music history is the composition *Sumer is Icumen In*, which is attributed to a British monk, John of Fornsete, who lived in the first part of the thirteenth century. The actual musical value of this work is by no means inferior to its great historical interest, so that it has a deserved place on this series along with other music by later and better known composers. Altho much might be written about *Sumer is Icumen In*, it seems best to let the discussion of this music await the time of the program on which it is played. Since this piece is quite short it will be supplemented with some other vocal music of similar type.

Records: Fornsete: *Sumer is Icumen In*, sung by the St. George's Singers.

Lessons 10 and 11. Robert Schumann As Song Composer. November 26 and December 3, 1936

Program Notes: The next four programs in this series consist of songs by two of the greatest composers of *lieder* that the world has ever known—Robert Schumann and Hugo Wolf. In preparation for these broadcasts the listener—whether at home or in the schoolroom—should fix in mind two of the most frequently encountered terms in the vocabulary of vocal music: “strophic” and “through-composed.” Briefly, a strophic song is one in which the same music is used for each stanza, whereas in a through-composed song the music, instead of being repeated for each stanza, is composed to fit each change of the text. (Our expression “through-composed” is a literal translation of the German *durchkomponiert*.) Some songs do not fall strictly into either class, but come somewhere between; the term “altered strophic” is often applied to these, since they employ the same melody for each stanza, but alter it in part during some of its repetitions.

To enjoy fully a fine song the listener must be aware of some of the musical devices used by the composers in composing them, and should have access to the words for the songs; thus equipped it is easy to understand and enjoy the subtleties with which expert composers, through both voice and accompaniment parts, interpret their texts. During this group of broadcasts numerous examples will be given of these musical devices, while the texts for all these songs, in both German (the language of performance) and English, are provided in another part of this bulletin.

Records: Schumann: *Dichterliebe (Poet's Love)*, Opus 48, sung by Charles Panzéra (baritone) with Alfred Cortot (piano).

Lessons 12 and 13. Hugo Wolf As Song Composer.
December 10 and 17, 1936

Program Notes: In music as in other fields of human endeavor there exists a certain degree of "social lag"—the period between the development of a belief, or attitude by experts, and the adoption of that viewpoint by the general public. Almost thirty years ago Ernest Newman, one of the world's foremost musical scholars, stated that he had "no hesitation in placing . . . [Hugo Wolf] at the head of all the song-writers of the world," not even excluding Schubert, Schumann, Brahms, and Franz. Since his biography of Wolf was first published, Newman has seen many others adopt his viewpoint; yet many well-informed music lovers today have never even heard of Hugo Wolf, and all too many musicians are woefully ignorant of his significant contribution to the art of song. Perhaps Newman is overenthusiastic for Wolf's cause in declaring him to be the world's finest song composer, but regardless as to whether Wolf is or is not a greater master of the *lied* than Schubert and Brahms, no one can deny that a man who can evoke praise like this from such a well-informed critic, should at least be known by name to every music lover.

Wolf is unquestionably pre-eminent among all song writers for his ability to interpret through music the most subtle, psychological connotations of the poems he deals with. As a composer he is the poet turned musician, and he succeeds in allying himself with the poets for whose verse he writes music, more thoroly and more marvelously than has anyone else. If one concedes that the degree of correlation between music and poetry is the crucial factor to be considered in evaluating a song, then Wolf must be declared the ideal song writer; however if the through-composed song carried to its highest development is not one's ideal, then Wolf may be ranked differently.

Newman has written so eloquently and so well about Hugo Wolf that some pertinent passages are quoted from his biographical study of the master:

Those of us who have worked unceasingly at Wolf's songs, finding our admiration for them grow as our acquaintance with them has deepened, have no hesitation in putting him at the head of the song-writers of the world. He surpasses them all to the same extent and for the same reasons that Wagner surpasses all other musical dramatists,—in virtue of the vast range of his interests, his Shakespearean breadth of sympathy, the infinite plasticity of his conceptions, his gift for finding for each poem a musical expression so poignant and so veracious that one can never again imagine it being expressed in any other way. . . .

Now the secret of Wolf's peculiar power is that he pierced to the very heart of the poem as few musicians have done even in isolated cases, and as no other has done in so many varied cases. He allowed the poet to prescribe for him the whole shape and colour of a song, down even to the smallest details. . . . In the second part, Wolf adds enormously to his range of expression by giving to the piano part a significance it had never previously had in the whole history of the song. His songs were indeed not written for "voice with pianoforte accompaniment"; the title-pages tell us that they are composed for "voice *and* pianoforte"—a quiet hint of the importance of the rôle assigned to the instrument.

The Wolf songs to be played on these two programs are taken from the *Italianisches Liederbuch* group, texts for which are printed on pages 22-26.

Records: Wolf: Selections from the *Italianisches Liederbuch*, to be played on programs 26 and 27. The soloists and accompanists are given in the record list on page 31.

Lessons 14 and 15. The Opera Falstaff, by Giuseppe Verdi.
December 24 and 31, 1936

These two broadcasts will be extended in time to about ninety minutes each, so that the entire opera *Falstaff* may be played. Further announcements concerning these programs will be made in the course of the broadcasts.

Records: Verdi: *Falstaff*, performed by the following cast: John Falstaff—Giacomo Rimini (B); Alice Ford—Pia Tassinari (S); Nannetta—Ines Alfani Tellini (S); Quickly—Aurora Buades (S); Fenton—Roberto D'Alessio (T); Meg Page—Rita Monticone (S); Ford—Emilio Ghirardini (B); Dr. Cajus—Emilio Venturini (T); Bardolfo—Giuseppe Nessi (T); Conductor—Lorenzo Molajoli; Chorus Master—Vittore Veneziani.

THE INSTRUMENTS OF THE SYMPHONY ORCHESTRA

Lesson 16. The Stringed Instruments. January 7, 1937

Purpose: Most concert goers do not recognize many of the instruments they hear played, and thus lose a great deal of musical enjoyment through their inability to appreciate the combinations of instruments used by composers. Over half of all musical

performances are instrumental, and most vocal music is accompanied by instruments; thus every listener, regardless of his taste in the medium of performance, has reason to familiarize himself with the common instruments. Since all the instruments recognized in musical circles are found in symphony orchestras, the goal of the eight lessons in this unit will be the study of the sections of an orchestra.

Program Notes: The first three broadcasts in this unit are devoted to the most important section of the orchestra, the string section. Four kinds of stringed instruments are in common use today: the violin, the viola, the cello (strictly, the violoncello), and the double bass (also called the string bass and the bass viol). These instruments are somewhat similar in appearance, apart from size; in the above list they have been given in order from the smallest to the largest. Presuming that everyone is familiar with the appearance of a violin, the others may be described in relation to it: the viola is about one-fifth larger than the violin, and is held in the same way when being played; the cello is considerably larger, so that the cellist is seated while playing, and holds his instrument, larger section down, between his knees; the double bass is so much larger than the cello that the performer either sits on a high stool or stands up while playing.

All violins, violas, and cellos, and many basses, have four strings, altho some basses have a fifth string for lower tones. Each of the strings is tuned to a different pitch; in the case of the violin, for example, they are tuned in fifths, that is, from top to bottom they are tuned to E, A, D, and G. The strings are placed on the instrument in such a way that the player may strike either one or two of them at a time, but with our modern bows never more than two at a particular instant. The bow is usually held in the right hand while the fingers of the left are used to "stop" the strings; that is, by placing his fingers at different points on a string the player, by thus shortening the vibrating section of the string, can produce many different notes. Were it not for this the player would be forced to confine himself to just a few tones, obviously an unsatisfactory arrangement.

These four stringed instruments have other points in common also. For one thing, all are played either with bows or through plucking the strings. Everyone is familiar with the general appearance of the bows used, and with the way they are drawn over the strings, but not so many people know what is meant by *pizzicato* playing. This is the procedure of plucking the strings with the fingers, producing a short, snapped tone; the manner in which the string bass players in dance orchestras "slap" out notes on their instruments is an unmusical version of *pizzicato* playing. These instruments are alike also in that all use a type of mute—a little piece of metal or other material placed on the bridge of the violin, viola, cello, or bass. Mutes have the effect of reducing the brilliance of the stringed instruments, giving them a veiled, and often somewhat eerie tone.

Records: For all of these lessons on instruments examples will be chosen from any music which is suitable, little attempt being made to confine the examples to the selections used elsewhere in this course.

Lessons 17 and 18. The Stringed Instruments in Chamber Music. January 14 and 21, 1937

Program Notes: These two lessons will present examples of the conventional combinations of stringed instruments used for chamber music. As the term indicates, chamber music is music written for such a group of instruments as can appropriately play in a single chamber or room. Such groups rarely exceed seven or eight players, and usually contain from three to five members. Composers write chamber music so that each instrument has an important part of its own, and the several instruments of the unit are treated as a collection of soloists, rather than as a group in which one part is important and the other secondary.

Any one of the strings may be used as a solo instrument, altho the violin and cello are preferred; the viola is usually passed by for the more flexible and brilliant violin, while as a solo instrument the double bass is considered a musical curiosity. Works for a solo stringed instrument without accompaniment are very rare; the six sonatas by Bach for violin, and another set of six for the cello, in addition to such lesser works as the Paganini caprices for violin, stand almost alone here. It is quite obvious since these instruments are not capable of the full musical chords so easily produced by a piano or a group of strings, that music written for a solo violin, viola, or cello must be put together with the greatest skill if it is not to become tiresome and monotonous. But the combination of either violin, viola, or cello with piano is common, and sonatas and other works for these groups are encountered in the music of most great composers.

Stringed instruments are the basis for most chamber music, and many combinations of them are possible. Altho there are some duets (such as the violin-violin duet by Mozart played on this series last year), and some string trios, the classic combination in chamber music is the string quartet, a group composed of two violins, one viola, and one cello. Most of the great composers—especially Haydn, Mozart, Beethoven, and Brahms—have written music for this combination. It should be remembered that the term "string quartet" is applied only to this particular group, and not to any four stringed instruments. The quartet is often enlarged to a quintet; usually this is done by the addition of another viola (as in the Mozart *Quintet in G Minor* played on these programs several seasons back), but sometimes the additional instrument is a cello (as with the Schubert *Quintet in C Major* being used in these broadcasts this year). String sextets, usually made up of two violins, two violas, and two cellos, are also encountered.

The piano is often added to these groups of strings to form still more combinations. It is used with the violin and cello to form the piano trio, with the violin, viola, and cello to become the piano quartet (as in the Brahms *Quartet in G Minor*), and with the four instruments of the string quartet to comprise the piano quintet (such as the Schumann quintet played on these programs two years ago). It should be remembered that these terms are conventionalized and are not applied loosely; thus, a piano quintet is always made up of two violins, and one viola, cello, and piano—it is not a quintet of pianos, nor is it any group of four strings with a piano! Schubert, for example, wrote a quintet for piano with violin, viola, cello, and double bass, but this is not called a piano quintet.

Sometimes combinations of strings and winds are encountered in the music of the masters. These programs last year included a trio by Brahms for violin, French horn, and piano—a most unusual grouping, while several years ago they presented a quintet by Mozart composed of the conventional string quartet plus a clarinet (Brahms also has such a work); but only a few really significant works for such combinations have been written.

Lessons 19 and 20. The Wood-wind Instruments. January 28 and February 4, 1937

Purpose: It is more difficult for most listeners to distinguish between the wood-wind instruments than between the members of the string or brass groups. This is due not so much to an inability to hear the differences as to a lack of sufficient opportunity to fix firmly in mind the distinctions between these instruments. Since the wood-winds give color to the orchestra and are responsible for some beautiful effects largely overlooked by listeners not familiar with the section, the lessons on these instruments should be followed with particular care by both school classes and listeners at home.

Lesson 19 will take up each of the wood-winds alone, as distinguished from the others, while Lesson 20 will illustrate the wood-winds playing in combinations of various sorts.

Program Notes: There are eight wood-wind instruments in common use today. In distinguishing between these, it is helpful to arrange them in four pairs; altho it is a minor error to confuse the instruments of a single pair, it is very desirable not to confuse a member of one group with one from another.

1. The *flute* and the *piccolo* make up one pair. They are similar in appearance, both being open pipes with a mechanism of holes and keys to produce the various notes, altho the piccolo is about one-half the length and size of the flute, and is an octave higher in pitch. In this connection it is interesting to notice that the name of the piccolo in French and German (*petite flûte*, *kleine Flöte*) means "little flute." Flutes and piccolos are nowadays almost invariably made of metal, and present a silver appearance, altho the other instruments in the section are usually made of wood, except for some clarinets. All of these instruments were originally made of wood—hence the term "wood-wind," and the name is retained in spite of changes in construction materials for some of them.

2. The *English horn*, despite its misleading name, is a tenor oboe, and should be classified with the *oboe*; it bears much the same relationship to the oboe as does the viola to the violin and the alto voice to the soprano voice. Oboes and English horns look somewhat alike and sound so much the same that many people cannot distinguish between them. Considerable speculation has been made as to the naming of the English horn, and two theories have been advanced for this misnomer. The French name is "cor anglais" which means "English horn." Some early specimens of the instrument did not have a straight tube as is customary today, but were bent in the middle. It has

been suggested that "cor anglais" was originally "cor anglé," the latter adjective applying to the bend in the tube, and that our present name may be merely the translation of a corruption of the instrument's original name. The other theory advanced for the misnomer is that when the instrument was given a bend to facilitate its handling the name was adopted to mark its resemblance to a kind of hunting horn in use in England at the time. The first mentioned theory is the most probable solution of the riddle of the instrument's name—since it is neither a horn, in the popular sense of that term, nor is it English—but it remains an unproved hypothesis.

3. The third pair to notice is the *clarinet* and the *bass clarinet*. As its name indicates, the latter is merely a lower-pitched, deeper-toned clarinet. Neither the bass clarinet nor the double bassoon is employed so frequently as the piccolo or the English horn (the instruments of the other two pairs least frequently used), so that the listener need not be greatly concerned with them. At a distance clarinets and oboes look much alike, since they are of the same general shape, and are held in about the same playing position, but a close examination will reveal significant differences.

4. The *bassoon* and the *contra-bassoon* (also called the double-bassoon) make up the fourth pair of wood-winds. These are alike in appearance and sound, altho the latter is an octave lower than the former, and contains much more tubing. The contra-bassoon is very seldom used for solo rôles in the orchestra, and neither is used frequently as a solo instrument elsewhere.

Lesson 21. The Brass and Percussion Instruments. February 11, 1937

Program Notes: The brass section of the symphony orchestra contains French horns, trumpets, trombones, and tubas, and sometimes cornets and baritones (or euphoniums).

The French horn is unquestionably the most important brass instrument in an orchestra. In a concert band, however, the principal cornet player and the first baritone player have more important rôles than does the first horn player; this fact, together with the prominence of the trumpet and trombone in dance bands, explains why the French horn, the most important brass instrument of the symphony orchestra, is for the uninitiated listener, the least familiar. The horn has a long tube, about sixteen feet long if unwound, and is circular in shape. The bell—the place out of which the sounds come—points backwards instead of ahead as is the case with the trumpet and trombone. The tone of the horn is mellow and lovely; because the instrument is made of such fine tubing it can be played very softly and possesses a flexibility making it possible for composers to use it in soft, delicate passages with the strings and wood-winds when the other brass would be out of the question.

Confusion sometimes results from the various uses of the word "horn." Strictly, the term "horn" applies to the French horn only, whereas the entire section is referred to as "the brass" or "the brass section," and never as "the horns." Altho the brass instruments are often carelessly called "horns," informed people reserve the word "horn" for the French horn. Some misunderstanding is caused by the similarity between the names of the English horn and the French horn; the only possible reason for this misapprehension is in the names themselves, since the English horn is a tenor oboe, a wood-wind instrument, while the French horn is a brass instrument, and neither sounds nor looks anything like the other.

Most people are familiar with the trumpet and the cornet. These two instruments are much alike in appearance and tone quality and can play the same part, but a close examination will reveal that the trumpet is longer than the cornet, and that its bore is not so conical; that is, from mouthpiece to bell, the cornet tubing widens more gradually, whereas the trumpet tubing flares out more at the very end, near the bell. Further, the tone of the trumpet is more brilliant and piercing while that of the cornet is mellow and rounder. In symphony orchestras, trumpets are almost invariably used, altho the important solo rôles in bands are usually taken by cornets.

The trombone is easily distinguished by its slide, and is familiar to almost everyone who has ever watched the players in a symphony orchestra, a concert band, or a dance orchestra. The brass section of the orchestra also includes the tuba, the lowest pitched of the brass. The tuba plays the same notes as does the sousaphone, but it possesses a superior tone and is, therefore, preferred among symphony players. (The sousaphone is the very large brass instrument which seems to wrap itself around its player, and which provides an imposing background for so many concert bands and dance orchestras.)

Occasionally symphonic music contains parts for baritones, but band music always does; and in the band, the baritone, or euphonium as it is often called, is one of the

most important instruments of all. The baritone looks like a small tuba, and is held in the same position while being played—on the performer's lap, with the bell pointing almost straight up. Its tone is round and full, heavier than that of the French horn, and not so penetrating as that of the trombone.

To the percussion section, or the battery, are assigned all the instruments made to sound by being struck. As expanded by the demands of dance and theater music the section also includes all the noise makers imaginable, and even the symphony drummer may find himself, through the whim of some contemporary composer, pounding a piece of iron with a hammer, shaking a rattle, or blowing a contraption which makes a sound like a baby's wail. But the percussion instruments utilized in most music are the kettledrum, and the bass and snare drum. The latter two are so familiar as to require no comment, but the kettledrums, or tympani, are less well known. There are usually two or three kettledrums in an orchestra. These look like large kettles—hence their name. They are the only drums in common use which have definite pitch, and for this reason can be utilized in passages of a most delicate and musical nature. Altho capable of a roar like thunder, they may be played very softly with splendid effect. The players in the percussion section also handle the celesta, the xylophone, the tambourine, and the triangles, in addition to the cymbals, bells, castanets, and gongs, not to mention any unusual sound effects a composer wishes to introduce. Symphony orchestras have from one to four men in the percussion section, depending upon how many instruments are called for by the score; the tympani player plays most of all, and seldom takes on additional duties, but the other drummers are generally very versatile, jumping in the course of few measures of music from cymbals to bells to foghorn and back again!

Lesson 22. Listening to the Full Symphony Orchestra. February 18, 1937

Program Notes: It is customary to divide the instruments of the orchestra into four groups—the strings, wood-winds, brass, and percussion. Each of these has been discussed separately in the course of the programs in this unit. If we take an orchestra of one hundred players as a group of typical size, then we should find that approximately three fifths of its members are in the string section. There are usually about 18 first violins, 16 second violins, and 10 or 12 each of violas, cellos, and basses, the exact number varying from orchestra to orchestra. The second violin players use instruments identical with those of the first violin section; the difference is that the seconds play a part which stands in relation to the first part as does the alto to the soprano in a quartet of voices. The violas usually play a part pitched below that of the second violins, the cellos a part lower than that of the violas, while the double basses take the lowest notes of all. It should be observed that through the ranges of its several instruments the string section is capable of producing full harmonies in all registers from the highest to the lowest. The string section is the most important musically as well as numerically in an orchestra; in addition to playing most of the time while the other instruments are in use, the strings have important passages by themselves, and composers often write for string orchestra alone, without the wood-winds, brass, or percussion.

In symphonic music the number of wood-wind instruments employed varies from piece to piece. Realizing that usage in this respect is not fixed, one can nevertheless select a typical wood-wind section as an example. Let us say that in a particular instance a composer has written wood-wind parts as follows: 2 flutes, 1 piccolo, 2 oboes, 1 English horn, 2 clarinets, 1 bass clarinet, 2 bassoons, and 1 contra-bassoon. With this instrumentation, the number of wood-wind players in a symphony orchestra of 100 men would come to about 12 or 15, a small group when it is realized that the same orchestra would include about 60 players in its string section. Another significant difference between the string and wood-wind sections comes in the fact that usually there is a separate part, with different notes, for each of the wood-wind players, whereas in the string section all 18 first violins play together, all 16 seconds play the same part, and there are also common parts for the members of the viola, cello, and bass sections, respectively; in other words, for the string section of 60 players there are customarily 5 different parts, but for the wood-wind group of 12 players there are 12 parts.

As in the case of the wood-wind section, the number of players in the brass group varies from piece to piece, but at full strength the section usually includes 4 French horns, 2 or 3 trumpets, 3 trombones, and 1 tuba. Usually no trumpets or horns are used unless at least 2 of each are employed, and there are either 3 trombones or none. Like the wood-winds, the brass players have individual parts. Altho numerically small,

the brass can make themselves heard without much difficulty; in the hands of fine players, however, brass instruments produce an abundance of full, musical tones, in contrast to the objectionable noisy blasts made by poor performers striving to play *fortissimo* (very loudly).

The musical mainstay of the percussion section is the kettledrum, of which there are usually 2 or 3, played, however, by one man. Bass and side or snare drums are sometimes added, as are many other instruments on occasion. From 2 to 4 men are employed in the percussion department. The orchestra outlined here totals about 100 players—the customary number. Smaller symphony orchestras—those of from 65 to 85 men—differ from larger ones, not in the number of kinds of instruments employed, but, mainly, in the number of players in the string section.

The seating plan for the players varies from orchestra to orchestra at the discretion of the conductor. Generally speaking the violins are either concentrated at the leader's left at the front of the stage, in which case the cellos and violas are placed to the right, or else the first violins are to the left and the second violins to the right of the conductor; in any event the stringed instruments are placed at the front, with the exception of the string basses which are lined up in the last row at the very back, or to one side. The brass and wood-winds are arranged somewhere back of the body of strings, and generally the instruments of a single section are grouped together. The battery is usually placed well back in the orchestra. In most cases symphony orchestras employ a system of raised platforms so that the players nearest to the conductor place their chairs either on the stage floor or on a very low platform, the height of the platforms increasing until those in the back are highest of all.

It will be helpful if the listener keeps in mind this division of the orchestra into four sections. The skillful composer uses these sections separately, he employs combinations of instruments from different groups, and sometimes writes for all of them together; the result is that he can provide a great variety of tone color for his orchestral music. Some of these things will be illustrated on this broadcast.

(In previous years a number of listeners have inquired about the place of the piano in symphonic music. Most of the time symphony orchestras employ neither pianos nor organs. The principal use of pianos in small orchestras is to supply missing parts and this, of course, is not necessary in a large ensemble. Composers often write concertos for piano and orchestra, but in these the piano appears as a solo instrument, and not as a part of the orchestra itself. Modern composers often use the piano in orchestral music, but do so in order to utilize its particular tone quality, not in the substitute rôle in which it is employed in small groups. Likewise composers occasionally write parts for the organ; this is probably done in order to obtain additional sonority. But generally speaking, symphony orchestras do not have parts for either the piano or the organ.)

Lesson 23. A Modern Composition for Full Orchestra. February 25, 1937

This section on orchestral instruments is concluded with the playing of a single composition illustrative of the modern symphony orchestra. Program notes on this music are printed on pages 8 to 9.

Record: Elgar: Falstaff—Symphonic Study with Two Interludes, Opus 68, played by the London Symphony Orchestra conducted by Sir Edward Elgar.

FOUR CONCERTS OF GREAT SONGS

Lessons 24 and 25. The Dichterliebe Cycle, by Robert Schumann. March 4 and 11, 1937

Program Notes: The texts for these sixteen songs are printed in full, together with an English translation, on the following pages:

1
Im wunderschönen Monat Mai
Als alle Knospen sprangen,
Da ist in meinem Herzen
Die Liebe aufgegangen.

Im wunderschönen Monat Mai,
Als alle Vögel sangen,
Da hab' ich ihr gestanden
Mein Sehnen und Verlangen.

2
Aus meinen Thränen sprissen
Viel blühende Blumen hervor,
Und meine Seufzer werden
Ein Nachtigallenchor.

1
'Twas in the magic month of May
When all the buds were springing,
My heart was filled with fervors,
With dreams, and young Love clinging.

'Twas in the magic month of May
When every bird was singing;
I poured out all the raptures
With which my heart was ringing.

2
Out of my tears and sorrows
The blossoming flowers arise,
And nightingales in choir
Are born of all my sighs.

Und wenn du mich lieb hast, Kindchen,
Schenk' ich dir die Blumen all',
Und vor deinem Fenster soll klingen
Das Lied der Nachtigall.

3

Die Rose, die Lilie, die Taube, die Sonne,
Die liebt' ich einst alle in Liebeswonne.
Ich lieb' sie nicht mehr, ich liebe alleine
Die Kleine, die Feine, die Reine, die Eine;
Sie selber, aller Liebe Wonne,
Ist Rose und Lilie und Taube und Sonne.

4

Wenn ich in deine Augen seh',
So schwindet all' mein Leid und Weh;
Doch wenn ich küsse deinen Mund,
So werd' ich ganz und gar gesund.

Wenn ich mich lehn' an deine Brust,
Kommt's über mich wie Himmelstust;
Doch wenn du sprichst: "Ich liebe dich!"
So muss ich weinen bitterlich.

5

Ich will meine Seele tauchen
In den Kelch der Lilie hinein;
Die Lilie soll klingend hauchen
Ein Lied von der Liebsten mein.

Das Lied soll schauern und beben
Wie der Kuss von ihrem Mund,
Den sie mir einst gegeben
In wunderbar süsser Stund!

6

Im Rhein, im heiligen Strome,
Da spiegelt sich in den Well'n,
Mit seinem grossen Dome,
Das grosse, heilige Köln.

Im Dom, da steht ein Bildniss,
Auf goldenem Leder gemalt;
In meines Lebens Wildniss
Hat's freundlich hinein gestrahlt.

Es schweben Blumen und Englein
Um unsre liebe Frau;
Die Augen, die Lippen, die Wänglein,
Die gleichen der Liebsten genau.

7

Ich grolle nicht, und wenn das Herz auch
bricht,
Ewig verlor'nes Lieb, ich grolle nicht.
Wie du auch strahlst in Diamantenpracht,
Es fällt kein Strahl in deines Herzens Nacht.

Das weiss ich längst. Ich sah dich ja im
Traume,
Und sah die Nacht in deines Herzens Raume,
Und sah die Schlang', die dir am Herzen frisst,
Ich sah, mein Lieb, wie sehr du elend bist.

8

Und wüssten's die Blumen, die kleinen,
Wie tief verwundet mein Herz,
Sie würden mit mir weinen,
Zu heilen meinen Schmerz.

Und wüssten's die Nachtigallen,
Wie ich so traurig und krank,
Sie liessen fröhlich erschallen,
Erquickenden Gesang.

Und wüssten sie mein Wehe,
Die goldenen Sternelein,
Sie kämen aus ihrer Höhe,
Und sprächen Trost mir ein.

Sie alle können's nicht wissen;
Nur eine kennt meinen Schmerz;
Sie hat ja selbst zerrissen,
Zerrissen mir das Herz.

Dear girl, if you will love me
Those flowers to you I'll bring—
And here before your window
The nightingales will sing.

3

The rose and the lily, the dove and the sun,
I loved them all once—before Love had begun.
I love them no more. I worship now solely
The one and the only most holy and lowly.
She herself is the spirit of all these in one,
Being Rose and the Lily, the Dove and the Sun.

4

Whene'er I gaze into thine eyes
Then all my grief and sorrow flies;
And when I kiss thy mouth, oh then
I am made well and strong again

And when I lean upon thy breast
My soul is soothed with godlike rest;
But when thou sayest, "I love but thee!"
Then I must weep—and bitterly.

5

I will baptize my spirit
In the lily's glowing core;
The lily shall tremble and hear it—
A song of the one I adore.

That song shall live and have me
Thrilled with a subtle power,
Like the kiss that once she gave me
In a sweet and poignant hour.

6

In the Rhine, that stream of wonder,
The great, the holy Cologne
Is mirrored, and there under
The waves the Cathedral is shown.

The Cathedral has within it
A portrait done in gold;
And, in my wild life's sin, it
Has taken a wondrous hold.

'Mid flowers and angels she stands there
Our Lady we bow before,
But the eyes and the lips and the hands there,
Are those of the one I adore.

7

I will not mourn altho' my heart be torn,
Oh love forever lost! I will not mourn.
Altho' arrayed in light and diamonds bright,
No single ray falls in thy heart's deep night.

I know this well. I saw thee in a dream
And saw the night within thy heart supreme;
And saw the snake that gnawed upon thy
heart,
I saw how wretched, oh my love, thou art.

8

And were it made known to the flowers
How wounded my heart must be,
Their tears would fall in showers
To heal my agony.

If nightingale and linnet
Knew of my sadness and pain,
Their singing would have in it
A far more joyful strain.

If sorrow's tearful traces
The golden stars could see,
They would come down from their places
And try to comfort me.

But they cannot comprehend it—
One, only knows my pain;
She took my heart to rend it
Again and yet again.

9
Das ist ein Flöten und Geigen,
Trompeten schmetternd darein,
Da tanzt wohl im Hochzeitsreigen
Die Herzallerliebste mein.

Das ist ein Klingen und Dröhnen,
Ein Pauken und ein Schalmeln;
Dazwischen schluchzen und stöhnen
Die lieblichen Engelein.

10
Hör' ich das Liedchen klingen,
Das einst die Liebste sang,
So will mir die Brust zerspringen
Von wildem Schmerzensdrang.

Es treibt mich ein dunkles Sehnen
Hinauf zur Waldeshöh',
Dort löst sich auf in Thränen
Mein übergrosses Weh.

11
Ein Jüngling liebt ein Mädchen,
Die hat einen Andern erwählt;
Der Andre liebt eine Andre,
Und hat sich mit dieser vermählt.

Das Mädchen nimmt aus Ärger,
Den ersten, besten Mann,
Der ihr in den Weg gelaufen;
Der Jüngling ist übel dran.

Es ist eine alte Geschichte,
Doch bleibt sie immer neu;
Und wem sie just passieret,
Dem bricht das Herz entzwei.

12
Am leuchtenden Sommermorgen
Geh' ich im Garten herum,
Es flüstern und sprechen die Blumen,
Ich aber wandle stumm.

Es flüstern und sprechen die Blumen,
Und schau'n mitleidig mich an:
"Sei unsrer Schwester nicht böse,
Du trauriger, blasser Mann!"

13
Ich hab' im Traum geweinet;
Mir träumte, du lägest im Grab.
Ich wachte auf, und die Thräne
Floss noch von der Wange herab.

Ich hab' im Traum geweinet;
Mir träumt', du verliesest mich.
Ich wachte auf, und ich weinte
Noch lange bitterlich.

Ich hab' im Traum geweinet;
Mir träumte, du wärest mir noch gut.
Ich wachte auf, und noch immer
Strömt meine Thränenfluth.

14
Allmächtig im Traume seh' ich dich,
Und sehe dich freundlich grüssen.
Und laut aufweinand stürz' ich mich
Zu deinen süssen Füssen.

Du siehest mich an wehmüthiglich,
Und schüttelst das blonde Köpfchen;
Aus deinen Augen schleichen sich
Die Perlethränenröpfchen.

Du sagst mir heimlich ein leises Wort
Und giebst mir den Strauss von Cypressen.
Ich wache auf, und der Strauss is fort,
Und das Wort hab' ich vergessen.

9
Oh what a piping and shrilling,
The trumpets blaze and blare,
To wedding-music thrilling
My love is dancing there.

And with what a droning and groaning
The drums and reeds are rent;
The while, with sobbing and moaning,
The cherubim lament.

10
I hear an echo singing
The song she sang for me;
And a fresh grief is wringing
My heart's old agony.

A wild unrest is sweeping
Me where the high woods grow;
There I shall lose, through weeping,
My overburdening woe.

11
A young man loves a maiden
Whose heart for another has yearned;
This other loves another
By whom his love is returned.

The maiden weds in anger
The first good man she spies
Who runs into her pathway;
The youth grows bitter and wise.

It is an old, old story,
But one that's always new;
And every time it happens
It breaks a heart in two.

12
On a radiant summer morning
Into the garden I come;
The flowers rustle and whisper
But I—I wander, dumb.

The flowers whisper and murmur,
Pleading as only they can:
"Oh be not wroth with our sister,
Thou bitter and sorrowful man!"

13
I wept as I lay dreaming,
I dreamed that you had died,
And, when I woke, the tear-drops
Clung to my cheeks undried.

I wept as I lay dreaming,
I dreamed you were false to me.
I woke, and for many hours
Lay weeping bitterly.

I wept as I lay dreaming,
I dreamed that your love was true!
I woke, to an endless weeping,
And the endless thought of you.

14
Beloved, in dreams we often meet,
And lo, your voice is kindly.
I fling myself at your gracious feet,
And weep there, long and blindly.

You shake your fair head, sunbeam-swept,
And oh, that look appealing;
As out of eyes that never wept
The blessed tears come stealing.

You whisper a word for me alone
And give me a wreath, dream-begotten.
I wake—and the cypress-wreath is gone,
And the word is quite forgotten!

Aus alten Märchen winkt es
Hervor mit weisser Hand,
Da singt es und da klingt es
Von einem Zauberland,

Wo bunte Blumen blühen
Im gold'nen Abendlicht,
Und lieblich duftend glühen
Mit bräutlichem Gesicht.

Und grüne Bäume singen
Uralte Melodei'n,
Die Lüfte heimlich klingen,
Und Vögel schmetter'n drein.

Und Nebelbilder steigen
Wohl aus der Erd' hervor
Und tanzen luft'gen Reigen,
Im wunderlichen Chor.

Und blaue Funken brennen
An jedem Blatt und Reis
Und rothe Lichter rennen
Im irren, wirren Kreis.

Und bunte Quellen brechen
Aus wildem Marmorstein,
Und seltsam in den Bächen
Strahlt fort der Widerschein.

Ach, könnt' ich dorthin kommen,
Und dort mein Herz erfreuen,
Und aller Qual entnommen,
Und frei und selig sein!

Ach! Jenes Land der Wonne,
Das seh' ich oft im Traum,
Doch kommt die Morgensonne,
Zerfließt's wie eitel Schaum.

Die alten bösen Lieder,
Die Träume böß und arg,
Die lasst uns jetzt begraben;
Holt einen grossen Sarg!

Hinein leg ich gar Manches,
Doch sag' ich noch nicht, was;
Der Sarg muss sein noch grösser,
Wie's Heidelberger Fass.

Und holt eine Todtenbahre
Und Bretter fest und dick;
Auch muss sie sein noch länger,
Als wie zu Mainz die Brück'.

Und holt mir auch zwölf Riesen,
Die müssen noch stärker sein,
Als wie der heil'ge Christoph
Im Dom zu Köln am Rhein.

Die sollen den Sarg forttragen
Und senken in's Meer hinab;
Denn solchem grossen Sarge
Gebührt ein grosses Grab.

Wisst ihr, warum der Sarg wohl
So gross und schwer mag sein?
Ich senkt' auch meine Liebe
Und meinen Schmerz hinein!

Records: Schumann: *Dichterliebe (Poet's Love)*, Opus 48, sung by Charles Panzera (baritone) with Alfred Cortot (piano).

Lessons 26 and 27. The Italienisches Liederbuch Songs, by Hugo Wolf.
March 18 and 25, 1937

Program Notes: A discussion of Wolf's place in the history of song writing is given on page 13. The texts for those of his songs used on these broadcasts follow:

From ancient fairy-stories
Beckons an airy hand;
A voice, with hints of glories,
Sings of a magic land.

Where flowers have fairer blossoms
In a golden evening's grace,
And bare their fragrant bosoms,
Lifting a bride-like face.

Where all the trees are vocal,
And all in concert sing,
And tuned to blithest music,
The liquid fountains spring.

And love strains ring melodious,
Sweet as no tongue can tell,
Till love's resistless longings
Possess thee like a spell.

And love strains ring melodious
Sweet as no tongue can tell,
Till love's resistless longings
Possess thee like a spell.

Where all the trees are vocal,
And all in concert sing,
And tuned to blithest music,
The limpid fountains spring.

Ah, to be taken yonder
To let my heart go free;
There in a land of wonder
How blessed it would be.

Ah, Land of Pleasant Places,
Land of a dreamer's dream,
Alas, like foam it passes,
Swept by a hurrying stream.

The songs, so old and bitter,
The dreams so wild and drear,
Let's bury them together—
What ho! A coffin here!

I have so much to bury
It never will be done,
Unless the coffin's larger
Than Heidelberg's great Tun.

And bring a bier to match it
Of stoutest oaks and pines;
It must be even longer
Than the long bridge at Mainz.

And also bring twelve giants
Of mightier brawn and bone
Than Christopher, the sainted,
Whose shrine is in Cologne.

And in the great sea sink it
Beneath the proudest wave;
For such a mighty coffin
Should have a mighty grave.

You know what makes my coffin
So great, so hard to bear?
It holds my love within it,
And my too heavy care.

1
Was soll der Zorn, mein Schatz, der dich er-
hitzt?
Ich bin mir keiner Sünde ja bewusst.
Ach, lieber nimm ein Messer wohlgespitzt
Und tritt zu mir, durchbohre mir die Brust.
Und taugt ein Messer nicht, so nimm ein
Schwert,
Dass meines Blutes Quell gen Himmel fährt.
Und taugt ein Schwert nicht nimm des Dolches
Stahl,
Und wasch' in meinem Blut all meine Qual.

2
Ich esse nun mein Brot nicht trocken mehr,
Ein Dorn ist mir im Fusse stecken geblieben.
Umsonst nach rechts und links blick' ich umher,
Und keinen find' ich, der mich möchte lieben.

Wenn's doch auch nur ein altes Männlein wäre,
Das mir erzeugt' ein wenig Lieb' und Ehre.
Ich meine nämlich, so ein wohlgestalter,
Ehrbarer Greis, etwa von meinem Alter.
Ich meine, um mich ganz zu offenbaren,
Ein altes Männlein so von vierzehn Jahren.

3
Wie sollt ich fröhlich sein und lachen gar,
Da du mir immer zürnest unverhohlen?
Du kommst nur einmal alle hundert Jahr,
Und dann, als hätte man dir's anbefohlen.

Was kommst du, wenn's die Deinen ungen
sehn?
Gieb frei mein Herz, dann magst du weiter
geh'n.
Daherin mit deinen Leuten leb' in Frieden,
Denn was der Himmel will, geschieht hinieden.
Halt Frieden mit den Deinigen zu Haus,
Denn was der Himmel will, das bleibt nicht aus.

4
Wie lange schon war immer mein Verlangen:
Ach, wäre doch ein Musikus mir gut!
Nun liess der Herr mich meinen Wunsch er-
langen
Und schickt mir einen, ganz wie Milch und
Blut.

Da kommt er eben her mit sanfter Miene,
Und senkt den Kopf und spielt die Violine.

5
Du sagst mir, dass ich keine Fürstin sei;
Auch du bist nicht auf Spaniens Thron ent-
sprossen.
Nein Bester, stehst du auf bei Hahnenschrei,
Fährst du aufs Feld und nicht in Staatskaros-
sen.

Du spottest mein um meine Niedrigkeit,
Doch Armut tut dem Adel nichts zu Leid.
Du spottest, dass mir Krone fehlt und Wappen,
Und führst doch selber nur mit Schusters Rap-
pen.

6
Ich liess mir sagen und mir ward erzählt,
Der schöne Toni hung're sich zu Tode;
Seit ihn so überaus die Liebe quält
Nimmt er auf einen Backzahn sieben Brote.

Nach Tisch, damit er die Verdauung stählt,
Verspeis't er eine Wurst und sieben Brote,
Und lindert nicht Tonina seine Pein,
Bricht nächstens Hungersnot und Teurung ein.

7
Wohl kenn' ich Euren Stand, der nicht gering.
Ihr brauchtet nicht so tief herab zu steigen,
Zu lieben solch ein arm und niedrig Ding,
Da sich vor Euch die Allerschönsten neigen.

1
Why all this wrath that doth thy soul pervade?
No one but thou hath e'er my love possess'd.
Ah, rather take a knife with sharpen'd blade
And come to me and thrust it through my
breast.

And if no knife suffice then take a sword,
That my hot blood may gush forth heaven-
ward.
And if no sword avail a dagger take,
And with my life-blood all my torment slake.

2
No more unmoisten'd do I eat my bread,
A thorn within my foot doth cause my anguish.
Alas to right and left I turn my head,
And none I find to love me or to cherish.

E'en with an old man I would be content
If his affection were but on me spent.
I do not mean an old man in his dotage,
I mean a little old man of my own age.
In fact quite clearly I will state my reason,
I mean an old man in his fourteenth season.

3
How can I e'er rejoice or merry be,
When you are cold and show disdain so
plainly?
You come to me once in a century,
As if it were some irksome duty mainly.

Why come at all when others bid you stay?
Set free my heart, then you may go your way.
Remain with your own friends and live in
peace.
For still shall come to pass what Heav'n de-
crees.
In peace at home with your own friends abide,
But know that Heav'n's decree is ne'er denied.

4
How often have I prayed in fervent mood,
That a musician might my true love be.
Now gracious heav'n, in very flesh and blood,
The man of my desire hath sent to me.

See here he comes along with gentle mien,
And bows his head and plays the violin.

5
You tell me I am not of royal birth,
Are you of Spain's great royal house a scion?
When day dawns you must rise to till the
earth,
Nor is it any royal couch you lie on.

You scoff at me and at my lowly birth,
Yet poverty does not detract from worth,
And though I have no crest nor patent letter,
My friend, I'll wager, you are no whit better.

6
I was informed and I grieved to hear,
That my dear Toni is of hunger dying;
For since the pangs of love are so severe
No less than seven loaves prove satisfying.

And then, to strengthen his digestive pow'r,
A sausage too he'll eat within the hour,
So if Tonina does not ease his pain,
Of famine in the land we'll soon complain.

7
Well do I know thee and I know thy worth,
There was no need for thee to condescend,
Nor stoop to love a maid of humble birth,
When of the fairest thou might'st be the friend.

Die schönsten Männer leicht besieget Ihr,
Drum weiss ich wohl, Ihr treibt nur Spiel mit mir.
Ihr spottet mein, man hat mich warnen wollen.
Doch ach, Ihr seid so schön! Wer kann Euch grollen?

8

Man sagt mir, deine Mutter woll' es nicht;
So bleibe weg, mein Schatz, tu' ihr den Willen.
Ach Liebster, nein! tu' ihr den Willen nicht.
Besuch' mich doch, tu's ihr zum Trotz, im Stillen!

Nein, mein Geliebter, folg' ihr nimmermehr,
Tu's ihr zum Trotz, komm öfter als bisher!
Nein, höre nicht auf sie, was sie auch sage;
Tu's ihr zum Trotz, mein Lieb, komm alle Tage!

9

Wenn du, mein Liebster, steigst zum Himmel auf,
Trag' ich mein Herz dir in der Hand entgegen.
So liebevoll umarmst du mich darauf,
Dann woll'n wir uns dem Herrn zu Füssen legen.

Und sieht der Herrgott uns're Liebesschmerzen,
Macht er Ein Herz aus zwei verliebten Herzen.
Zu Einem Herzen fügt er zwei zusammen,
Im Paradies, umglänzt von Himmelsflammen.

10

Mein Liebster singt am Haus im Mondenschein,
Und ich muss lauschend hier im Bette liegen.
Weg von der Mutter wend' ich mich und weine,
Blut sind die Tränen, die mir nicht versiegen.

Den breiten Strom am Bett hab' ich geweint,
Weiss nicht vor Tränen ob der Morgen scheint.
Den breiten Strom am Bett weint' ich vor Sehnen;
Blind haben mich gemacht die blut'gen Tränen.

11

O wär' dein Haus durchsichtig wie ein Glas,
Mein Holder, wenn ich mich vorüberstehe!
Dann säh' ich drinnen dich ohn' Unterlass,
Wie blickt' ich dann nach dir mit ganzer Seele!

Wie viele Blicke schickte dir mein Herz,
Mehr als da Tropfen hat der Fluss im März!
Wie viele Blicke schickt' ich dir entgegen,
Mehr als da Tropfen niedersprühn im Regen!

12

Gesegnet sei das Grün und wer es trägt!
Ein grünes Kleid will ich mir machen lassen.
Ein grünes Kleid trägt auch die Frühlingstau.
Grün kleidet sich der Liebling meiner Augen.

In Grün sich kleiden ist der Jäger Brauch,
Ein grünes Kleid trägt mein Geliebter auch;
Das Grün steht allen Dingen lieblich an,
Aus Grün wächst jede schöne Frucht heran.

13

Mir ward gesagt, du reisest in die Ferne.
Ach, wohin gehst du, mein beliebtes Leben?
Den Tag, an dem du scheidest, wüssst' ich gerne.
Mit Tränen will ich das Geleit dir geben.

Mit Tränen will ich deinen Weg befeuchten
Gedenk' an mich, und Hoffnung wird mir leuchten!

Mit Tränen bin ich bei dir allerwärts
Gedenk' an mich, vergiss es nicht, mein Herz!

The finest men are all by thee surpass'd,
On me thou only ridicule didst cast.
They warn'd me well, thou only dost deride me,
But ah! I love thee so, I cannot chide thee.

8

Thy mother bids thee not to come to me;
Then stay away, forsooth, if 'tis her pleasure.
Ah, loved one, nay! obey not her decree,
Come secretly, deceive her in this measure!

Nay, do not list'n to her, but I implore,
In spite of her come off'ner than before!
Nay, harken not to her, what e'er she say;
In spite of her, my love, come ev'ry day.

9

When thou, my love, to Heaven dost ascend,
In loving greeting I my heart will proffer;
Then thou to love's embrace wilt fondly bend,
And jointly to the Lord our love we'll offer.

Then on our love the Lord will pity take,
Two loving hearts into one heart He'll make,
One throbbing heart of two fond hearts He'll fashion,
In Paradise they'll glow with love's pure passion.

10

My lover sings and bright the moon is gleaming,
While I listening here must in bed be lying.
Down my hot cheeks the scalding tears are streaming,
I hide my face lest Mother see me crying.

My eyes are dim with weeping all the night,
My tears blot out the rosy morning light.
With ardent longing ev'ry pulse is throbbing,
Blind have I made myself with ceaseless sobbing.

11

Would that thy house were transparent as glass,
That always thou wert visible to me!
Then I might see thee when that way I pass,
And glances full of love I'd send to thee!

More loving greetings would my glances bring,
Than there are drops in all the floods of spring!
More words of love to thee I would be calling,
Than all the drops of rain from heaven falling!

12

How I love green and whoso wears this shade!
A dress of green I forthwith will have made.
The springtime too in dress of green is clad,
Green is the dress my lov'd one always had.

The hunter bold a suit of green doth wear,
My lover too in green doth now appear;
Why green doth surely beautify each thing,
And all fine fruit to a green stem doth cling.

13

They tell me that for distant lands thou'rt starting,
Ah, whither go'st thou, my heart's beloved say?
I fain would know the hour of thy departing,
That tears of love may speed thee on thy way.

With tears of love thy path I will bedew,
Ah! Think of me, then hope will spring anew!
My tears shall rain like blessings from above,
Ah think of me, do not forget, my love!

Mein Liebster ist so klein, dass ohne Bücken,
Er mir das Zimmer fegt mit seinen Locken.
Als er ins Gärtlein ging, Jasmin zu pflücken,
Ist er vor einer Schnecke sehr erschrocken.

Dann setzt er sich ins Haus um zu verschnau-
fen.

Da warf ihn eine Fliege übern Haufen;
Und als er hintrat an mein Fensterlein,
Stiess eine Bremse ihm den Schädel ein.

Verwünscht sei'n alle Fliegen, Schnaken, Brem-
sen.

Und wer ein Schätzchen hat aus den Marem-
men!

Verwünscht sei'n alle Fliegen, Schnaken, Mük-
ken.

Und wer sich, wenn er küsst, so tief muss
bücken!

Ich hab' in Penna einen Liebsten wohnen,
In der Maremmeneb'ne einen andern,
Einen im schönen Hafen von Ancona,
Zum vierten muss ich nach Viterbo wandern;
Ein and'rer wohnt in Casentino dort,
Der nächste lebt mit mir am selben Ort,
Und wieder einen hab' ich in Magione,
Vier in La Fratta, zehn in Castiglione.

Gesegnet sei, durch den die Welt entstand;
Wie trefflich schuf er sie nach allen Seiten!
Er schuf das Meer mit endlos tiefem Grund,
Er schuf die Schiffe die hinübergleiten,
Er schuf das Paradies mit ew'gem Licht,
Er schuf die Schönheit und dein Angesicht.

Ihr seid die Allerschönste weit und breit,
Viel schöner als im Mai der Blumenflor,
Orvieto's Dom steigt so voll Herrlichkeit,
Viterbo's grösster Brunnen nicht empor.

So hoher Reiz und Zauber ist dein eigen,
Der Dom von Siena muss sich vor dir neigen.
Ach, du bist so an Reiz und Anmut reich,
Der Dom von Siena selbst ist dir nicht gleich.

Hoffärtig seid Ihr, schönes Kind,
Und geht mit Euren Freiern um auf stolzem
Fuss,
Spricht man Euch an, kaum dass Ihr Rede
steht,
Als kostet' Euch zu viel ein holder Gruss.

Bist keines Alexanders Töchterlein,
Kein Königreich wird deine Mitgift sein,
Und willst du nicht das Gold, so nimm das
Zinn;
Willst du nicht Liebe nimm Verachtung hin.

Dass doch gemalt all' deine Reize wären,
Und dann der Heidenfürst das Bildnis fände,
Er würde dir ein gross' Geschenk verehren,
Und legte seine Kron' in deine Hände.

Zum rechten Glauben müsst' sich bekehren
Sein ganzes Reich bis an sein fern'stes Ende,
Im ganzen Lande würd' es ausgesprochen,
Christ soll ein Jeder werden und dich lieben.
Ein jeder Heide flugs bekehrte sich
Und würd' ein guter Christ und liebte dich.

My lover is so small, that without bending,
He sweeps my parlor floor with locks atrailing.
When through the garden he his way was
wending,
A snail among the flowers found him quailing.

Then ere from this great fright he could re-
cover,

There came a fly and fairly knocked him over;
And when from this new terror he had fled,
A bumblebee flew past and broke his head.

A plague on gnats and flies and all things
humming,

And ev'ry lover from Maremma coming!

A plague on bumblebees and all things whiz-
zing,

And all who make one stoop so low for kissing!

I have a lover true who lives in Penna,
And one in the Maremma plain o'er yonder,
One by the sunny harbor of Ancona,
To meet the fourth I'll to Viterbo wander;
Another dwells in Casentino near,
The next one lives in my own village here,
And still another have I in Magione,
Four in La Fratta, ten in Castiglione.

Give praise to Him through Whom the world
arose!
How excellent His works on ev'ry side!
He made the ocean, with its wondrous deeps,
He made the vessels, that o'er its surface glide,
He made th' eternal light of Paradise,
Created beauty and thy beauteous eyes.

Indeed thou art the fairest far and wide,
Far lovelier than all the flow'rs of May,
Thy beauty doth surpass Orvieto's pride,
With thee Viterbo's fountain cannot vie.

So full of grace and charm thou art pro-
claimed,
The dome of Siena is by thy beauty shamed.
Ah! thine is loveliness so rich and rare,
E'en Siena's dome cannot with thee compare.

Haughty and proud art thou, fair maid,
And those that woo thee do but know thy
callous pride.
Scarce dost thou deign a gracious word to
speak,
E'en gentle greeting is by thee denied.

Forsooth, thou'rt not of Alexander's race,
No kingdom great will e'er thy dower be,
And if thou spurnest gold, take metal base;
If love thou wilt not, take contempt from me.

Would that thy charms were painted by thy
lover,
And heathen prince the picture might discover,
Before thy shrine his homage he'd be paying,
Into thy hands his crown he would be laying.

In pious worship each subject bending
Throughout his kingdom to its furthest ending,
If through the land were issued a decree,
That all should now turn Christian and love
thee,
Of every heathen straight 'twould converts
make,
They'd all be Christian true for thy love's sake.

Und willst du deinen Liebsten sterben sehen,
So trage nicht dein Haar gelockt, du Holde!
Lass von den Schultern frei sie niederwehen;
Wie Fäden sehn sie aus von purem Golde.

Wie gold'ne Fäden, die der Wind bewegt,
Schön sind die Haare, schön ist, die sie trägt!
Goldfäden, Seidenfäden ungezählt,
Schön sind die Haare, schön ist, die sie strahlt.

Wenn du mich mit den Augen streifst und
lachst,
Sie senkst, und neigst das Kinn zum Busen
dann,
Bitt' ich, dass du mir erst ein Zeichen machst,
Damit ich doch mein Herz auch bänd'gen kann,
Dass ich mein Herz mag bänd'gen, zahm und
still,
Wenn es vor grosser Liebe springen will,
Dass ich mein Herz mag halten in der Brust,
Wenn es ausbrechen will vor grosser Lust.

Heut' Nacht erhob ich mich um Mitternacht,
Da war mein Herz mir heimlich fortgeschlichen.
Ich frug: "Herz, wohin stürmst du so mit
Macht?"
Es sprach: "Nur Euch zu sehn, sei es entwi-
chen."
Nun sieh, wie muss es um mein Lieben stehn:
Mein Herz entweicht der Brust, um dich zu
sehn.

Ein Ständchen Euch zu bringen kam ich her,
Wenn es dem Herrn vom Haus nicht ungelegen.
Ihr habt ein schönes Töchterlein.
Es wär' wohl gut, sie nicht zu streng im Haus
zu hegen.

Und liegt sie schon im Bett, so bitt' ich sehr,
Tut es zu wissen ihr von meinetwegen,
Dass ihr Getreuer hier vorbeigekommen,
Der Tag und Nacht sie in den Sinn genommen.
Und dass am Tag, der vierundzwanzig zählt,
Sie fünfundzwanzig Stunden lang mir fehlt.

Nun lass uns Frieden schliessen, liebstes Leben,
Zu lang ist's schon, dass wir in Fehde liegen.
Wenn du nicht willst, will ich mich dir ergeben;
Wie könnten wir uns auf den Tod bekriegen?

Es schliessen Frieden Könige und Fürsten,
Und sollten Liebende nicht darnach dürsten?
Es schliessen Frieden Fürsten und Soldaten,
Und sollt' es zwei Verliebten wohl missraten?

Meinst du, dass, was so grossen Herrn gelingt,
Ein Paar zufried'ner Herzen nicht vollbringt?

Wir haben beide lange Zeit geschwiegen,
Auf einmal kam uns nun die Sprache wieder.
Die Engel, die herab vom Himmel fliegen,
Sie brachten nach dem Krieg den Frieden wie-
der.

Die Engel Gottes sind herabgeflogen,
Mit ihnen ist der Frieden eingezo-gen.
Die Liebesengel kamen über Nacht
Und haben Frieden meiner Brust gebracht.

If thou wouldst see thy lover ravished, dying,
Thy tresses, dear, thou never must be tying.
From off thy shoulders let thine hair be stream-
ing;
Like threads of purest gold it will be gleaming.

Like threads of gold that in the breeze do
move,
Fair are thy tresses, fairer thou, my love!
Threads golden, threads so silken, threads un-
told,
Gold are thy tresses, fairer thou than gold.

When thou dost bow thy head upon thy breast,
And in a smile thy lips, in arch do part,
I beg of thee that thou wilt make some sign,
That I may tame my wildly beating heart,
That I my wildly beating heart may tame,
Lest it be quite consumed by passion's flame,
That this wild throbbing of my heart be stilled,
When to o'erflowing it with love is filled.

I rose from slumber at the dawn of day,
When lo my heart had silent crept away.
I asked: "Heart, tell me why away you fled?"
It said: "To gaze on thee it hence had sped."
Behold, how great the power of love must be:
My heart doth leave my breast to come to thee.

A serenade to sing you do I come,
If but the master here have no objection.
A daughter fair doth grace your home,
You should, methinks, not keep her in such
close subjection.

And if to rest she's gone, I humbly pray,
This message you'll to her from me convey,
That her true lover just has passed this way,
Who cherishes her image night and day,
And though the day hath hours but twenty-
four,
For twenty-five full hours he'll miss her sore.

My dearest life, now let us peace conclude,
Too long a time has raged our lovers' feud.
I'll yield to thee, if thou shouldst prove un-
bending;
Why should we fight unto this bitter ending?

Twixt kings and nobles peace is oft concluded,
And should true lovers of peace be deluded?
If peace twixt prince and soldier doth avail,
Why should it twixt true lovers ever fail?

Dost think that if these great ones peace can
touch,
Two loving hearts cannot achieve as much?

In silence each the other passed unheeding,
Till speech at length once more to use was
given.
The angels who are ever earthward speeding,
Brought after our long feud the peace of
heaven.

God's angels came from heaven earthward
winging,
And on their pinions heav'nly peace were
bringing,
And love's fair angels too came from above,
And filled my heart with peace and perfect
love.

Geselle, woll'n wir uns in Kutten hüllen,
Die Welt dem lassen, den sie mag ergötzen?
Dann pochen wir an Tür um Tür im stillen:
"Geht einem armen Mönch um Jesu willen."

O, lieber Pater, du musst später kommen,
Wenn aus dem Ofen wir das Brot genommen.
O, lieber Pater, komm nur später wieder,
Ein Töchterlein von mir liegt krank danieder.

Und ist sie krank, so lasst mich zu ihr gehen.
Dass sie nicht etwa sterbe unversehen.
Und ist sie krank, so lasst mich nach ihr schauen.
Dass sie mir ihre Beichte mag vertrauen.
Schliesst Tür und Fenster, dass uns keiner störe.
Wenn ich des armen Kindes Beichte höre!

Heb' auf dein blondes Haupt und schlafe nicht,
Und lass dich ja vom Schlummer nicht betören.
Ich sage dir vier Worte von Gewicht,
Von denen darfst du keines überhören.

Das erste: dass um dich mein Herze bricht,
Das zweite: dir nur will ich angehören,
Das dritte: dass ich dir mein Heil befehle,
Das letzte: dich allein liebt meine Seele.

Sterb' ich, so hüllt in Blumen meine Glieder:
Ich wünsche nicht, dass ihr ein Grab mir grabt.
Genüber jenen Mauern legt mich nieder,
Wo ihr so manchmal mich gesehen habt.

Dort legt mich hin in Regen oder Wind;
Gern sterb' ich, ist's um dich, geliebtes Kind.
Dort legt mich hin in Sonnenschein und Regen:
Ich sterbe lieblich, sterb' ich deinewegen.

Wie viele Zeit verlor ich, dich zu lieben!
Hätt' ich doch Gott geliebt in all der Zeit.
Ein Platz im Paradies wär' mir geschrieben,
Ein Heil'ger sässe dann an meiner Seit'.

Und weil ich dich geliebt, schön frisch Gesicht,
Verscherzt' ich mir des Paradieses Licht,
Und weil ich dich geliebt, schön Veigelein,
Komm' ich nun nicht ins Paradies hinein.

Was für ein Lied soll dir gesungen werden,
Das deiner würdig sei? Wo find' ich's nur?
Am liebsten grüb' ich es tief aus der Erden,
Gesungen noch von keiner Kreatur.
Ein Lied, das weder Mann noch Weib bis heute
Hört' oder sang, selbst nicht die ält'sten Leute.

Now comrade, garb yourself in monk's rai-
ment,
To others leave the pleasures of the city.
We'll steal from door to door with beggar's
lament:
"For God's sake on a needy monk take pity."

Oh, holy father, you must come again,
When from the oven we our bread have ta'en.
Oh, holy father, come later, for in anguish
My daughter on bed of sickness languish.

If she is sick, then let me to her hasten,
Her sinful soul with holy words to chasten.
If she is sick let me take her confession,
Lest she should die without my intercession.
Close doors and windows, none be interfering,
While the poor child's confession I am hearing!

Ah! lift up thy fair head and do not sleep,
Lest slumber claim thee wholly now I'm fear-
ing.
Four words I utter, full of meaning deep,
I would not have one word escape thine hear-
ing.

The first: that my heart breaks for love of thee,
The second: that thine only will I be,
The third: that nought from thee my soul can
sever,
The fourth: that I am thine now and forever.

Wrap me in flowers when my end doth come,
Nor let me cause your heart one sad regret.
Dig me no grave but lay me by those ruins
Where you and I so oftentimes have met.

There lay me down where rain falls from
above,
I'll gladly die if 'tis for thee my love,
In sunshine or in rain there leave me lying;
How blissful that for thee I shall be dying.

What precious time I've wasted only loving
thee!
Had I but loved the Lord in all that time,
Some saint in Heaven might then my neighbor
be,
A place in Paradise were surely mine.

But as I loved but thee and thy bright eyes,
I fear I've lost my chance of Paradise,
And as I loved but thee and thy fair face,
In Paradise I cannot find a place.

How shall I sing thy praise in worthy measure,
No mortal yet a fitting song hath found.
I'd probe earth's deepest depths to find this
treasure,
I'd make the world with praise of thee re-
sound,
A song I'll seek that ne'er before had singer
And haunting in the memory will linger.

Records: Wolf: Thirty songs from the *Italienisches Liederbuch*, sung by various soloists. The names of the performers are given in the record list on page 31.

FOUR PROGRAMS OF PIANO MUSIC

Lesson 28. Kinderscenen (Scenes from Childhood), by Robert Schumann.
April 1, 1937

Purpose: Altho this is the sixth year that this series of music appreciation programs has been broadcast, very little piano music has ever been illustrated. In fact, except for the Beethoven *Moonlight Sonata* and *Emperor Concerto*, no piano selec-

tions have been used at all. The piano compositions included on the programs this year are the work of five of the outstanding piano virtuosos and composers of the past and present; the composers represented are Schumann, Chopin, Liszt, Brahms, and Rachmaninoff.

Program Notes: Information about Schumann's *Scenes from Childhood* is given on page 6 of this bulletin.

Records: Schumann: *Kinderscenen (Scenes from Childhood)*, Opus 15, played by Alfred Cortot (piano).

Lesson 29. The Twenty-Four Preludes, by Chopin. April 8, 1937

Information on the Chopin *Preludes* is given on page 7.

Records: Chopin: *Twenty-four Preludes*, Opus 28, played by Alfred Cortot (piano).

Lesson 30. Music by Liszt and Brahms. April 15, 1937

Program notes on the Paganini *Caprice in A Minor* which was transcribed by Liszt, and which suggested to Brahms a set of variations on its theme, are printed on pages 5-6.

Records: Liszt: *Grand Etude after Paganini*, Number 6 in A Minor, played by Claudio Arrau (piano); Brahms: *Studies for the Piano: Variations on a Theme by Paganini*, Opus 35, played by Wilhelm Bachaus (piano).

**Lesson 31. Music for Piano and Orchestra, by Sergei Rachmaninoff.
April 22, 1937**

Comments on the Rachmaninoff *Rhapsody* are provided on page 6.

Records: Rachmaninoff: *Rhapsody on a Theme of Paganini*, Opus 43, played by Sergei Rachmaninoff (piano) with the Philadelphia Symphony Orchestra conducted by Leopold Stokowski.

LISTENING TO MUSIC IN MOVEMENTS

Lesson 32. The Sonata Form. April 29, 1937

Purpose: To conclude the broadcasts for this year the six cyclic works used in the course of the earlier programs are being grouped together in such a way as to illustrate some of the salient features of music written in movements. Preceding the presentation of these selections one lesson is being devoted to a discussion of the sonata form, the musical form employed in the first movements of most cyclic works.

Program Notes: The sonata form is one of the most significant of instrumental forms, and the principal sections of much of the world's finest instrumental music have followed this pattern; its only rival here is the fugue, a type of music not illustrated in the programs for this year. Compositions in sonata form may be divided into three sections: the *exposition*, in which the two main themes of the movement are presented; the *development*, in which these themes—and perhaps some others—are played in many different ways, or as the musicians say, are “developed”; and the *recapitulation*, which is a repetition of the first section or exposition, altho with various changes so that it is never exactly like the opening section. In many cases the recapitulation is followed by a *coda*, a sort of epilog used to bring the movement to a better conclusion. A composer is free to write any music he wishes in the sonata form, and often a composition such as an overture or other single movement work will be constructed after this pattern, but its most famous use is in the opening movements of cyclic works—compositions such as sonatas, concertos, symphonies, or chamber music works. However, a musician may write a first movement in some other form, or may cast as many other movements of a piece in the sonata form as he pleases. The last movement of a work is often in sonata form, and the first one almost always is, altho the composer is free to alter either the form of his movements, or to take liberties within the forms he employs.

The only difference between a sonata, a concerto, a symphony, and a chamber music work in several movements, is in the instrumentation employed, and not in the music itself. For example, a solo for piano or for some single instrument with piano (violin and piano, cello and piano), is, if in the correct form, a “sonata.” The very same piece written for a solo instrument with orchestra (piano and orchestra, violin and orchestra) is a “concerto.” If composed for orchestra it is a “symphony.” Written for a chamber music group it is named according to its instrumentation; thus, a

"sonata" for two violins, one viola, and one cello is called a "string quartet," and if for the same group plus a piano, it is "a piano quintet." Yet in each of these cases the themes, form, and everything about the pieces except the instrumentation employed may be exactly the same. It should be remembered, however, that this use of these terms is relatively recent; Haydn, Schubert, Schumann, Chopin, Mendelssohn, Brahms, and others writing after about 1750 usually defined them in this way, but earlier composers, such as Vivaldi, Bach, and Handel, used them in a somewhat different manner.

A complete cyclic work usually contains three or four movements, each of which is contrasted with the others in mood and in type. A three-movement work usually consists of an opening section in sonata form which is rather fast in tempo, serious, and more or less imposing. The second movement is simpler in structure, and usually is a "slow movement," that is, it is primarily melodic, often approximating a song, and is less dependent upon rhythmic appeal. The last movement is generally fast, and is planned to conclude the selection in an energetic, forceful manner, a practice comparable to the natural impulse to give a story a happy ending, or to the human trait of trying to leave a strong, favorable last impression. A four-movement piece may be roughly described as a three-movement work with the addition of an extra movement between its second and last sections. The movement added is usually either a minuet, a scherzo, or a derivative of one of them. It is generally much lighter in emotional content than the second movement, and more rhythmic in character; it is as if the composer, after requiring our concentration during the second section, lets us relax and dance away our cares during the third.

One of the purposes of movements in cyclic works is to provide variety; it is for this reason that they are contrasted with each other in tempo, in character, and in the degree of concentration they require of the listener. As a logical variant of the customary order of movements, there are four movement works in which the second movement is the *scherzo* while the slow movement is placed third; this is the case with Beethoven's *Ninth Symphony* and his *Hammerclavier Sonata*; and in Brahms' *Concerto in B₂ Major*, for piano and orchestra. Since the profound opening movements in these works require a high degree of concentration the composers have placed the "relaxation movement" after the opening section rather than in the usual place. These exceptions merely illustrate further one of the basic rules governing the construction of compositions in several movements, that is, the movements are arranged to provide a contrast between each other, thus heightening the effect of each.

Finally it should be observed that altho music is usually written so that the performers stop for a moment before beginning each new movement, there are numerous exceptions. The last two movements of Beethoven's *Fifth Symphony*, for example, are played without pause, as are the last three movements of the *Sixth (Pastoral) Symphony* by the same composer, which, incidentally, contains five movements. It is seen throughout that there is no hard and fast rule governing the use of movements in pieces or their form, altho a few generalizations may be made as to the customary procedure.

Records: One or more movements from the instrumental music for these broadcasts will be taken for analysis during this program.

Lesson 33. The Sonata in D Minor for Solo Violin, by Johann Sebastian Bach. May 6, 1937

Program Notes: At the outset it should be pointed out that the sonata form which was discussed at length in last week's program is nowhere present in this work by Bach, so that this is not a sonata in the same sense as would be a work bearing that name by Haydn, Mozart, Beethoven, or Brahms. Bach used the term "sonata" to apply to a solo instrumental work as distinguished from certain types of vocal compositions—a usage common in his day.

Johann Sebastian Bach (1685-1750) wrote a set of six compositions for unaccompanied violin which have justly taken their place in the front rank of music for that instrument. Exploiting to the utmost the violin technic of his day, they remain a test of technical accomplishment for the finest virtuosi of today as well. Further than that, they are compositions of the most solid musical worth. Much confusion exists because of the several systems of naming and numbering these six compositions. Sometimes they are referred to as six sonatas, on other occasions as three sonatas and three partitas. Thus it happens that the work to be played on these programs is sometimes known as the second partita, and sometimes as the fourth sonata, but it may be definitely established by its key, since it is the only one of the six to be written in D minor.

These six compositions could be made the subject of extended study from the standpoint of both violinists and musical theorists. Suffice it to say that the violin of today, having four strings supported by a rounded bridge, and being played with a bow the hair of which is held taut at all times, cannot sound more than two notes at once; thus if a chord which is to be sounded on three strings is called for, the performer must play the notes one after another, since he cannot sustain more than two notes at a given moment. But the violin bow of Bach's day was constructed in such a manner that the hair was left loose, the desired degree of tension being supplied by the player's right hand. Altho this proved a disadvantage in many cases, it was possible for the performer to suddenly relax the hair so that it could touch three or four strings at a time, whereas today, with the hair of the bow constantly pulled tight, this is out of the question. Thus Bach expected the violinists playing his sonatas to be able to sound more than two notes at a time, and wrote certain passages which today cannot be played in just the way he intended. Altho the performer today must lose some of the effects desired by Bach, on the whole he can present a more brilliant performance than could the players of the eighteenth century. (These sonatas were composed in about 1720.)

The *Sonata in D Minor* contains five movements which derive their names and characteristics from dances of Bach's day and before. The first is an allemande, the second a courante, the third a sarabande, the fourth a gigue, and the last is the famous chaconne. The chaconne from this sonata, unquestionably the classic piece for solo violin, is sometimes heard in transcriptions for other combinations, notably for full orchestra. The chaconne, like the passacaglia (which differs from it only in minor details), is a form of theme and variations. The theme for the chaconne in this work is reproduced below, in the notation used by Bach in his version for solo violin:



Records: Bach: *Sonata No. 4 in D Minor* (Partita No. 2) played by Yehudi Menuhin (violin).

Lesson 34. The Quartet in C Major (Emperor), by Joseph Haydn. May 13, 1937

Program Notes: The *Quartet in C Major*, by Joseph Haydn (1732-1809), is called the *Emperor Quartet* because the second movement is a set of four variations on the Austrian national hymn. During his several visits to England Haydn had been impressed with the fact that the Austrians had no national song corresponding to the English *God Save the King*, (which incidentally is sung to the same tune we later adopted for *America*), and he resolved to write one. The words were provided by an Austrian poet of that day, and Haydn wrote the music in January, 1797. The first performance was on February 12, 1797, on the Emperor's birthday. Because of its sublime, devotional quality the melody is often used in this country as a hymn tune.

Records: Haydn: *Quartet in C Major*, Opus 76, No. 4 ("Emperor" Quartet), played by the Léner String Quartet.

Lesson 35. The Quintet in C Major, by Franz Schubert. May 20, 1937

Program Notes: The *Quintet in C Major* was scored by Schubert for two violins, one viola, and two cellos. It is more often the case that string quintets are written for the conventional string quartet group (two violins, viola, and cello) plus an additional viola, but Schubert adopted here the expedient of providing an extra cello part. This, incidentally, results in his using the same combination for which Boccherini—who happened to be a cello player—wrote some 125 quartets. (The famous Boccherini minuet was taken from one of these.) As a result of the use of two cellos, this music takes on a heavier, more somber character than would have been the case had the extra instrument been a viola.

This work was completed in the month of Schubert's death, and while he was composing it, Schubert realized that death would soon be his lot. (Schubert lived from 1797 to 1828.) Thus the music was affected by the composer's state of mind, but only in such a way as to render it even more beautiful than most of his music. This great work—his "swan song"—is one of his greatest compositions in any form, and is probably his best chamber work. Its hauntingly lovely melodies will recommend it to everyone.

Records: Schubert: *Quintet in C Major*, Opus 163, played by the Pro Arte String Quartet with Anthony Pini (second cello).

Lesson 36. The Piano Quartet in G Minor, by Johannes Brahms. May 27, 1937

Program Notes: The suggestion has often been seriously advanced that Johannes Brahms (1833-1897) did his best composing when he wrote his chamber music. Regardless of whether or not this statement could be definitely proved, no one can deny that Brahms' consummate workmanship rendered his chamber works among the finest from any composer's pen. Probably no composer ever approached his task with the seriousness assumed by Brahms, and certainly none surpassed him in the holding of a critical attitude toward his own works; it seems safe to believe that Brahms discarded two compositions for every one he published.

Of Brahms' twenty-four chamber music works, three are piano quartets; two of these were published at about the same time and bear the opus numbers 25 and 26, while the third, Opus 60 in C Minor, tho published a dozen years later, was apparently composed—in part—at about the same time as the first two, being a strange mixture of the younger and the older Brahms. The composition chosen for this program is the *Quartet in G Minor*, Opus 25. It is the music of an enthusiastic youth in his late twenties, and possesses indefatigable energy and exuberance as a consequence. It shows the effect of such varied sources as the music of Bach, Mozart, and Beethoven, and the elements of German and Hungarian folk and gypsy music. Brahms wrote greater music than this quartet, but, from the standpoint of the average listener, nothing more likeable.

Records: Brahms: *Quartet in G Minor*, Opus 25, played by Arthur Rubinstein (piano) and members of the Pro Arte Quartet.

Lesson 37. The Italian Symphony, by Felix Mendelssohn. June 3, 1937

Program notes on this work are printed on pages 9-11.

Records: Mendelssohn: *Symphony No. 4 in A Major*, Opus 90, ("Italian" Symphony), played by the Boston Symphony Orchestra conducted by Serge Koussevitzky.

Lesson 38. The Concerto in D Minor, by Jean Sibelius. June 10, 1937

Information on the Sibelius concerto is given on pages 11-12.

Records: Sibelius: *Concerto in D Minor*, played by Jascha Heifetz (violin) with the London Philharmonic Orchestra conducted by Sir Thomas Beecham.

RECORD LIST

This list includes the composers, titles, performers, manufacturers, and prices of all the records used on the broadcasts. The following code is used: C—Columbia; HMV—His Master's Voice (the English firm corresponding to the Victor in the United States); PD—Polydor (a foreign company); V—Victor.

- Bach.* Sonata No. 4 in D Minor. (Partita No. 2.) Eight sides. Yehudi Menuhin (violin). Four 12" records. Victor Set M-232. \$8.00.
- Brahms.* Quartet in G Minor, Opus 25. Eight sides. Arthur Rubinstein (piano) and members of the Pro Arte Quartet (violin, viola, and cello). Four 12" records. Victor Set M-234. \$8.00.
Studies for Piano: Variations on a Theme by Paganini, Opus 35. Four sides. Wilhelm Bachaus (piano). Two 12" records. V-7419/20. \$2.00 each.
- Chopin.* Twenty-four Preludes, Opus 28. Eight sides. Alfred Cortot (piano). Four 12" records. Victor Set M-282. \$8.00.
- Elgar.* Falstaff—Symphonic Study with Two Interludes, Opus 68. Eight sides. London Symphony Orchestra conducted by Sir Edward Elgar. Four 12" records. Victor Set M-135. \$6.50.
- Fornsete.* Sumer is Icumen In. One side. (Reverse has Dowland—Awake, Sweet Love.) St. George's Singers. One 10" record. C-3715. \$1.00.
- Haydn.* Quartet in C Major, Opus 76, No. 4 ("Emperor" Quartet). Seven sides. (Eighth side has the Andante from the Haydn Quartet in D Minor, Opus 76, No. 2.) Léner String Quartet. Four 12" records. C-246. \$6.00.
- Liszt.* Grand Etude after Paganini—Number 6 in A Minor. One side. (Reverse has Etude Number 1 in G Minor.) Claudio Arrau (piano). One 12" record. PD-95117. (Imported.) \$2.00.
- Mendelssohn.* Symphony No. 4 in A Major, Opus 90. ("Italian" Symphony.) Six sides. Boston Symphony Orchestra conducted by Serge Koussevitzky. Three 12" records. Victor Set M-294. \$6.00.
- Paganini.* Caprice in A Minor, Opus 1, No. 24. Two sides. Yehudi Menuhin (violin). One 10" record. V-1650. \$1.50.
- Rachmaninoff.* Rhapsody on a Theme of Paganini, Opus 43. Six sides. Sergei Rachmaninoff (piano) and the Philadelphia Symphony Orchestra conducted by Leopold Stokowski. Three 12" records. Victor Set M-250. \$6.50.
- Schubert.* Quintet in C Major, Opus 163. Ten sides. Pro Arte String Quartet with Anthony Pini (second cello). Five 12" records. Victor Set M-299. \$10.00.
- Schumann.* Dichterliebe (Poet's Love), Opus 48. Six sides. Charles Panzéra (baritone), and Alfred Cortot (piano). Three 12" records. HMV—DB4987/9. (Imported.) \$7.50.
Kinderscenen (Scenes from Childhood), Opus 15. Four sides. Alfred Cortot (piano). Two 12" records. HMV—BD2581/2. (Imported.) \$2.50 each.
- Sibelius.* Concerto in D Minor, Opus 47. Eight sides. Jascha Heifetz (violin), and the London Philharmonic Orchestra conducted by Sir Thomas Beecham. Four 12" records. Victor Set M-309. \$8.00.
- Verdi.* Falstaff. Twenty-eight sides. La Scala Soloists and Chorus, with the Milan Symphony Orchestra, conducted by Lorenzo Molajoli. Fourteen 12" records. C-CQX10563/76. (Imported.) \$28.00.
- Wolf.* Thirty Songs from the Italienisches Lieberbuch. Twelve sides. Elisabeth Rethberg (soprano), Ria Ginster (soprano), Gerhard Hüsch (baritone), and Alexander Kipnis (baritone), with piano accompaniments by Coenraad van Bos, Michael Raucheisen, and Hanns Udo Müller. Six 12" records. HMV Subscription Album—The Hugo Wolf Society Volume IV. (Imported.) \$15.00.

*The Bulletin
of the University of
Minnesota*

*The Placement System
used by the
Department of English*



Vol. XXXIX No. 53 October 21 1936

*Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota*

*Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918*

This bulletin was prepared by the Freshman English staff of the Department of English of the University of Minnesota, under the direction of Professor J. M. Thomas, chairman of the Freshman English staff, with the editorial assistance of Mr. Franz Montgomery, instructor in English.

Two copies of this bulletin have been sent to the principal of every accredited high school in Minnesota, one for his own use and the other for the use of the English staff. Additional copies will be sent to individual teachers of English and to others interested upon written request to the registrar of the University of Minnesota.

NOTE.—In the use of capital letters and hyphens and in the spelling of although, this bulletin follows the rules of the University Committee on Printing.

Nothing reveals the mental incompetence of an individual more quickly and more surely than poor English. A mastery of the language is a requisite to intellectual progress. The knowledge of how to use English must underlie all other studies. Achievement in English gives a higher correlation with scholastic achievement than any other study. For the individual who has not acquired the ability to use English correctly and effectively, there is little hope of success as a student. Skillful use of language, on the other hand, gives to any individual a power that contributes to his advancement not only in school or college, but in the larger world in which he will eventually take his place.

The instruction of the youth of this state in the use of written and spoken English is a task that must be faced jointly by the public schools and the University. Each has an obligation, each a responsibility. Probably our best efforts in this endeavor will never bring us the full success we might wish, but the level of accomplishment that we do attain will be all too low unless there is an intimate and sympathetic co-operation. This bulletin is but one evidence of the University's desire to co-operate to the fullest.



President, University of Minnesota

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FOREWORD

In June, 1935, the staff of Freshman English of the University of Minnesota received an invitation to meet with the teachers of English in the senior high schools of Minneapolis to discuss the preparation of high school students for work in the University. We of the University were impressed by the sincere effort that had been made to establish and maintain higher standards of English in high schools and amazed at the difficulties against which the high school teachers had to struggle because of heavy schedules and overloaded classes. But the most surprising feature of this conference was that these teachers, many of whom are graduates of the University and a majority of whom have spent many years in almost immediate contact with the University and its teaching staff, should lack accurate information about the requirements and the system of placement. If these teachers who are situated in such close proximity to the University still feel at a loss as to how to prepare their pupils for college work, it is evident that teachers in other communities in the state, and especially those who are just beginning their work, need to be informed as to what is expected of graduates of their high schools upon admission to the University.

On several occasions during the course of every academic year, some member of the staff is asked to appear before a group of high school teachers to explain what the University expects of entering freshmen. Almost invariably, the person who represents the University says in effect, "This University requires nothing of high school graduates that the manager of any business firm, or store, or factory, or office might not reasonably expect of any high school graduate he takes into his employ." In spite of the fact that this statement has been reiterated constantly during the past twenty-five years, there still remains an impression among high school teachers that there is something arbitrary about the demands of the University, something esoteric about its requirements. This feeling has probably persisted from those days, three or four decades ago, when colleges prescribed the course of study for high schools and indicated with definiteness the books upon which entering students should be prepared to pass an examina-

tion. The fact that colleges have come to recognize that a large number of high school graduates do not go on to the University and that it is not primarily the business of public high schools to prepare students for admission to college seems to have been forgotten or overlooked.

More recently colleges have stated their requirements in general terms; state associations have prepared carefully worked-out syllabi of the course of study; numerous organizations such as the National Council of Teachers of English and the North Central Association of Schools and Colleges have put forth statements of the entrance requirements in English. All these, however, are in general rather than specific terms.

At the conclusion of our conference with these Minneapolis teachers, we promised to put into their hands not general statements in regard to our "requirements"—perhaps it would be both more true and more tactful to say "our expectations" or "our hopes"—but as concrete a presentation of our standards as could be given in brief form.

The teachers were especially curious about the system, which has been employed in the University for the last fifteen years, of classifying entering students into various groups according to their proficiency in English, and about the bases upon which this classification is made. Perhaps the best way to make perfectly clear and to present in concrete form what is demanded of entering freshmen is to explain and exemplify the tests given them, and to reprint some of the themes actually written by them with comments upon these themes by members of the staff justifying the grades given.

It is our feeling that if teachers have this information before them, they will no longer be in doubt as to what their students should be expected to do upon graduation from high school and that, moreover, this information, through the teachers, will be passed on to the students themselves. The result, we hope, will be a greater continuity and a closer co-ordination of the teaching of the twelfth and thirteenth grades of our public school system.

J. M. THOMAS, *Chairman,*
Freshman English Staff

PLACEMENT SYSTEM

About thirty years ago most of the state universities which admitted all graduates of accredited high schools established a course in subfreshman English. This was done to remove from the regular classes in freshman English those freshmen who were obviously unfitted to pursue college work with profit and who were doomed in advance to certain failure. There was also the additional motive of urging the high schools to provide more careful training for their pupils in the fundamentals of oral and written composition.

The second step in this process of classification was the organization in special sections of the best students, who were to be taught as a more advanced group.

In the early years of this rudimentary placement system all students were registered in regular sections for a probationary period of from two to six weeks. Then the subfreshmen and the select freshmen were put into the proper sections. Such a method proved to be wasteful of time, of energy, and of money. The subfreshmen would have been better off if they had been immediately assigned to the elementary training of which they were in such need. The sections had to be reorganized at the end of the period of probation, and, moreover, a staff large enough to handle all freshmen had to be engaged at the beginning of the year.

An effort was therefore made to find some reliable criteria for predicting accurately the probable success of students in Freshman English immediately upon their enrolment in college. For about ten years Dean J. B. Johnston of the College of Science, Literature, and the Arts experimented with various tests and made careful comparative studies of the rank of students in these tests and their achievements in college. As a result, what is known as the College Aptitude Test has come into widespread use. Dean Johnston found from a statistical study of the records of thousands of students that by averaging the percentile rank of a student in this Aptitude Test with his percentile rank in his class in high school it was possible to predict with surprising accuracy the student's achievement in college. The average of these two ranks was called the "College Aptitude Rating."

To supplement this index of the ability of a student to do college work, various experiments were carried on to discover further specialized tests which should measure the ability of a student to do work in particular fields. Among the earliest of these were tests of a student's proficiency in English.

The University of Minnesota was among the first to use the Placement Test in English Training published by the University of Iowa. This has recently been superseded by the Coöperative English Test, which is still in use. In addition to taking this test, the applicant is required to write an impromptu theme on one of a list of assigned subjects. Each theme is read and graded by two members of the Freshman English staff at the University. If they do not agree on the grade, the theme is read a third time.

Thus, for each student entering the College of Science, Literature, and the Arts, the Department of English has the following data as a basis for his classification in English:

1. C.A.T.—(Percentile rank in the College Aptitude Test)
2. H.S.R.—(Percentile rank in his class in high school)
3. C.A.R.—(College Aptitude Rating, an average of the two above)
4. Co-op.—(Percentile rank in the Coöperative English Test)
5. Theme—(A numerical grade of from 1 to 8 assigned by the department)

These data are entered upon a record card, a sample of which is printed below.

UNIVERSITY OF MINNESOTA

Year 1936-37

Name

Home Address

Name of High School

Year and month in which tests
were taken Place

S.L.A.	Education	Pharmacy
C.A.T. ....	.....	Assignment in English
H.S.R. ....	.....	Exempted
C.A.R. ....	.....	A-B-C
Co-op. ....	.....	4-5-6
Theme .....	.....	Subfreshman

.....

Date 193

TO THE OFFICERS OF REGISTRATION:

Name

has been given the following assignment in English:

Exempted
A-B-C
4-5-6
Subfreshman*

TO THE STUDENT: This card must be presented at the time of making out your class schedule.

J. M. THOMAS

* Must be taken before Freshman English and should be taken now.

The card is perforated in the middle; the lower part is detached and mailed to the applicant's home address as soon as the assignment is made.

In this classification, students are divided into four groups:

- I. *Exempted*.—Those who are exempted from any requirement in English for graduation and who are permitted as freshmen to elect any courses for which Freshman English is a prerequisite.
- II. *A-B-C*.—Those who are permitted to elect English A-B-C, a five-credit course in literature and composition.
- III. *4-5-6*.—Those required to take Composition 4-5-6, which is the traditional college course in composition. For the last two years this course has been taught by the laboratory method. Classes are taught twice a week in regular recitation periods and then meet for two consecutive hours in a writing laboratory where they write under the supervision and with the assistance of the instructor and two graduate students who have had experience in teaching.
- IV. *Subfreshman*.—Those required to take a course in Subfreshman Composition until such time as they are able to pass qualifying tests for Composition 4-5-6. This course carries no credit in the college. It is given under the direction of the Extension Division, and students are required to pay a special fee as in any other extension course.

When the policy of exempting students from the college requirement in English was adopted by the Department of English and approved by the faculty, it was intended that about 17 per cent of the entering class should be exempted. Experience, however, has shown that results did not justify such a large percentage. In recent years about 12 per cent have been exempted.

The number of students assigned to Subfreshman Composition varies, of course, from year to year, but the average of the last four years has been approximately 14 per cent. The remaining 74 per cent are divided about equally between English A-B-C and Composition 4-5-6.

Before presenting a table showing the ratings by which the classification is made, it is advisable to explain the system of num-

bers used in grading the impromptu themes. When members of the staff were first asked to read these themes of entering students, they were told to mark them simply "Ex" for exempted, "A-B-C," "4-5-6," and "Subfresh." If the theme had been the only basis of classification, this extremely simple method of marking would have been adequate. But it was soon discovered that the C.A.R., the Co-op. rank, and the theme grade occasionally had little relation to each other. Accordingly, an experiment was made of giving two numbers to each category as follows:

Exempted	}1 }2
A-B-C	}3 }4
4-5-6	}5 }6
Subfreshman	}7 }8

This has worked so satisfactorily that no effort has been made to substitute a more precise—but more complicated—ranking.

Through the experience of the last ten years, the following scheme of classification has been evolved:

CLASSIFYING STUDENTS IN FRESHMAN ENGLISH, 1936-37

If the grade on the <i>impromptu</i> theme is	The student must have a C.A.R. of at least		And (or) a C.A.T. of at least	And a Co-op. <i>English Test</i> of at least	If he is to be
1	61	and	61	81	Exempt
2	71	and	71	85	Exempt
3	91	and	91	91	Exempt
					in
3	31	or	31	31	A-B-C
4	31	or	31	31	A-B-C
5	51	and	51	51	A-B-C
					in
5	21	or	21	23	4-5-6
6	21	or	21	23	4-5-6
7	31	or	21	31	4-5-6
7					Subfreshman
8					Subfreshman

Note: No student is to be put into Subfreshman Composition who has a C.A.T. of 51 or above.

Thus, if a theme is rated 2, and the C.A.R., C.A.T., and the Co-op. grades are above 71, 71, and 85 respectively, the student is exempted from English. However, if any one of the last three grades is below the stated minimum, the student is put in English A-B-C.

Likewise, if a theme is rated 4, and either the C.A.R. or the C.A.T. is above 31, and the Co-op. grade is above 31, the student is put in English A-B-C. However, if neither the C.A.R. nor the C.A.T. is above 31, or if the Co-op. grade is below 31, the student is put in Composition 4-5-6.

Again, if a theme is rated 6, and either the C.A.R. or the C.A.T. is above 21, and the Co-op. grade is above 23, the student is put in Composition 4-5-6. However, if neither the C.A.R. nor the C.A.T. is above 21, or if the Co-op. grade is below 23, the student is put in Subfreshman Composition.

And, if a theme is rated 8, the student must have a C.A.T. of 51 or above if he is to be put in English 4-5-6. If his C.A.T. is below 51, he is put in Subfreshman Composition.

TESTS AND RATINGS

When we originally planned this bulletin, we expected to be able to print in their entirety old, and at present unused, forms of the College Aptitude and English tests. These tests are, however, copyrighted, and we have been unable to secure permission to reprint them here. The best that can be done is to give samples of the various types of questions that are asked, and to indicate the number of each type in the tests.

COLLEGE APTITUDE TEST

Experiments in testing high school seniors and freshmen in the College of Science, Literature, and the Arts have been conducted since the World War. The aim was to secure the best possible means of predicting scholastic success in college in order to provide an educational guidance service for prospective college freshmen and also to make instruction more efficient through sectioning students according to ability. The specific aim of the experiments was to develop the best possible College Aptitude Test to *supplement* high school scholarship as a predictor of scholastic success in college. Throughout, the search was directed toward discovery of what aptitudes are most needed for success in college. An extensive vocabulary, both active and passive, seems to be a basic requirement. This is true because knowledge is communicated by words in lectures and textbooks. The boy or girl who loves books, who has read widely and constantly both in school and out of school, learns most easily.

Each college subject is more like a foreign language than most people realize. For example, a textbook on zoology contains a surprising number of new and strange words. This subject has a technical and specialized vocabulary which must be learned before its material can be understood. It is obvious that one must understand the words before one can master the content of each chapter. Thus, a student who has a very limited vocabulary when he enters such a course must first learn enough new terms to enable him to understand what each lesson is about before he can begin to learn the lesson itself. On the other hand, a student who has read widely and has acquired a large vocabulary before coming to col-

lege has a much simpler task before him when he sits down to study the same lesson. For him the number of new words will be small, and he can devote most of his energy to the direct learning of the lesson without struggling to understand it. And so it goes with chemistry, botany, physics, geology, economics, philosophy, geography, history, to say nothing of the foreign language courses.

The average freshman when he enters the University is able to *recognize* the meaning of some 19,000 words. A good college dictionary contains over 50,000 words. It should be obvious why those with limited vocabularies are distinctly handicapped in college. It should also be obvious why our college ability tests have been made up very largely of tests involving knowledge of words.

One of the chief merits of these tests is that they are standardized so that students from every part of the state and from other states may be measured on the same scale. This permits each student to see whether he excels in these "academic skills" or is merely average or actually below average. No one should urge a student to select a career which requires difficult academic training unless the student excels in things academic.

It is apparent from this description of the College Aptitude tests that the best preparation for the tests and for college as well is wide reading during the elementary school and high school years. This reading should have been extensive and spread over the fields of literature, science, and social subjects. It goes without saying that this reading should have been accompanied by the development of thoughtful habits of study.

The experiments designed to improve the tests from year to year were conducted on the theory that tests used in a state-wide testing program should not be obtainable by students or teachers from any publisher. In this way, the tests would be protected against unfair coaching which some teachers or parents might thoughtlessly resort to. The same end can also be attained by providing a series of alternate forms of the tests, equal in range and difficulty, but made up of different items. These considerations, together with the factor of printing expense and ease of administering the tests, led to the adoption of two easy and two difficult Recognition Vocabulary Tests as the Minnesota College Ability Tests in 1929. Each of the four fifteen-minute tests contains 120 items. Sample items from these tests are as follows:

MINNESOTA COLLEGE APTITUDE TEST: PRACTICE FORM

Name..... Date.....

Directions: After each word in CAPITAL LETTERS there are 5 answers, one of which is equivalent in meaning to the word in capital letters. Pick out the right answer and draw a line under it for reference. Then put the number of that answer in the parentheses () at the end of the line, as shown in the samples below. You will be given 4 minutes to answer 30 items. If you do not know, guess. The first two samples are marked correctly.

- Sample 1. BUCKET 1. a deer; 2. a pail; 3. a loft; 4. a grain; 5. a tree.... (2)
- Sample 2. BUNNY 1. babbit; 2. kitten; 3. puppy; 4. mouse; 5. rabbit..... (5)
1. ABOMINATION 1. violation; 2. restriction; 3. failure; 4. penalty; 5. de-
testation ()
2. ACCIDENTAL 1. eventful; 2. unintentional; 3. awkward; 4. unlawful;
5. ghastly ()
3. BACKBONE 1. cranium; 2. ligament; 3. epidermis; 4. trachea;
5. vertebrae ()
4. BAGPIPE Instrument used in: 1. music; 2. smoking; 3. sculpture;
4. painting; 5. glass-blowing ()
5. BATTLEMENT 1. indented parapet; 2. skirmish; 3. armament; 4. in-
vasion; 5. command ()
6. CRUSADE 1. exemption; 2. religious expedition; 3. oracle;
4. crisis; 5. reception ()
7. CUSTARD 1. powder; 2. condiment; 3. pastry; 4. garnish;
5. beverage ()
8. CURLY 1. conical; 2. plaited; 3. askew; 4. fluted; 5. spiral..... ()
9. DOZE 1. dream; 2. loaf; 3. overtask; 4. drowse 5. yawn..... ()
10. EDITOR 1. editorial writer; 2. orator; 3. comptroller; 4. coun-
selor; 5. gossip ()
11. FLAUNT 1. flatter; 2. display ostentatiously; 3. whip; 4. tease;
5. ridicule ()
12. GRIDDLE 1. conundrum; 2. cross-examine; 3. kind of punish-
ment; 4. belt; 5. cooking utensil ()
13. HERDSMAN 1. hermit; 2. warrior; 3. drover; 4. pioneer; 5. hunter ()
14. LAVA 1. fine powder; 2. volcanic rock; 3. loam; 4. explosive;
5. gas ()
15. LOSER One who: 1. cheats; 2. borrows; 3. rejects; 4. accuses;
5. forfeits ()
16. MALT 1. mold; 2. foam; 3. salve; 4. spice; 5. germinated
grain ()
17. MOLASSES 1. resin; 2. sauce; 3. syrup; 4. beverage; 5. relish ()
18. ORIGINATE 1. assemble; 2. confound; 3. reorganize; 4. initiate;
5. continue ()
19. PERPENDICULAR.. 1. elliptical; 2. upright; 3. level; 4. across; 5. angular ()
20. RIFT 1. scum; 2. fissure; 3. bayou; 4. craft; 5. precipice ()
21. SCRAWL 1. loiter; 2. scribble; 3. walk; 4. wail; 5. quarrel ()
22. SQUAD 1. musketry; 2. young pigeon; 3. sentinel; 4. military
unit; 5. pillage ()
23. STUN 1. torture; 2. stupefy; 3. quiver; 4. scold; 5. sting ()
24. TISSUE 1. aggregate of cells; 2. rigidity; 3. solidity; 4. lymph;
5. nucleus ()
25. WEIRD 1. evil; 2. uncanny; 3. odious; 4. hideous; 5. costly ()
26. WORKSHOP 1. storehouse; 2. museum; 3. gambling house; 4. chan-
try; 5. laboratory ()
27. WRAPPER 1. trimming; 2. seal; 3. bracelet; 4. covering;
5. satchel ()
28. WRITHE 1. bind; 2. disjoint; 3. faint; 4. squirm; 5. tear ()
29. WRUNG 1. folded; 2. ejected; 3. tolled; 4. expired; 5. twisted ()
30. ADVISER 1. counselor; 2. advocate; 3. aggressor; 4. mediator;
5. client ()

Recent studies have indicated the desirability of supplementing this test with a more general test of scholastic aptitude to measure other abilities required in the various courses offered at the University. Beginning with the class graduating in January, 1937, the high schools will be requested by the Association of Minnesota Colleges to give two tests to seniors, the Psychological Examination published by the American Council on Education¹ and the Coöperative English Test. The latter test is described in another section of this bulletin. These two tests, together with the high school percentile rank and an impromptu theme, will be used by the University to classify freshmen according to their proficiency in English when they graduate from high school.

HIGH SCHOOL PERCENTILE RANK

In his chapter on "The Fitness of Students" in *The Liberal College in Changing Society*,² Dean J. B. Johnston gives an account of the experiments he conducted from 1914 to 1927 to find reliable criteria for predicting achievement in college. In speaking of scholarship in high school, he makes the following statement:

"The record of high-school standing *in grades* was not an adequate or dependable means of making a comparison between performance in high school and in college. Great differences were found between the average grades or marks in different high schools, even in those belonging to the same well-organized city system. It was decided, therefore, that students from different high schools must be compared by the ranks which they held in their graduating classes."

Accordingly, in the instructions sent out, principals of high schools are requested to give the following information:

¹ For men, the high school percentile rank correlates better with college grades than does the American Council Test. For women, either one of the scores gives a reasonably accurate prediction. But for all students, a combination of the two scores gives a better prediction of college grades than does either score alone.

² The Century Company. New York, 1930.

PLACEMENT SYSTEM

INSTRUCTIONS TO PRINCIPALS

Give the Average Scholarship and the Scholarship Rank of the Entire Class.
This Record of the Entire Class Is Necessary for Computing
Percentile Ranks

All Members of Senior Class in Alpha- betical Order	Average Scholarship for 3½ Years	Scholarship Rank in Senior Class	(Do not write in this column) Percentile Rank
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

In the third column indicate the rank in scholarship. The student with the highest scholastic average will rank 1, the student with the next highest average will rank 2, etc.

The following example illustrates the correct procedure for ranking students in a class of 10 whose grades are as follows:

Average Scholarship for 3½ Years	Scholarship Rank in Class
96	1
*93	2.5 (2) $\frac{2+3}{2} = 2.5$
*93	2.5 (3) $\frac{2+3}{2} = 2.5$
88	4
†87	6 (5)
†87	6 (6) $\frac{5+6+7}{3} = 6$
†87	6 (7) $\frac{5+6+7}{3} = 6$
85	8
80	9
76	10

* In case of a tie, the *average rank* of the students whose grades are tied is used; e.g., in the above illustration, two students who received a grade of 93 were each given a rank of 2.5

† Three students received the same grade of 87. In this case the *middle rank* of 6 was given to each student.

Please do not write in the last column. It will be used for computing the percentile rank of each student.

High schools which use a system of percentage grades should average the grades of all courses taken by each senior in the high school. Schools which use letter grades should use some system of numerical scores for letter grades in order to get a numerical average. For example, a letter grade of A may be given a numerical value of 4, B 3, C 2, D 1, and F minus 1. An example is given [on the next page] to illustrate this system of computing numerical scores for letter grades.

High School Senior: John Jones.

Number of Courses in Which Each Letter Grade Was Received	Value Assigned to Each Letter Grade	Numerical Equivalent	
A	5	4	20
B	3	3	9
C	2	2	4
D	4	1	4
F	2	-1	-2
Total	16		35

The average grade is found by dividing the total numerical score by the number of units taken by the student. This gives him a total numerical score of 35. His average numerical grade is $(35 \div 16)$ 2.18+.

To convert a student's actual rank in his high school graduating class into a percentile rank:

1. *When the class numbers less than 100:* Divide the actual rank by the number of students in the class, subtract the quotient from 1.00, and multiply the remainder by 100. For example, if a student is seventeenth in a class of 50, divide 17 by 50, subtract the quotient .34 from 1.00, and multiply the remainder .66 by 100 to obtain the percentile rank of 66.

2. *When the class numbers more than 100:* Divide the number in the class by 100 to determine the number of students to be assigned each percentile rank from 100 to 1. For example, if a class numbers 270, divide 270 by 100. The result is 2.70. (Since this figure is more than $2\frac{1}{2}$, it is counted as 3.) Give the three highest students in the class the percentile of 100. To find out how many are to be given the percentile of 99, add 2.70 to 2.70. The result is 5.40. (Since this figure is less than $5\frac{1}{2}$, it is counted as 5.) Five students will rank above percentile 98. Students 1, 2, and 3 have already been given the percentile of 100; therefore, students 4 and 5 are assigned to percentile 99. Continuing in the same way (5.40 plus 2.70 equals 8.10), students 6, 7, and 8 will be given a percentile rank of 98, and so on.

COLLEGE APTITUDE RATING

As was explained on page 7, the College Aptitude Rating is the average of the percentile rank in high school and the percentile rank in the Aptitude Test.

Dean Johnston says:³ "Beginning with 1923 an actual prediction based on the college aptitude rating has been made each year,

³ *The Liberal College in Changing Society*, pp. 119-20.

the names of those freshmen who fell below a hypothetical *threshold of ability* being listed at the time of entrance. In no year up to 1928-29 did more than two per cent of the students so listed do satisfactory work in college. During this period the object of repeated yearly studies was to bring sufficient cumulative evidence to convince university and school authorities of the soundness of the method. This evidence is summarized sufficiently well . . . in the . . . combined results for the years 1923-24, 1924-25, and 1925-26. Of the 1,088 students, . . . 208 were named, with the prediction that they would fall below satisfactory standing. Of the 208 only three attained the required standing of a C-average in all their work. This meant that whenever the administration and the public were ready we could pick out about 20 per cent of the freshman class who could be denied admission to college with the chance of doing injustice to about three in two hundred (1½ per cent). At this point the university administration was convinced that here was an instrument worthy of some use. Further efforts have been directed to bringing the possibilities and values of this method of selection to the favorable attention of the public."

Changes in social conditions, in student attitudes, and in the educational plans of students have made it necessary to use additional types of tests if a validity approaching that cited in this quotation is to be maintained. This is the reason for introducing the American Council Psychological Examination mentioned on page 15.

COÖPERATIVE ENGLISH TEST

The Coöperative English Test, prepared by specialists from three state universities, is intended to measure the students' knowledge of usage, spelling, and vocabulary. Permission has been granted to reprint the directions and the sample questions for all parts of this test.

COÖPERATIVE ENGLISH TEST⁴

(USAGE, SPELLING, AND VOCABULARY)
FORM 1934—SERIES 1

by

Sterling A. Leonard, M. H. Willing, V. A. C. Henmon, University of Wisconsin; W. W. Cook, University of Iowa; D. G. Paterson and F. S. Beers, University of Minnesota

General Directions: This examination consists of three parts, and Part I includes three sections. The directions for each division are printed at the

⁴Samples of this test are reprinted by permission.

beginning of the division. Read them carefully, and proceed at once as directed. There is a time limit for each division. If you have not finished a division when the time is up, stop work on that division and proceed at once to the next division. No questions may be asked after the examination has begun.

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PART I—ENGLISH USAGE

by

Sterling A. Leonard

M. H. Willing

V. A. C. Henmon

This part consists of three sections with an indicated time allowance for each section. When you have finished Section 1, wait for the directions from the examiner to go on to Section 2. When you have finished Section 2, wait for the signal to go on to Section 3. Specific directions are found at the beginning of each section.

Section 1—(30 minutes)

Directions: In the following compositions there are errors in punctuation, capitalization, grammar, sentence structure, and spelling of a few common words.

First, read the composition through; underline each error you find, but do not stop to make corrections this time. Then read it again and make all necessary corrections in the space provided at the right. Correct every error in the shortest way possible. Make changes only when they are necessary, not where they would merely improve the diction, sound, or sentence rhythm.

Some lines have no errors; after such lines, write "R," as in the samples below. . . . Not more than one error occurs in a line. To correct some errors, however, more than one change will be needed, as in the first case below, in which the period must be changed to a comma, and the capital W to a small w in when.

*Sample Lines**Corrections*

One day Tom and I were paddling upstream. <u>When</u>	<u>when</u>	(1)
suddenly we saw a pair of beavers. <u>Quick,</u> whispered	<u>"Quick,"</u>	(2)
Tom, and I grabbed my kodak. Now I have an enlarged	<u>R</u>	(3)
picture of the <u>beavers</u> busy workshop.	<u>beavers'</u>	(4)

There are 66 lines in this section.

Section 2—(15 minutes)

Directions: Read each of the following groups of sentences carefully; select the best sentence in the group, and put its number in the parentheses at the right of the group.

Example:

1. Due to a bad cold, the tackle played a poor game.
2. The tackle played a poor game, due to a bad cold.
3. The tackle's poor playing was due to a bad cold.
4. The tackle, due to a bad cold, played a poor game. (3)

There are 25 similar groups of sentences in this section.

Section 3—(20 minutes)

In each of the following, read the directions with great care and think each problem through before beginning to write. You will frequently need to make more than one change to do satisfactorily what the directions require. Study sample questions A, B, and C, and the manner in which the changes are made:

A. Substitute yesterday for tomorrow

in the sentence at the right:

Here it is necessary to change
will go to went. Make the change
as follows:

I will go to camp tomorrow.

I ~~will go~~ to camp ~~tomorrow~~ ^{yesterday}

* * * * *

B. Remove the quotation marks and
make the necessary changes in
wording:

Here the wording might be: John
said that he came home about
noon, and you would indicate
the changes as follows:

John said, "I came home about noon."

John said, ^{that he} "I came home about noon."

* * * * *

C. Substitute also for and:

Here, to separate the two state-
ments sufficiently, it is necessary
to change the punctuation. Make
the change as follows:

My brother is president of the league,
and he has just been elected class
secretary.

My brother is president of the ^{league;}
also ~~and~~ he has just been elected class
secretary.

You may, if it is necessary, make two sentences instead of one. But always
try to make the fewest possible changes in wording or in form.

There are 25 sentences to be corrected or changed in this section.

PART II—SPELLING (10 MINUTES)

By W. W. Cook

Directions: In each of the following lines of words, select the word that is misspelled and put its number in the parentheses at the right. If you think

all the words in a line are correctly spelled, put a zero (0) in the parentheses at the right of that line.

By exercising careful judgment and making shrewd guesses you may profitably answer questions about which you are not absolutely sure; but since your score will be the number of correct answers diminished by a number proportional to the number of wrong answers, you should avoid answering questions about which you are totally ignorant. Shrewd guessing based on intelligent inference will improve your score, but wild guessing on questions that are entirely unknown to you will waste time which you could better put on other questions in the test, and may result in a large subtraction from the number of your correct answers.

1. 1 parenthesis, 2 dictionary, 3 mythology, 4 olmanack, 5 usage (4)
2. 1 embarasment, 2 hideous, 3 visionary, 4 recommend, 5 potentate (1)

There are 55 such items in this part.

PART III—VOCABULARY (20 MINUTES)

By Donald G. Paterson and F. S. Beers

Directions: In each line select the word or phrase which most nearly corresponds in meaning to the word at the left, and put its number in the parentheses at the right.

By exercising careful judgment and making shrewd guesses you may profitably answer questions about which you are not absolutely sure; but since your score will be the number of correct answers diminished by a number proportional to the number of wrong answers, you should avoid answering questions about which you are totally ignorant. Shrewd guessing based on intelligent inference will improve your score, but wild guessing on questions that are entirely unknown to you will waste time which you could better put on other questions in the test, and may result in a large subtraction from the number of your correct answers.

1. EXTIRPATION 1 increase, 2 emancipation, 3 eradication, 4 establishment, 5 usurpation (3)
2. JUXTAPOSITION 1 nearness, 2 magic, 3 a judge, 4 jeopardy, 5 heat (1)

There are 100 such items in this part.

IMPROMPTU THEME

It is hardly necessary for the English Department to defend the use of an impromptu theme in the placement system. A student may be able to write acceptable English and still be unable to make a high grade in a test on formal grammar; conversely, he may be able to answer many questions on grammar and still write awkwardly. No objective test will reveal his skill in writing; only a sample of his writing will do that. Hence, before a student is as-

signed to any of the English courses, he must write a short theme without any assistance whatever. A list of five possible subjects is provided by the department. A sample sheet of instructions with typical theme subjects is reprinted below:

ENGLISH PLACEMENT THEME

Write a theme of not less than 250 words on any one of the following subjects.

You will have fifty minutes for this work. Write carefully for forty minutes. Allow ten minutes to read your theme over carefully before handing it in.

Write legibly and neatly.

1. Do Extra-Curricular Activities Pay?
2. "If at First You Don't Succeed."
3. My Idea of Hard Work.
4. Social Shock Absorbers.
5. Two Books I Want To Own and Why.

New titles are selected for every group of entering students, but the department is careful to provide subjects which will appeal to the various tastes and the varying abilities of freshmen.

The explanation of the system of theme grades on page 9 and the Table for Classifying Students in Freshman English on page 10 will have shown the importance of the impromptu theme in the placement system. The rating of the theme is the first (and for English composition the most important) factor in the placement table. The department here reprints bona fide samples of entrance themes which were rated from 1 to 8. Opposite each theme appears a comment which explains and justifies the rating given. These comments, written by various members of the staff, cannot, of course, discuss every fault or virtue of every theme; further, since they were written by different instructors, they vary in style and in the selection of specific faults for discussion. No completely objective standard for the grading of themes has been, or is ever likely to be, worked out. However, one who reads all the themes and all the comments will arrive at a reasonably accurate idea of the proficiency which a student must attain for exemption, and of the number and kinds of errors which will cause him to be assigned to English A-B-C, Composition 4-5-6, or Sub-freshman Composition.

It is not the intention of the English Department to present these themes as models, or to imply that the standard of proficiency

required for classification in the several courses is as high as it should be. This bulletin presents an actual, rather than an ideal, system. The system is explained and the themes and comments are reprinted in order that the English teachers of the state may know the actual placement procedure and, by comparing these themes with the writing of their own pupils, may have some means of predicting where their pupils will probably be classified in English upon entering the University.

ENTRANCE THEMES WITH RATINGS AND
COMMENTS

Why I Want the Socialist Party to Win in the Next Election

Before long the time will have arrived when the people of the United States must give thought to choosing their next president. In my opinion the wisest thing for them to do at that time will be to elect Norman Thomas, the Socialist candidate, and a sufficient number of congressmen to carry out the Socialist platform. I have no hope that the American people will do this; Mr. Thomas will probably be lucky to get a million votes; and yet I still believe that in future years they will realize that it was the Socialist party that had most to offer them. But I must offer some evidence to support my beliefs.

In the first place let us consider the other candidates who will in all probability run for president in 1936. Starting from the right and moving slowly down the line to the left, we come first to the as yet nameless gentleman who will run on the Republican platform. Though we do not know him at present, it is nevertheless easy to observe his general political characteristics. He will undoubtedly be a reactionary, a nationalist, an advocate of "fair business conditions," in short, a rugged American individualist. It may be said of him as it was of the Bourbons, "He will have learned nothing and forgotten nothing." He will receive no votes from people with their eyes on the future.

Of far more importance will be the Democratic nominee, President Franklin D. Roosevelt. No one can say now what will be the complete record of his administration, yet I feel sure it will be one to inspire confidence in the majority of his fellow countrymen. He will have the support of liberal Democrats and Progressive Republicans; he will enjoy the favor of businessman and wage earner alike; he will almost certainly be re-elected.

And yet I would not vote for him. Liberal as he is, he is still the representative of the old era, and as such he will never achieve any permanent results. Mr. Roosevelt may well take his place in history beside Henry Clay as the Great Compromiser. Up to this time his administration has been troubled by continual struggle between the Old-Time Moss Back Democrats, the modern, liberal Democrats, and the young men who are almost too radical to be called Democrats at all. Mr. Roosevelt's program has been called

the last stand of capitalism; as such it is a very noble enterprise, but I am one of those who believe that capitalism should go without making a last stand.

We arrive now at Mr. Norman Thomas, who, as you no doubt are already aware, I believe to be the logical man for the presidency. His platform is, and will continue to be, that of the modern Socialist. He knows that sooner or later the United States must break definitely with its traditional system and take the step toward a planned society. And still he is no Bolshevik. He believes in the English method of progress: by legislative reform rather than popular revolution. To procrastinate would be fatal; the only way for the American people to achieve peacefully the society of the future is for them to turn their faces toward the new dawn of an organized government for the good of the whole people before it is too late.

Comment

This is an exceptional theme to have been written impromptu in an hour. The writer has chosen a subject he is familiar with, has decided upon a plan of presentation, and has proceeded to carry out that plan in five well-constructed, compact paragraphs. In paragraph one he states his thesis. In paragraph two he outlines his plan of procedure for the remaining paragraphs. He leads his reader along by careful transitions from one paragraph to the next until he arrives at his conclusion, which supports the statements made in paragraph one.

In mechanics the theme is nearly faultless; in style it is pleasing, particularly in the variation of sentence patterns, the careful transitions, and the use of specific and concrete words and allusions.

It is obvious that this student will do well, for he has been properly trained to think, and to express his thoughts correctly, gracefully, and forcefully.

THEME II

(Rated 1)

Success in My Favorite Sport

Tennis, swimming, riding and golf may have their ardent followers and devotees. I believe, nevertheless that my favorite sport is also that of ninety-nine girls out of every hundred. I refer to that time honored game, "Picking People to Pieces." This interesting and instructive amusement has several advantages over many other sports. It may be played at any time, from six o'clock in the morning to twelve o'clock at night (or later if you have the required energy.) It can be played anywhere, at marriages or funerals. It can be played with almost any number of players, from two up to several hundred. With more players, however, it is difficult to preserve order. It can be played by young and old, by the strong and by the feeble, by the stupid and by the clever.

To get full enjoyment out of this sport, however, several qualifications are necessary. We find that those people who have achieved the greatest success in "Picking People to Pieces" and have won undying fame and the admiration of their fellow-men (or more often, their fellow-women) possess several outstanding characteristics. They have the great ability to forget at necessary times just who their friends are. This is probably the most important qualification for success.

To acquire skill in the finer points of the game, however, much practice is important. There may be times when you find that you have chosen the wrong partner for this game, one who may be a friend or relative of the victim. In that case, be nonchalant. Make some remark such as, "Lovely weather we're having, don't you think?" or "How is your Aunt Emma's neuritis." Resourcefulness, you see, is an important requisite.

If you have not the above mentioned qualities, do not give up hope. For although it is true that leaders in this sport are for the most part born and not made, by diligent practice you too may reach the point where you enjoy to the full, "Picking People to Pieces."

Comment

This is a lively and entertaining informal essay, much more original in subject matter than entrance themes usually are. It is well ordered and technically satisfactory. The student who wrote it should be able to write acceptable papers in college without further drill in the fundamentals of writing. The grammar and punctuation are reasonably satisfactory; the diction is admirably simple and specific. The sentences are rather short, but not monotonously so. In paragraph one the parallel sentences are skilfully used for emphasis. In paragraph two the last two sentences could have been rewritten and combined; nevertheless, coming as they do after a longer sentence, they are not unpleasant in sound. Again, in paragraph three, there is a pleasing variety in sentence structure and sentence length.

One of the best features of the theme is the deft use of connecting words that make the progress from sentence to sentence easy. Two instances of the careful use of connecting words are *nevertheless* in the second sentence of paragraph one and *however* in the first sentence of paragraph two.

The paragraphs, especially the last three, are rather short and not fully developed. More detailed development, such as the use of more examples in paragraphs two and three, would have improved the theme considerably. Paragraph three is not well unified. It begins with a statement about the necessity of practice in the finer points of the game and ends with a statement about the necessity of resourcefulness. Resourcefulness might better have been discussed in paragraph two. But in spite of his weakness in the technique of paragraph development, the student has arranged his paragraphs logically.

In general, this theme is well written and entertaining; in spite of its minor faults it is unusually satisfactory.

THEME III

(Rated 2)

Ambitions Others Have Had For Me

Having been reared by a mother who was herself a teacher, a father who was a teacher, and three older sisters who chose teaching as a profession, it seemed that I had, from the beginning, little to cause me to look elsewhere for my own vocation, than to the teaching field. According to the psychologist, heredity should have played the major part in my choice, according to the sociologist, environment, but with a combination of the two factors shaping my destiny, I had no alternative.

The family ambition was that Smiths must be molded in the traditional pattern and poured out, a teacher of some sort.

And so it happened that I was prepared, after a fashion, for the training of the infant mind and after a few years of comparatively drab existence on my part and surely for the kindergarten children themselves, I discovered that I was a misfit. Nature had played a practical joke upon me and combined the wrong pairs of genes—for I was not a teacher!

What a blow to the family honor to find that a Smith was not only a poor teacher but moreover exhibited a strong liking for a nursing career.

With a lighter heart than I had had since graduating from High School, I packed my trunk and set out on the wonderful adventure—a nursing course in a school of my own choosing, work of my own choosing.

Three years of drugery, sacrifice, short hours of rest, long hours of study and heavy responsibility had not daunted my enthusiasm for the work and upon the eve of graduation, I was presented with a five hundred dollar scholarship by Dr. William Mayo.

Upon what was the award based? Surely not upon my intelligence quotient but within my own heart I knew the reason. It was because it was work I loved, a life of objective, tangible service to others, a challenge to my brain, my physique. For one year I lived upon my own ambitions, a joyous interesting experience as night supervisor in a surgical hospital.

One morning after a particularly trying nights work, I was called to the office of the superintendent of my training school and told by this most ethical and persuasive person, that I owed to my school more than I was yet prepared to give. It seemed she too had ambitions for me and for the school, which I must fulfill.

And so it happened that once more I was persuaded against my will and better judgment to prepare for work which I am skeptical of being able to perform well, because of the ambitions of others for me. Perhaps this experiment is destined to work out more successfully than the last for it beckons me on, yet seems ever to recede.

Of this I am convinced, the ambitions of others should not dictate the path which we must follow, though they may be guides to help us, up and on in some direction. It gives one a comfortable feeling to know that others are ambitious for you, but it is most uncomfortable when those ambitions are projected upon your own.

Comment

This theme is better than the average entrance theme because it is highly specific, concrete, and personal. It is thoughtful and mature; it is also clearly and simply written.

It is not, however, entirely well written. It contains far too many short, undeveloped paragraphs. Paragraph two, for instance, should be combined with paragraph one; paragraph four with paragraph three; paragraph eight with paragraph nine. There is not one really well-developed paragraph in the theme. The paragraphs should be reorganized, carefully rearranged, and reduced to half the present number.

Some of the sentences are poorly constructed. The first sentence of paragraph three is overloaded and poorly unified; the single sentence in paragraph six is also poorly unified. The very first sentence in the theme contains a dangling construction, *Having been reared by a mother who was herself a teacher, . . . it seemed . . .* The shifting from one person to another, from *one* to *you* in the last sentence, for instance, is objectionable.

The punctuation is faulty. There should be a semicolon rather than a comma after *environment* in the last sentence of paragraph one; there should be a semicolon after *mind* in the first sentence of paragraph three. An apostrophe should be used with *nights* in paragraph eight; a colon should be used after *convinced* in the first sentence of the last paragraph.

Thus, altho this theme is clear and interesting, it lacks polish. The student will have to learn a little more about paragraphing, sentence structure, and punctuation before her writing can be considered entirely satisfactory.

THEME IV

(Rated 2)

Ambitions Other Have Had For Me

I would have to be a jackass of all trades to be proficient in all the vocations that my relatives have chosen for me. For some queer reason everyone has chosen for me the thing he would like to be. Does this mean that no one is satisfied with his own job or does it mean that he wants someone to show him what he could have been? At any rate I have chosen my own occupation of librarian because I believe I would enjoy this work and also be a success in it.

One of my numerous uncles decided when I was a mere child to make a singer out of me. I started out as a monotone but through constant practice I have learned to vary my tone every minute or so. Long before I was even this successful, my uncle had given me up as a bad job.

My mother had always wanted to be a musician, particularly a pianist. As soon as I was old enough to take lessons, my mother hired a teacher and my second career began. I liked the noise I could get out of those white keys so I was constantly drumming on the piano. This was taken for genius—for awhile. Although I took many years of music I never became a genius.

My aunt had and always has been praised for her figure. She determined to make me a model or something in which my figure would be shown to advantage. At that time my "figure" closely resembled the numeral 1. Although I am delighted to admit that it has improved, my aunt realizes now that her hopes were quite clearly unfounded.

Next, the family had a get-together and decided that, all things considered, I had better become a school teacher. Now I have always been sorry for school teachers and I don't want to be sorry for myself. Furthermore, it takes infinite patience to be a school teacher. I know some of my limitations so I realized that infinite patience wasn't one of them. I told my family this and they quite agreed about the lack of patience but concluded that I could develop that.

I have spent the last year preparing the family for my vocation of librarian and they at last believe I am earnest. So off to school I'll be packed as soon as I graduate from high school and "woe is me" if I'm not successful in my chosen occupation!

Comment

This theme has many merits; it shows ease of expression, the ability of the writer to express herself clearly and explicitly, and a freshness which results from having something to say and saying it naturally, logically, and concisely.

There are, however, defects. The lack of punctuation between the clauses of a compound sentence can hardly be overlooked. There are at least nine sentences in the theme which show this omission: the third sentence of paragraph one and the second sentence of paragraph two will serve as examples. Addiction to the undesirable "so-habit" is indicated in the third sentence of paragraph three and in the second sentence of paragraph six. The coined word *jackess* in the first sentence of the theme is misleading, awkward, and in bad taste. This theme, which was rated 2 by the staff, might well have been rated 1 had the mechanics been as good as the organization. The evident lack of training in mechanics indicates clearly that this student needs further drill in punctuation, sentence structure, and diction in order to develop the ability which this theme shows her to possess.

Do Students Object to Cheating and Cheaters?

In discussing the views of students on cheating and cheaters, there are, as on every question, two viewpoints, namely: the views of the person who cheats, and the views of the strictly honest person.

The person who cheats naturally does not object to the practice, or he wouldn't indulge in it. He sees other cheaters as perfectly good people. He does not object to letting another person see or have his work. He sees non-cheaters as snobs who are afraid of being punished for giving others their work.

On the other hand, to the person who is honest and always does his own work, cheating is a most vile practice. He spends hours on work it takes the cheater fifteen minutes to copy. He sees the cheater obtain the same credit for the work, realizing however that when it comes to a showdown under strict and trying conditions at some future date, he will stand heads above any dishonest person. The fact that he thinks a cheater will eventually cook his own goose, and as a result is somewhat tolerable of the person and his practices, is a drawback. If all honest students were out and out opponents of cheating and attempted to show cheaters the drawbacks of being dishonest, some not-far-gone people might reform. Some students do not realize what they are doing when they cheat. They think themselves clever people, able to outwit their learned instructor. They don't seem to realize that it is nothing to the instructor whether or not his students all learn the required information. They are unable to see the purpose of their being in school, that they are there for their own advancement. They can't see that they are foolishly wasting time, money, and some energy. They are quite unable to see themselves betraying a trust placed in them by their parents.

If a student would stop to realize what petty cheating might eventually lead into, what he is doing to himself when he cheats, he might change his whole viewpoint.

Comment

This theme is better than the average entrance theme in mechanics. The writer seems to have mastered the fundamentals of spelling, grammar, and punctuation. The diction, however, is rather colloquial. Such expressions as *heads above* and *cook his own goose* are hardly acceptable in formal writing. The use of *tolerable* for *tolerant* is a serious error in diction. These errors, however, are easy to remedy.

The qualities which make this theme less good than those rated 1 and 2 are lack of unity, lack of clearness, and lack of a definite point of view.

The opening paragraph proposes a division of the subject. Paragraph two begins to carry out this division, but paragraph three wanders about, discussing both points of view instead of the one proposed in the topic sentence. This lack of unity is perhaps the worst fault in the theme.

The final paragraph does not answer the question asked in the title. Thus, the entire theme gives the impression of lack of unity. The writer has talked about the subject, but he has failed to develop a clear and definite thesis. When the reader finishes this theme, he finds that he knows little more than he knew before. "Do Students Object to Cheating and Cheaters?"—that is the question. It has not been answered.

How My Hobby Has Been Helpful to Me

My hobby is reading—reading everything, fiction, biography, travel books, poetry, and all manner of literature. I did not originally cultivate my hobby for its usefulness, but for the pleasure it gave me. However, since I began to realize the benefits of my reading, I have been careful to read only what is considered the best.

One of the effects which I notice most is the extension of my vocabulary, making it possible for me to converse more interestingly and more clearly. It gives one a better standing in the esteem of his friends to be able to use correctly words often read but not so often heard in conversation.

Reading good literature has helped me to recognize the origin of famous phrases and quotations included in dialogues of plays. Understanding the allusions to which such quotations are intended to refer often helps me to a deeper meaning than the mere meaning of the words.

By reading the newest literature, I am able to trace the trend of writing. By reading the classics, I am able to come to a better understanding of the ages and conditions in which they were written. Through the combination of both new and old, I am able to speak intelligently on literary matters. The feeling that I am well-read helps me to overcome to a great extent my tendency toward an inferiority complex.

In my case, reading has filled pleasantly the time which more active girls spend in athletics or out-door hobbies. No matter what my mood or environment, I believe that with a good book I could never be lonely nor discontented. If I feel gloomy or down-hearted, a light satirical book or play will always do wonders toward making me a better tempered room-mate or companion.

Of all the benefits which I reap from my perusal of literature, I hold most highly the pleasure, for all the other effects seem to hinge on that one.

Comment

The chief merit of this theme is the variety and interest of sentence structure; the chief fault is the choppieness and lack of development in the paragraphs. The author frequently, altho not constantly, shows considerable skill in avoiding the bald monotony of sentences all modeled on the subject-verb-modifiers pattern which attracts most young writers. *By reading, Through the combination, No matter what, If I feel, Of all the benefits*, used as sentence-beginnings in paragraphs four, five, and six, show both a skill in variation and a sensitive ear for the variations produced.

The paragraphing, however, gives a distinctly breathless effect. No paragraph is longer than three sentences. This brevity gives no opportunity for development of the idea expressed. For example, paragraph two deals with the enlargement of the student's vocabulary by reading, but the idea is not given a chance to grow. There are no specific examples of new words learned or of unusual words used in conversation as a result of wide reading. The same criticism applies to paragraph three: no "famous phrases and quotations" are cited to support the statement of the topic sentence. Altho there is an interesting plan of development in paragraph four, even that paragraph is too abrupt.

Mechanically the writing is competent, altho *making it possible*, in the first sentence of paragraph two, is a dangling participle, and the *It* which begins the following sentence of the same paragraph is very confusing.

The theme has a thesis which is fairly well supported, but, on the whole, the discussion is rather general and lacking in sustaining power. The good points are points of detail; in the larger virtues of developing and sustaining ideas the student needs further training.

Do Extra Curricular Activities Pay?

In recent years, there has been some criticism that many students are spending too much time on extra-curricular activities. It is argued that they are letting their studies suffer and devoting most of their time to these outside activities.

There can be no doubt that extra-curricular activities are worthwhile, but the question arises that if a student engages in so many activities that his schoolwork and his health suffer, is it profitable?

The high-school offers many opportunities for participating in activities outside the regular school curriculum. There are athletics for both girls and boys. There are many different types of school clubs, language clubs, science clubs, creative writing clubs, clubs for those with artistic ability. In fact, the schools are almost over organized with clubs. There is the school paper to work on, and for the high school seniors, there is the school yearbook and countless senior committees on which to devote their time and energy.

The chief danger, then, is that a student of ability will engage in too many of these outside activities, and his schoolwork and health will consequently suffer.

Many high-school seniors who graduate this spring will be close to a nervous wreck when they get out of school. A shortening school year, causing an overload of schoolwork, time spent working in various clubs, on the school paper or annual, or in the class play will be almost too much for them.

However, the advantages of extra-curricular activities far outweigh the disadvantages. The chief value of these outside activities is that they offer practical experience. Work in school clubs offers experience in organization and administration. It gives a person responsibilities. If an officer, one must appoint committees and see that the work is done. Every member generally serves on some committee and has specific duties which are his responsibility to see carried out.

The school paper provides valuable experience for the student, whether he intends to study journalism or not. Writing for the paper, he acquires, or should acquire, a clear, concise, easily understandable style, which is an asset in any line of work. He gets an opportunity to get out and meet people and make new contacts, which is valuable in later life. Knowing that he must get his

stories in on time gives a sense of responsibility and develops cooperation and teamwork.

Participating in school athletics also develops a spirit of teamwork and cooperation which is so necessary for one who wants to succeed in life.

Because extra-curricular activities offer these practical advantages to students who wish to participate in them, it can be truthfully said that they do pay. In some ways they offer more opportunities for preparing for the future than many of the regular school subjects. Their only danger, then, comes from over-indulgence, but that is true for almost anything.

Comment

This is an *average* theme, neither lively nor painfully dull. The writer observes certain basic principles of organization and attempts to show the logical relationship between ideas. He has a definite objective and works toward it consistently.

But there are obvious deficiencies. The paragraphs are much too short and consequently too numerous. Nine in number originally, they could be reduced to four with little difficulty and a consequent gain in coherence: paragraph one stating the problem; paragraph two, the disadvantages; paragraph three, the advantages; and paragraph four, the author's conclusion. In addition to faulty structure there are various errors in diction and idiom. The first sentence is wordy (*In recent years* could be changed simply to *Recently*) and impersonal. Each of the first three sentences contains a weak impersonal construction. There is a bad change of number in the opening sentence of paragraph five. Idiomatic errors in the closing sentences of paragraphs three and six (*committees on which to devote their time and energy; and specific duties which are his responsibility to see carried out*) suggest that the student has much to learn about the construction of the English sentence.

The whole theme is rather general and impersonal. The author seems somewhat afraid of examples, especially of examples taken from his own experience. He has yet to learn the value of concreteness and precision.

Do Extra-Curricular Activities Pay?

Do extra-curricular activities pay? I have always maintained that unestimatable benefits can be derived by taking part in extra activities. I base my belief on two facts. First, since schools deem it necessary to spend so much time on extra-curricular activities, it must pay; and second, there is a certain amount of practical benefit derived from taking part in an extra activity not otherwise received in the regular curriculum.

From my own personal experience in high school, I have always tried to get into as many activities as possible. I have been in class plays, operettas, debates, and declamation contest; and I have always received a certain amount of pride in doing well in these activities. There is always, I believe, a great deal of personal pride and joy received after winning a debate or a declamation contest. Also a person who has been in a play or operetta has the same feeling. But, on the other hand, in "getting into" every activity, I have met with a certain amount of opposition from my parents. They have been in constant fear that, in being in all these activities, I may have been inclined to neglect my studies. During this, my senior year, I have been in an operetta, in the glee club, editor of the school paper, student manager, in two debates, in a declamation contest and still I have managed to maintain a "B" average in all my subjects. But all this has taken time, and the question naturally arises "does it pay?"

Considering the athletic angle for a moment, I believe, that by taking part in an athletic program, a student, who might otherwise be inclined to be lazy and let his studies slip, is more likely to keep up in his subjects than he would if he were not in athletics. For the athlete is required to do passing work in order to compete, so a boy will work doubly hard to stay eligible in order to compete. Then too, in athletics the physical and character building benefits obtained are of the utmost quality. In absolutely no other activity is there a better opportunity to develop good physical and character building traits than in athletics.

And so, in summary, may I say that, considering all of the benefits derived from taking an active part in extra-curricular activities, I find that, if a student can continue to receive good grades, he should by all means take an active part in these extra-curricular activities. For "extra-curricular activities do pay!"

Comment

The first sentence of paragraph one asks a question. The second sentence begins an answer to that question. The third continues the answer clearly and succinctly. The theme is strengthened further in paragraph two by the submission of facts from the student's own experience. The discussion is developed through the following paragraphs, and the theme comes to a logical and decisive close. The organization is evident and reveals orderly thinking, but there are many fundamental errors in mechanics.

The punctuation is unsure. The seventh sentence of paragraph two, a compound sentence, lacks a comma. In the first sentence of paragraph three the misplaced comma after *believe* is a serious error; and in the same sentence the relative clause, punctuated as non-restrictive, is clearly restrictive. These are elementary errors.

The diction and idiom are very weak. The word *unestimatable*, used in the second sentence of the theme, does not exist. Such awkward and unidiomatic expressions as *I have always received a certain amount of pride*, and *There is always . . . a great deal of pride and joy received . . .*, both to be found in paragraph two, show clearly that this student has no feeling for English idiom. He needs to learn that *get* is a respectable verb and that stiffness is not a virtue in writing. Further, the theme is exceedingly wordy; the opening phrases of paragraphs two and three are entirely unnecessary, and it would be easy to point out sentences in which ten words do the work of five.

Hence, this theme indicates that its author needs much more drill in the fundamentals of punctuation, idiom, and diction. The student can think in an orderly way, but he has not yet learned to express his thoughts gracefully or even correctly.

What Is Necessary for Success in My Favorite Sport

Basketball, as we probably all know, requires a strong body of the player. That is only one requisite for success in playing basketball, however. One must be interested in basketball; one must practice fair play; one must understand and follow all rules of the game.

Formerly, girls' basketball was played similar to boys' basketball. In the revision of the rules, the girls' sport has been made less strenuous. A girl still needs a strong body in order to participate in the game if a player is not strong, basketball might prove injurious to her; but if she has good health and a strong body, basketball would not only be enjoyable but also beneficial to her mind and body.

Without an interest in the game, a girl would not try hard to be a success as a basketball player. In order to do her best she must enjoy and be interested in the sport in which she is participating.

No one likes a person who cheats. One who does not practise fair play, can never rise to success. In basketball fair play is essential, as it is in any other sport or undertaking.

If a girl is interested in the sport in which she is participating, it would be natural for her to know the rules of the game. Knowing the rules is not all that is necessary, however. One must also understand and practise these rules. There are rules in anything we undertake. Rules need not be stated or definite, but they may be implied, such as rules of fair play. It is essential to know and obey all laws or rules of a sport, as well as of a city or school.

Success is something that most people are willing to strive for. For success in basketball one needs a healthy and well-developed mind and body; a desire to participate in the sport; a knowledge of all the rules of the game; the ability to follow these rules; and the practice of fair play.

Comment

The opening paragraph of this theme is promising. It sets forth a clear and orderly plan of development. The succeeding paragraphs follow that plan, but not so effectively as they should. Paragraphs three and four do little more than restate, in almost the same words, the points allotted to them by paragraph one. There is no attempt at easy transition from one point to the next, and there is no development of the point within the paragraph: no examples, no discussion, no growth of the idea. The effect is choppy and abrupt. The last paragraph, stereotyped and repetitious as it is, achieves a certain finality by recapitulation of the points made; but the tiresome repetition from first to last is a fault rather than a virtue. The student has obviously had some training in outlining, but none whatever in paragraph development.

There are grave faults in punctuation and diction. The third sentence of paragraph two, a horrible example of the "run-on" sentence, is in itself sufficient evidence that the student needs much more training in punctuation. The two sentences ending with *however*, the shifts in subject in paragraph five (from *a girl* to *one* to *we*), the use of general rather than specific statements, the endless repetition as a result of a limited vocabulary—all these faults indicate that this student is weak in English.

Two Books I Want to Own and Why

For many years, I have been more than casually interested in owning books. Books, for me, serve as a safety valve in emitting pent-up sorrow or grief, as a means of obtaining vast knowledge, and lastly a source of truly delightful humor.

Of the two books which I would like to own "Pride and Prejudice" is first and foremost in my opinion. The delightful humor which pervades the book from cover to cover is truly delectable. The book also is a panorama of the life of those quaint people of the past told in a vivacious manner.

But to me its cardinal virtue is Jane Austen's ability to portray character with such accuracy, and she makes her rather lengthy accounts very interesting. Jane Austen seems to make each character so realistic that you are enthralled by their traits which are so characteristic of the human race.

My second choice is "The Story of Chemistry" by Darrow. This book satisfies my third requirement of a book, that it possess a vast amount of knowledge and I believe this book has this virtue. Darrow tells in an interesting manner the evolution of chemistry from the time of the early pioneer to present day highly proficient chemists. I would also like to own this book because it is very readable to the layman and at the same time very accurate and precise in its material for the most advanced man in this field.

Thus, I have found the two books which embody the three virtues which I set forth as being my standards. I think owning books gives one a feeling much the same as a miser of money only the miser of books has a lasting joy of having done something spiritual as well as material. I believe when one can obtain the spiritual through the material he should do so without further ado.

Comment

This theme has the merits of reasonable directness and simplicity. The content is fair; the books named are suitable selections altho the comments on them are inadequate.

The theme shows a conscious attempt at structure. The first sentence is a definite thesis; the second lists three points which are, apparently, to be developed in the theme; the last paragraph returns to the general subject to round off the paper. Unfortunately, the student does not carry out his plan with complete success. Having named his three main points, he forgets their order and takes up the third one before the first or second. He takes it up, but instantly drops it. He gives no examples of humor and no proof that *Pride and Prejudice* is a humorous book, but passes on quickly to its "cardinal virtues," none of which had been included in his proposed outline in paragraph one. He really forgets his first plan and writes about "Two Books I Like" instead of about the subject he has chosen. Paragraph four is better. The student here judges a specific book according to the second of the three criteria stated in the outline, altho, inexplicably, he now calls it the third instead of the second. The "conclusion" of the theme does not conclude anything, but opens up a new field, the spiritual importance of books. The statement that the two books "embody the three virtues which I set forth" startles the reader because no mention has been made of the use of either book "in emitting pent-up sorrow."

The sentence structure of the theme is weak. The first sentence of paragraph three shows a needless shift in subject. The second sentence of the last paragraph contains an uncompleted comparison, apparently between "a feeling" and "a miser." The comparison is apt, but the expression of it is poor.

The diction is marred by trite phrases. *Cardinal virtue, first and foremost*, and *from cover to cover* are too badly worn for further use.

The theme shows that the student has profited in some measure from his high-school work and that he needs further training in organization, sentence structure, and diction.

My Idea of Hard Work

A year ago last summer I attended a Methodist Epworth League Institute. At that institute, I met two boys who intended going to Yellowstone National Park to look for work.

They asked me to go along and on July twenty-seventh we arrived at Mammoth Hot Springs. We immediately ask for jobs but since the manager was there at the time we had to wait.

The next morning we inquired again and this time were accepted. That afternoon we started on top of a laundry truck to Yellowstone Lake Lodge where we were to work in the laundry.

All three of us were general helpers, that is we did all the dirty work. After we had been there awhile we were told the washerman, wringerman, tumblerman and packer had had to do our jobs before we came. One night, so the story ran, they all got sick on "Montana Moon" and while feeling sorry for each other they decided not to go to work unless they got more help, and pay for over time.

This all happened in the height of the tourist season and no other experienced men were available. So rather than tie up the whole organization of The Yellowstone Park Lodge and Camps Company, their demands were met.

Our work started at seven o'clock in the morning and continued until eleven forty-five when lunch was served. We went back to work at ten minutes of one and work until finished usually six. After supper we came back and sorted dirty laundry. If any washing was to be done we did it then to get it out on the morning truck.

My particular work consisted of loading and unloading trucks. Only three trucks each day so when I was free I helped the washerman. I had to two thousand pounds of wet wash from those wet, hot tanks every hour. After emptying them I had to fill them. After ten days work I developed an attack of "laundry-man gut". I spent the next three days in the hospital.

By the end of two weeks, I had callouses on the end of my fingers from handling rough sheets. I couldn't even pick up a pencil!

Comment

The only virtues of this theme are its definiteness and its attempt at concreteness. In almost every other way it is hardly the kind of work which a college has a right to expect from any high-school graduate.

In organization the theme is very faulty, chiefly because altho the subject is "My Idea of Hard Work" nothing is said about work until paragraph six; in other words, the first five paragraphs are introductory and to some extent superfluous. Moreover, the crux of the account, the actual loading and unloading, is given only thirty or forty words, so that whatever climactic effect might have been achieved is lost.

Technically the theme is extremely weak. Eight paragraphs could be reduced to three. The author cannot distinguish between present and past tenses (*ask* for *asked* in paragraph two; *work* for *worked* in paragraph six); his spelling is unreliable; and he sometimes omits words entirely (*not* in the second sentence of paragraph two; and *lift* in the third sentence of paragraph seven). Almost all the sentences are either simple or compound. The author apparently has never heard of subordination or the complex sentence. The first sentence of paragraph four contains one of the grossest errors in punctuation, the comma splice. The same paragraph is obviously lacking in unity, since altho the writer begins with a personal detail he ends with a description of his predecessors. In the last paragraph the author has apparently added a reminiscence which he had previously forgotten.

The theme shows a sad lack of training in the fundamentals of sentence structure, punctuation, and paragraph organization. The student needs much practice under strict discipline.

My Favorite Magazine

I enjoy many magazines but the American appeals to me most. To begin with I like the size and shape of the magazine. Many magazines of larger size are so unwieldy to handle that this thing alone makes one avoid reading what, without a doubt, is very worth while matter. The American with its small width and length handles easily. It never seems top heavy, no matter how long a time one may be holding it while reading.

The cover designs are always interesting to me. I enjoy the bright colors and the manner of conveying seasons in each new number. Inside the magazine the art conveyed in the pictures seems good to me, and adds much to the reading of stories or articles.

The pictures and short write-ups about people we all should know about, are very fine. They keep me in touch with people in all lines of work and walks of life who are going places and doing worth while things. No matter whether my main interest be politics or art, I still find there, someone I can be interested in and whose ideas should interest me.

Then to, there are always articles in the American written by men who are very well versed in their subjects. These subjects vary with current national problems and interests, but are always of interest to one who wishes to keep up with changing times and problems.

The short stories are of such variety that almost any taste can be pleased. All stories are by authors who write well and the stories can be trusted to be worth while. The continued stories are of the same variety and charm. When one starts a story by an author know to be good the story seldom fails to please. The American carries several continued stories so that the choice of type is also easy, and a variety of tastes may be satisfied. If one prefers Western stories, they are to be found.

For an all-round magazine I do and have always enjoyed the American. Even the ads. are colorful, instructive and interesting.

Comment

This whole theme strikingly reveals the unawakened mind that produced it, but nowhere more strikingly and consistently than in the diction. It is weak (*seems, very, fine*); passive (*can be found, variety of tastes may be satisfied*); and trite (*worth while matter, ads. are colorful*).

There are no ideas in the theme; never does the author get away from the most hackneyed sales-language in attempting to enumerate the virtues of the magazine. The student's fondness for impersonal constructions further deprives his theme of any individuality it might otherwise have had.

Mechanically it is only passable. Careless misspellings such as *to* and *unweldy*, slips such as *know* for *known*, unidiomatic ellipses such as *I do and have always enjoyed*, and violations of formality such as *ads.*—all these errors show the writer to be insensitive and careless.

This kind of writing is perhaps the most difficult to correct, for improvement can come only from the enlarging and awakening of the whole body of the student's perceptions. He can be taught to be careful of his spelling and his grammar, but until he ceases to regard things in terms of hackneyed and thoughtless phrases borrowed from anywhere, and begins to see with his own eyes, there is little hope that the general tone of his themes will improve.

My Idea of Hard Work

Throughout my three years in high school, I have had various experiences with work, of course. Some subjects have been easy, some ordinary and the other few have been hard, that is hard in the sense of the word that means difficult to comprehend. Certain subjects come simply and naturally to students. Study is just a matter of understanding that which you read.

Bacon's essay, "Of Studies", which I read in Senior English, has helped me considerably thru out my education. His views and ideas seem to be very much like my own. There are some books that one should read purely for enjoyment or entertainment. Of course these are not really the kind that a person would want to have in his or her library. Books that are worth concentrating on are most profitable and in the end they furnish the best material for thought and they also can aid one in the future. They help to make a clear and worthy mind.

The above paragraph may seem to have little if no connection with the title of this so-called theme, but the books that one reads help to give a person a better mind with fine knowledge which in turn will help him and also enable him to concentrate and more quickly grasp the subjects he intends to take.

Now to get back to the main road, after that side-tracking. Hard study means the amount of time and effort but not time alone, that is put in study. Personally I can not study or cram for a test as some people can, for it is necessary for me to learn the lesson or subject as the case may be, when it is assigned and studied in class and if I don't grasp it then, it is just "too bad". Although there are some exceptions of course. Hard work doesn't only apply to school work for after graduation, it is necessary even more to concentrate on hard and eager work. There in business it is much more necessary to "put forth one's best self". There it counts the most. Hard use of a file or knife dulls the edge or blade. It is not so with the mind for it is made keener and clearer with hard work.

Comment

The writer of this theme has no idea whatever of logical thinking. The first half of the theme has almost nothing to do with the announced subject. In paragraph two there is an obvious attempt to impress the reader by the not very subtle device of mentioning Bacon's essays as favorite reading matter of the author. He seems to have been little improved by Bacon's conciseness of expression. The opening sentences of paragraphs three and four try to apologize for the digression of paragraph two, but this apology adds nothing to the value of the theme.

The spelling is very bad. The student misspells such simple words as *concentrate*, *senior*, *comprehend*, and *throughout*. It may be argued that several of these errors are the result of carelessness, but carelessness is no excuse.

The sentence structure is extremely poor. Paragraph three, which is all one sentence, is a case in point. Besides the error in idiom (*little if no* for *little or no*, or *little if any*) and the illiterate error in spelling and grammar (*enable him to conscenterated*), the sentence is rambling, wordy, and weak.

The writer is obviously not prepared to do college work. It is evident from the bad organization of the theme that he has not learned to think logically; but even if he had, his theme would still be rated 7, for he has yet to master the fundamentals of English grammar, spelling, and usage.

Do Extra-Curricular Activities Pay?

Extra-Curricular activities in the modern college life, play an important part in the development of the student.

They are a means for a student to develop himself along the lines of his intrests, other than his chosen profession. Due to the wide variety of activities, it offers everyone a chance to chose according to his own intrests.

If the student has Journalistic intentions, he can develop his intrests, and also get an idea of his chances to make a sucess if he wants to make it his life work.

Recreation, offered along the lines of Music, Drama, and Sports, serve a double purpose, very few do not enjoy some form of music, and those intrested may acquire musical education and practice without actually making a profession of it. It also offers a pastime for those not directly connected with it, but as the audience.

Drama serves the same purpose, and offers a means of passing spare time which could not be enjoyed by most students because of the cost to himself and the College.

Sports take in such a wide variety of things that no one is left on the outside, Without it life would be very dull. and I think the modern college would not have reached the height to which it has now asended.

The inter-college activites stir the spirit of the whole College and some times offers a means of revenue. They offer a students a chance to get rid of pent-up emotion.

This field has developed a new addition to the college in form of Athletic school or coaching, and with the greater development of professional sports it offers some a chance to start in life with something to carry him for a few years, in the form of money.

The inter-mural sports play a still more important part, because they reach out to every student, and a change is necessary for sucess in college.

In view of these facts, and the reason that everyone is included, in some form or another I think the extra, curricular activities pay, both to the student and the college.

Comment

The student who wrote this theme is obviously not prepared to do college work in English. There are enough errors here to furnish material for a textbook. The organization is poor; the paragraphing illogical; the mechanics faulty.

The ten paragraphs could easily have been reduced to one. No paragraph contains more than two sentences, and most of the paragraphs contain only one. This division of material indicates not only ignorance of the function of the paragraph but also inability to think and organize logically.

The mechanical errors indicate virtual illiteracy. A high-school graduate should be able to spell such simple words as *interest*, *variety*, and *ascend*. He should know that the comma after *purpose* in the first sentence of paragraph four ought to be a semicolon or period, and that no punctuation whatever is necessary in the first sentence of the theme. He should know that *Recreation* is the subject of the first sentence of paragraph four and that the verb *serve* ought to agree with it. He should know that *students*, in paragraph five, cannot possibly serve as the antecedent of *himself*.

These are errors of ignorance; they can be remedied—but the treatment is long and severe. Constant drill in elementary grammar and fifth-grade spelling may eventually bring this student to college level; meanwhile he must flounder in the limbo of Sub-freshman Composition, between high school and college.

Do Extra Curricular activities pay

This question has been answered as well as asked by many teachers and Journalists. I will however try and point out in short where it pays, and in big dividends.

First take public speaking this is considered by many a waste of time which gets them no returns. This is the first point where I disagree it does much good as it sharpens our wits makes our minds speed up faster than the average. It also helps in using the correct words and the right pronunciation of these words. It also brings us into contact with many common day problems which otherwise we would have heard nothing about.

Then take athletics this is considered by many of the older set as a waste of Time and money. I say if it wasn't for athletics there would not be so many boys and girls entering the higher schools. I don't say they come to school for athletics alone but it gives them some recreation along with their work which makes them both more enjoyable. Athletics requires a certain standard of grades before they are allowed to be in inter-school meets. This urges the student to study and keep his marks up to the standards set by the State-athletic commission. It is common to have a certain amount of conflict between the boys of the world, and I agree with a certain Statesman who said the reason the United States was such a peaceful country was because they had their competition in sports.

Also the sports tend to keep one healthier or would why would Schools be compelled to teach physical education.

But the biggest benefit from all the extra activities is the clicking of elbows with other people. It does not leave them with the one idea of their own, but brings them into contact with ideas of other people's ways. I believe this does away with the one tracked mind which is ruinous to a country whose population is of this sort. These people want everyone to do things which would benefit them but they dislike to give anything in return.

Extra activities also helps a student to choose a vocation. A student tries all things in his high school days athletics, music, speaking teaching, of these he singles out the ones he likes or dislikes most then when he gets through school he is ready to start

his advanced learning of his speciality. So I ask you people if you do not think extra curricular activities do not pay big dividends. I think they are Invaluble to a school.

Comment

This theme is an example of how badly some high-school graduates write. It has no merits and endless defects. Merely to catalog the errors would require more space than the theme itself.

Ignorance of spelling is indicated by such errors as *buy* for *by*, *there* for *their*, *answerd*, *alloud*, *wich*, *atheletic*, and *healthier*. This list is far from complete, but there is no need to go further.

Ignorance of the most fundamental rules of grammar is illustrated by the constant failure of agreement between verb and subject: *It also help* and *It also bring*, both to be found in paragraph two, are examples.

The punctuation is so sketchy that it impedes rather than assists the reader. The second sentence of paragraph two and the first sentence of paragraph three, both "run-on" sentences, are in themselves enough to condemn the student to Subfreshman Composition.

On the reasoning, the sentence structure, the paragraph development, and the general tone of the theme it is useless to comment. Even if the student had anything intelligent to say, which he has not, he would be unable to express his ideas intelligibly.

My Idea of Hard Work

The word work branches out with more than one type. A person doing heavy labor with a slang saying, Backbone breaking; has to become used to such labor to stand the exertion. Development leads to a strong body and is required for this type of labor. The work it self maybe lightened to a degree by planning a head of time a good sceduale to save time, Thus shortening hours and tends to give extra time for amusements.

Great Men of this age give a helping hand of example. They began life from the start with hard labor and succes was gained by planning their future.

There is another type of hard work that is classed more on the professional Line. This work is mental and is a large factor of the present day to keep our living standards parralel with the economic conditions so as to benifit everyone.

My self for an example have experienced both type of hard work. I realy injoyed both types. Where is one difficult I found was tranfering from one type to the other. It seems to be a sudden shock to the human body, although a person becomes readily accustom after a short time. A factor to all work is keep a smile handy, Happiness is essential for a human life to enjoy its envirenments. Unhappiness leads to worries, which are a dread to any human.

My opinion of success is through hard work. Planning ahead gives a mind a thought that hurries the time. Mistakes may be prevented this way and falieur to plan is rather costly. If a person keeps happiness with every thing of life he will be a great success even though hard work essential.

Comment

This theme is so incredibly bad that the author should immediately be relegated to Subfreshman Composition. The student shows no knowledge of the fundamentals of writing. The theme lacks unity, coherence, logic, and even worse, correctness in case and tense. There is nothing here which suggests that its author is prepared to do college work, indeed little that would justify a grammar-school diploma.

To be more specific, the student misspells such simple words as *benefit*, *failure*, *exertion*, *schedule*, and *enjoy*. He cannot distinguish the intensive from the personal pronoun (*My self for an example have experienced . . .*), or complete from incomplete sentences (*Thus shortening hours and tends to give extra time for amusements*). The idiomatic errors are legion: the first two sentences afford ample illustration. In content the theme is notable for its lack of plan and its concomitant lack of sequence; for example, the second and third paragraphs have no relation to each other or to what precedes or follows.

Were the evidence not immediately at hand to disprove the suspicion, one might suppose that the theme had been deliberately concocted to include within three hundred words all the errors on an English teacher's black list. It is useless to comment at length on such a piece of writing.

The Fascination of Machinery

The Fascination of Machinery is more fascinating than one person would rielely think. Sometime when I work with machenery it makes me feel if I was the machines itself because I can see the work it doing.

There are several Fascinatic machines such a Steel planer, wood hand sewer, and a lathe. These machines are use at the present date, and many other machines in some sort are been use as three I just mentioned in the uper words.

Let me go in and tell you just How three machines Fascination me. I have with these three machines for the past months. It is very supperissing what machenery can reeley do. Now forinesetted that I take a hand sew and tell you just how that is run and what good it does you will argue with very much because it a great thing.

A Band sew is used for sawing large logs up into two by for, and two by Sexs just the size you want the broads. It has two wheels one is a diver and the other is awheel where you can titen the sew, so be just tite enough so it will not ben or barke.

A Steel planner is machine planes off steel, you known when large sheet iron of come ofit of the moders it is very rough and this planner take these rought spot off, and make it to is right size and shape.

The Fascination of Machinery has been one off the great things in the world.

Comment

It verges on incredibility that this unspeakably illiterate theme can possibly have been written by a graduate of a high school, but it was. Moreover, the author was born in the United States to parents who spoke the English language. The middle-western high school which granted the diploma shall be nameless here, but this student was graduated. He wrote this theme and submitted it in good faith as evidence of his preparation for college work.

It is needless to comment in detail on the faults. Not only is there a complete ignorance of even the most rudimentary rules of spelling and punctuation, and a continuous outraging of grammar and idiom; there is not even the remotest inkling of language itself.

Part II. Time—6 minutes

- 1 As gentle Shepheard in sweete even-tide,
 - 2 When ruddy Phoebus gins to welke in west,
 - 3 High on an hill, his flocke to vewen wide,
 - 4 Markes which do byte their hasty supper best:
 - 5 A cloud of combrous gnattes do him molest,
 - 6 All striving to infixe their feeble stings,
 - 7 That from their noyance he no where can rest,
 - 8 But with his clownish hands their tender wings
 - 9 He brusheth oft, and oft doth mar their murmurings.
 - 10 Thus ill bestedd, and fearfull
1. *Phoebus* (line 2) refers to: (1) the god, (2) the sun, (3) the poet, (4) a person in the story, (5) the evening star.
 2. *Ruddy* (line 2) means: (1) red, (2) strong, (3) bright, (4) yellow, (5) rude.
 3. *Welke* (line 2) means: (1) redden, (2) grow pale, (3) melt, (4) flash, (5) walk.
 4. *Clownish* (line 8) means: (1) large, (2) comic, (3) white, (4) awkward, (5) dainty.
 5. *Mar* (line 9) means; (1) interrupt, (2) encourage, (3) smash, (4) intensify, (5) count.
 6. Give in modern spelling the present-day forms of:
 - a. vewen
 - b. gnattes
 - c. noyance
 7. Alliteration of the sound *M* occurs in line
 8. The forms *doth* and *brusheth* are: (1) colloquial, (2) archaic, (3) incorrect, (4) prosaic, (5) accidental.
 9. The figure of speech in the entire passage is: (1) a metaphor, (2) homeric simile, (3) personification, (4) antithesis, (5) synecdoche.
 10. Line 9 is called an

Part III. Time—6 minutes

- 1 . . . Through many a dark and dreary vale
 - 2 They passed, and many a region dolorous,
 - 3 O'er many a frozen, many a fiery Alp,
 - 4 Rocks, caves, lakes, fens, bogs, dens, and shades of death—
 - 5 A universe of death, which God by curse
 - 6 Created evil, for evil only good;
 - 7 Where all life dies, death lives, and Nature breeds,
 - 8 Perverse, all monstrous, all prodigious things,
 - 9 Abominable, inutterable, and worse
 - 10 Than fables yet have feigned or fear conceived,
 - 11 Gorgons, and Hydras, and Chimaeras dire.
1. The first line: (1) is a complete line of blank verse, (2) contains alliteration, (3) has six feet, (4) is a figure of speech, (5) is exclamatory.
 2. In the fourth line: (1) there are eight stressed syllables, (2) the words are dissyllabic, (3) the rhythm is swift-moving, (4) the words are archaic, (5) a Homeric simile is used.
 3. *Rocks* (line 4) is used as: (1) subject of a verb, (2) object of a preposition, (3) object of a verb, (4) in apposition with another noun, (5) predicate adjective.
 4. *life dies, death lives*, (line 7) exemplifies: (1) paradox, (2) paradigm, (3) paranoia, (4) paramour, (5) parricide.
 5. The ninth line uses: (1) polysyllables, (2) concrete description, (3) simile, (4) parenthesis, (5) apostrophe.
 6. A *Gorgon* is: (1) a temple pillar, (2) a glutton, (3) a snake-haired woman, (4) a hideous animal-like man, (5) a braggart.
 7. A *Hydra* is: (1) a gargoyle, (2) a nine-headed monster, (3) a group of stars, (4) winged horse, (5) one of the three fates.
 8. A *Chimaera* is: (1) an incubus, (2) a rodent, (3) a salamander, (4) a fire-belching monster, (5) a three-headed dog.
 9. *Dire* (line 11) means: (1) dear, (2) morally unclean, (3) polluted, (4) sacred, (5) calamitous.
 10. The rhythm of this selection is: (1) indistinguishable from prose rhythm, (2) light and tripping, (3) rolling and dignified, (4) jerky, (5) monotonously trochaic.
 11. This selection is written in: (1) free verse, (2) unrhymed iambic pentameter, (3) polyphonic prose, (4) heroic couplets, (5) inner rhyme.
 12. The meter of line 2 is:
 - (1) — — — / — — — / — — — / — — — / — — — / — — —
 - (2) — — — / — — — / — — — / — — — / — — — / — — —
 - (3) — — — / — — — / — — — / — — — / — — — / — — —
 - (4) — — — / — — — / — — — / — — — / — — — / — — —
 - (5) — — — / — — — / — — — / — — — / — — — / — — —

Part IV. Time—6 minutes

- 1 Scorn not the Sonnet; Critic, you have frowned,
 - 2 Mindless of its just honours; with this key
 - 3 Shakespeare unlocked his heart; the melody
 - 4 Of this small lute gave ease to Petrarch's wound;
 - 5 A thousand times this pipe did Tasso sound;
 - 6 With it Camöens soothed an exile's grief;
 - 7 The Sonnet glittered a gay myrtle leaf
 - 8 Amid the cypress with which Dante crowned
 - 9 His visionary brow; a glow-worm lamp,
 - 10 It cheered mild Spenser, called from Faery-land
 - 11 To struggle through dark ways; and when a damp
 - 12 Fell round the path of Milton, in his hand
 - 13 The Thing became a trumpet; whence he blew
 - 14 Soul-animating strains—alas, too few!
1. A sonnet is defined as a poem: (1) of fourteen verses of iambic pentameter with a definite rhyme scheme, (2) of fourteen verses of no particular meter and irregular rhyme, (3) of fourteen verses in heroic meter, (4) of two stanzas of seven verses, (5) of three quatrains and two couplets.
 2. What figure of speech is found in the second and third lines?
 3. What figure of speech do you find in *a thousand times*, line 5?
 4. *Pipe* (line 5) means: (1) a eulogistic poem, (2) a measure of wine, (3) a Scotch dirge, (4) an instrument for smoking, (5) a wind instrument.
 5. What emblem of mourning is named in the poem?
 6. Give the nationality of
 Petrarch
 Tasso
 Camöens
 Dante
 Spenser
 7. What poem is referred to in the phrase called from *Faery-land*?
 8. The metre of line 14 is:
 (1) ' _ / ' _ / ' _ / ' _ / ' _
 (2) ' _ / ' _ / ' _ / ' _ / ' _
 (3) ' _ / ' _ / ' _ / ' _ / ' _
 (4) ' _ / ' _ / ' _ / ' _ / ' _
 9. The sonnet is in form a variation of: (1) Shakespearean, (2) Petrarchan, (3) Spenserian, (4) Elizabethan, (5) Babylonian.

Part V. Time—6 minutes

- 1 But most by Numbers judge a poet's song;
 - 2 And smooth or rough, with them is right or wrong;
 - 3 In the bright Muse though thousand charms conspire,
 - 4 Her voice is all these tuneful fools admire;
 - 5 Who haunt Parnassus but to please their ear,
 - 6 Not mend their minds; as some to Church repair,
 - 7 Not for the doctrine, but the music there.
 - 8 These equal syllables alone require,
 - 9 Though oft the ear the open vowels tire;
 - 10 While expletives their feeble aid do join;
 - 11 And ten low words oft creep in one dull line:
- 12 Then, at the last and only couplet fraught
 - 13 With some unmeaning thing they call a thought,
 - 14 A needless Alexandrine ends the song
 - 15 That, like a wounded snake, drags its slow length along.
1. *Numbers* (line 1) means: (1) number of poems written by the author, (2) the number of rhymes in a given poem, (3) the succession of metrical syllables in a poem, (4) a book of the Bible, (5) the use of significant numbers such as 3 and 7.
 2. *Parnassus* (line 5) means: (1) a winged horse, (2) a road between Ephesus and Troy, (3) a grove occupied by Pan, (4) a temple dedicated to music, (5) a mountain sacred to Apollo and his Nine.
 3. *Doctrine* (line 7) means: (1) principles of creed, (2) medical attention, (3) aesthetic value, (4) hour of prayer, (5) religious meditation.
 4. *Equal syllables* (line 8) means: (1) syllables having the same number of letters, (2) syllables in the same position within the line, (3) syllables that rhyme with one another, (4) syllables bearing the same quantity in pronunciation, (5) syllables alternating by stress.
 5. *Expletives* (line 10) means: (1) explosive words, (2) explanatory words, (3) unessential words, (4) extensive words, (5) necessary words.

6. *Couplet* (line 12) means: (1) a connecting line, (2) a pair of rhymed lines, (3) a pair of blank verse lines, (4) a pair of antithetical lines, (5) a pair of lovers.
7. *Fraught* (line 12) means: (1) laden, (2) worked out, (3) enforced, (4) empty, (5) pleasant.
8. Lines 11 and 15 are examples of: (1) paranoia, (2) hyperbole, (3) onomatopoeia, (4) geometridae, (5) paraphernalia.
9. Line 15 contains an example of: (1) parabola, (2) litotes, (3) simile (4) dialect, (5) trilogy.
10. An *Alexandrine* is a poetic line like: (1) the fifth containing a classical reference, (2) the second containing an antithesis, (3) the eleventh containing all monosyllables, (4) the sixth containing the not-but construction, (5) the last containing six iambic feet.
11. The row of dots indicates: (1) profanity, (2) a pause, (3) a change of speaker, (4) omission of lines, (5) intense feeling.
12. Lines 1 and 2 are: (1) end-stopped, (2) run-on, (3) feminine, (4) catalectic, (5) unrhymed.

The Bulletin *of the University of* **Minnesota**

Instructions for Registration of New Freshmen and Advanced Standing Students

Winter Quarter, 1936-1937

Saturday, January 2, 1937 (8:30 a.m. to 12:00 noon)

Monday, January 4, 1937 (8:30 a.m. to 4:30 p.m.)



Vol. XXXIX

No. 55

November 7, 1936

*Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota*

*Accepted for mailing at special rate of postage provided for in section 1103,
Act of October 3, 1917, authorized July 12, 1918*

REGISTRATION INSTRUCTIONS

NEW FRESHMEN AND ADVANCED STANDING STUDENTS

WINTER QUARTER, 1936-37

Saturday, January 3, 1937 (8:30 a.m. to 12:00 noon)

Monday, January 4, 1937 (8:30 a.m. to 4:30 p.m.)

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.
2. Report to the University Armory, 17th Street at University Avenue, for matriculation.

Freshmen present admission certificate, aptitude test card, English assignment card and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing, aptitude test card and physical examination appointment slip.

You will receive a Combined Class Schedule. Fresh., soph., and unclassified will receive registration blanks. Juniors and seniors will receive registration blanks when they report for registration.

3. Report for registration:
Freshman and Sophomores, 113 Folwell Hall.
Juniors and Seniors, 219 Folwell Hall.
Unclassified, 219 Administration Building.
4. Report to 106 Folwell Hall to have your registration blank tallied.
5. Report to a fee statement table in the University Armory to turn in your registration blank. You will be required to present your admission certificate. You will be given a statement of your winter quarter fees.
6. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.
7. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing. Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.

COLLEGE OF EDUCATION:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.

2. Report to the University Armory, 17th Street at University Avenue, for matriculation.

Freshmen present admission certificate, aptitude test card, English assignment card and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing and physical examination appointment slip.

You will receive registration blanks for winter and spring quarters, a Combined Class Schedule, and memorandum of year's registration. Advanced standing students who wish to register for practice teaching winter or spring quarter should request a practice teaching card and instructions.

3. Report to your major adviser for registration. Department major advisers' names and offices are listed on your memorandum of year's registration. Your registration blank must be approved by an adviser.
4. Report to Checking Desk outside 208 Burton Hall. Make an appointment to take the educational psychological examination which is required of all students entering the College of Education.
5. Report to Tally Desk, 106 Folwell Hall (unless registration blank was stamped tallied at Checking Desk).
6. Report to fee statement table in the University Armory to turn in your registration blank. You will be asked to present your admission certificate. You will receive a statement of your winter quarter fees.
7. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.
8. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing. Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.
A passing grade in qualifying examinations is required of all students as a prerequisite to the work in the senior year in the College of Education. All registrations in student teaching, or courses involving student teaching or faculty supervision, are tentative and subject to cancellation for all students who have not received a passing mark in all four of these examinations. Watch Official Bulletin, *Minnesota Daily*, for announcement of time and place of examinations.

COLLEGE OF PHARMACY:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.
2. Report to the University Armory, 17th Street at University Avenue, for matriculation, and to obtain statement of fees.

Freshmen present admission certificate, aptitude test card, English assignment card and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing and physical examination appointment slip.

3. Report to Bursar's Office, Administration Building, and pay fees.
4. Report to 101 Pharmacy Building for registration. You will be asked to present your paid fee receipt before registering. Registration and payment of fees should be completed before 4:30 p.m., Monday, January 4, to avoid late fees.

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.

2. Report to 203D Administration Building, University Farm, for registration.

Freshmen present admission certificate, aptitude test card, and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing, aptitude test card and physical examination appointment slip.

3. Pay fees at Cashier's Office, University Farm, before 4:30 p.m., Monday, January 4, to avoid late fees.

GENERAL COLLEGE:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.

2. Report to the University Armory, 17th Street at University Avenue, for matriculation, and to obtain registration material.

Freshmen present admission certificate, aptitude test card, and physical examination appointment slip.

Advanced standing students present admission certificate and physical examination appointment slip.

3. Report to 200 Wesbrook Hall for registration. Your registration blank must be approved by an adviser.

4. Report to one of the fee statement tables in the Armory to turn in your registration blank and receive a statement of your winter quarter fees. When you turn in your registration blank, you will be asked to present your admission certificate.

5. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.

6. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing.

Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.

DENTAL HYGIENE:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.

2. Report to the University Armory, 17th Street at University Avenue, for matriculation, and to obtain statement of fees.

Freshmen present admission certificate, aptitude test card, and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing and physical examination appointment slip.

3. Report to Bursar's Office, Administration Building, and pay fees.

4. Report to 106 Medical Sciences Building for registration. You will be asked to present your paid fee receipt before registering. Registration and payment of fees should be completed before 4:30 p.m. Monday, January 4, to avoid late fees.

SCHOOL OF NURSING:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.

2. Report to the University Armory, 17th Street at University Avenue, for matriculation.

Freshmen present admission certificate, aptitude test card, and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing, aptitude test card and physical examination appointment slip.

Freshmen will receive fee statements which should be paid at the Bursar's Office, Administration Building before reporting for registration.

3. Report to 125 Medical Sciences Building for registration. Advanced standing students will turn in their approved registration at the Armory to obtain statement of fees.

4. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.

5. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing. Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.

INSTITUTE OF TECHNOLOGY:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.

2. Report to the University Armory, 17th Street at University Avenue, for matriculation, and to obtain statement of fees.

Freshmen present admission certificate and physical examination appointment slip.

Advanced standing students present admission certificate, record of advanced standing and physical examination appointment slip.

3. Report at 8:30 a.m. Monday, January 4, to 206 Main Engineering Building, for identification photograph. Obtain receipt.
4. Report for registration (8:30 a.m. to 12:00 noon, Monday, January 4). Present fee statement and receipt for photograph.

Engineering and Architecture	135 Main Engineering Building
Chem., Ch. Eng., Physics	127 Chemistry Building
Mines and Metallurgy	103 Mines Building

5. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.
6. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing. Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.

LAW, DENTISTRY, BUSINESS ADMINISTRATION (Advanced standing students only):

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.
2. Report to the University Armory, 17th Street at University Avenue, for matriculation and to obtain statement of fees. Present admission certificate, record of advanced standing and physical examination appointment slip.
3. Report to Bursar's Office, Administration Building, to pay fees.
4. Report to college office and complete registration by 4:30 p.m. Monday January 4:

Law School	214 Law Building
School of Dentistry	149 Medical Sciences Building
School of Business Administration	113 Business Administration

MEDICAL SCHOOL, MEDICAL TECHNOLOGY (Advanced standing students only):

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.
2. Report to the University Armory, 17th Street at University Avenue, for matriculation and to obtain registration material. Present admission certificate, record of advanced standing and physical examination appointment slip.
3. Report to 136 Medical Sciences Building for registration.

4. Report to a fee statement table in the University Armory to turn in your registration blank and obtain statement of fees.
5. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.
6. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing. Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.

UNIVERSITY COLLEGE:

1. Report at 8:30 a.m. Saturday, January 2, to the Students' Health Service, University of Minnesota Hospitals, for physical examination.
2. Report to the University Armory, 17th Street at University Avenue, for matriculation and to obtain registration material. Present admission certificate, record of advanced standing and physical examination appointment slip.
3. Report to 143 Physics Building for registration.
4. Report to tally desk, 106 Folwell Hall.
5. Report to Window 19, Registrar's Office for fee statement.
6. Report to Bursar's Office, Administration Building, and pay fees before 4:30 p.m. Monday, January 4. Fees may be paid by mail and should be post-marked on or before January 4 to avoid late fees. When paying by mail, enclose your fee statement (all three copies) and your check or money order for the exact amount payable to the University of Minnesota. Envelopes should be addressed to the Bursar, University of Minnesota, Minneapolis, Minn.
7. Report to classes Tuesday, January 5. Receipts for payments received by mail will be placed in the post office box assigned, the number of which will be posted in the basement of the Administration Building about the third day after mailing. Students should save their fee receipts throughout the quarter and have them available to present to instructors and others upon request.

READ THE FOLLOWING ITEMS CAREFULLY—THEY MAY SAVE YOU UNNECESSARY DELAY AND INCONVENIENCE.

- a. You are strongly advised to take the required tests and obtain your admission certificate before coming to the University.
If you have not written the tests, arrange to come to the University before the registration period begins, if possible, to write these tests. Appointments for the tests may be made at 310 Northrop Memorial Auditorium at any time.
- b. If you do **not** have your admission certificate, but one has been issued to you, a duplicate may be obtained at Windows 18-20, Registrar's Office, first floor, Administration Building.
- c. If you have **not** received an admission certificate, and have had your credits forwarded from the last school attended, report to the Board of Admissions,

Windows 18-20, Registrar's Office, first floor, Administration Building, for an admission certificate.

- d. If you have **lost your aptitude test card**, a duplicate may be obtained in Room 310 Northrop Auditorium.
- e. If you need to write the college aptitude test, English placement test, and English theme (either the first two tests or all three) make appointment at 310 Northrop Auditorium to take these tests, preferably during the fall. If it is not convenient to report earlier these tests may be taken Saturday, January 2 at 9:00 a.m. in Room 133 Physics Building.
If you have taken the college aptitude test and need only to write the English theme make appointment to write the theme at 310 Northrop Auditorium during the fall. If it is not convenient to report earlier the theme may be written at 136 Physics Building at 9:00, 10:00, or 11:00 a.m. Saturday, January 2.
- f. If these tests are not written before coming to the University, some delay must be expected due to the time necessary for scoring the tests, reading the theme, and classifying you for your English course. As soon as you have completed the tests, you may receive your admission certificate, but **BEFORE** you report to the Armory and **not less than 36 hours** after the theme has been written, you must report to 219 Folwell Hall for your English classification.
- g. If you received an English classification card by mail and need a duplicate, report to Room 219 Folwell Hall.
- h. If you wish special advice before proceeding with your registration, members of the faculty will be available for consultation in the University Armory, and the Committee on Vocational Counseling will be available in Room 310 Northrop Auditorium.

PLEASE NOTE ESPECIALLY

Do not report to the Armory without the credentials referred to in the instructions.

Do not report to the Registrar's Office for an admission certificate until after you have written the tests if required.

Do not report for your program for the fall quarter without your card for assignment in English.

Do not report for your assignment in English until you have written the college aptitude test, the English placement test, and the English theme, and at least 36 hours have elapsed to permit the English classification to be made.

DURING REGISTRATION DAYS BULLETINS AND GENERAL INFORMATION MAY BE OBTAINED AT THE TICKET BOOTH, EAST ENTRANCE (17th AVENUE) ADMINISTRATION BUILDING.

If your credentials are not on file in the Registrar's Office, immediate arrangements (by telephone or telegraph) should be made to have credits and honorable dismissal forwarded. Provisional admission may be arranged on Tuesday, January 5 on payment of the usual fee for late registration provided adequate assurance can be given that credentials will be received within a reasonable period and will prove satisfactory.

R. M. WEST, Registrar.



Dean W. C. COFFEY

University Farm, St. Paul
December 28 to January 1, 1937

Vol. XXXIX

No. 60

December 8, 1936

Entered at the post office in Minneapolis as second-class matter
Minneapolis, Minnesota. Acceptance for mailing at special rate of postage
provided for in Section 1103, Act of October 3, 1917, authorized
18

OFFICERS

LOTUS D. COFFMAN, president, University of Minnesota

W. C. COFFEY, dean and director, Department of Agriculture

L. A. CHURCHILL, in general charge, Farm and Home Week

MRS. LEONA NELSON, assistant registrar, University of Minnesota

H. L. HARRIS, Publicity, Department of Agriculture

THE COVER PAGE

Dean Coffey's picture has the place of honor on this Farm and Home Week program booklet because of the outstanding recognition accorded him only last month by the American Society of Animal Production. Each year, during the International Livestock Exposition at Chicago, the society dedicates its annual dinner and program to one pre-eminent livestock leader, chosen from the nation at large, and presents an oil portrait of him to the famous Saddle and Sirloin Club for its Hall of Fame. Through Dean Coffey's selection this year, says a recent editorial in THE FARMER, "the prestige of the Minnesota College of Agriculture is enhanced, and the entire state honored."

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INFORMATION

Where to Register.—Room 100, Administration Building. There is no charge for registering, and everyone is urged to do so promptly. You will be supplied with a badge, which will indicate your registration, serve as a means of identifying you as a member of Farm and Home Week, and admit you to all classes. Registration will aid in locating you in case of emergency and will place you on the University Farm mailing lists to receive announcements of future short courses, new bulletins, etc.

Meals.—Meals may be obtained at the University Farm cafeteria. During the noon hour a special plate luncheon will be served in addition to the regular cafeteria service. Serving hours: Breakfast, 7:30-8:30; dinner, 11:00-1:30; supper, 5:00-6:30. In addition, campus student organizations will serve luncheons on the campus.

Sleeping Rooms.—Arrange for these through the housing bureau, Farm and Home Week headquarters, Room 102, Administration Building.

Your Mail.—You may get mail during the short course by having it addressed to you General Delivery, University Farm, St. Paul. The post office is on the first floor, Administration Building.

Information Desk.—Information service will be available to all Farm and Home Week visitors in the Y.M.C.A. office, Room 109 on the first floor of Administration Building. Some member of the staff, assisted by a service committee, will be on hand at all times to supply you with information concerning Farm and Home Week and to be of service to you in any way possible. Use this service to assist you in locating classes, or to assist you in any way it can.

Old-Fashioned Singing School.—Conducted each evening except Friday, from 6:30 to 7:00 in the Auditorium, Administration Building.

Ten-Year Club.—The Ten-Year Club members will have as a meeting place this year Room 109, Administration Building. All members of the Ten-Year Club and others who have attended at least nine previous short courses are urged to make this room their headquarters and meeting place during Farm and Home Week. A meeting of this group will be held at 9:30 on Tuesday, December 29.

Grange Headquarters.—The Grange will share Room 109, Administration Building, with the Ten-Year Club. Grange members from this state and other states will find this an ideal place to meet members from other chapters.

Free Bulletins.—Arrange to get needed bulletins while you are at University Farm. A display will be located in the hallway of the second floor of the Administration Building. An attendant will assist you.

Soil Conservation Program.—Bring your questions about the agricultural conservation program to Room 202 Administration Building. A representative of the AAA and one or more members of the state agricultural conservation committee will be there during short course hours. See page 14 for announcements of meetings.

State One-Act Play Contest.—District winners in the rural one-act play contest are scheduled to compete for the state championship on Tuesday from 4:00 to 5:00 and Wednesday and Thursday from 4:00 to 6:00 p.m. It will be held in the auditorium and will be open to everybody.

Campus Tours.—On four days of the short course tours of the campus will be conducted. The tours will begin at 4:30 p.m. promptly from the short course office. The divisions to be visited are: Monday, Veterinary; Tuesday, Agricultural Biochemistry; Wednesday, Home Economics and Dairy; Thursday, Agricultural Engineering.

Holiday Festival.—The annual Monday night mixer will be called a Holiday Festival this year. An international theme will be followed and games of many lands will be played, dances of foreign lands will be demonstrated, holiday sweets of foreign lands will be served, and the Farmer Chorus of the Webb Publishing Company will sing folk songs typical of many nations. If you have a foreign costume, the committee is asking you to wear it that night.

Crop Improvement Day Banquet.—At the annual banquet of the Minnesota Crop Improvement Association to be held Wednesday night, Minnesota's recently selected Premier Seed Growers will be announced and given special recognition.

School of Agriculture Alumni Dinner.—Tuesday evening alumni of the School of Agriculture will attend the annual alumni banquet which is to be held at 5:30 in the party dining room of the college cafeteria. This informal get-together of school alumni will be over in time so members can attend the evening program.

Stay Over for Saturday.—No program is scheduled for Saturday, January 2, but University Farm staff members will be in their offices to receive you for conferences on individual programs. Stay over to take advantage of this chance to talk over your farm and home problems with these specialists.

Lost and Found.—This department is conducted at the post office, Administration Building. Please leave there articles found, or inquire there in case of loss.

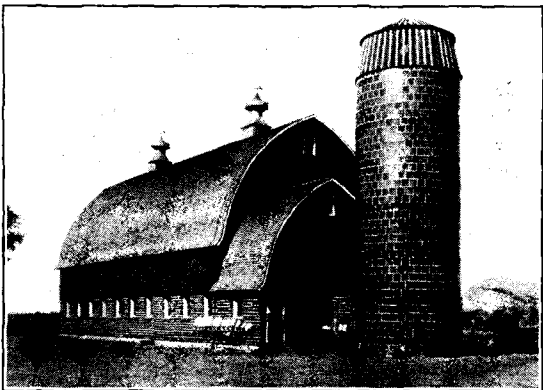
Where to Kick.—The Farm and Home Week headquarters are open all during the week and will be glad to be of service in any way possible. Bring your complaints, suggestions, and criticisms to Room 105A.

Farm and Home Week Supper.—This will occur Friday evening and is the only one of the five big evening entertainments for which there is any cost, a charge of 65 cents being necessary to cover expense of food. Tickets may be obtained at Room 105A, Administration Building and should be purchased early. Only a limited number of tickets are available and there is always a big demand.

Farm Bureau Convention.—Tuesday will be Farm Bureau Day at the short course. The day's program is given in full in this booklet, and all short course visitors are invited. The remainder of the annual Farm Bureau Convention will be held at the Hotel Lowry on Wednesday and Thursday. For meetings of other organizations during Farm and Home Week, see schedule on page 29.

Rest Quarters.—The Agricultural Union, located in the old dairy building, will be open to short course visitors. Here visitors will be able to relax in comfort.

Free Baggage Transportation.—For short course visitors who will be coming out to University Farm by street car from either St. Paul or Minneapolis, a free baggage transportation service is to be conducted from a central point near the campus. Visitors are requested to get off the car at the intersection of Como and Carter avenues. Baggage can be left at the Park Cooperative Oil Station located on that corner. It will be gathered up there and taken to the Post Office at University Farm where it can be claimed by its owners.



❖ MONDAY ❖

Assembly Programs

Forenoon

Administration Building, Auditorium

DEAN E. M. FREEMAN presiding

- 12:30 Community Singing, led by MRS. LORAYNE PALARINE
 Address of Welcome by DEAN W. C. COFFEY
 Music by members of the St. Paul Playground Artists' Club

Evening

- 6:30 Old-Fashioned Singing School, MRS. LORAYNE PALARINE in charge

Agricultural Gymnasium

- 8:00 The Holiday Festival. Everyone come and get acquainted, sing folk songs, and play folk games of many countries. If you have a costume from a foreign country, please wear it.
 Music—Live again the songs of many nations
 Refreshments—Holiday sweets of many lands and the international beverage

Subject Matter Meetings

Animal Husbandry

Center Stock Pavilion

- 1:40 Demonstration—Judging Beef Cattle, W. H. PETERS
 2:30 Demonstration—Judging Sheep, P. A. ANDERSON
 3:00 Demonstration—Judging Hogs, E. F. FERRIN
 3:40 Demonstration—Judging Horses, A. L. HARVEY

Crop Production and Improvement

New Field House

- 1:40 Demonstration of threshing, cleaning and drying equipment used in experimental work by the Division of Agronomy and Plant Genetics
 3:40 Inspection of the corn and seed show of the Minnesota Crop Improvement Association. (Staff members of the Division of Agronomy and Plant Genetics will be on hand to discuss crop production problems with farmers.)

Monday—Continued**Dairy****Haecker Hall****Room 100**

- 1:30 Review of dairy experimental work in progress, Dairy Staff
- 3:30 The story told by dairy herd records, RAMER LEIGHTON

Home Economics**Home Economics Building****Room 203**

- 1:40 The homemaker and Farm and Home Week, MISS WYLLE MCNEAL
- 2:40 Social security act: pensions and old-age assistance, DONALD VAN POUGHNET, Director of Research and Statistics, State Board of Control
- 3:40 The control of household insects, H. L. PARTEN

Horticulture**Horticulture Building****Room 102**

- 1:40 Propagation of trees and shrubs, E. M. HUNT
- 2:40 Pruning—demonstration and practice, W. G. BRIERLEY
- 3:40 Grafting—demonstration and practice, E. ANGELO
- 4:30 Tour of horticulture greenhouse and exhibits

Poultry**Veterinary Building****Room 102**

- 1:40 What's new in poultry research? H. J. SLOAN
- 2:40 Record of performance work as a part of a poultry improvement program, W. K. DYER, Executive Secretary, Minnesota State Poultry Improvement Board
- 3:40 Suggestions for the control of poultry diseases, with special reference to fowl pox and laryngotracheitis, C. P. FITCH



❖ TUESDAY ❖

Assembly Programs

(The Assembly programs for 11:30 and for the afternoon and evening are joint sessions sponsored by the University Department of Agriculture and Minnesota Farm Bureau.)

Forenoon

Administration Building, Auditorium

F. J. BROWN presiding

8:10 Community Singing, led by W. A. PETERS
Personal Thoughts on Living, DEAN W. C. COFFEY

PRESIDENT F. W. WHITE presiding

11:30 Harmony Four

Community Singing, led by MRS. LORAYNE PALARINE
Invocation, REV. G. A. HAGSTROM

Address, Your Agricultural College in Your Business,
DEAN W. C. COFFEY

Report of Credentials Committee, J. L. MORTON, Chair-
man

Afternoon

VICE-PRESIDENT H. M. SWORD presiding

1:30 Harmony Four

President's Address, F. W. WHITE

Music by members of the St. Paul Playground Artists'
Club

Address, A Lot of Living, MISS MARY SUE WIGLEY,
Dawson, Alabama

Music by members of the St. Paul Playground Artists'
Club

Address, Where Is the Farm Bureau Going from Here?
EARL SMITH, President, Illinois Agricultural Asso-
ciation

Evening

6:30 Old-Fashioned Singing School, MRS. LORAYNE PALARINE
in charge

DIRECTOR JOHN WISDORF presiding

7:00 Amateur contest

Recognition Awards, A. G. MERENESS

Movie

Tuesday—Continued

Subject Matter Meetings

Agricultural Engineering

Agricultural Engineering Building

Room 107

- 8:40 What is soil conservation? C. O. ROST
Some effective methods of erosion control, H. B. ROE
- 9:40 Agricultural practices effective in erosion control, H. C. JACKSON, U. S. Conservation Service, Spring Valley
Some results of different methods of erosion control, ORVILLE E. HAYS and V. J. PALMER, Upper Mississippi Valley Erosion Experiment Station, La Crosse, Wisconsin
- 10:40 Effect of erosion control practices on farm management, M. A. THORFINNSEN
What erosion control has done for my farm, H. AUGUST LOHMANN, Zumbrota

Animal Husbandry

Center Stock Pavilion

- 8:40 When feed must be purchased, what feeds should be bought? W. H. PETERS
- 9:40 Improving market stock by breeding, L. M. WINTERS

Community Leadership

Agricultural Engineering Building

Room 217

- 8:40-10:00 What are needs to be met in building programs in rural communities? Discussion led by A. E. ENGBRETSON and A. J. KITTLESON
- 10:00-10:30 Community music problems. Discussion led by MRS. LORAYNE PALARINE, Director of Social Recreation, St. Paul Department of Parks and Playgrounds
- 10:30-11:30 Analysis of needs in program building, discussion resumed

Crop Production and Improvement

Agricultural Engineering Building

(In cooperation with the Division of Agricultural Engineering, Division of Soils, and the U. S. Soil Conservation Service.)

Room 107

- 8:40 What is soil conservation? C. O. ROST
Some effective methods of erosion control, H. B. ROE

Tuesday—Continued

- 9:40 Agricultural practices effective in erosion control, H. C. JACKSON, U. S. Soil Conservation Service, Spring Valley
Some results of different methods of erosion control, ORVILLE E. HAYS and V. J. PALMER, Upper Mississippi Valley Erosion Experiment Station, La Crosse, Wisconsin
- 10:40 What erosion control has done for my farm, H. AUGUST LOHMANN, Zumbrota

Dairy**Haecker Hall****Room 100**

- 8:40 Dairy herd feeding and management for 1937, H. R. SEARLES
- 9:40-11:30 Pasture and roughage crops, R. F. CRIM

4-H**Agricultural Engineering Building**

(Joint session with community leadership)

Room 217

- 8:40-11:30 What are needs to be met in building programs in rural communities? Discussion led by A. E. ENGBRETSON and A. J. KITTLESON
A half hour will be devoted to community music problems, by MRS. LORAYNE PALARINE
- 6:00 4-H leaders' dinner (place to be announced)

Home Economics**Home Economics Building****Room 203**

- 8:40 Fitting the new to the old: furniture, rugs, etc., MISS HARRIET GOLDSTEIN
- 10:40 Electricity in the home, MISS MARY MAY MILLER

Horticulture**Horticulture Building****Room 102**

- 8:40 Tour of horticulture greenhouses and exhibits
- 9:00 The use and marketing of woodlot products, L. W. REES
- 9:40 The farm shelterbelt, H. L. HANSEN
- 10:40 Rehabilitation of the farm woodlot, PARKER O. ANDERSON

Tuesday—Continued**Poultry****Veterinary Building****Room 102**

- 8:40 Rations that lower feeding costs, H. J. SLOAN
- 9:40 How, when, and where should I buy chicks? T. H. CANFIELD
- 10:40 Feeding and management of growing chicks, MISS CLARA SUTTER, Poultry Field Editor of The Farmer and Farm Stock and Home, St. Paul

Rural Youth**Agricultural Engineering Building****Room 106**

- 8:40 Music for yourself, MRS. LORAYNE PALARINE
- 9:40 Seeing yourself as others see you, C. GILBERT WRENN, Assistant Director, General College, University of Minnesota
- 10:40 A challenge to rural young people, F. W. PECK

School of Agriculture**Old Dairy Building****Room 203**

- 8:40 Parliamentary law—conducting a public meeting, W. H. DANKERS
- 9:40 Psychology—personality development, RALPH MILLER (Room 204)
- 10:40 Social behavior in the home, MISS JOHANNA HOGNASON
- 5:30 School of Agriculture Alumni Dinner (Party dining room, Cafeteria Building)



❖ WEDNESDAY ❖

Assembly Programs

Forenoon

Administration Building, Auditorium

F. J. BROWN presiding

- 8:10 Community Singing, led by W. A. PETERS
 Personal Thoughts on Living, DEAN W. C. COFFEY

Afternoon

F. W. PECK presiding

- 12:30 Community Singing, led by MRS. LORAYNE PALARINE
 Address—What's What in Europe, DR. EMIL LENGYEL,
 international newspaper correspondent on foreign af-
 fairs
 Jubilee Singers

Evening

- 6:30 Old-Fashioned Singing School, MRS. LORAYNE PALARINE
 in charge
 L. A. CHURCHILL presiding
- 7:00 Address—As Great Britain Looked to Me, DR. ANDREW
 BOSS
 Melody Portraits—a musical dramalogue growing from
 a family discussion of music and dancing in America
 from colonial times to the present. Rural youth
 groups will present typical music and dances popular
 at some time in America.

Subject Matter Meetings

Agricultural Conservation

Administration Building, Auditorium

- 8:40-4:00 J. B. HUTSON, assistant administrator, AAA, and
 representatives of the State Committee will present in-
 formation concerning the 1937 agricultural conservation
 program, state, regional and national, and its relation to
 the 1936 program.

Agricultural Engineering

Room 107 *Agricultural Engineering Building*

- 8:40 Tractor fuels and lubrication, C. N. HINKLE, Standard
 Oil Company
- 9:40 Diesel engines for farm tractors, B. J. ROBERTSON
- 10:40 High compression engines for farm tractors, GEORGE
 KRIEGER, Ethyl Gasoline Corporation

Wednesday—Continued

- 1:40 Utilizing modern farm equipment, WILLIAM BOSS
- 2:40 Exhibition: building construction, materials, equipment, machinery, and tractors, J. B. TORRANCE, C. H. CHRISTOPHERSON
- Motion pictures—Diesel tractors, L. S. BURDICK, Caterpillar Tractor Co.

Animal Husbandry**Swine Program****East Stock Pavilion**

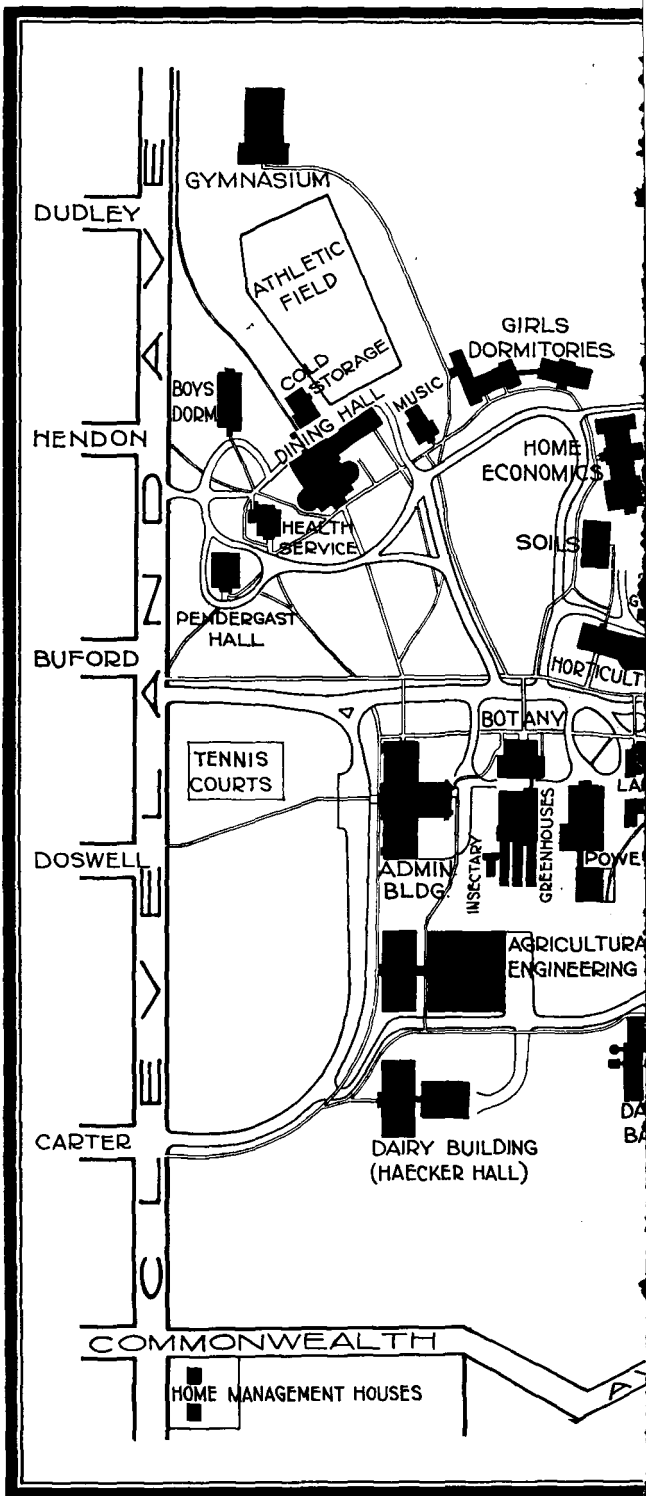
- 8:40 Selecting brood sows, H. G. ZAVORAL
- 9:40 Low-cost rations for sows, E. F. FERRIN
- 10:40 How we manage hog production, H. E. BLES, Field Manager, Fairmont Canning Company
- 11:00 Meeting, Spotted Poland China Swine Breeders' Association, Room 1, Stock Pavilion
- 1:40 "Necro"—a serious swine problem in Minnesota, H. C. H. KERNKAMP
- 2:40 Hog feeding results at the Minnesota Experiment Station, E. F. FERRIN
- 3:30 Meeting, Minnesota Swine Breeders' Association

Beef Cattle Program**West Stock Pavilion**

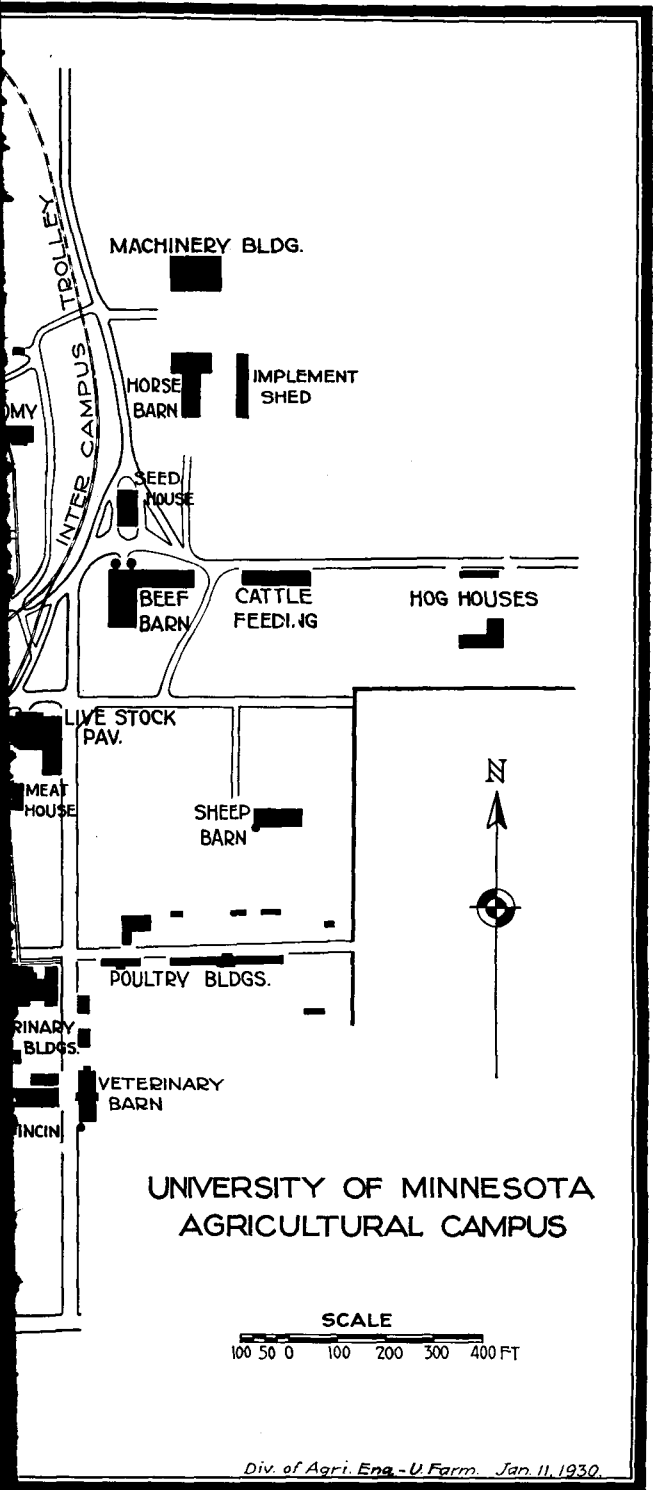
- 8:40 The selection and purchase of the beef sire, W. H. PETERS
- 9:40 Using more roughage and less grain in beef production, W. E. MORRIS
- 10:40 The present status of Bang's disease control in Minnesota, C. P. FITCH
- 1:40 The beef cattle market outlook, N. K. CARNES, Manager, Central Cooperative Association
- 2:40 Canning factory by-products as feeds for beef cattle, H. E. BLES
- 3:40 How should young beef calves be fed? W. H. PETERS

Community Leadership**Agricultural Engineering Building****Room 103**

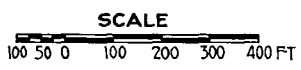
- 8:40-10:00 How can needs be met in building community programs? Discussion led by MISS CHARLOTTE KIRCHNER
- 10:00-10:30 Community music problems. Discussion led by MRS. LORAYNE PALARINE
- 10:30-11:30 Building community programs, discussion resumed



Note: New Field



UNIVERSITY OF MINNESOTA
AGRICULTURAL CAMPUS



Div. of Agri. Eng. - U. Farm. Jan. 11, 1930.

own on this map as Seed House.

Wednesday—Continued**Crop Production and Improvement****New Field House**

- 8:40 Presidential address, EMIL WAGNER, President, Crop Improvement Association, Ada, Minnesota
- 9:40 Plant genetics, the basis for crop improvement, W. M. MYERS
- 10:40 How new crop varieties are made to order, F. R. IMMER
Why we have crop varieties, E. R. AUSEMUS
- 1:40 Why does the disease problem change? J. J. CHRISTENSEN
- 2:40 Quality in wheat and barley, its significance and how it is measured, C. H. BAILEY
Improving the market quality of our grain crops, W. W. BROOKINS
- 3:40 Crop Improvement Association meeting
- 6:30 Crop Improvement Association banquet, Curtis Hotel, Minneapolis

Dairy**Haecker Hall****Room 100**

- 8:40 Raising dairy calves and heifers, T. W. GULLICKSON
- 9:40 New facts on feeding dairy cattle, N. N. ALLEN
- 10:40 Breed characteristics and dairy types, J. B. FITCH
- 1:40 Milk as a food, L. S. PALMER
- 2:40 Dairy cattle judging contest, E. A. HANSON in charge, Classroom Dairy Barn. Contest open to cow testers, farmers and general public

4-H**Agricultural Engineering Building****Room 217**

- 8:40 What is a typical 4-H club? T. A. ERICKSON
Reports from the outstanding typical clubs of 1936
- 10:40 Music in the typical club program, MRS. LORAYNE PALARINE
- 11:00 How can all members of typical club participate in health activity? Typical club representatives
- 2:40 How do typical clubs participate in activities? T. A. ERICKSON and R. H. GIBERSON
- 3:40 The typical club meeting—a demonstration, MILDRED SCHENCK and A. J. KITTLESON

Wednesday—Continued**Home Economics****Home Economics Building****Room 203**

- 8:40 Meats, new ways of cutting meat and grading, P. A. ANDERSON
Cooking cuts of meat, MISS ALICE CHILD
- 10:40 What shall guide us in buying fabrics? MISS ETHEL PHELPS
(The meat grading laboratory will be open from 1:00 to 4:30, Room 207, Home Economics Building. A. J. NAEGELI, U. S. Department of Agriculture, in charge.)
- 1:40 Rural credit as it affects the whole family, MISS JULIA NEWTON, Farm Credit Administration
- 2:40 Corrective diets, MISS HOPE HUNT
- 3:40 Combining paper and paint, MISS VETTA GOLDSTEIN

Horticulture**Horticulture Building****Room 102**

- 8:40 Tour of horticulture greenhouses and exhibits
- 9:00 The future of vegetable growing in Minnesota, F. A. KRANTZ
- 9:40 Vegetables for northern Minnesota, T. S. WEIR, Instructor, North Central School of Agriculture, Grand Rapids
- 10:05 Rutabaga production, M. J. THOMPSON, Superintendent, Northeast Experiment Station, Duluth
- 10:40 Pests of the vegetable garden, H. L. PARTEN
- 1:40 The place of the vegetable garden in the farm economy, MRS. SYLVIA SHIRAS, Associate State Director in charge of home economics, Rural Resettlement Administration
- 2:05 Irrigation for the farm garden, J. D. WINTER
- 2:40 New developments in vegetable varieties, T. M. CURRENCE
- 3:05 The herb garden, A. E. HUTCHINS
- 3:40 Maintenance of garden fertility, C. O. ROST
- 4:05 Storing of vegetables, E. M. HUNT

Poultry**Veterinary Building****Room 102**

- 9:40 What kind of turkeys should be grown for market? O. A. BARTON, Professor of Poultry Husbandry, North Dakota State College of Agriculture
- 10:40 Successful practices to be followed in growing turkeys, W. A. BILLINGS
- 1:40 Feeding turkeys for growth and market, O. A. BARTON

Wednesday—Continued**Rural Youth****Agricultural Engineering Building****Room 106**

- 8:40 Music for your organization, MRS. LORAYNE PALARINE
9:40 Developing our educational program, MISS ELLA J. ROSE
10:40 Reading as a hobby, MISS BESS ROWE, Editorial Field Service, The Farmer's Wife
11:40 Report of state advisory committee
1:40 Travel talks by foreign students in the University
3:10 Round table discussion, "What is our part in community activities?"

School of Agriculture**Old Dairy Building****Room 203**

- 8:40 Parliamentary law, rules of procedure, W. H. DANKERS
9:40 Psychology, group direction, RALPH MILLER (Room 204)
10:40 Social behavior in public places, MISS JOHANNA HOGNASON
1:40 The farm family and education, J. O. CHRISTIANSON
2:40 Government tax money, where it comes from and where it goes, R. H. GRAY (Room 204)
3:40 Music, demonstration of musical instruments and their uses, D. W. BOLAND



❖ THURSDAY ❖

Assembly Programs

Forenoon

Administration Building, Auditorium

F. J. BROWN presiding

- 8:10 Community Singing, led by W. A. PETERS
 Personal Thoughts on Living, DEAN W. C. COFFEY

Afternoon

MISS WYLLE McNEAL presiding

- 12:30 Community Singing, led by MRS. LORAYNE PALARINE
 Address—Public Opinion and Propaganda, DR. HELEN REID, European traveler and student of international law
 Flute Solo, MARY ELIZABETH ROBERTS

Evening

- 6:30 Old-Fashioned Singing School, MRS. LORAYNE PALARINE in charge
 J. O. CHRISTIANSON presiding
- 7:00 News Reels and Travelogues
 Music—School of Agriculture Faculty
 Address—Education for Farm Young People, DR. HAROLD BENJAMIN, Director Adult Education, University of Minnesota
 Address—Youth and Present Day Crime, REV. ROY E. OLSON, Prison Chaplain, Lutheran Church of America
 Music—School of Agriculture Faculty

Subject Matter Meetings

Agricultural Economics

Room 109

Haecker Hall

- 8:40 Planning the farm layout, S. B. CLELAND
- 9:10 Eight years of farm records, how they grow in value, S. B. CLELAND and STANLEY NEWHALL, farmer, Owatonna, Minnesota
- 10:40 What is a good farm lease? G. A. POND
- 11:40 Seasonal changes in prices and marketing, W. C. WAITE
- 12:40 The farmer's job in cooperative marketing, F. W. PECK
- 1:30 Forum discussion: the farmer and foreign trade, D. C. DVORACEK

Thursday—Continued**Agricultural Engineering**

Agricultural Engineering Building

Room 107

- 8:40 The importance of good paint, C. H. CHRISTOPHERSON
 9:40 New developments in farm fences, L. W. NEUBAUER
 10:40 Select your plans and builder carefully, H. B. WHITE
 1:40 Wiring the farmstead, WM. A. RITT, Secretary, Minnesota Electrical Council
 2:40 Individual plants for the farm, A. G. TYLER
 Power requirements for farm electrical appliances,
 J. ROMNESS
 3:40 Practical uses of electricity on the farm, L. P. ZIMMERMAN

Animal Husbandry**Horse Program**

Center Stock Pavilion

- 8:40 Feeding horses in 1937, W. H. PETERS
 9:40 Horse use in the British Isles, ANDREW BOSS
 10:40 How to improve fertility in horses, W. L. BOYD
 1:40 The horse average farmers want—1937 models, WAYNE DINSMORE, Secretary, Horse & Mule Association of America
 2:40 Horse breeding in Belgium, L. V. WILSON
 3:40 Stallion service fees and how to collect them, A. L. HARVEY
 4:00 Business meeting, Minnesota Horse Breeders' Association

Sheep Program

West Stock Pavilion

- 8:40 Sheep types and breeds suited to Minnesota, P. A. ANDERSON
 9:40 Profitable and unprofitable sheep management practices
 W. E. MORRIS
 10:40 How much hay and how much grain should be fed to a fattening lamb? W. H. PETERS

Room 3

Stock Pavilion

- 1:40 The sheep, lamb and wool outlook, J. B. McNULTY
 2:40 Moving picture: Wool from the sheep to the woolen mill
 3:00 Business meeting Sheep Breeders' Association

Community Leadership

Agricultural Engineering Building

Room 103

- 8:40 A functioning rural organization—how can we achieve it?
 Discussion led by C. L. McNELLY

Thursday—Continued

- 10:00-10:30 Community music problems. Discussion led by
MRS. LORAYNE PALARINE
- 10:30-11:30 How to achieve a functioning rural organization,
discussion resumed

Crop Production and Improvement**New Field House**

- 8:40 New pasture grasses—their performance and possible
value in Minnesota, H. K. SCHULTZ
Increasing the returns from pastures, A. C. ARNY
- 9:40 Fertilizers for pastures, G. H. NESOM
- 10:40 The weed menace, A. H. LARSON
- 1:40 New problems in corn improvement, I. J. JOHNSON
New corn hybrids on the horizon, D. C. ANDERSON
- 2:40 The best corn hybrid for your farm, R. F. CRIM
Seed stocks available for production of corn hybrids in
1937, CARL BORGESON
- 3:40 Producing certified hybrid seed corn, R. E. HODGSON

Dairy**Haecker Hall****Room 100**

- 8:40 A genetic analysis of dairy herd records, LESTER O. GIL-
MORE
- 9:40 Discussion of results of ten-year breeding program and
inspection of dairy herd and experimental animals,
J. B. FITCH and dairy staff
- 1:40 Cow testers' conference (9 Haecker Hall)
- 1:40 Separate dairy breed association meetings. Anyone in-
terested is cordially invited to attend any of these
meetings, whether a member of an association or not.
- | | |
|-------------------------------|------------------|
| Ayrshire Breeders' meeting | 209 Haecker Hall |
| Brown Swiss Breeders' meeting | 210 Haecker Hall |
| Jersey Breeders' meeting | 210 Haecker Hall |
| Red Polled Breeders' meeting | 214 Haecker Hall |
- 3:40 Judging cheese, butter, and other dairy products, S. T.
COULTER (203 Home Economics)

4-H**Agricultural Engineering Building****Room 217**

- 8:40 How does the typical club direct project work? MAY
SONTAG and HENRY PFLUGHOEFT
- 10:40 Music in the typical club program, MRS. LORAYNE
PALARINE
- 2:40 How does the typical club use recreation in its program,
a demonstration, MISS AMY WESSEL
- 3:40 The typical club holds an achievement day, a demonstra-
tion, KENNETH INGWALSON

Thursday—Continued**Home Economics**

Room 203

Home Economics Building

- 8:40 Cooking vegetables to retain their essential qualities,
MRS. ROSALIND SIMON
- 9:40 Minnesota birds, WALTER BRECKENRIDGE, Curator, Uni-
versity of Minnesota
- 10:40 What farm women need to know about rural credit,
MISS JULIA O. NEWTON
- 1:40 Children and their food, MISS JANE M. LEICHSENRING
- 2:40 Education for home and family life, MISS CLARA M.
BROWN
- 3:40 Judging cheese, butter, and other dairy products, S. T.
COULTER

Horticulture**Potato Production and Improvement**

Room 8

Horticulture Building

- 8:40 Tour of horticulture greenhouses and exhibits
- 9:00 Future of potatoes in Minnesota, H. MATTSON
- 9:40 Potatoes as the inspector reports them, W. C. WAITE
- 10:10 Conference—Are potato cleaning machines practical?
R. C. ROSE, leader
- 11:00 Demonstration—potato cleaning and drying
- 1:40 Disease control through breeding resistant varieties,
J. G. LEACH
Potato breeding work in progress in the United States,
F. A. KRANTZ
- 3:10 Meeting of Potato Improvement Association

Ornamental Horticulture

Room 102

- 8:40 Growing plants in the farm home, L. SANDO
- 9:40 Five-year plan for planting the farm home, E. M. HUNT
- 10:40 Dependable perennials for Minnesota, T. S. WEIR
- 1:40 Use of vines in home planting, L. E. LONGLEY
- 2:40 Peonies for the farm garden, MISS MYRTLE GENTRY,
Peony Specialist, Brand Peony Farms, Faribault,
Minnesota
- 3:40 Some diseases of perennial flowers, MISS LOUISE DOS-
DALL
- 4:00 Question box on garden problems, Staff

Poultry

Room 102

Veterinary Building

- 8:40 Poultry production on the Pacific coast, MISS CORA
COOKE

- 9:40 Housing requirements for Minnesota hens, T. H. CANFIELD
- 10:40 The place of the poultry enterprise in the farm business, J. B. McNULTY and MISS CORA COOKE
- 1:40 Producing and marketing quality eggs, F. D. NEWELL, Poultry Produce Dept., De Soto Creameries, Minneapolis
- 2:40-4:30 Open forum—Members of the Poultry Division, MISS CORA COOKE and W. A. BILLINGS

School of Agriculture

Old Dairy Building

Room 203

- 8:40 Commercial law—probating an estate, W. H. DANKERS
- 9:40 How past civilizations tried to solve their problems in agriculture, ELMER JOHNSON (Room 204)
- 10:40 Farm figuring simplified, construction work and management, P. L. JOHNSRUD
- 1:40 Farm organization and education, J. O. CHRISTIANSON
- 2:40 Government, kinds of taxes, what control does average citizen have? R. H. GRAY (Room 204)
- 3:40 Music: organizing and directing a community band, D. W. BOLAND



❖ FRIDAY ❖

Assembly Programs

Forenoon

Administration Building, Auditorium

F. J. BROWN presiding

- 8:10 Community Singing, led by W. A. PETERS
 Personal Thoughts on Living, DEAN W. C. COFFEY

Afternoon

W. S. MOSCRIP, President of
 Livestock Breeders' Association, presiding

- 12:30 Music by members of St. Paul Playgrounds Artists' Club
 President's Address—W. S. MOSCRIP
 Address—P. O. HOLLAND, Business Manager, St. Olaf College
 Address—Some Foreign Observations, L. V. WILSON, Manager, Dayton Farm
 Meeting will then adjourn to Livestock Pavilion to view University Livestock Exhibits
 Address—Horsemotors, WAYNE DINSMORE, Secretary, Horse & Mule Association of America
 Address—Genetics and Its Influence on the Livestock Industry, L. M. WINTERS
 Business session, W. S. MOSCRIP presiding
 Report of Secretary-Treasurer
 Election of officers

Evening

- 5:45 Farm and Home Week Supper, W. C. COFFEY, Toastmaster
 Community Singing, led by MRS LORAYNE PALARINE
 Cornet Solo—D. W. BOLAND
 Recognition of Ten-Year Club Members and Master Farmers and Master Farm Homemakers
 Tenor Solo—Cecil Birder
 Vocal Solo—Member of St. Paul Playground Artists' Club
 Address—PRESIDENT L. D. COFFMAN

Subject Matter Meetings

Agricultural Economics

Room 109

Haecker Hall

- 9:40 Agricultural adjustments and the future, O. B. JESNESS
 10:40 Long-time production programs for Minnesota, S. B. CLELAND

Friday—Continued

- 1:40 Farm credit and the real estate situation, E. C. JOHNSON
(Auditorium)
- 2:40 The agricultural outlook, W. B. SILCOX (Auditorium)
- 3:40 Planning the farm program for 1937, ANDREW BOSS
(Auditorium)

Agricultural Engineering**Agricultural Engineering Building****Room 107**

- 8:40 Motion pictures on irrigation and soil erosion control,
H. B. ROE
- 9:40 Irrigation a coming feature in Minnesota agriculture,
O. W. HOWE
- 10:40 Timely features of farm drainage, H. B. ROE
- 1:40 Developing farms in northern Minnesota, M. J. THOMP-
SON
- 2:40 Engineered farm developments in southern Minnesota,
N. A. KESSLER

Animal Husbandry**Center Stock Pavilion**

- 8:40 Cutting and preparation of farm meats for home use,
P. A. ANDERSON

Community Leadership**Agricultural Engineering Building****Room 103**

- 8:40-10:00 The elements of a good community meeting, dis-
cussion led by MISS MAYBELLE GAME
- 10:00-10:30 Community music problems. Discussion led by
MRS. LORAYNE PALARINE
- 10:30-11:30 Demonstration of a good community meeting, led
by MISS MAYBELLE GAME

Crop Production and Improvement**Administration Building**

(With Entomology and Economic Zoology)

Room 301

- 8:40 Important injurious insects in 1936 and the forecast for
1937, T. L. AAMODT
Insect pest control organization, T. L. AAMODT
- 9:40 Control of rats and mice under farm conditions, H. L.
PARTEN
- 10:40 Farm and forest insects in relation to farm woodlot,
A. C. HODSON

Friday—Continued**New Field House**

- 1:40 How plants work for the farmer, H. K. WILSON
 2:40 Soil problems in relation to plant growth, C. O. ROST
 3:40 Up-to-date seed treatment, M. B. MOORE

Dairy**Haecker Hall****Room 100**

- 8:40 Conference hour on feeding and management of dairy herd, Dairy Staff
 9:40 Diseases and ailments of cattle—questions and answers, W. L. BOYD
 10:40 Competition among creameries, W. B. SILCOX
 2:40 The agricultural outlook, W. B. SILCOX (Auditorium)
 3:40 Planning the farm program for 1937, ANDREW BOSS (Auditorium)

4-H**Agricultural Engineering Building***(Joint session with Community Leadership)***Room 217**

- 8:40-10:00 The elements of a good community meeting, discussion and demonstration, led by MISS MAYBELLE GAME
 10:00-10:30 Community music problems, discussion, MRS. LORAYNE PALARINE
 10:30-11:30 Demonstration of a good community meeting, led by MISS MAYBELLE GAME

Home Economics**Home Economics Building****Room 203**

- 8:40 Canning demonstration: meats and other products, MISS INA ROWE
 10:40 The homemaker and the dietitian, MISS ALICE BIESTER
 1:40 Home accounts and how they may be used, S. B. CLELAND
 2:40 Home crafts and how to use them, Mrs. EDNA MATHIESON

Horticulture**Horticulture Building****Room 102**

- 8:40 Tour of horticulture greenhouses and exhibits
 9:00 The farm fruit garden, E. M. HUNT
 9:40 Fruit growing in Minnesota, T. S. WEIR
 10:05 Growing and marketing the cherry-plum, L. B. BASSETT

Friday—Continued

- 10:40 New developments in handling berries for market, J. D. WINTER
- 1:40 What is hardiness? W. G. BRIERLEY
- 2:05 Importance of understock, J. K. ANDREWS, Andrews Nursery, Faribault, Minn.
- How Varieties Respond to Cold:
- 2:40 Apples and plums, E. ANGELO
- 3:05 Pears, A. N. WILCOX
- 3:40 Small Fruits, F. P. DANIELS
- 4:05 Repairing the damage, W. G. BRIERLEY

Poultry

Members of the division will be in their offices for conferences with individual poultrymen.

School of Agriculture

Old Dairy Building

Room 203

- 8:40 Commercial law—making a will, W. H. DANKERS
- 9:40 How past civilizations tried to solve their problems in domestic life, ELMER JOHNSON (Room 204)
- 10:40 Farm figuring simplified (continued), P. L. JOHNSRUD

DIRECTORY OF ASSOCIATIONS AND CONFERENCES**Meeting at University Farm**

Meeting	Day	Hour	Building
Aberdeen-Angus Breeders	Thurs.	1:40	217 Haecker
Ayrshire Breeders	Thurs.	1:40	209 Haecker
Brown Swiss Breeders	Thurs.	1:40	210 Haecker
Crop Improvement Assn.	Wed.	1:40	New Field House
Duroc-Jersey Breeders	Wed.	1:40	Stock Pavilion, Rm. 3
Farm Bureau Federation	Tues.	11:30	Auditorium
Horse Breeders	Thurs.	4:00	Center Stock Pavilion
Jersey Breeders	Thurs.	1:40	210 Haecker
Livestock Breeders	Fri.	12:30	Auditorium
Master Farmers	Tues.	10:30	109 Administration
Milking Shorthorn Breeders	Thurs.	1:40	Stock Pavilion, East
Red Polled Breeders	Thurs.	1:40	214 Haecker
School of Agriculture Alumni Supper	Tues.	5:30	Party Dining Room
Sheep Breeders	Thurs.	3:00	Stock Pavilion, Rm. 3
Shorthorn	Thurs.	1:40	Stock Pavilion, Room 1
Spotted Poland China	Wed.	11:00	Stock Pavilion, Rm. 1
Swine Breeders	Wed.	3:30	Stock Pavilion, East
Ten-Year Club	Tues.	10:00	Y.M.C.A. Office

For information regarding these short courses, write to L. A. Churchill, University Farm, St. Paul, Minnesota.

Creamery.—January 7 through March 4. Offered to creamery operators. Includes laboratory and lecture instruction in a wide variety of dairy subjects such as butter making, testing of milk and milk products, dairy cattle management, etc.

Four-H Club Week.—June 8-11. During this annual 4-H boys' and girls' club week a program of helpful information for project work and interesting recreational events will be given.

Retail Meat Dealers Short Course.—January or February. A two-day course of lectures and demonstrations dealing with the cutting and merchandising of meats. Held in cooperation with the Minnesota Meat Dealers Association, with the assistance of the National Livestock and Meat Board.

Swine Feeders Day.—October or November. One-day meeting of lectures and demonstrations of timely subjects of interest and importance to the Minnesota swine grower.

Cattle Feeders Day.—May or June. Results of experiments in beef cattle breeding are presented. Lectures on subjects of importance to the beef cattle producer are given.

Farm Structures Conference.—March 5. Planned for country builders and dealers in building materials, but anyone may attend. Masonry, lumber and millwork, hardware, plastering, painting, plumbing, heating and lighting will be discussed.

Greenskeepers Short Course.—March 1-5. Formulated primarily to deal with the care and maintenance of golf courses, but also of interest to park keepers.

Veterinarians Short Course.—July 8 and 9, tentatively. Designed for the licensed practitioner. Held in connection with the Minnesota State Veterinary Medical Society.

Ice Cream Manufacturers Short Course.—March 15-20. Offered by the Dairy Division and will consist of lectures and laboratory periods on the composition of milk, preparation of the ice cream mix, principles of pasteurization, homogenization, freezing, etc.

Vegetable Growers Short Course.—January 25 to February 5. Important problems of vegetable production, such as soils, fertilizer, varieties, irrigation, pest control, market problems, etc. will be covered.

Horticulture Short Course.—March 23-25. Aids in the solution of the rural and home gardener's problems. Covers many phases of horticulture, such as propagation, pruning, grafting, culture, control of insects and diseases, etc.

Nineteenth Annual Short Course in Scouting Leadership.—Offered to local council officers. Held at University of Minnesota Forestry Camp, Itasca State Park, July 25-31. Write to Kenneth G. Benz, Region Ten Office, 1124 Minnesota Building, St. Paul, Minnesota.

SEE THESE EXHIBITS

Administration Building

Library—Exhibits showing some of the important work of the Agricultural Experiment Station

Third Floor—Museum of animals and insect collections, insects of economic importance, including household and those affecting health of man and animals

Agricultural Engineering Building

Room

20 and 37 Testing machine—power, rope, posts, compression, tensile strength

48 Farm buildings—plans, models, materials and conveniences

48 Model farmstead. Belt lacing and rope splices

49 Big-team hitch arrangements

49 Farm implements and tractors of many makes

103 Rural electrification—installation, equipment

Biochemistry Building

Second Floor—Exhibit of carbon, nitrogen, mineral and energy utilization by plants and animals, and the importance of the carbon, nitrogen and mineral cycles in the living processes

Industrial uses of farm products

Mounted animals showing results of lack of vitamins in diet

Forestry Building

Second Floor

Treating fence posts on the farm with wood preservatives

Effectiveness of farm windbreaks in reducing wind velocity

Haecker Hall

Dairy manufacture room—various machines used in processing dairy products

Effects on bones of cattle of deficiencies of minerals or vitamin D in rations

Horticulture Building and Greenhouses

Room 8—Materials for winter bouquets

Plant propagation exhibit

Gourd exhibit, herb exhibit

Potato cleaning machinery

New Seed House

Cleaning and treating seed—methods and results

Display of the Minnesota Crop Improvement Association—Pure Seed Show

Soils Building

Soil survey maps and bulletins

Fertilizer samples for lawns, gardens and farms

Facts about fertilizers and soil management

Testing of soils. Results of experiments

Veterinary Building

Specimens illustrating various animal diseases

